STEAM VAPOUR AC PLANT (SVACP)

1. **Objective**. To design and develop an energy-efficient Steam Vapour Air Conditioning Plant (SVACP) that leverages steam as a primary energy source for cooling, ensuring reduced energy consumption, environmental sustainability, and suitability for diverse industrial and defense applications.

2. **Background**. Conventional air conditioning systems rely heavily on electrical energy, contributing significantly to energy consumption and greenhouse gas emissions. Industries and defense establishments often generate steam as a byproduct of various processes, which remains underutilized. Utilizing steam as an energy source for air conditioning provides an eco-friendly and cost-effective alternative to traditional systems.

3. **Problem Statement**. Traditional air conditioning systems are energy-intensive and unsustainable, particularly in environments where steam is readily available as an untapped resource. SVACP is needed to harness this steam energy efficiently, reducing dependency on electrical power and aligning with energy conservation goals.

4. **Proposed Solution**.

   (a) **System Design**: Develop a robust and scalable SVACP that efficiently converts steam energy into cooling output.
   (b) **Energy Efficiency**: Optimize the system to minimize energy losses and maximize cooling performance.
   (c) **Environmental Sustainability**: Reduce greenhouse gas emissions by lowering electrical energy usage.
   (d) **Scalability**: Design the plant for modularity, enabling its use across industrial, commercial, and defense applications.

5. **Expected Outcome:**

   (a) An energy-efficient air conditioning solution that utilizes steam as the primary energy source.
   (b) Significant reductions in energy costs and environmental impact.
   (c) Versatile application of the system across multiple sectors, including defense, marine, manufacturing, and commercial establishments.

6. **Key Deliverables:**

   (a) Prototypes of the SVACP system for performance testing.
   (b) Detailed testing and validation reports under diverse operational conditions.

(c) System integration and maintenance guidelines for scalability.
(d) A manufacturing framework for large-scale deployment.

7. **Strategic Relevance**. The SVACP aligns with energy conservation and sustainability goals, offering a green alternative to conventional systems. It supports industrial energy optimization, reduces operational costs, and enhances India's capability to develop innovative, eco-friendly technologies. Additionally, the system can strengthen energy infrastructure in remote defense facilities, marine applications and industries.

8. **Future Expectations:**

(a) **Energy and Cost Efficiency**: The SVACP will reduce electricity dependency, significantly lowering operational costs and improving energy efficiency in industrial, defense, marine and commercial applications.
(b) **Environmental Sustainability**: By utilizing steam as a clean energy source, the system will minimize greenhouse gas emissions, aligning with global environmental goals.
(c) **Scalability and Export Potential**: The technology will be adaptable across sectors and markets, with opportunities for export, strengthening India's position as a leader in sustainable cooling solutions.

TECHNOLOGY DEVELOPMENT FUND (TDF) SCHEME

FEASIBILITY CUM RFI RESPONSE FOR THE PROJECT REQUIREMENT UNDER TDF SCHEME

(PROFROMA)

1. **Name of the Institute** (Industry/Academia):
2. **Contact details:**
    a. Email
    b. PoC
    c. Address
3. **Title of the project requirement:**
4. **Project Description** (Define broad understanding of the project requirement and proposed solution under the project).
5. **Briefly detail the proposed technical solution in terms of subsystem/submodule levels.**
6. **Road map for achieving the proposed outcome (Development Plan Phase wise -Max 5 phases).**
7. **Development and production Estimates:**
    i. Estimated time required for development of the proposed technology /product (In Months).
    ii. Estimated cost required for the for development of the proposed technology /product (BQs of submodules/subsystems if any pls attach).
    iii. Estimated production cost of the end product after successful development (per unit or batch cost).
    iv. Whether the industry has already done any Suo moto design and development of the proposed product/technology at Technology Readiness Level – Yes/No
    v. Details of Suo moto design and development done if marked Yes in previous question (within 250 words).
    vi. Essential infrastructure required for development of the proposed product/technology for which funding is required.
8. **Technical strength in terms of manpower.**
9. **Relevant Work Experience.**
10. **Any other relevant information**

Queries if any and the reply in **PDF FORMAT** to be submitted online addressing to;

TO,

THE DIRECTOR TDF, DRDO

DRDO BHAWAN, RAJAJI MARG, NEW DELHI 110011

Email to, arjunk.hqr@gov.in, CC to dir.tdf-drdo@gov.in,