

about SolarPACES

the IEA solar power and chemical energy systems program

What is SolarPACES?

SolarPACES is an international cooperative organization bringing together teams of national experts from around the world to focus on the development and marketing of concentrating solar power systems*. It is one of a number of collaborative programs managed under the umbrella of the International Energy Agency to help find solutions to world-wide energy problems.

What kind of work does SolarPACES do?

Technology development is at the core of the work of SolarPACES. Member countries work together on activities aimed at solving the wide range of technical problems associated with commercialization of concentrating solar technology, including large-scale system tests and the development of advanced technologies, components, instrumentation, and systems analysis techniques. In addition to technology development, market development and building of awareness of the potential of solar thermal are key elements of the SolarPACES program.

What are its recent achievements?

A few examples illustrate the range of the work of SolarPACES. Cooperative development and testing of key solar components, including advanced concentrators and receivers, has helped reduce the costs and improve the reliability of concentrating solar technology. System tests of pilot-scale plants, such as the 10-MW Solar Two power tower in the United States and the DISS trough system in Spain have demonstrated the performance and reliability data needed to predict commercial plant performance. Similarly, cooperative action on systems operation and maintenance has led to reduced costs at the commercial Kramer Junction parabolic trough plants in the United States, and

will help ensure cost-competitiveness at future concentrating solar power plants. The SolarPACES "START" (Solar Thermal Analysis, Review and Training) teams have carried out missions to support the introduction of concentrating solar power to developing countries in the Sunbelt. By sending an international team of experts, independent technical advice has been made available to interested countries including Egypt, Jordan, Brazil and Mexico. START missions to Egypt, Brazil and Mexico have already contributed to successful applications to the Global Environment Facility (GEF) for the first phase of planning a concentrating solar power plant in Egypt and an experimental plant in Brazil. In solar chemistry research, where the commercialization

goals are more long term, SolarPACES has succeeded in building up and supporting international interest, defining research priorities, and facilitating cooperative international research.

How is industry involved?

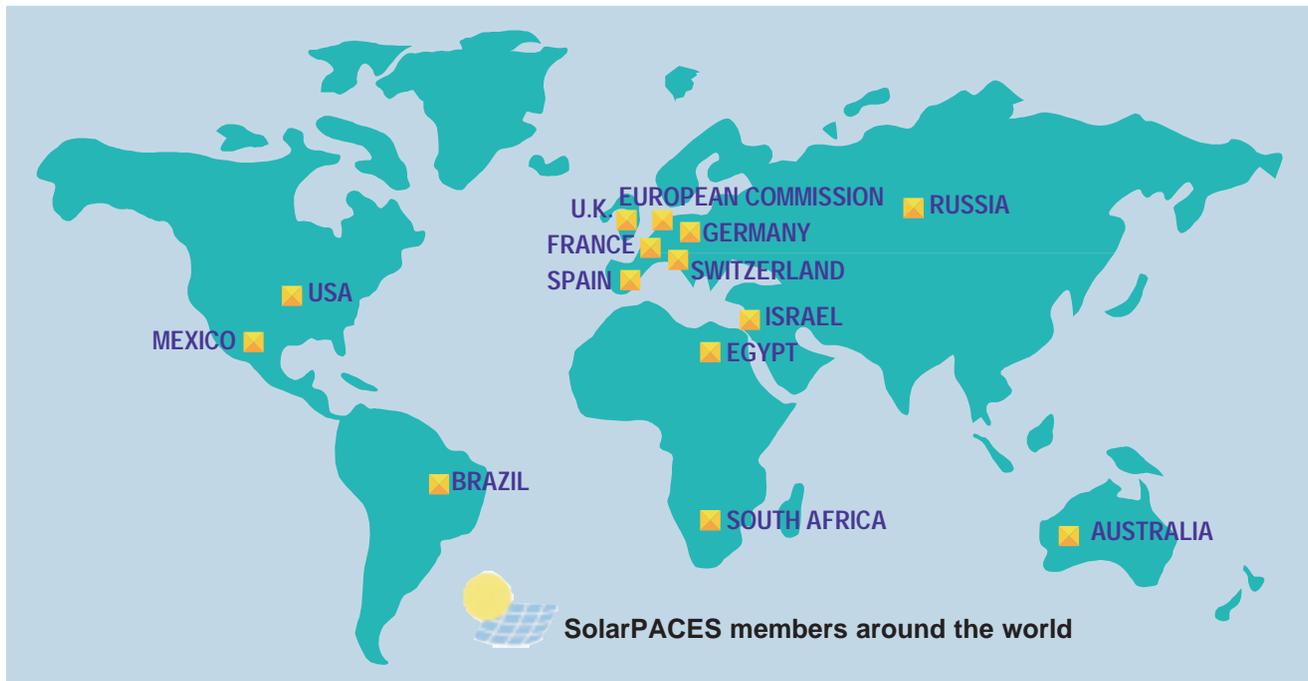
The work of SolarPACES focuses on developing new and advanced concentrating solar technology for eventual commercialization, so industrial partnership plays a critical role. Many of the Tasks' activities involve industrial cooperation, including international teams. In fact, in some countries (e.g. the UK and Australia), the SolarPACES contracting party is an industrial consortium. Intellectual property can be protected as needed.

