



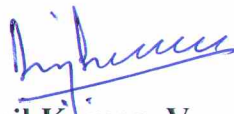
## KERALA –DEVELOPMENT AND INNOVATION STRATEGIC COUNCIL

No. 29/2019/K-DISC

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Date: 06/09/2019

### NOTIFICATION

It is here by notified that the last date for the submission of complete proposal (including the detailed technical proposal Annexures & supporting documents) as mentioned in the Expression of Interest floated on August 12, 2019 for Pilot project for the use of LNG in Boat/2019 is extended up to 16<sup>th</sup> September 2019.

  
**Anil Kumar. V,**  
**Secretary**

## TOP SHEET

### Pilot project for the use of LNG in Boat / 2019

Document	This EOI document contains total fifteen pages including the top sheet.
Name of the work	Conversion of existing 325hp Fishing boat Diesel engine to Dual Fuel (LNG + Diesel fuel).
Completion Period	18 weeks
Date of Uploading of enquiry	12 August, 2019
Last Date/time of receipt of Expression Of Interest	<p>Interested parties must submit their EOI Proposal in a sealed cover by 15:00 hrs on 7 September, 2019, in the Tender box placed at the reception of Petronet LNG Limited, Kochi LNG Terminal</p> <p>Address:</p> <p>Petronet LNG Limited Kochi LNG terminal Survey No 347, Puthuvypu-(P.O) Kochi -682508, District- Ernakulam, Kerala (India)</p> <p>Name of the work "Conversion of existing 325hp Fishing boat Diesel engine to Dual Fuel (LNG + Diesel fuel)" must be clearly written on the proposal packet</p>
Validity of the offer	180 days from the date of receiving of EOI
Contact address for further queries	<a href="mailto:etender@kdisc.kerala.gov.in">etender@kdisc.kerala.gov.in</a>

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## **1.0 INTRODUCTION**

K-DISC wishes to promote use of LNG as fuel in the fishing sector. For this purpose it has been decided to initiate, as a pilot project, retrofit of an existing marine diesel engine system to enable it operate on Dual fuel (LNG + Diesel). K-DISC has constituted a procurement committee for selecting suitable vendor to plan and implement the modification as per the scope mentioned herein this EOI document.

This enquiry is being promulgated so as to know the company and ascertain financial and technical strengths of the interested parties.

## **2.0 SCOPE OF WORK**

Project requires to select a suitable vendor who shall modify the existing marine diesel engine and install required LNG fuel storage tank and other associated equipment & pipelines. Project also requires modification in the boat hull to accommodate LNG tanks, pipelines, and other associated equipment etc.

As such, expression of interest are invited from the reputed qualified service providers who may retrofit the existing steel hull fishing boat Diesel engine with dual fuel kit to enable the engine to be operated on dual fuel (LNG + Diesel).

Following fishing boat is identified for the pilot project:

Fishing Boat / Owner: CIFT

Year of built: 2009/ Flag- Indian

Main Engine: 325 BHP @ 1800 RPM, CUMMINS NTA - 855M

Length overall 17.7M

Breadth: 6.0 m

Depth: 3.0 m

Gross tonnage: 60 Tons

Net tonnage: 57 Tons

Boat Photograph & General Arrangement drawing is enclosed as Appendix 1.

Boat is available at Kochi and may be visited providing reasonable notice. Please write to [etender@kdisc.kerala.gov.in](mailto:etender@kdisc.kerala.gov.in) for further queries.

Work shall have to be performed by the selected party on turnkey basis. It shall include, amongst others, complete design, installation, execution and testing by converting the existing diesel engine operating on diesel oil in to an engine capable of operating on LNG + Diesel dual fuel.

- Interested party may inspect the subject fishing boat and evaluate the modification required to install the suitable LNG tank onboard the vessel and various safety parameters which may need certain modifications/ fabrications by the workshop. The list of modifications / workshop job to be listed in detail.
- DDF system switch on/off should be provided on the bridge.
- Design, fabrication and installation of the retrofit kit along with LNG tank (PS Annexure 4- LNG Tank Specifications) need to comply with below.
  - a) The modified engine should be able to switch to 100% diesel without any delay in case of leak / malfunction or exhaustion of LNG fuel.
  - b) At 80% engine load the Diesel substitution should be minimum 60%. 10% penalty on the total value shall be levied in case the minimum LNG substitution is less than 60% of the total fuel consumed.
  - c) The output power of the engine should not drop when switching to DDF from Diesel fuel.
  - d) The interested party is to suggest the best location / compartment where the LNG tank must be fitted complying with the operations requirements of the boat and space availability.
  - e) Alarm display unit to be installed on the bridge.
  - f) Revised Stability drawings and calculations need to be submitted which will get changed due to positioning of the LNG tank and major workshop modifications causing shifting of the weights on the vessel.
  - g) Location and name of various safety devices/ alarms/ controllers/ sensors detectors etc. to be installed.

