

**BRIEF AND QUESTIONNAIRE ON MAKE PROJECT
LIGHTNING DETECTION SYSTEM**

Brief Outline

1. Weather forecasting is a key to safe flying operations. In order to make accurate prediction of weather around flying bases meteorological equipment is utilised at all IAF bases. Lightning Detection System consists of a sensor network that measures the electromagnetic radiation emitted by lightning.

2. It is proposed to indigenously design & develop **Lightning Detection System (LDS)** for use at IAF bases under the Make-II procedure of DAP 2020.

3. Indian vendors (term to include, public limited company, private limited company, partnership firms, limited liability partnership, one person company, sole proprietorship registered as per applicable Indian laws) desirous of undertaking the design/development/manufacture may submit their response, as per format placed at Appendix B, through letter, fax or email to:-

Make PMU (IAF)
Room No 490 (E),
Air HQ (Vayu Bhavan)
New Delhi – 110106
Telefax: (011) 23013225
Email: makeind.iaf@gov.in

4. Estimated time lines are as follows:-

(a)	Time period for response from industry	Six weeks (may extend)
(b)	Interaction with vendors and feasibility study	Eight weeks
(c)	If project found feasible, internal approvals and issue of EoI	Eight weeks (may extend)

5. **Brief of Equipment.** Brief of the equipment at para 2 above is attached as Appendix A.

6. **Questionnaire.** A generic format for examination of the project and response by the vendors is placed at Appendix B.

BRIEF OF EQUIPMENT

1. Name of Eqpt - Lightning Detection System
2. Brief - A Lightning Detection System consists of a sensor network that measures the electromagnetic radiation emitted by lightning from convective clouds. This data is used to calculate the exact discharge location, polarity and additional parameters of lightning, resulting in detailed and precise lightning strike data location.
3. Tentative Quantity - 50 (subject to Equipment performance)
4. **Preliminary Specifications**
 - (a) System should be capable of detecting electrical discharges within a cloud i.e. Intra-Cloud (IC) and Cloud to Ground (CG). The data should be processed at either sensor or the central processing unit located at IAF.
 - (b) **Sensor Specifications and Detection Range.** The lightning detector shall be able to measure the characteristics and location of the lightning strikes such as type, polarity and time along with GPS location. Detection range envisaged is within a circumference of 1000 Km or more from the sensor location point in all terrain conditions.
 - (c) **Technology.** Equivalent or better than the existing Time-of-Arrival methodology over a broad frequency range of 1 Hz to 12 MHz and employing adaptive digital filtering. Sensor should have in-built technology to reject false lightning with high confidence level with further rejection at the central processing unit.
 - (d) **Accuracy of Detection.** 250 - 500 Mtr Location Accuracy (LA) and 90% or better Detection Efficiency (DE).
 - (e) **Other Desirable Features.** The LDS system is preferred to be compact, portable, low power consumption, rugged, 24x7 operable all weather, network friendly, integration supportable and upgradable with minimum maintenance.

GENERAL ASPECTS

1. Whether the company/ Association of Persons (AoP) is eligible as per provisions of DAP 2020 (Eligibility of Participation: Indian vendors only).
2. Whether the vendor can provide an assessment of its capability (Financial and Technical)? If so provide the necessary documentation for verification.
3. Whether 50% or higher (specify) Indigenous Content (IC) that can be ensured?
4. Does the vendor envisage the feasibility of achieving future exports?
5. Whether the vendor's proposal would be eligible for Make-II subcategory of Chapter III of DAP 2020?
6. Whether R&D or ToT through foreign collaboration is proposed by the vendor? (Provide indicative information)
7. Estimated cost of development in case indigenous R&D is proposed.
8. Estimated tentative time period of completion of R&D or ToT.
9. Rough Cost of equipment for manufacture in India.
10. Please indicate plan/status for certification of the equipment.
11. Please provide relevant and applicable technical details. Indicative of information on weight, parts etc.