



The Royal Academy  
of Engineering

Academy Briefing

# Solar Thermal Power Plants: Technical development and commercial potential

Speaker:

Professor Hans Müller-Steinhagen FREng  
Director, Institute of Technical Thermodynamics, German Aerospace Centre (DLR),  
Stuttgart, Germany

Venue:

The Royal Academy of Engineering  
3 Carlton House Terrace  
London SW1Y 5DG

Monday 28 September 2009  
5.30pm for 6.30pm



# Solar Thermal Power Plants:

## Technical development and commercial potential



Professor Hans Müller-Steinhagen FREng

**Solar thermal power plants use concentrated solar radiation to produce superheated steam or hot air which is then fed into conventional steam and/or gas turbine cycles. This technology is one of the most likely candidates for providing a significant share of electricity generated from renewable energy sources, because of its cost-effectiveness and basically unlimited potential.**

In the 1990s, nine solar thermal power plants have been installed in the US with a total capacity of 350 MW. Due to low energy costs, no new plants have been built until 2006, even though R&D work has continued in countries such as Germany, Israel, Italy, Spain and the US. As a result of the growing concerns about the environment and

the limited fossil energy resources, solar thermal power plants are now experiencing a period of unprecedented growth. In Spain, the US and Northern Africa alone, projects totaling a capacity of more than 10 GW are in advanced stages of planning and construction of several new plants will be completed by the end of this year. With the realisation of these projects, it is possible that electricity from concentrating solar power plants will achieve full cost competitiveness within the next 10 to 15 years.

In this presentation Professor Müller-Steinhagen will describe the potential of solar thermal power plants along with the present construction activities and the roadmap to commercial competitiveness.

Professor Müller-Steinhagen is the director of the Institute of Technical Thermodynamics at the German Aerospace Centre and the director of the Institute for Thermodynamics and Thermal Engineering at the University of Stuttgart. Out of his total staff of 250, 100 researchers are working in the area of solar thermal systems. One group is looking at the concepts and technologies behind the 400 billion Euro DESERTEC project which has recently been initiated by a number of major companies to supply 15% of European electricity from solar thermal power plants in North Africa.

Professor Müller-Steinhagen's address will be followed by a panel discussion covering the commercial, political and economic issues raised by this technology. Panel members include Professor Nick Jenkins of Cardiff University and Director of the Centre for Integrated Renewable Energy Generation and Supply (CIREGS) along with Professor Walt Patterson, a fellow of the Energy, Environment and Development Programme at Chatham House and a visiting fellow of the Science Policy Research Unit, University of Sussex.

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### Chair:

Professor Roland Clift CBE FREng,  
University of Surrey

### Speaker:

Professor Hans Müller-Steinhagen FREng,  
German Aerospace Centre

### Panel:

Professor Nick Jenkins FREng, Cardiff University  
Professor Walt Patterson, Chatham House

### Programme:

5.30pm Registration

6.30pm Briefing

7.25pm Panel debate

7.45pm Drinks reception

9.00pm Close

**Dress:** Business attire

Registration Form

I wish to reserve  place(s) for the briefing event on Monday 28 September 2009

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Surname Honours

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Organisation

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I would like to bring a guest(s)

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Surname Honours

Position

Organisation Email

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Position

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