- h) Familiarization and training to the vessel engineers and crew on the safe operation of the DDF system. This will be done during the installation and testing of the DDF system and intermittently as and when required.

### **3.0 INFORMATION REQUIRED FROM INTEREST PARTIES**

The interested party shall express its interest for the project submitting a detailed proposal in one original and one copy. Proposal must include, amongst other documents, completed questionnaires enclosed at Annexure 1 through 4 of this document. Additionally, bidders shall submit the complete proposal in suitable electronic format (CD or pendrive). Proposal in electronic format must be stored in the sealed cover containing the original proposal and the copy. Bidders are required to submit their complete proposal as above as per the timeline and the location stipulated on page 1.

It is expected that the selected vendor should have sufficient experience in executing at least one LNG/CNG engine retrofit for engines above 120 bhp. In any of the following area:

- i) Marine diesel engine
- ii) Automobile trucks/Buses.
- iii) Mining trucks
- iv) Rail locomotive.
- v) Gensets

It is clarified that, the interested party shall be required to provide documentary evidence in support of its claim of financial strength and technical experience in the last three years to confirm that, it has the requisite technical capabilities and financial resources to undertake and accomplish the project.

It is desirable to have documentary evidence of any type/class/test approval, from Government Body, Classification Society/Reputed Independent Certification Bodies e.g. DNV,BVetc, for the entire kit or equipment used. Parties with experience in automobile conversion shall have necessary accreditation/certification from ARAI or similar Government approved testing agencies.

The interested parties shall be called by the K-DISC constituted Procurement Committee at the Petronet LNG Ltd office at Cochin to present before the Technical Committee (A sub-committee under Procurement Committee for the technical strength evaluation) its methodology, planning and timelines for execution of the pilot project. Upon completion of technical evaluation, the Procurement Committee shall finally evaluate all the proposals for their financial strength and shortlist the vendors. The vendors so shortlisted shall be invited to submit firm binding commercial offer. Bidders are strictly advised not to indicate prices anywhere in the EOI proposal.

#### **4.0 WARRANTY, OPERATION AND MAINTENANCE**

The selected vendor shall have to guarantee that the dual fuel conversion systems offered will be free from all defects in material, workmanship, and manufacture. The vendor shall provide one (1) year comprehensive warranty (for materials and services) from the date of successful commissioning of the DDF KIT, which means, inter-alia, that the bidder shall, at his own expense, replace any part of the system failing or proving unsatisfactory in service, due to any reason

whatsoever, during the warranty period.

## **5.0 INSURANCE COVER**

Vendor shall be responsible for the safe execution of its entire scope of work and may take an appropriate insurance cover to cover all the risk of life and asset accordingly.

## **6.0 WORK COMPLETION TARGET**

1. Completion of the project is contingent upon boat modification and the availability of LNG storage tank. LNG storage tank may be a relatively long lead item. The selected vendor shall be required to complete the entire work in all respects within 18 weeks from the date of issue of the letter of acceptance (LOA).
2. The work completion period may also vary due to availability/handover/shipyard modification of vessel and/or approvals (if any). If required, suitable extension may be granted by the K-DISC Procurement Committee upon evaluating the scenario.



## 7.0 TIMELINE/ MILESTONES

Following timeline/milestone shall be targeted:

Sl. No	Work Details	Timeline(within)
1.	Completion of fabrication/modification work on Vessel.	D+10 weeks
2.	Completion of installation of equipment & components	D+12 weeks
3.	Completion of Field trial	D+18 weeks

\*\* D is the date of receiving work order or the date of landing of LNG storage tank at Kochi, whichever is later.

## 8.0 PRICE

Firm binding commercial offer will be sought from only the vendors with whom the K-DISC constituted Procurement Committee is satisfied with regard to their technical expertise and financial strength.

Total work order value shall be sum aggregate of the following:

1. LNG Dual fuel Kit;  
Diesel LNG Dual fuel kit for 325bhp @ 1800 RPM, Cummins engine;
2. LNG Tank (Saturated LNG)  
Design, Fabrication and supply of Vacuum + Super insulated Horizontal fuel tank fit for the purpose.
3. Workshop;
4. Pipelines and all other associated equipment;
5. Insurance;
6. Any Others Item/Job.

Project shall be executed by the selected vendor on turnkey basis.

\*Workshop cost and LNG storage tank cost shall be the actual documented cost.

#### ELECTRONIC PAYMENT:

All payments in respect of the contract shall be made through NEFT.

