Ref. No. AA/TL/0204
Date: **15.07.2021**

Extension of EoI Due Date

Subject: Selection of partner for long term Technology Collaboration Agreement (TCA) for Air Defence Gun (ADG) and/or Electro Optical Fire Control System (EOFCS) and/or Ammunition

This has reference to the Expression of Interest (EoI) published on BHEL's website www.bhel.com for Selection of partner for long term Technology Collaboration Agreement (TCA) for Air Defence Gun (ADG) and/or Electro Optical Fire Control System (EOFCS) and/or Ammunition on long term basis to enable BHEL to design, engineer, manufacture, assemble, integrate, quality control, test, supply, install, erect, commission, maintain, operate, repair, overhaul/retrofit, service, troubleshoot and sell Air Defence Gun (ADG) and/or EOFCS and/or Ammunition to meet Indian Army (IA)/Ministry of Defence (MoD) requirements.

The due date for receiving the proposals against the EoI has now been extended up to **August 16, 2021 (Monday).**

The interested parties shall ensure that their responses along with duly filled and signed annexures as mentioned in the EoI are received by BHEL on or before **August 16, 2021 (Monday).**

In case any further information is needed, kindly feel free to contact us.

The respondent shall submit their response with all annexures duly signed to the following official:

Sr. Dy. General Manager
Technology Licensing (TL)
Corporate Technology Management (CTM)
Bharat Heavy Electricals Limited
BHEL House, Siri Fort
New Delhi – 110 049, India
Phone: +91 11 6633-7218, Fax: +91 11 26492974
Email: techeoi@bhel.in

Ref. No. AA/TL/0204
Date: **24.06.2021**

Subject: Selection of partner for long term Technology Collaboration Agreement (TCA) for Air Defence Gun (ADG) and/or Electro Optical Fire Control System (EOFCS) and/or Ammunition

1) Introduction:

This Expression of Interest (EoI) seeks responses from prospective collaborators who are Original Equipment Manufacturers (OEMs), fulfilling all the requirements of this EoI and are willing to be associated with Bharat Heavy Electricals Limited (BHEL) through a Technology Collaboration Agreement (TCA) on long term basis to enable BHEL to design, engineer, manufacture, assemble, integrate, quality control, test, supply, install, erect, commission, maintain, operate, repair, overhaul/retrofit, service, troubleshoot and sell Air Defence Gun (ADG) and/or EOFCS and/or Ammunition to meet Indian Army (IA)/ Ministry of Defence (MoD) requirements.

BHEL is a leading state-owned company wherein Government of India is holding 63.17% of its equity. BHEL is an integrated power plant equipment manufacturer and India's largest engineering and manufacturing enterprise of its kind, catering to the core infrastructure sectors of Indian economy viz. energy, transportation, heavy engineering industry, renewable & non-conventional energy and Defence. BHEL has been in the business for more than 55 years and BHEL supplied power equipment account for more than 57% of the total thermal generating capacity in India. BHEL is also listed in stock exchanges of India. The company has 16 manufacturing units, 4 power sector regions, 8 service centers, 1 overseas office and 15 regional offices besides host of project sites spread all over India and abroad. The annual turnover of BHEL for the year 2018-19 was around US $ 4 Billion. BHEL's highly skilled and committed manpower of approximately 35000 employees, the state-of-art manufacturing facilities and practices together with the latest technologies, have helped BHEL to deliver a consistent track record of performance. To position leading state-owned company as Global Industrial giant for their exemplary performance, Government of India categorized BHEL as "Maharatna Company" in 2013, empowering the company with enhanced autonomy in decision making. With the current order book exceeding US $ 15 Billion*, BHEL is poised for excellent future growth. Our ongoing major technology tie-ups include agreements with Siemens, Germany (for steam turbines, generators and condensers); MHI, Japan (for Pumps); MHPS, Japan (for Flue Gas Desulfurization Systems); Vogt Power International, USA (for HRSG); Indian Space Research Organization (ISRO) (for Space Grade Lithium-Ion Cells); NANO Company Ltd., Korea (for SCR Catalysts); HLB Power Company Ltd., Korea (for Gates and Dampers); Kawasaki Heavy Industries, Japan (for Stainless Steel Coaches for Metros) and Babcock Power Environmental Inc., USA (for Selective Catalytic Reduction Systems). More details about the entire range of BHEL's products and operations can be obtained by visiting our website http://www.bhel.com.

