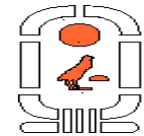




**International Centre
for Science and High Technology**

PHOTOENERGY CENTRE, AIN SHAMS UNIVERSITY



Photoenergy
Centre

INTERNATIONAL WORKSHOP

on

“PV Applications”

27-29 May 2002
Cairo, Egypt

Aide-Memoire

BACKGROUND

All renewable forms of energy including sun, wind and biomass will be an increasingly important source of future energy. Photovoltaic technology provides a reliable and in many cases a cost effective way of harvesting this solar energy. While a number of developing countries are reaping industrial and social benefits from the deployment of PV technology, many countries are still not gaining significant benefits from the extensive solar energy resources that are available. In order to exploit this resource, it is essential to increase research, development, commercialization and market awareness, and undertake prudent capital investments to increase the viability of PV applications.

The cost of PV systems has been a long-standing issue for PV applications, however, in recent times, the cost has decreased due to improvements in the efficiency of cells, improved manufacturing techniques and the larger market size. The trend is for photovoltaic systems to become quite competitive with the conventional power supplies and to have an increasingly important role in electricity generation in the future, especially in isolated zones. PV based systems are currently commercially competitive for a number of niche applications, but not for the daily essential needs of millions of people. Increasing the market size, producing cheaper cells and new technological developments will furthermore increase the competitiveness of PV technologies in these areas of North Africa and Middle East.

The viability of PV applications is also dependent on the skills available, and the planning tools that are accessible to the system designer. Cost effective solutions need to be capable of providing a balance between resource availability, generation systems, storage and other balance of system items according to the specific application. Reliable sources of PV modules and system components, that are of good quality and competitively priced is a fundamental prerequisite to increasing the utilization of PV in every application. Financial packaging will also become an important focal point for widespread replication.

JUSTIFICATION

The successful and sustainable application of photovoltaics requires the experience of specific knowledge and expertise during the project life cycle i.e. during the planning, design, product selection, PV components rating versus appliances fit verifications, control of all working limit conditions existing in the site etc. The creation of awareness and the dissemination of PV applications to improve basic knowledge and technology transfer, are all essential to ensure the sustainable development of photovoltaic solar technology and its numerous applications in developing countries.

The application of photovoltaic systems must take into account regional conditions, i.e. the resources available, the efficient energy use and demand management, and system optimization to ensure that cost-effective systems are developed. System knowledge, special skills in project development and the achievement of the various needs that may arise locally, are clearly critical in the sustainable and effective application of PV based systems.

The knowledge of the components market is also a critical parameter in establishing sustainable industrial applications on different activity sectors.

The world currently has approximately 2 billion people who do not have access to electricity by way of lighting during the night or who do not have the minimum quantity of water during a day for their survival; many of them do not have medical assistance or elementary education. It is known that many of these needs can be alleviated by numerous possible PV applications.

The forecast of the PV module demand by 2003 will be double of what the product is today (i.e. 442 MW_p in 2003). Developing countries that want to move towards this new technology have to face the problem of the correct awareness of the capability of PV application to give a solution to every human need.

In reality, photovoltaics is one technology that allows the production of electricity with only two components: one component being technological - which is a PV module and the other component being environmental – which is the sun. When a sunny location is chosen to install a PV application we have from our side the main important prerequisite of the useful exploitation of the PV energy.

The advantages of photovoltaics is that you can install a system anywhere that has sunlight beams, even if it is very far from an electric grid of distribution. In any case, the economical comparison between the cost of power from the grid and that from PV systems, is the cost of the electric grid installation and, above all, the cost of the electric losses due to power transportation along the grid; without taking in account the cost of the effect of combustion products as pollutants of the air.

As mentioned previously, in regions where petroleum or other fossil fuels are not available, and where the remote areas are not connected to the electrical grid, there is a strong and increasing demand for the technologies related to photovoltaic application systems and specially to water extracting and pumping systems, telecommunication systems, lighting systems, irrigation systems, electrical driven cars and trucks.

ICS, with its access to laboratories, and its international network clearly provides an ideal mechanism for developing relevant skills and diffusing among international industrial communities, interesting research issues and building industrial capacity.

OBJECTIVES OF CURRENT ACTIVITY

- To show the necessary prerequisites in order to establish a sustainable PV application according to the needs of local users.
- To show the most useful PV applications in the country and in the relevant region.
- To enable the participants to develop critical skills in PV applications and to provide to the industry a development forecast for the new technology.

- Update engineers, scientist/technicians in the basic field of planning and design of efficient PV application systems.
- Help developing countries to improve their awareness of tools relating to efficient PV application systems.
- Initiate contacts and promote co-operation on PV application between industries, important research institutions and governments.

OUTPUTS

- Lecture notes, case studies and basic information on photovoltaic applications in North African and Middle East countries.
- Establish tight connections within the North Africa and Middle East region, who are interested in developing PV systems and who can discuss current PV systems in their relative countries.
- To discuss the state of the art in the field of PV applications.

PROFILE OF PARTICIPANTS

The participants will be a mix of engineers, laboratory researchers, technicians and government employees all of whom are involved in the research and development of PV applications and in the manage or responsibility of running a PV system.

TENTATIVE PROGRAM

The following topics will be covered:

- How to get cheaper and more reliable PV Systems; **Identification and Hands-On Approach.**
- PV market characteristics and growth scenarios concerning PV applications.
- How are the existing PV applications in North Africa and Middle East working?
- How can we improve these systems?

PROFILE OF RESOURCE PEOPLE

High level engineers, scientists and experienced economists and researchers, specialized in the field of PV applications, production and management of PV Systems will be invited to give lectures at this event.

DOCUMENTATION

The documents available for the workshop will be:

1. Aide-Mémoire.
2. Programme.
3. List of participants and lecturers.
4. Lecture notes.

LANGUAGE

The workshop will only be conducted in English and therefore the participants are expected to have a good command of the language.

VENUE

The workshop will take place from 27-29 May 2002 at the Photoenergy Center, Faculty of Science, Ain Shams University, Abbassia, Cairo, Egypt.

Accommodation will be provided at, **five star hotel in Heliopolis area near the Campus of the Ain Shams University Cairo.**

The participants will be required to bear all expenses in their home country incidental to travel abroad, including expenditures for passport, visa, and any other miscellaneous items.

ICS will not assume responsibility for any of the following costs, which may be incurred by the participant while attending the workshop:

- compensation for salary or related allowances during the period of the event;
- any costs incurred with respect to insurance, medical bills and hospitalization fees;
- compensation in the event of death, disability or illness;
- loss or damage to personal property of participants while attending the event.

VISA ARRANGEMENTS

Where applicable, participants are requested to arrange for their visa as early as possible at the Embassy of Egypt in their home country. In case of difficulties, please advise the contact persons mentioned below.

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