

Oman explores potential for major solar power project

04 April 2009

Signaling its commitment to the pursuit of renewables in supplementing the nation's burgeoning energy needs, the government has unveiled plans for a major solar power plant in the Sultanate. As a first step in this direction, the Public Authority for Electricity and Water (PAEW) has invited specialized international consultants to compete for a tender to provide advisory services linked to its plan to develop a large-scale solar plant in Oman. Interested firms have until May 25, 2009 to submit firm offers for this key contract.

The move underscores a new momentum to efforts by Oman's authorities to explore renewable energy sources, alongside alternative fuels such as coal and diesel fuel, in meeting the country's rapidly growing energy requirements. It also provides added impetus to a road map for the development of renewables in the Sultanate, which was drawn up by the electricity regulator, the Authority for Electricity Regulation Oman. The roadmap, unveiled last August, spells out the potential for, among other energy sources, large-scale solar thermal plants (Also called Concentrating Solar Plants or CSPs) by harnessing the country's limitless access to solar energy.

Oman, according to the regulator's findings, enjoys one of the highest levels of solar energy density in the world. "There is significant scope for developing solar energy resources throughout Oman and solar energy has the potential to provide sufficient electricity to meet all of Oman's domestic electricity requirements and provide some electricity for export. High solar energy density is available in all regions of Oman: areas of highest density are desert areas. Areas of lowest density are coastal areas in the southern part of Oman," a study commissioned by the Authority pointed out.

According to the study on renewables, the potential for producing electricity using Concentrating Solar Power (CSP) systems in Oman is significant. CSP plants with storage for continuous supply of electricity as conventional power plants require 1sq km of land use for 10MW capacity. Theoretically it would be possible to supply all of Oman's present electricity consumption of 13,900 GWh by utilizing about 280sq km of desert area for solar connectors, corresponding to around 0.1% of the Sultanate's land area, the study noted.

Concentrating Solar Power Systems use mirrors and tracking systems to focus a large area of sunlight into a small beam. The concentrated light is then used as a heat source for a conventional power plant. CSP technologies have been successfully showcased through a number of mid-size solar thermal projects, notably in the United States, Germany and Spain. Masdar, the green energy initiative of the UAE, is also pursuing the development of a CSP near Abu Dhabi.

The renewables study in Oman concludes that CSP technology has significant application when used in large-scale solar energy projects. A key benefit of the technology lies in the utilization of excess heat from the steam cycle for water desalination. Following the publication of the renewables roadmap last year, a number of international firms are known to have registered their interest in supporting Oman's green energy ambitions.

The electricity regulator, for its part, is overseeing plans for the implementation of renewable energy pilot projects, the success of which, it hopes, will lead to the development of large-scale ventures based on renewable energy resources. Renewables like solar energy offer potentially significant economic and environmental benefits to the Sultanate, which currently depends

almost entirely on natural gas for its electricity requirements. Renewables can contribute to security of supply and a more diversified fuel base.