BHEL has also emerged as a reliable supplier of strategic equipment and services to Indian Defence forces for over 25 years. BHEL has large infrastructure including dedicated engineering and manufacturing facilities at many locations to manufacture various types of equipment and provide complete services to meet the Indian defence requirements. BHEL has supplied to the defence forces 76/62 Super Rapid Gun Mount, Armoured Recovery Vehicles, Simulators, Control System for Tanks, Integrated Platform Management System for Ships, casting and forgings etc. Ministry of Defence, Govt. of India has nominated BHEL as the Production Agency for indigenous manufacture of 30 mm Naval Surface Gun in association with selected OEMs under Transfer of Technology. Heavy Electrical Equipment Plant (HEEP), one of the major manufacturing units of BHEL located at Haridwar, Uttarakhand is manufacturing Naval Guns for Indian Navy since 1994.

2) Present Expression of Interest:

IA/MoD is in the process of modernization of its Air Defence Guns and has indicated a requirement of Air Defence Guns with associated EOFCS as a replacement of existing L-70 and Zu-23mm-2B Guns currently held by IA. It is expected that soon Request For Proposal (RFP) for procurement of such ADG including EOFCS and ammunition shall be issued by IA/MoD under "Buy and Make (Indian)"

category of extant Defence Acquisition Policy (DAP) (DAP copy is available on Ministry of Defence, Govt. of India website http://mod.nic.in). As per the "Buy and Make (Indian)" category, MoD procures the tendered equipment from an Indian vendor (including an Indian company forming joint venture/establishing production arrangement with OEM), with identified quantities of equipment imported and balance to be supplied by the Indian vendor under licensed production/indigenous manufacture in the country. The minimum indigenous content for the total contract as well as for the first equipment made in India is required to be as per provisions of the extant DAP. As per existing version of DAP, minimum 50% indigenous content for Make portion on cost basis is mandatory.

Based on this EoI process, BHEL presently intends to shortlist and select suitable partner/s for participation in the above procurement process of IA/ MoD and if successful, will execute the Contract(s) for Air Defence Gun and/or EOFCS and/or Ammunition with shortlisted partner(s) after award of contract from IA/MoD. For this purpose, ultimately a long-term technology collaboration agreement as per indicative scope at **Annexure-1** would be signed.

BHEL shall receive applications pursuant to this EoI in accordance with the terms set forth herein, as modified, altered, amended and clarified from time to time by BHEL, and all Applications shall be prepared and submitted in accordance with such terms on or before the date specified in this EoI for submission of applications.

3) Scope of cooperation:

BHEL seeks a prospective collaborator for entering into a long term Technology Collaboration Agreement **(**TCA**)** to indigenously manufacture the Air Defence Gun and/or EOFCS and/or Ammunition in India in order to address the requirement of IA/ MoD. The indicative scope of technology transfer is given at **Annexure-1.**

4) Obligations of Prospective Collaborator(s):

The obligations of the selected collaborator(s), inter alia, shall be as below:

A) Prospective Collaborator would be required to enter into a long-term Technology Collaboration Agreement (TCA) for transfer of the technology to BHEL to manufacture the Air Defence Gun and/or EOFCS and/or Ammunition in India.

B) Prospective collaborator(s) for Air Defence Gun and/or EOFCS and/or Ammunition shall support BHEL in integration of their respective product to enable BHEL supply the complete Air Defence Gun System. Prospective collaborator(s) will also support BHEL in System integration* including with the in service Fire Control Radar (to be provided by Indian Army) and Proving of the complete system as per RFP parameters.