### 9.0 SCHEDULE

Sl. No.	Activity	Time and Date
1.	Last date for the submission of complete proposal (including the detailed technical proposal Annexures & supporting documents)	15:00 Hrs, 07 September, 2019
2.	Technical Evaluation/Presentation	20th September to 27th September, 2019
3.	Intimation for the pre-qualified vendors	11th October, 2019
4.	Last date for the submission of commercial bid	25 <sup>th</sup> October, 2019

For further queries please write to [etender@kdisc.kerala.gov.in](mailto:etender@kdisc.kerala.gov.in), you will be getting a reply within 4 to 5 working days.

## ANNEXURE-1

(To be submitted on company letter head which must provide complete details such as registration number, GSTIN No, PAN number, office address, official email, landline numbers, website etc.)

### CONSTITUTION OF THE FIRM

1	Full name of bidder/s constitution of firm and year of establishment.	
2	Address of Registered & Head Office	
3	Email addresses of the firm for communication	
4	Fax no, telephone nos. of the firm for communication	
5	Details of branch offices in India	
6	Contact Details & full Address to which correspondence regarding this tender should be made	
7	Constitution of the Firm: Give full details including name of partners, executives and power of attorney holders etc.	
8	Details of registration with Government/Semi Govt. Organizations PSUs and local bodies. (Enclose copies)	
9	Organizational Chart	

(Authorized signatory of the firm with stamp)

## ANNEXURE-2

(To be submitted on company letter head which must provide complete details such as registration number, GSTIN No, PAN number, office address, official email, landline numbers, website etc.)

### TECHNICAL EXPERIENCE

Statement of works executed/completed or supplies in last three financial years including current year

Sr no	Client's name & address	Brief features of the work executed	Date of completion/ commissioning of work	Cost of the work	Supporting documents
1					
2					
3					

Note: For each of the above work self-attested copies of the LOA /purchase

order& completion / commissioning certificates / testimonials received from client shall have to be enclosed for substantiation.

(Authorized signatory of the firm with stamp)

### ANNEXURE-3

(To be submitted on company letter head which must provide complete details such as registration number, GSTIN No, PAN number, office address, email, website etc.)

#### FINANCIAL DETAILS OF THE EARLIER PERFORMED WORK

Details of Contract/work executed by the bidder/in the last three financial years 2016-17/ 2017-18/ 2018-19

S N	Contract/ Work No & Date.	Name & addre ss of client	Details of works/ contract	Date of commen cement of work	Date of completion of work	Total value of work	Supporting documents
1							
2							
3							
Total value							

Note: For each of the above work, self-attested copies of documents substantiating the claim are to be enclosed.

(Authorized signatory of the firm with stamp)

## ANNEXURE-4

(To be submitted on company letter head which must provide complete details such as registration number, GSTIN No, PAN number, office address, email, website etc.)

<b>TECHNICAL SPECIFICATIONS FOR LNG FUEL TANK</b>		
<b>Proposed values to be stated against below reference values with supporting design document</b>		
<b>DESCRIPTIONS</b>	<b>UNIT</b>	<b>MODEL</b>
GROSS CAPACITY	LIT	400-500
<b>INNER VESSEL:</b>		
MATERIAL	-	STAINLESS STEEL  X5 Cr-Ni 18-10
DESIGN, FABRICATION, INSPECTION AND TESTING CODE	-	ISO 12991 & ISO 21029-1
MAXIMUM ALLOWABLE WORKING PRESSURE	barg / kg/cm <sup>2</sup> (g)	24.0 / 24.5
TEST PRESSURE	barg / kg/cm <sup>2</sup> (g)	32.5 / 33.1
DESIGN TEMPERATURE	°C	-196 to +50
CLEANING DUTY	-	OXYGEN
INSULATION	-	VACUUM+SI
INSPECTION	-	TPI
<b>OUTER VESSEL:</b>		
MATERIAL	-	STAINLESS STEEL (SS 304)
DESIGN CODE	-	ISO 12991 & ISO 21029-1
INSPECTION	-	TPI
OPERATING PRESSURE	-	VACUUM
<b>WEIGHTS:</b>		
EMPTY WEIGHT [APPROX]	kg	
<b>DIMENSIONS:</b>		
OUTSIDE DIAMETER	mm	
OVERALL LENGTH	mm	
EXTERNAL SURFACE	-	MECH. CLEANING

**NOTES:**

1. PRELIMINARY SPECIFICATIONS. DETAILS MAY CHANGE DURING DETAILED ENGINEERING.
2. LNG tank must be CCOE approved

Appendix 1 Boat Photograph & General Arrangement Drawing

Fig:1 Boat Photograph



Fig:2 General Arrangement Drawing

