

**Subject: Selection of partner for long term Technology Collaboration and Supply Agreement for Air Defence Gun (ADG) with Ammunition.**

**1) Introduction:**

This Expression of Interest (Eoi) seeks response from prospective collaborators who are Original Equipment Manufacturers (OEMs) and are willing to be associated with BHEL for long term Technology Collaboration and Supply Agreement to design, engineer, manufacture, assemble, integration, quality control, test, supply, maintain, operate, repair, overhaul/retrofit, service, troubleshoot and sell, Air Defence Gun (preferred caliber of the Gun is 30mm and more) with Ammunition to meet Indian Army (IA)/ Ministry of Defence (MoD) requirements. The prospective collaborator would also ensure seamless transfer of ammunition technology on it's own or through suitable ammunition OEM.

Bharat Heavy Electricals Limited (BHEL) is a leading state owned company wherein Government of India is holding 63.06% of its equity. BHEL is an integrated power plant equipment manufacturer and one of the largest engineering and manufacturing organization in India, catering to the core infrastructure sectors of Indian economy viz. energy, transportation, industry non-conventional energy and Defence. BHEL has been in this business for more than 50 years and BHEL supplied power equipment account for more than 61 % of the total thermal generating capacity in India. BHEL is also listed in stock exchanges of India. The company has 17 manufacturing units, 4 power sector regions, 8 service centers, 8 overseas offices and 15 regional offices besides host of project sites spread all over India and abroad. The annual turnover of BHEL for the year 2014-15 was US \$ 5.04 Billion\*, with profit before tax of US \$ 349 Million\*. BHEL's highly skilled and committed manpower of approximately 44900 employees, the state of art manufacturing facilities and practices together with the latest technologies, has helped BHEL to deliver a consistent track record of performance. To position leading state owned companies 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 (as on 31/03/2015) exceeding US \$ 16.1 Billion\* , BHEL is poised for excellent future growth. Our ongoing major technology tie-ups include agreements with GE, USA (for gas turbines); Siemens, Germany (for steam turbines, generators and condensers); Metso Automation Inc., Finland (for control & instrumentation); Alstom, France (for Super-Critical Boilers & pulverisers); MHI, Japan (for pumps), MHPS, Japan (for FGD); Vogt Power International, USA (for HRSG); GENP, Italy (for compressors); Turbo Lufttechnik, Germany (for fans) and Sheffield Forge masters International, UK (for forgings). 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 20 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 vehicle, Simulators, Control System for Tanks, Integrated Platform Management System for Ships, casting and forgings etc. Indian Navy and Indian Coast Guard, Ministry of Defence, Govt. of India have nominated BHEL as the Production Agency for indigenous manufacture of 127mm Medium Caliber Gun System and 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.

[\*Note: Currency conversion rate considered: 1 US \$=Rs 62.59 as on 31st March 2015]

**Present Expression of Interest:**

IA/ MoD is planning to procure 428 nos. of ADG (preferred caliber of the Gun is 30 mm or more) with Ammunition under the “Buy & Make (Indian)” category of extant Defence Procurement Procedure (DPP) (hereinafter referred to as DPP - DPP is available on Ministry of Defence, Govt. of India website <http://mod.nic.in>). As per the “Buy & 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 the extant DPP.

BHEL presently intends to shortlist the OEMs based on this Eoi process and to subsequently select a suitable partner for participation in the above procurement process of IA/ MoD and if successful, to execute the contract for ADG (preferred caliber of the Gun is 30mm or more) of IA/ MoD. For this purpose, long term technology collaboration agreement as per indicative scope at **Annexure 1** and a long term Supply Agreement as agreed 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.

**2) Scope of cooperation :**

BHEL seeks a prospective collaborator for entering into a long term Technology Collaboration and Supply Agreement to indigenously manufacture the ADG in India in order to address the requirement of IA/ MoD for the ADG with Ammunition. The indicative scope of technology transfer is given at **Annexure 1**.

