GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 2435
ANSWERED ON 03.08.2023

DEVELOPMENT OF GEOTHERMAL TECHNOLOGY

2435. SHRIMATI RAKSHA NIKHIL KHADSE
SHRI MANOJ KOTAK:

Will the Minister of New & Renewable Energy be pleased to state:

(a) whether the Government proposes to develop the geothermal technology to extract the heat trapped in the earth's crust which can be directly used for heating/cooling or to make electricity;
(b) if so, the details thereof;
(c) whether any explanatory efforts in this direction have been carried out by the Government in the past;
(d) if so, the details thereof; and
(e) the details of findings along with the reasons for not exploring this sector any further?

ANSWER

THE MINISTER OF NEW & RENEWABLE ENERGY AND POWER

(SHRI R.K. SINGH)

(a) & (b) The Ministry of New and Renewable Energy is implementing a "Renewable Energy Research and Technology Development Programme (RE-RTD)" through various research institutions and industry to develop indigenous technologies and manufacturing for widespread applications of new and renewable energy in efficient and cost-effective manner, including geothermal technology to extract the heat trapped in the earth's crust which can be directly used for heating/cooling or to make electricity.

It provides up to 100% financial support to government/non-profit research organizations and up to 70% to industry, startups, private institutes, entrepreneurs, and manufacturing units.

The Ministry of Power has notified Mission on Advanced and High-Impact Research (MAHIR) which includes Geothermal Energy as latest and emerging technology research area.

(c) & (d) Geological Survey of India (GSI) carries out exploration of geothermal energy in various recognized geothermal fields which includes collection of data on temperature, discharge, and quality/chemistry of water in different geothermal fields. Till date, GSI has studied 381 thermally anomalous areas across India and has published a report titled *'Geothermal Atlas of India, 2022'.*

(e) As per Geothermal Atlas, there is an estimated potential of about 10,600 MW of geothermal power in the country.
The following reservoir temperature ranges have been estimated at the depth of 500m to 1000m :

- 175 °C ± 25 °C in Tatapani-Surajkund belt in Chhatisgarh and Jharkhand, Cambay in Gujarat, Manuguru in Telangana and Puga-Chumathang area in Ladakh,
- 60 °C ± 10 °C in Jharkhand, Bihar, MP, Maharashtra, Gujarat and Telangana, and 110°C ± 20 °C in other areas,
- There are possibilities of encountering higher temperature at deeper levels.

However, Geothermal projects are yet to reach grid-parity due to higher capital costs. The projects at some potential geothermal sites are not considered techno-economically viable due to high altitude, difficult terrain, harsh weather conditions, very short working period and difficulty in evacuation of power.

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