

Clique Solar's ARUN® at NTPC

India's largest solar HVAC system with storage



Summary of the case

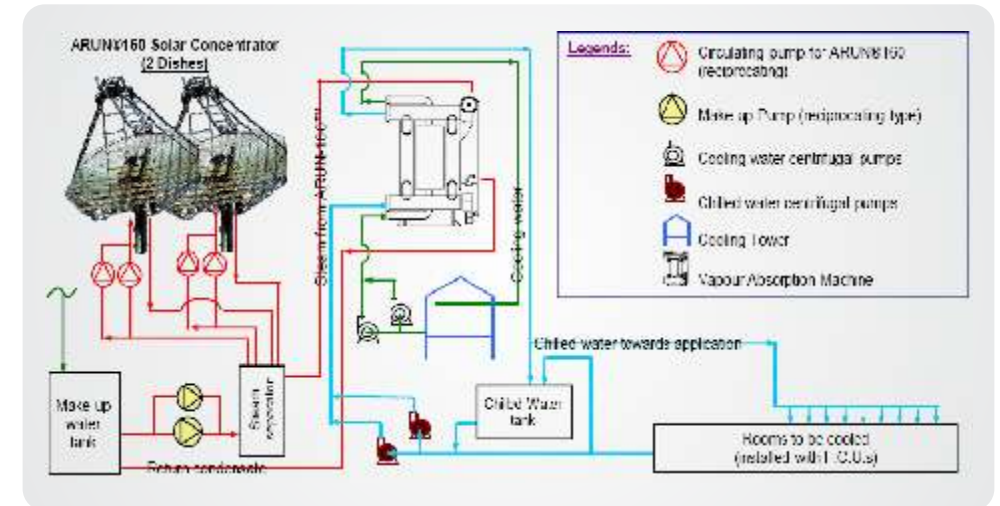
NTPC has set up a Solar Energy Research Facility, at its Greater Noida Site. As part of this facility, Clique Solar has installed India's, and probably, world's largest solar HVAC system with storage.

Highlights

- Apart from being one of the **largest solar cooling systems in India**, it is also the **first with storage capability**.
- It utilizes the **most efficient solar thermal technology** (both in terms of thermal efficiency as well as land usage) available in India, the ARUN solar concentrator.
- Completely designed and developed by an **Indian entrepreneurs in a young Indian company** called Clique Solar, promoted by IIT-B alumni
- The project has been commissioned **well in advance** of its scheduled completion date

Technical specifications

- This Solar HVAC System consists of 2 ARUN® solar concentrator dishes
- The dishes provide dry saturated steam to a 50 TR (i.e. about 175 kW of cooling) Vapour Absorption Machine (VAM)
- The steam is supplied at 8 bar pressure, 200 kg/hr
- The cold storage tank (500 m³) can store up to 2 days of chilling.



Conclusion

Many cooling loads generally have a high coincidence with the availability of solar irradiation. In India solar energy is available in most parts of the country and power shortfall is very common. Thus the combination of solar thermal and cooling has a high potential to replace conventional cooling machines that run on electricity. ARUN® system can be used to achieve higher temperatures, thus allowing the use of efficient multiple effect VAMs. The market potential for such solar cooling systems in India is huge – offices, malls, hotels & hospitals, etc. This project showcases the technical and commercial viability of solar cooling systems, and also puts the solar thermal R&D capability in India a notch ahead of the rest of the world.