**System Integration means Air Defence Gun, EOFCS, Ammunition fuse setter, Fire Control Radar or any other subsystem as per the requirement of RFP, has to be integrated as an Air Defence Gun System, which should function as per RFP parameter.*

C) Prospective Collaborator(s) may also be required to enter into a long-term Supply Agreement and meet the expected delivery requirements and other Terms & Conditions of RFP to be issued by IA/MoD on back to back basis. As per existing version of DAP, minimum 50% indigenous content for 'Make' portion on cost basis is mandatory.

D) Prospective Collaborator(s) would be required to successfully meet the Field Evaluation Trials of the ADG and/or EOFCS and/or Ammunition to be carried out by IA/ MoD as per terms of DAP and/or RFP to be issued by IA/ MoD. Salient points pertaining to Field Trials are as given below:

1) For a Bidder to be accepted/pre-qualified by IA/ MoD it is mandatory that the ADG and EOFCS and Ammunition successfully clears all the tests/trials/evaluations as per IA/ MoD requirements. The trial evaluation process generally comprises (shall include but not limited to) of:

a) User Trial
b) Technical/ Environmental Evaluation trial
c) Maintainability evaluation trial
d) EMI/ EMC evaluation trial

2) The prospective collaborator(s) shall be required to provide the desired Unit(s) of Air Defence Gun and/or EOFCS and/ or Ammunition for Field Evaluation Trials and Acceptance by IA/ MoD in varying climatic altitude and terrain conditions in India. A staff evaluation will be carried out by IA/ MoD which will give the compliance of the demonstrated performance of the equipment vis-à-vis the requirements of IA/ MoD.

3) Trials will be conducted as per requirements of RFP to be issued by IA/ MoD. Any modification/ rectification required during the trials to meet IA/ MoD specifications would be carried out by the prospective collaborator.

4) Prospective Collaborator(s) would be required to manufacture/arrange the prototype of ADG and/or EOFCS and/or Ammunition and carry out field trials as per IA/MoD requirements of No Cost No Commitment (NC-NC) basis. BHEL may consider sharing the financial burden associated with the NC-NC trials. Details of sharing of such financial burden shall be mutually agreed between the parties. Since BHEL has vast infrastructure and manufacturing facilities spread pan India, may also be used for expediting the manufacturing of Prototype or making any modification during trials.

   Prospective Collaborator may include the details of the step involved and indicate the proposed work share for carrying out field trials at **Annexure-2.**

5) Prospective Collaborator(s) would be required to support BHEL during interactions with the IA/ MoD for initial screening, participation in the RFP and subsequent qualification process by way of deputing their experts to India and providing the required information and clarifications as required/sought by IA/ MoD.

6) Prospective Collaborator shall provide firm and irrevocable commitment to provide product support in terms of maintenance, materials and spares etc for a minimum period of 25 years from the date of last ADG and/or EOFCS and/or Ammunition supplied by BHEL or as required in the RFP to be issued by IA/ MoD.

7) Prospective Collaborator is required to confirm that in case of getting shortlisted as a result of this EoI process, following support shall necessarily be provided to BHEL in order to enable BHEL to prepare and submit a competitive techno-commercial bid to IA/ MoD as per the terms of the RFP (& other requirements as applicable) and also to successfully execute the contract in case of BHEL emerging as L1 bidder:

   a) To provide costing elements required for preparation of BHEL offer against RFP. Costing elements to cover the details of major materials used in ADG and/or EOFCS and/or Ammunition, manufacturing process, facilities including major machines, assembly & special test equipment, special processes and other suitable details on shop layouts and any other pertinent details. The information to include known supplier sources for such facilities/equipment.

   b) To provide a price list with long term validity with Price Variation Clause for assemblies/subassemblies/components/spares/Manufacturer's Recommended List of Spares (MRLS) etc. for items to be sourced from prospective collaborator.

   c) Any other requirement felt necessary as per RFP issued by Indian Army/MoD.

