

**MoP SHRI SUSHILKUMAR SHINDE INAUGURATES SOLAR HVAC SYSTEM AT NTPC  
World's Largest "Solar Thermal HVAC System With Storage" Developed by Clique Solar**

**New Delhi:** Honorable Union Minister of Power, Mr. Sushil Kumar Shinde, inaugurated India's largest solar HVAC system with storage installed at NETRA (NTPC Energy Technology Research Alliance), Greater Noida. Shri Arup Roy Choudhury, CMD, NTPC, Shri Ashok Lavasa, Addl. Secretary Power and senior officials of Ministry of Power and NTPC were present on the occasion. Representatives of Clique Solar, the company which provided the solar technology & executed the project on turnkey basis, were also present.



"This is a one-of-its-kind installation in the country aimed at establishing technical as well as commercial viability of solar cooling. The JNNSM puts emphasis not only on grid solar power, but on various solar thermal applications as well. Such projects have very important role in opening up

newer areas for mass replication and thereby facilitating movement towards achieving the mission objectives in letter and spirit. We look forward to great success of the project", said Dr. Ashvini Kumar, Director, MNRE.

While leading the nation's power generation capacity, NTPC's focus has been on developing cutting edge technologies which will help in cost reduction and environment protection. To this end, NETRA has set up a Solar Energy Research Facility at Greater Noida. As part of this facility, Clique Solar, a Mumbai based Solar Thermal company, has installed world's largest solar thermal HVAC system with storage.

This Solar Thermal HVAC (ST-HVAC) System consists of two numbers of high optical efficiency, point focus, two-axis tracking solar concentrator of Fresnel design, called the ARUN® concentrator dish. The ARUN dishes provide dry saturated steam at 180°C at about 200kg per hour. The steam is fed to a 50 TR (i.e. about 175 kW of cooling) Vapour Absorption Machine (VAM). In turn, the VAM utilizes the thermal energy of steam to produce the cooling effect. The distinguishing feature of the system is the storage tank that can store up to 2 days of chilling. Offices are generally closed on weekends. To avoid wasting the solar energy, this 2-day storage facility has been included. This stored energy can be utilized to provide air-conditioning during

lean / non-solar periods or to cool a larger area. The system is also capable of running as a heat pump in winter without any alteration of pipework.

This Solar Thermal HVAC system is low carbon, green house gas free air conditioning solution. It has an efficiency of 80%, consumes less auxiliary power and occupies less area compared to the conventional AC system. For NETRA, improving the availability, reliability and performance of the existing power stations and new power plants is not only a priority but also a challenge. This technology offers an opportunity for replication in power stations.



“The ARUN® solar concentrator is the most efficient solar concentrator, both in terms of thermal efficiency as well as land usage. Till date, we have focused on supplying solar steam generating systems for industrial process heat & mass cooking to replace expensive fuels like Furnace Oil, LPG, Natural Gas, etc. However, solar cooling too has an immense potential due to the natural match between the cooling requirement and availability of the sun”, said Mr Ashok Paranjape, Managing Director of Clique Solar, a company promoted by IIT-Bombay alumni. One ARUN®160 solar concentrator delivers about 1 ton of steam per day, while occupying ground area of less than 10 sq.m. It can deliver steam up to 25 bars pressure or thermic oil up to 400°C.

Dr Shireesh Kedare, Director and Head of R&D at Clique Solar said, “This project has been commissioned well in advance of the scheduled completion date. Credit goes to the experience our team has gained through the various installations across diverse applications like effluent treatment, milk pasteurization, degreasing process in automobile factory, mass cooking, etc over the last 6-7 years”.

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If you'd like more information on this topic, or to schedule an interview with Abhishek Bhatewara, please call him at 909 618 0000 or send an email to: [communication@cliquesolar.com](mailto:communication@cliquesolar.com)

**About Clique Solar:**

Clique Solar is a pioneer in the Solar Thermal energy industry with its indigenous and commercially proven solar concentrating technologies providing economical process heat for heating and cooling requirements in industries, hotels and residential & commercial complexes. Its flagship product ARUN® – Fresnel paraboloid solar concentrator dish - has been installed at various locations across India like NTPC, Mahindra & Mahindra, Mahanand Dairy, Chitale dairy, ITC Hotels, TVS Group, BARC, etc. It is being used for various applications like effluent evaporation, sterilization, milk pasteurization for dairy, steam generation for laundry & food processing, comfort cooling, industrial canteen cooking, etc.

**About NTPC:**

NTPC is India's largest power utility, playing a major role in meeting the power needs of the country and contributing to its economic and social development. The present installed capacity of NTPC is 39174 MW comprising of 16 coal based stations, 7 combines cycle gas/liquid fuel based stations and 7 JV stations ( 6 coal based and 1 gas based).NTPC plans to become a 1,28,000 MW company by 2032.