**3) Obligations of Prospective Collaborator:**

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

- A) Prospective Collaborator would be required to enter into a long term technology collaboration agreement for transfer of the technology to BHEL to manufacture the ADG in India.
- B) Prospective Collaborator would be required to meet the expected delivery requirements of IA/ MoD.
- C) Prospective Collaborator would be required to meet the Trials & Acceptance on the ADG and Ammunition to be carried out by IA/ MoD as per DPP/subsequent RFP to be issued by IA/ MoD:
  - 1) For an OEM to be accepted/pre-qualified by IA/ MoD, it is mandatory that the ADG 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
    - c) Maintainability evaluation trial
    - d) EMI/ EMC evaluation
  - 2) The prospective collaborator shall be required to provide the desired Unit(s) of ADG for Field Evaluation 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) The prospective collaborator should have either capability/experience in design, development, and testing of ammunition in vogue for ADG and/or should ensure seamless transfer of technology for ammunition.
  - 4) 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.
  - 5) BHEL shall consider sharing the financial burden associated with the manufacture of ADG and Ammunition for the field trials to be carried out as per IA/ MoD requirements. Details of sharing of such financial burden shall be mutually agreed between the parties.
- D) Prospective Collaborator 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.
- E) 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 20 years from the date of last ADG supplied by BHEL or as required by IA/ MoD.
- F) Prospective Collaborator shall be required to enter into a Supply agreement for supply of equipment & components to BHEL, terms of which shall be mutually agreed later. However such supply of agreed equipment and components shall be on back to back basis. It may be noted that all terms and conditions (including terms of payment, penalty, liquidated damages, Bank guarantees for performance or any other purpose, etc.) of the RFP of IA/ MoD for ADG shall apply to the procurement of agreed equipment and components from the prospective collaborator. As per extant DPP, minimum 50% indigenous content on cost basis is mandatory.
- G) 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.
- 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, 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.

Above is the indicative requirement, 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.

#### 4) Selection of Prospective Collaborator

Based on the information provided under this Eoi, the prospective collaborator(s) shall be shortlisted on the basis of Details/Information specified in **Annexure 2**. The shortlisted

prospective collaborator(s) may be further evaluated on the basis of Techno-commercial criterion during second stage of evaluation.

Detailed discussions on the terms & conditions of the long term Technology Collaboration Agreement and the Supply Agreement would be held with the shortlisted prospective collaborator(s) before the second stage of evaluation.

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 and Supply Agreement shall be entered into with the selected party after receipt of contract by BHEL from the IA/ MoD for ADG.

**5) Brief Description of Eoi Process:**

The interested prospective collaborators shall ensure that their response, along with details requested as per the Annexures of this Eoi, is received by BHEL on or before **15<sup>th</sup> October, 2015**, The response 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 collaborators, on submission of their response, can be called for further discussions to India at a short notice.

The prospective collaborators should respond to BHEL's Questionnaire placed at Annexure 3 on various parameters of their respective ADG. For convenience, a checklist of documents to be submitted has been placed at Annexure 4.

The prospective collaborators shall also need to furnish a declaration that export to India of ADG and its technology 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.

**6) 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.

**Your response may be sent to the following address:**

General Manager  
Technology Licensing & Joint Ventures  
Bharat Heavy Electricals Limited  
BHEL House, Siri Fort  
New Delhi - 110049  
India  
Phone: +91 11 66337809  
Mob: +91 9871094069  
Fax: +91 11 26492974  
Email: [shakil@bhel.in](mailto:shakil@bhel.in)

**Annexure-1**

**Indicative Scope of Technology Transfer**

a)	Licensing & transfer of state of the art technology relating to the design, engineering, manufacture, assembly, Integration, quality control, testing, supply, installation, erection, commissioning, maintenance, operation and retrofitting of ADG and Ammunition as per requirement of IA/ MoD.
b)	Transfer of applicable computer programs including logics and source code, if any
c)	Transfer of improvement/modification/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.
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 Ammunition.
k)	Critical Technologies as identified by IA/ MoD in the RFP.

**(SIGNATURE)**

**Annexure-2**

**Details/Information required from prospective collaborator**

**Experience & Delivery**

<b>S. No.</b>	<b>Item</b>	<b>Requirement</b>	<b>Confirmation</b>
a)	Experience	The prospective collaborator should have designed, manufactured, supplied and successfully tested at least 1 no. (one) ADG as on the closing date of this Eoi.	<b>Yes/No</b>
b)	In Service	The ADG should be in service for (at least) 1 year or more.	<b>Yes/No</b>
c)	Engineering and product development capability	The prospective collaborator should have capability of engineering and product development of ADG of same or similar types (preferred caliber of the Gun is 30 mm or more)	<b>Yes/No</b>
d)	Ammunition	The prospective collaborator should have either capability/experience in design, development, manufacturing and testing of ammunition in vogue for ADG and/or should ensure seamless transfer of technology for ammunition to BHEL under proposed long term technology collaboration agreement.	<b>Yes/No</b>

