

Acwa fires up concentrated solar plants

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By midyear, 47 renewable energy projects are expected to be delivering about 7,000MW of power to SA's electricity grid, representing about R194bn in private investment.



Image source: www.marcopolis.net

Energy Minister Tina Joemat-Pettersson said in Parliament last week that her department was evaluating bids received under the fourth expedited round for 1,800MW under the Renewable Energy Independent Producers Programme (REIPP) and would announce preferred bidders in the September quarter. In the same quarter it would issue requests for proposals for a fifth round.

Three months ago, one of the early hi-tech renewables projects, awarded during the second round of the REIPP, came on stream: Acwa Power's R5bn, 50MW Bokpoort concentrated solar plant near Upington in the Northern Cape.

The concentrated solar plant technology is an advance on wind turbines and photovoltaic (PV) panels. Wind and solar PV are more environmentally friendly than coal power, but can generate energy for only about 30% of the time, and cannot be relied on to deliver at peak-demand periods. They have to be supplemented with coal, gas or nuclear power.

In March, Bokpoort ran for 161 hours, or 6.7 days, without stopping, demonstrating it can deliver energy to the grid during SA's critical winter peak-demand period of 6pm-9.30pm.

Concentrated solar plant technology has been evolving rapidly and Acwa Power's next such plant, at Redstone, 150km east of Bokpoort, will be even bigger and more efficient. Bokpoort is 125km from Upington, which the World Data Centre for Meteorology ranks as having more sunshine hours a day in November, December and January than any other place in the world.

The plant uses parabolic trough technology. Panels of mirrors, called solar collection elements, channel heat during the day into surrounding pipes containing a synthetic oil. By day, the heat from the pipes is directed to tanks containing molten salt where heat is stored and to a steam turbine to generate electricity. At night, the heat stored in the salt tanks is used to generate the steam. The salt stores 9.3 hours of energy when the plant is running at capacity.

Chris Ehlers, Acwa's global chief operating officer for renewables, said there was potential to double the size of Bokpoort, but this was in the concept stage.

Acwa Power is about to start work on the \$900m, 100MW Redstone project, which is approaching financial close. It will use another concentrated solar plant technology, power towers, in which mirrors reflect heat onto a central tower. It will have 12 hours of storage. Acwa Power has also bid for a third concentrated solar plant of 150MW in the expedited REIPP round.

Acwa Power's longer-term plan is to develop about 5,000MW of power projects in SA. It has submitted a bid for a \$900m, 300MW coal-to-power project, and intends to bid for another 300MW of coal power in the future. It also intends to participate when the IPP office issues requests for gas-fired power projects.

Joemat-Pettersson said the department would announce winning bidders for coal projects in July, and would make preliminary information on the 3,125MW gas-to-power programme available in the third quarter, which would be followed by a formal procurement process.

Source: Business Day

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