Above mentioned requirements are only indicative in nature, however any other document/information/input required by BHEL for cost estimation and for preparation & submission of techno-commercial bid to IA/ MoD shall have to be provided by the prospective collaborator.

5) Selection of Prospective Collaborator(s):

Based on the information provided under this EoI, the prospective collaborator(s) shall be shortlisted on the basis of Details/Information specified in **Annexure-3**. Detailed techno-commercial negotiations shall be held with the shortlisted prospective collaborator(s) to finalize the long-term TCA with the selected party.

A Memorandum of Understanding (MoU) shall be signed with the selected party before submission of bid against RFP to IA/ MoD. The long-term Technology Collaboration Agreement shall be entered into with the selected party after receipt of contract by BHEL from the IA/ MoD for Air Defence Gun and/or EOFCS and/ or Ammunition.

6) Brief Description of EoI Process:

The interested prospective collaborator(s) shall ensure that their response(s), along with details requested as per the Annexures of this EoI, is (are) received by BHEL on or before **July 15, 2021 (Thursday).** The response(s) shall necessarily be accompanied with details on company background, technical features/ product catalogue, reference list, annual audited financial reports for last 3 (three) years including auditor's report and other enclosures as required under the present EoI. The responding prospective collaborator(s), on submission of their response(s), can be called for further discussions at a short notice.

The prospective collaborator(s) should respond to BHEL's Questionnaire placed at **Annexure-2** and **Annexure-4** on various parameters of their respective Air Defence Gun and/or EOFCS and /or Ammunition. For convenience and ready reference, a checklist of documents to be submitted has also been placed at **Annexure-5**.

The prospective collaborator(s) shall also need to furnish a declaration that export to India of the Air Defence Gun and/or EOFCS and/or Ammunition & their technologies from their respective country(ies) is in no way restricted.

The respondent shall submit their offer with all Annexures duly signed. In case any further information is needed, kindly feel free to contact us. In case any amendment/ corrigendum issued to this EoI, it shall be notified only at www.bhel.com.

7) Schedule of EoI & Contact details:

7.1 Schedule of EoI:

The schedule of EoI shall be as follows:

S No.	Description	Date
1.	Issue of EoI Document	**24.06.2021, Thursday**
2.	Due Date for submission of EoI response	**15.07.2021, Thursday**

7.2 Contact Details:

The respondent shall submit/send their offer with all annexures duly signed at the following address:

Sr. Dy. General Manager
Technology Licensing (TL)
Corporate Technology Management (CTM)
Bharat Heavy Electricals Limited
BHEL House, Siri Fort
New Delhi – 110 049, India
Phone: +91 11 6633-7218, Fax: +91 11 26492974

Email: techeoi@bhel.in

8) Miscellaneous:

A. Right to accept or reject any or all Applications:

1) Notwithstanding anything contained in this EoI, BHEL reserves the right to accept or reject any Application and to annul the EoI Process and reject all Applications, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore. In the event that BHEL rejects or annuls all the Applications, it may, at its discretion, invite all eligible OEMs/Suppliers to submit fresh Applications.

2) BHEL reserves the right to disqualify any Applicant during or after completion of EoI process, if it is found there was a material misrepresentation by any such Applicant or the Applicant fails to provide, within the specified time, supplemental information sought by BHEL.

3) BHEL reserves the right to verify all statements, information and documents submitted by the Applicant in response to the EoI. Any such verification or lack of such verification by BHEL shall not relieve the Applicant of his obligations or liabilities hereunder nor will it affect any rights of BHEL.

B. Governing Laws & Jurisdiction

The EoI process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi (India) shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the EoI process.