**(SIGNATURE)**



**Questionnaire on various parameters of Air Defence Gun (preferred calibre of the Gun is 30 mm or more) with 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.	Should be capable of being transported by broad gauge rakes of Indian Railways.	
Q 4.	The preferred calibre of the Gun is 30mm or more.	
<b>Operational Characteristics</b>		
Q 5.	What is the type of gun? (Revolver, Recoil, Gas operated etc.)	
Q 6.	What is the calibre of the gun?	
Q 7.	How many barrels does the gun have?	
Q 8.	What is the rate of fire?	
Q 9.	What is the maximum effective range against air targets?	
Q 10.	What is the maximum engagement altitude against air targets?	
Q 11.	What is the maximum speed of the air target that the gun can engage effectively?	
Q 12.	What are the elevation and traverse limits of the gun?	
Q 13.	What are the maximum traversing and elevating speeds of the gun?	
Q 14.	What are the <b>various types of ammunition</b> that the gun can fire? Please give brief details of various types of ammunition, <b>including rates of fire.</b>	
Q 15.	What is the feed system of ammunition?	
Q 16.	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 17.	Does the gun use any special type of ammunition like de-coppering etc? Please give the details of such ammunition and their purpose.	
Q 18.	Does the stowage facility for ready to fire ammunition exist on the Gun? If so how many rounds can be stored on the gun?	
Q 19.	What is the mechanism used for converting the gun from travelling position to firing position and vice versa?	



S.No.	Specification / Parameters	Response
Q 20.	How many personnel are required for loading of ammunition during the operation of the gun?	
Q 21.	What is the type of sighting system used?	
Q 22.	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 23.	What is the power requirement for operation of the gun?	
Q 24.	Does the gun have onboard power supply system or does it require an external power source?	
Q 25.	What is the crew required to operate the gun excluding the driver of the towing vehicle?	
Q 26.	What is the inaction time of the gun on reaching its deployment location (i.e. unhooking from the towing vehicle to ready to fire)?	
Q 27.	What is the out of action time of the gun (i.e. preparation time required till hooking it to towing vehicle)?	
Q 28.	What is the type of vehicle that is required to tow the gun?	
Q 29.	What are the maximum speeds at which that the gun can be towed on metalled roads and cross country in plains, semi deserts and deserts?	
Q 30.	Does the gun have any associated equipment? If so give brief description of the associated equipment with purpose.	
Q 31.	What are the environmental conditions (temperature, relative humidity etc) that the gun can operate effectively?	
Q 32.	Are there any special features that will ensure effective operation in mountainous terrains?	
<b>Miscellaneous Issues</b>		
Q 33.	What is the service life of the gun?	
Q 34.	Is the spare back-up for the systems/sub-systems assured for the entire life cycle of the equipment?	
Q 35.	What are the training facilities/equipment on operation and maintenance associated with the gun?	
Q 36.	What is the approximate cost of the gun?	
Q 37.	Will you be able to additionally provide <b>Maintenance Transfer of Technology (MToT)</b> and assist in establishing the required facilities, if so required?	

S.No.	Specification / Parameters	Response
Q 38.	(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? Pl give details.	
Q 39.	(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 40.	Please state your annual production capability?	
<p><i>Note : More details to elaborate any other aspects regarding the weapon system or procurement issue can also be provided</i></p>		

**(SIGNATURE)**

**Annexure-4**

**Checklist**

<b>S. No.</b>	<b>Requirement</b> <i>(If required, NDA can be signed to facilitate the prospective collaborator to share the details of past supplies made)</i>	<b>Response</b> <b>YES/NO</b> (reference of supporting document)
a)	Whether the prospective collaborator is an Original Equipment Manufacturer of ADG with Ammunition	
b)	Whether the prospective collaborator has a prior experience of designing, testing & supplying ADG with Ammunition	
c)	Whether prospective collaborator's detailed experience & reference list is enclosed and details of "ADG supplied in the past, which shall include broad specs of ADG with Ammunition, customer name and year of supply etc" are enclosed.	
d)	Whether details of company background, product catalogues have been enclosed.	
e)	Whether prospective collaborator's annual audited financial reports including auditor's report for last 3 years have been enclosed	
f)	Whether the ADG with Ammunition offered for technology transfer is the latest/ State of Art being marketed by the prospective collaborator	
g)	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.	
h)	Whether the prospective collaborator is willing to transfer the technology for the ADG with Ammunition as per <b>Annexure 1</b> including the critical technologies, under Technology Collaboration agreement.	
i)	Whether the prospective collaborator is willing to provide the product support in terms of maintenance, materials and spares for a minimum period of 20 years from the last ADG being supplied under the contract / as required by IA/ MoD.	
j)	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.	
k)	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.	
l)	Whether declaration that "export of product and technology for the ADG with Ammunition from Prospective Collaborator's country to India is in no way restricted" is enclosed.	
m)	Whether Experience & Delivery Information of ADG with Ammunition as per <b>Annexure 2</b> enclosed.	
n)	Whether Questionnaire as per <b>Annexure 3</b> enclosed.	
o)	Whether this <b>Annexure 4</b> 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.