

The heat is on

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With detailed mapping and grading of the 350 geothermal sites still undergoing, the geothermal survey of the country assures that what lies beneath can never be underestimated. So far, the hot spots lie in Tatta Pani in Chattisgarh and Puga Valley in Ladakh where temperatures as high as 250° have been measured. At such high temperatures, the natural steam can be a source of power.

The ministry of non-conventional energy sources (MNES) has identified National Geological Research Institute (NGRI) as the nodal agency for mapping geothermal sites. Its job is to map, estimate and grade potential sites. The process was triggered in 2000 using a relatively-new technique called Magnetotellurics. It took two years to map Tatta Pani and another two to gauge Puga Valley's potential. NGRI has confirmed a potential of 100 MW in these areas with a guarantee of 30 years. Surajkund in Jharkhand, Manikaran in Kullu and Tapovan in Uttaranchal are in the final stages of mapping. Their exact potential is being estimated.

A major part of geothermal energy is released through ground water circulation, hot gas emission and thermal conduction. It is, therefore, important to know the hydrological and thermal environment as well as the deep structure associated with the active regions. In 2005, in a report to MNES, NGRI suggested deep drilling for the confirmed sites. Deep drilling of 2-3 km is essential to tap the core energy. Such distant drilling through high pressure and temperature can be achieved through specialised techniques that are unavailable in the country. In fact, lack of funds is the primary problem.

NGRI claims to have initiated dialogue with NTPC and NHPC for funding drilling and power projects. "However, this requires a large investment in the initial stages that will pay back in multiples of the expenditure incurred for power generation using geothermal energy," said NGRI deputy director T Harinarayana.

Core temperatures of 260-300° have enabled countries such as Iceland, Italy and New Zealand to meet 15-20% of their electricity needs using geothermal energy. Besides efficient drilling equipment, the prevalence of volcanoes in the countries has also been an added factor. In India, the volcano in the Andaman & Nicobar islands has not been identified as resourceful because of scanty population in the areas.