Annexure-1

Indicative Scope of Technology Transfer

a)	Licensing & transfer of state-of-the-art technology relating to design, engineer, manufacture, assemble, integrate, quality control, test, supply, maintain, installation, erection, commission, operate, repair, overhaul/retrofit, service, troubleshoot and sell Air Defence Gun and/or EOFCS and/ or Ammunition as per requirement of IA/ MoD.
b)	Transfer of applicable computer programs including logics and source code, if any
c)	Transfer of improvements/modifications/developments/up gradations carried out by the prospective collaborator over the duration of the technology transfer for taking care of new market requirements and obsolescence of components used in the system
d)	Assistance in planning & setting up of the facilities by way of expert advice in terms of identifying, sizing & selection of equipment required for manufacturing and assembly, their layout and foundation etc.
e)	Assistance for establishing manufacturing processes, commissioning of the manufacturing facilities, design of special tools and dies, jigs & fixtures etc. by way of deputation of experts for agreed number of man days as and when required by BHEL.
f)	Transfer of Site feedback and troubleshooting information.
g)	Training in the design, manufacture, assembly, quality control / quality assurance, testing, installation, commissioning, maintenance, operation & retrofitting.
h)	Deputation of prospective collaborator's experts to assist BHEL in absorbing the technology for licensed products.
i)	Support through engineering services from prospective collaborator's design office / manufacturing facilities for licensed products.
j)	Transfer of information to enable BHEL to source/procure those items, which the prospective collaborator sources from outside (as they are not manufactured by the prospective collaborator) for use in the ADG and/or EOFCS and/or Ammunition.
k)	Critical Technologies as identified by IA/ MoD in the RFP.

(SIGNATURE)

Annexure-2

2.1 Questionnaire on Areas of Collaboration

Areas of Collaboration	Prospective Collaborator's willingness (YES/NO)	Willingness to share information required for ADG System Integration	Remarks
ADG			
EOFCS			
Ammunition(HE & 3P/AHEAD/ Similar type)			

2.2 Proposed Workshare matrix for step involved/ Infrastructure/support required for NC-NC Field Trials

Sl. No.	Step involved/ Infrastructure/ support required	Collaborator (ADG and/or EOFCS and/or Ammunition)	BHEL	Remarks/ place of activity
1.	Manufacture of equipment for Trial			
2.	Integration of AD Gun with EOFCS and Fuse setter			
3.	Integrated Testing & proving of complete system along with EOFCS as per RFP parameters.			
4.	Ammunition arrangement & supply for equipment testing at i. AD Gun OEM's premises ii. Internal trials (in India) iii. User trials			
5.	Transportation of Trial equipment to Indian port			
6.	Arrangement of firing ranges for doing Internal trials in India			
7.	Arrangement of Ballistic data, firing tables and preparation of all required targets			
8.	Complete Logistics (including Insurance and import clearance, if applicable) for equipment in India			
9.	Internal Trial (in India) and User trial arrangements at Trial location			
10.	Vehicle for towing & mobility test			

2.3 Questionnaire on Terms of Cooperation

S No.	Terms of Cooperation	Response
Q 1.	Willingness to participate under the "Buy & Make (Indian)" categorization of DAP 2020	
Q 2.	a) Willingness to support BHEL in integration of their respective product to enable BHEL supply the complete Air Defence Gun System. b) Willingness to support in System integration including with the in service Fire Control Radar (to be provided by Indian Army) and proving of the complete system as per RFP parameters.	
Q 3.	Willingness to manufacture/arrange desired unit(s) of Air Defence Gun and/or EOFCS and/ or Ammunition for Field Evaluation Trials on No Cost No Commitment basis	
Q 4.	Willingness to support BHEL during interactions with the IA/ MoD for initial screening, participation in the RFP and subsequent qualification process by way of deputing their experts to India and providing the required information and clarifications as required/sought by IA/ MoD.	
Q 5.	In case of getting shortlisted as a result of this EoI process, willingness to provide following support to enable BHEL to prepare and submit a competitive techno-commercial bid to IA/ MoD as per the terms of the RFP (& other requirements as applicable) and also to successfully execute the contract in case of BHEL emerging as L1 bidder: 1. To provide costing elements required for preparation of BHEL offer against RFP. Costing elements to cover the details of major materials used in ADG and/or EOFCS and/or Ammunition, manufacturing process, facilities including major machines, assembly & special test equipment, special processes and other suitable details on shop layouts etc., any other pertinent detail. The information to include known supplier sources for such facilities/equipment. 2. To provide a price list with long term validity with Price Variation Clause for assemblies/subassemblies/components/spares/Manufacturer's Recommended List of Spares(MRLS) etc. for items to be sourced from prospective collaborator. 3. Any other requirement felt necessary as per RFP issued by Indian Army/MoD.	