Concentrating solar power and chemical energy systems

Concentrating solar power systems use concentrated solar radiation as a high temperature energy source to produce electrical power and drive chemical reactions. These clean energy technologies are appropriate for Sunbelt applications where direct solar radiation is high. The first commercial plants have been in operation in California since the mid-1980s, providing the 354 megawatts of the world's lowest-cost solar power. The many types of systems under development (including parabolic troughs, power towers, and dish/engine systems) for different markets vary according to the concentration devices, energy conversion methods, storage options and other design variables. Much attention is focused on the multi-megawatt systems that are appropriate for the on-grid market, complementing the other major solar technology, photovoltaics, most appropriate for smaller, off-grid applications. Solar chemical energy systems use concentrated solar radiation to drive chemical reactions for the production of fuels and chemicals. Additional uses include environmentally benign technologies in fields such as detoxification of chemical wastes and energy storage which are aimed at the medium to long term.



*also known as solar thermal power systems



Who are its members?

As of 2002, there are fourteen members of SolarPACES (Australia, Brazil, Egypt, the European Commission, France, Israel, Germany, Mexico, Russia, South Africa, Spain, Switzerland, the United Kingdom, and the United States). Membership is open to all countries, subject to Executive Committee approval, and involves a government (or its nominated contracting party) becoming a signatory to the program's "Implementing Agreement," which defines SolarPACES' charter and conditions of membership.

The International Energy Agency

The International Energy Agency (IEA), founded in 1974 is the energy forum for industrialized countries. Based in Paris, the IEA is an autonomous agency within the framework of the Organization for Economic Co-operation and Development (OECD). An important function of the IEA is the promotion of enhanced international collaboration on energy research and the development and application of new and efficient energy technologies. The IEA has set up more than 60 Implementing Agreements linking member Countries in R&D and technology demonstration and information initiatives.

How is SolarPACES managed?

All SolarPACES' activities are overseen by an Executive Committee (ExCo) composed of individuals nominated from each member country. The ExCo meets twice yearly to formulate strategic objectives, direct the program of work, review results and accomplishments, and report to the IEA. An elected Chairperson presides over the ExCo meetings, and throughout the year an Executive Secretary deals with the ongoing management of the program.

How is the work coordinated?

The Implementing Agreement specifies broad "Tasks," or thematic areas of work. SolarPACES currently has three on-going tasks, focusing on solar thermal electric power systems (Task I), solar chemistry research (Task II), and solar technology and applications (Task III). An Operating Agent, nominated by the ExCo, is responsible for overseeing the work of each Task. Each task maintains a detailed program of work that defines all task activities, including their objectives, participants, plans, and budgets. In addition to technical reports of the activities and their participants, accomplishments and progress are summarized in the SolarPACES annual report. Many SolarPACES activities involve close cooperation among member countries

(either through sharing of task activities or, occasionally, cost-sharing), although some cooperation is limited to sharing of information and results with other participants.

How is SolarPACES financed?

The main aim of SolarPACES is to bring added value to the nationally based work that is already funded by member governments. SolarPACES is thus not in itself a "big budget" operation and normally does not provide funding for member countries' work. The small annual fee paid by member countries is used to support a limited range of cooperative activities approved by the ExCo, including, for example, START missions, document publication and distribution, and activities to build international awareness.

Further information

Further information and documents can be downloaded from the IEA SolarPACES Website www.solarpaces.org

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