

# Press Release

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## Small and Medium-Scale Solar Thermal Power Stations: the New “Multi-Talents”

The Fraunhofer Institute for Solar Energy Systems ISE carries out research on small and medium-scale solar thermal power stations. In the near term, such power stations can make an important contribution to a sustainable energy supply. Concentrating collectors generate heat at temperatures up to 400 degrees Celsius which can be used in many ways: electricity, cooling and industrial process heat. Further information can be obtained at: <http://www.mss-csp.info>.

Large solar thermal power plants of over 20 MW have been recognized for a long time as a cost-effective way to produce electricity using solar energy. The large systems, however, require detailed planning and licensing procedures. “Small is beautiful – and most of all fast,” remarks Dr. Werner J. Platzer, Department Head at Fraunhofer ISE. “Systems ranging from 20 kW up to 2 MW can be more easily realized and they offer greater possibilities: the local heat or cooling demand can be combined with electricity production. This increases the profitability and facilitates the financing.”

Small and medium-scale solar thermal power stations consist of two basic parts. For one, there is a collector field of e.g. concentrating parabolic mirrors or linear concentrating Fresnel collectors which collect the solar energy. The other part, which consists in converting the collected solar energy, can have many forms. It can be a thermal power unit, e.g. a steam turbine for generating electricity or an absorption chiller to provide cooling. Also, the generated thermal energy can be directly utilized in the form of process steam.

Within a BMU project, Fraunhofer ISE investigated the potential of small and medium-scale solar thermal power stations. According to Platzer, “For regional applications, the technology is economical where there is a large fraction of direct sunlight. This applies, for example, to the

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Mediterranean and the more southerly regions. For off-grid applications or for applications where the provision from the grid is unreliable, this technology is more cost-effective than employing a diesel generator. Air-conditioning could also be an important application. Over 40 million new air-conditioning units are sold worldwide annually and the tendency is increasing. Up to now, this potential application has not been used because market-ready products and demonstration projects that serve as role models are still needed.”

Among experts, this technology is called by the acronym “MSS-CSP” – Medium and Small Scale Concentrating Solar Power.

The study of Fraunhofer ISE (German Version only) can be downloaded here:

<http://www.ise.fraunhofer.de/geschaeftsfelder-und-marktbereiche/solarthermie/solarthermische-kraftwerke/veroeffentlichungen>

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Fresnel collectors from Mirroxx on the roof of the University of Seville, Spain. The collectors provide process heat at a temperature of 180°C to drive a 2-effect absorption chiller for air-conditioning the building. ©Mirroxx GmbH