(SIGNATURE)

Annexure-3

Details/Information required from prospective collaborator

Experience & Delivery

S No.	Item	Requirement	Confirmation
a)	Experience	The prospective collaborator should have designed, engineered, manufactured, successfully tested and integrated with EOFCS & Fire Control Radar and supplied at least 1 no. (one) Air Defence Gun (effective Range against Air Targets for Air Defence Gun should be 4000 m or more) as on the closing date of this EoI.	Yes/No
		and /or	
		The prospective collaborator should have designed, engineered, manufactured, successfully tested and supplied EOFCS and should have integrated such EOFCS with at least 1 no. (one) Air Defence Gun or any other similar type of Gun as on the closing date of this EoI	Yes/No
		and /or	
		The prospective collaborator should have designed, developed, manufactured, tested and supplied Normal ammunition and smart Ammunition/programmable ammunition for Air Defence Gun or similar gun.	Yes/No

Relevant documentary evidence to substantiate the fulfillment of above requirements to be furnished along with response.

(SIGNATURE)

Annexure -4

Questionnaire on various technical specifications & parameters of Air Defence Gun and/or EOFCS and /or Ammunition

S No.	Specification / Parameters	Response
Q 1.	Capable of engaging air targets both with and without a Fire Control Radar	
Q 2.	Capable of engaging air targets both during day and night using Fire Control Radar and Electro Optical Fire Control System (EOFCS)	
Q 3.	Capable of engaging air target (target speed up to 500m/s) at the max effective range of the gun	
Q 4.	Capable of being transported by broad gauge rakes of Indian Railways	
Q 5.	Capable of manufacturing/arranging following type of ammunition: 1. High Explosive (HE) rounds with self-destruction capability and tracers 2. Programmable Ammunition with self-destruct capability (3P/AHEAD or similar) 3. Both	
Operational Characteristics		
Q 6.	What is the type of gun? (Revolver, Recoil, Gas operated etc.)	
Q 7.	What is the caliber of the gun?	
Q 8.	How many barrels does the gun have?	
Q 9.	What is the rate of fire?	
Q 10.	What is the weight of the gun?	
Q 11.	10.1 What is the maximum effective range against air targets? 10.2 What is the hit probability (for 70% of the effective range for target flying at 300m/s) while firing with EOFCS and Smart Ammunition? 10.3 Effective engagement (No. of rounds/sec) with target flying at 300m/s at 70% of the effective range without reloading?	
Q 12.	What is the maximum speed of the air target that the gun can engage effectively?	
Q 13.	What is the max & min ranges at which the aerial target can be effectively engaged in standalone mode and when being controlled by a radar?	
Q 14.	What is the operational altitude of the Gun where it can be deploy?	
Q15.	What is the maximum engagement altitude against air targets?	

