

Ladakh set for major clean energy reform as L-G Vinai Kumar Saxena approves extension of MoU with ONGC for India's first Geothermal energy project in Ladakh

L-G says geothermal energy project in Puga Valley to be a landmark initiative in India's clean energy journey

Leh, May 23: Ladakh is all set for a major energy reform with the first-ever commercial exploration of geothermal energy as a sustainable alternative source of energy. Lieutenant Governor, Shri Vinai Kumar Saxena, has approved the extension of the Memorandum of Understanding (MoU) for 5 years with Oil and Natural Gas Corporation (ONGC) – a Govt of India PSU, for setting up India's first geothermal power project at Puga valley in Ladakh, at an altitude of over 14,000 ft.

Earlier, a tripartite MoU signed with ONGC on 6th February 2021 had expired on 5th February 2026. Since then, ONGC has been requesting an extension of the MoU as a lot of work had remained incomplete due to harsh weather conditions.

Considering the significance of this project, L-G Shri Saxena granted an extension of the MoU between the Ladakh Administration, LAHDC Leh and ONGC Energy Centre for another 5 years. As per the MoU, the ONGC will set up a 1 MWe pilot geothermal power plant in Puga Valley, along with the preparation of a Detailed Project Report (DPR), for large-scale commercial exploitation of geothermal energy in Ladakh.

Geothermal energy is the heat extracted from beneath the Earth's crust. This naturally renewable heat originates from the planet's core and warms up the surrounding rocks and underground water reservoirs. So far, India does not yet have a large-scale, commercial geothermal power plant, and hence, the geothermal energy plant being developed in Puga Valley in Ladakh will be the first of its kind in India.

As per the MoU, ONGC Energy Centre will deepen the existing geothermal well up to 1000 metres during the 2026 working season itself, and drill another geothermal well of 1000 meters depth in the next phase of the project. The testing, evaluation and commissioning of the pilot geothermal power plant is expected in FY 2026–27.

Subsequently, under Phase II of the project, surveys and geothermal investigations will be conducted in the Chumathang area, followed by drilling activities and preparation of DPR for commercial-scale geothermal development in Ladakh. It may be noted that the Puga Valley and Chumathang areas in Ladakh lie within the Himalayan geothermal belt, where two tectonic plates collide, generating intense underground heat. Test well dug in Puga Valley has successfully tapped high-pressure steam and hot fluids, generating more than 200°C of heat at a depth of just 400 meters. The geothermal initiative, along with solar energy projects in Ladakh, would help reduce dependence on conventional fuels, lower carbon emissions and position Ladakh as a leading renewable energy hub in the country, as envisioned by Hon'ble Prime Minister, Shri Narendra Modi.

“The geothermal energy project in Puga Valley has the potential to become a game changer for Ladakh and a landmark initiative in India's clean energy journey. Sustainably harnessing geothermal energy will not only strengthen Ladakh's energy security but also significantly contribute towards the vision of making Ladakh a carbon-neutral and environmentally sustainable region. This MoU extension is crucial for completing scientific exploration and laying the foundation for large-scale geothermal power generation in Ladakh,” L-G Shri Saxena said.

Despite extremely challenging terrain, harsh weather conditions, and technical complexities, ONGC successfully drilled the first geothermal well to a depth of 405 metres in 2025, making it the deepest geothermal well drilled in Ladakh to date.

Geothermometric studies and analysis of geothermal samples revealed the subsurface temperatures exceeding 240 degrees Celsius, which are considered adequate for geothermal power generation. The proposed pilot power plant is expected to operate at a turbine inlet temperature of approximately 200 degrees Celsius with a targeted generation capacity of 1 MW.