

Solar Thermal Technology based System for Space Heating of Shelter in Cold Condition

DIHAR (DRDO) has developed a system consisting of solar thermal technology arranged in separate loops for capturing the solar energy and converting solar radiation into thermal energy. The technology transfers its thermal energy to the two different fluids with different specific heat capacity and boiling & freezing temperatures and a latent heat storage material. The process keeps on repeating and heats the sensible and latent heat storage material throughout the sunny day time. The heated heat transfer fluid flows through insulated pipes aided by pumps and stored thermal energies in two separate insulated storage tanks of different capacities. The flow of heated fluid is auto regulated based on the predefined temperature limits from solar thermal technologies to tanks and from tanks to the shelter. The heated fluid stored in insulated tank is subsequently used to maintain the comfortable habitable temperature ($17\pm 3^{\circ}\text{C}$) inside shelter through a combination of insulated pipes, pump and units. The whole system is automatically regulated with the help of sensors and related accessories to save the energy so as to prolong the stored thermal energy utilization for maintenance of shelter temperature in the required temperature range. It also has control panel with LCD display to monitor the temperatures sensed by numbers of sensors with automatic data storage and easy data transfer facility.

Interested industries are requested to submit their financial bid in sealed envelope (mentioning name of technology on the envelope), along with relevant documents as per the list in appendix-A, through one of the following agencies only, to DRDO before the bid ending date:-

S. No	Name of the Agency	Point of Contact
1	<p>National Research Development Corporation Address :20-22, Zamroodhpur Community Centre, Kailash Colony Extn. New Delhi - 110048</p> <p>Tel : +91-11-29240401 to 29240407 Fax: +91-11-29240409 / 29240410 General E-mail : write2[at]nrdc[dot]in</p>	<p>Shri Rajendra Gondane Sr. Manager (Business Development) National Research Development Corporation 20-22, Zamroodhpur Community Centre, Kailash Colony Extn. New Delhi - 110048 INDIA</p> <p>Mobile : +91-9910496554 EPABX : +91-11-29240401-07 (Extn. 444) Fax : +91-11-29240409 -10 Email : rgondane[at]nrdc[dot]in Website : www[dot]nrdcindia[dot]com</p>
2	<p>PHD Chamber of Commerce and Industry Address: PHD House, 4/2 Siri Institutional Area, August Kranti Marg, New Delhi 110016</p> <p>Tel : 91-11-26863801-04, 49545454 Fax : 91-11-26855450, 49545451 Website : www.phdcci.in E-mail : phdcci[at]phdcci[dot]in</p>	<p>Shri Nasir Jamal Joint Secretary PHD Chamber of Commerce & Industry Address: PHD House, 4/2 Siri Institutional Area, August Kranti Marg, New Delhi 110016 INDIA</p> <p>Mobile : +91-9810185714, 8210343267 Phone : +91-11-49545454, 49545400 Extn : 279 Fax : +91-11-26855450</p>

3	<p>Confederation of Indian Industry (CII) Address: The Mantosh Sondhi Centre 23, Institutional Area, Lodi Road, New Delhi - 110 003 (India)</p> <p>Tel : 91 11 45771000 / 24629994-7 Fax : 91 11 24626149 E-Mail : info[at]cii[dot]in Website : www.cii.in</p>	<p>Shri Amit Kumar Deputy Director – Defence & Aerospace Society of Indian Defence Manufacturers (SIDM) C/o Confederation of Indian Industry (CII) Address: 3rd Floor, IGSSS, 28 Institutional Area, Lodhi Road, New Delhi – 110003 INDIA Mobile : +91-9990059163 Phone : +91-11-45772062 Fax : +91-11-45772022 Email : amit[dot]kumar[at]cii[dot]in Website : www.sidm.in</p>
4	<p>The Associated Chambers of Commerce and Industry of India (ASSOCHAM) 4th Floor, YMCA Cultural Centre and Library Building, 01, Jai Singh Road, New Delhi - 110001</p> <p>Phone: 46550555 (Hunting Line) Fax: 01123347008/9 Website : www[dot]assocham[dot]org</p>	<p>Ms Kavita Sharma Addl Director and Head - Energy and Infra Mobile : 09871801002 Tele: 0091-11-23347040 Email: kavita[dot]sharma[at]assocham[dot]com Website : www.assocham.org</p>

List of Supporting Documents to be Attached / Enclosed

- (a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- (b) Certificates of registration as a manufacturing unit, if any.
- (c) Audited Balance Sheet for the preceding three years.
- (d) Income Tax returns for the preceding three year period
- (e) Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- (f) Annual budget for R&D during last three years.
- (g) Numbers and details of IPR or patents, etc., held by the company.
- (h) Number of technically or professionally qualified personnel.
- (i) Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- (j) Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- (k) List of Testing and Support equipment's
- (l) ISO/ ISI certification or any other certification
- (m) Relevant clearances form the authorities/ ministries (if any)
- (n) Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- (o) Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- (p) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc.
- (q) Under taking form company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means and illegal activities.
- (r) Details of the industrials license for defence manufacturing be provided by the industry seeking ToTs.