S No.	Specification / Parameters	Response
Q 16.	What is the proposed solution for engaging aerial targets flying between 0-500 m/s?	
Q 17.	What are the elevation and traverse limits of the gun?	
Q 18.	What are the maximum traversing and elevating speeds of the gun?	
Q 19.	What are the various types of ammunition that the gun can fire? Please give brief details of various types of ammunition, including rates of fire.	
Q 20.	Which all air targets can be engaged by the gun? How many engagement cycles is the gun capable of without barrel change?	
Q 21	Is the gun capable of firing on ground targets? What is the sighting system and range of the gun in ground role?	
Q 22.	What is the feed system of ammunition?	
Q 23.	In case more than one type of ammunition is used, is there a requirement of an additional attachment/preparation for firing each type of ammunition?	
Q 24.	Does the gun use any special type of ammunition like de-coppering etc? Please give the details of such ammunition and their purpose.	
Q 25.	What are the types of ammunition which can be fired from the gun including advanced training ammunition?	
Q 26.	Does the storage facility for ready to fire ammunition exist on the Gun? If so, how many rounds can be stored on the gun?	
Q 27	Are the camouflage nets to be provided with gun based on MSCN (Multi Spectral Camouflage Net) pattern?	
Q 28.	What is the mechanism used for converting the gun from travelling position to firing position and vice versa?	
Q 29.	How many personnel are required for loading of ammunition during the operation of the gun?	
Q 30.	What is the type of sighting system used?	
Q 31.	Does the Gun use Electro-Optical Fire Control System (EOFCS)? If so: (i) What is the configuration of the EOFCS? (ii) What are the salient features of the EOFCS? Please give a brief description of its operation.	
Q 32.	What is the capability of EOFCS in terms of pick up & tracking range, night engagement capability, laser range finding?	
Q 33.	What is the power requirement for operation of the gun?	
Q 34.	Does the gun have onboard power supply system or does it require an external power source?	
Q 35.	What is the crew required to operate the gun excluding the driver of the towing vehicle?	

S No.	Specification / Parameters	Response
Q 36.	What is the into/out of action time of gun with a trained crew?	
Q 37.	What is the type of vehicle that is required to tow the gun?	
Q 38.	What are the maximum speeds at which that the gun can be towed on metaled roads and cross country in plains, semi deserts and deserts?	
Q 39.	Does the gun have any associated equipment? If so, give brief description of the associated equipment with purpose.	
Q 40.	What are the environmental conditions (temperature, relative humidity etc) in which the gun can operate effectively?	
Q 41.	Are there any special features that will ensure effective operation in mountainous terrains?	
Q 42.	What is the prime mover/HMV used for mounted version? What is the power to weight ratio of the prime mover, road clearance & turning radius?	
Q 43.	Is the leveling mechanism of the gun power assisted?	
Q 44.	What is the type of drive being used by the gun for slewing it in elevation & bearing?	
Q 45.	What is the slewing speed & acceleration of the gun in traverse & elevation?	
Q 46.	How is the gun powered and does it have on board power supply? Battery capacity permits what duration for operation of gun? Can the gun operate from commercial mains/generator of 220V 50Hz AC? Are the batteries rechargeable while system is in operation?	
Q 47.	Does the gun have BITE (Built in Test Facility) for easy maintenance?	
Q 48.	Is equipment modular in construction to facilitate repairs in field / unit?	
Q 49.	Will you be able to provide maintenance philosophy from 'O' , 'I' / Field to 'D' /Base level repairs?	
Q 50.	Will you be providing Engineering Support Plan (ESP) for life time sustenance of equipment from 'O' to 'D ' level, to include following: - (a) SMTs/STEs / Inspection Gauges/Jigs. (b) Spares. (c) Tech Lit. (d) Training Aggregates. Do you have the facility for undertaking repairs in your premises which are beyond the scope of above ESP?	
Q 51.	Will you be able to provide clear definition of 'O ' 'I' and 'D' level of repairs?	
Q 52.	Will you be able to provide broad Permissible Repair Schedule for of 'O ' 'I' and 'D' level repairs?	
Q 53.	Will you be able to provide Reliability parameters with confidence level for each Major Assembly?	
Q 54.	For sustenance of the equipment throughout its Lifecycle, various interventions are required. Like Base Overhaul and planning for the same in terms of Pilot	

