

Herbstsemester 2007

Energy Science Colloquium

Hauptgebäude (HG) Hörsaal F 7,
ETH Zentrum, Zürich

(8092 Zürich, Rämistrasse 101)

Donnerstag, 13. Dezember 17:15 Uhr bis 18:45 Uhr

Solarthermal Power Plants Today and Tomorrow - Technologies, Projects and Markets

Dr. -Ing. Michael Geyer**Director International Business Development****Abengoa Solar, Sevilla (Spanien)**

On 30 March 2007 Abengoa Solar inaugurated the first commercial European concentrating solar power (CSP) plant, the "Planta Solar 10" (PS10). The 11 MW facility is the first of a total of 300MW CSP plants at the company's Solar Platform of Sanlúcar la Mayor Solar, located on the outskirts of Seville, Spain.

In recent years the Spanish government has created a hospitable environment in which solar power providers such as Abengoa can scale generation capacity with less financial risk while gaining valuable experience in the various CSP technologies. Spain's €0.27KWh feed-in tariff and permitted use of natural gas—up to 15%—make it the most attractive solar market in the world. The country's solar CSP pipeline is now estimated to be over 3,000 MW.

Solar thermal power plants designed for solar-only generation are ideally suited to satisfying summer noon peak loads in wealthy countries with significant cooling demands, such as Spain and California. Thermal energy storage systems are capable of expanding the operation time of solar thermal plants even up to base-load operation. During the market introduction phase of the technology, hybrid plant concepts which back up the solar output by fossil cofiring are likely to be the favoured option to secure reliable peak-load supply. Also, Integrated Solar- Combined Cycle (ISCC) plants for mid- to base-load operation are best suited to this introduction phase. Combined generation of heat and power by CSP has particularly promising potential, as the high-value solar energy input is used to the best possible efficiency, exceeding 85%. Process heat from combined generation can be used for industrial applications, district cooling or sea water desalination. Current CSP technologies include parabolic trough power plants, solar power towers, and parabolic dish engines.

According to a scenario prepared by SolarPACES, Greenpeace International and the European Solar Thermal Industry Association CSP will achieve a substantial status alongside the current market leaders such as hydro and wind power. From a current level of just 430 MW, the total installation by 2015 will have passed 6400 MW and pass over 35,000 MW by 2025.

Der Vortrag wird auf Deutsch gehaltenwww.esc.ethz.ch/news/colloquia