S No.	Specification / Parameters	Response
	Overhaul. Would you be able to assist in establishing the facility and training for the same?	
Miscellaneous Issues		
Q 55.	What is the service life of the gun?	
Q 56.	Which all simulators are proposed with your solution for training on operation and maintenance?	
Q 57.	Is the spare back-up for the systems/sub-systems assured for the entire life cycle of the equipment?	
Q 58.	What are the training facilities/equipment on operation and maintenance associated with the gun?	
Q 59.	What is the approximate cost of the gun?	
Q 60.	Will you be able to additionally provide Maintenance Transfer of Technology (MToT) and assist in establishing the required facilities, if so required?	
Q 61.	(a) Are you making the complete equipment or is it being integrated by you? Give details (b) What are the components, sub-system or sub-assemblies of the equipment which are not manufactured by you? Please give details.	
Q 62.	(a) What is the capability of manufacture of Ammunition for the system? (b) Do you have requisite licenses and infrastructure for provision of ammunition for the Gun?	
Q 63.	Please state your annual production capability?	
Note: *More details to elaborate any other aspects regarding the weapon system or procurement issue can also be provided*		

(SIGNATURE)

Annexure-5

Checklist

S No.	Requirement (*If required, NDA can be signed to facilitate the prospective collaborator to share the details of past supplies made)*	Response **YES/NO (**reference of supporting document**)**
1)	Whether the prospective collaborator is an Original Equipment Manufacturer of Air Defence Gun and /or EOFCS and /or Ammunition	
2)	Whether the prospective collaborator has a prior experience of designing, testing & supplying Air Defence Gun and/or EOFCS and/or Ammunition	
3)	Whether prospective collaborator's detailed experience & reference list is enclosed along with relevant documents.	
4)	Whether details of company background, product catalogues have been enclosed.	
5)	Whether prospective collaborator's annual audited financial reports including auditor's report for last 3 years have been enclosed	
6)	Whether the Air Defence Gun and/or EOFCS and /or Ammunition offered for technology transfer is the latest/ State of Art being marketed by the prospective collaborator	
7)	Whether the prospective collaborator owns the IPRs for the technology being proposed for transfer under the Technology Collaboration Agreement (TCA), or have unencumbered right from the owner of the IPRs to sub-license the technology.	
8)	Whether the prospective collaborator is willing to transfer the technology for the Air Defence Gun and/or EOFCS and/or Ammunition as per **Annexure-1**	
9)	Whether the prospective collaborator of ADG is willing to provide support/ guidance in selection of partners/ vendors for EOFCS and/ or Ammunition	
10)	Whether the prospective collaborator is willing to provide the product support in terms of maintenance, materials and spares for a minimum period of 25 years from the last ADG being supplied under the contract / as required by IA/ MoD.	
11)	Whether the prospective collaborator is willing to provide all upgrades and modifications carried out on the equipment during the term of the technical collaboration agreement and/or other agreement.	
12)	Whether the prospective collaborator is willing to enter into a long term Supply Agreement for supply of agreed equipment and component as per procurement conditions of IA/ MoD.	
13)	Whether declaration that "export of product and technology for the Air Defence Gun and/or EOFCS and/or Ammunition from Prospective Collaborator's country to India is in no way restricted" is enclosed.	
14)	Whether Questionnaire as per **Annexure 2** is enclosed.	
15)	Whether Experience & Delivery Information of Air Defence Gun and/ EOFCS and /or Ammunition as per **Annexure 3** enclosed.	
16)	Whether Questionnaire as per **Annexure 4** enclosed.	
17)	Whether this **Annexure 5** has been duly signed and enclosed.	

(SIGNATURE)

Disclaimer:

The information contained in this Expression of Interest document (the "EoI") or subsequently provided to Applicant(s), whether verbally or in documentary or any other form, by or on behalf of BHEL or any of its employees or advisors, is provided to Applicant(s) on the terms and conditions set out in this EoI and such other terms and conditions subject to which such information is provided.

This EoI is not an agreement and is neither an offer nor invitation by BHEL to the prospective Applicants or any other person. The purpose of this EoI is to provide interested prospective collaborators with information that may be useful to them in the formulation of their application for qualification pursuant to this EoI.

BHEL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Applicant upon the statements contained in this EoI.

The issue of this EoI does not imply that BHEL is bound to select and shortlist Applicants for next stage or to enter into any technology tie-up agreements with shortlisted Applicants for the project.