



**GAIL (India) LIMITED**  
Hazira Compressor Station

EOI: GAIL/HCS/EOI/2018/12

26.12.2018

**EXPRESSION OF INTEREST (EOI) – WASTE HEAT RECOVERY - HAZIRA**

**SCOPE OF WORK**

**1.1 BACKGROUND:**

GAIL (India) Ltd is a Central Public Sector Undertaking (PSU) under the Ministry of Petroleum & Natural Gas (MoP&NG) Government of India. GAIL operates network of Natural Gas Pipelines covering more than 11000 Km with a capacity of above 206 MMSCMD & two LPG Pipelines covering 2040 Km with a capacity of 3.8 MMTPA of LPG. Along the Natural Gas pipelines, there are booster/compressor stations. In addition, GAIL owns seven process plants (GPUs) across India for extraction of liquid hydrocarbons from natural gas.

**1.2 OBJECTIVE:**

GAIL intends to empanel list of prospective bidders for the proposed Waste Heat Recovery (WHR) system planned at Hazira Compressor Station, using the exhaust flue gases from the Gas Turbine (GT) towards effective utilisation.

**1.3 BRIEF ON HAZIRA COMPRESSOR STATION**

1.3.1 The Hazira compressor station the gateway of HVJ Pipeline system is located at Hazira near Surat Gujarat, at the following location

Hazira Compressor Station  
GAIL (India) Limited  
Ichchapore Magdalla Road  
P.O. ONGC Nagar  
Surat – 394518  
Gujarat, India

1.3.2 GAIL intends to install Waste Heat Recovery (WHR) Unit at Hazira, Distt: Surat (Gujarat) where Rolls Royce RB 211-24G (Compressor model 6562) Gas Turbines of 26MW (ISO rated) capacity are driving their respective compressors in open cycle i.e. the exhaust gases from gas turbines are being discharged into atmosphere at high temperature, implying that high amount of energy in the form of heat is remaining unutilized. There are 2 (two) numbers gas turbine installed and WHR is to be provided for exhaust of these both Gas Turbines.

1.3.3 Currently, waste heat in form of exhaust gases from the turbines at an average temperature of 450 Degree C are being let out into the atmosphere. It is envisaged that Heat from GT exhaust gases can be recovered using WHR and/or converted into steam using the HRSG, towards

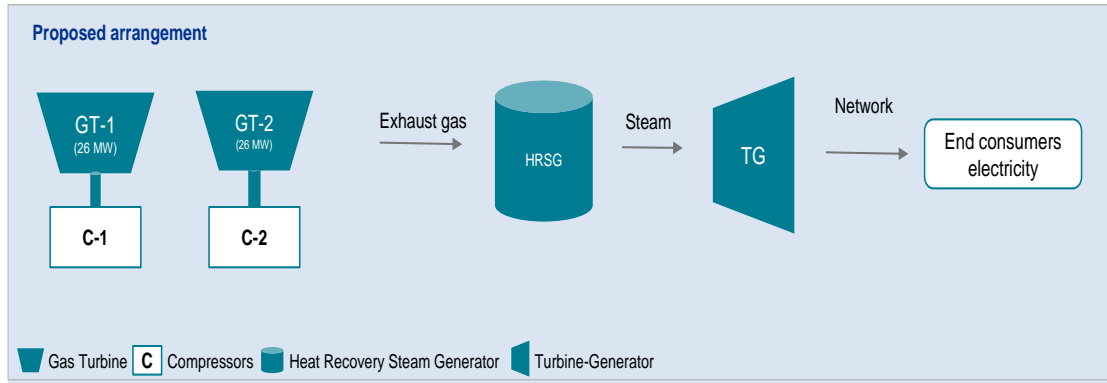
Steam generated feeds into the turbo-generator for electricity generation  
and /or

Supplying of Process steam requirement for nearby industries.



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- 1.3.4 For the purpose of utilizing waste heat and converting into useful purpose, GAIL wishes to empanel prospective agencies who can invest and operate WHR / HRSG with associated systems. GAIL will provide exhaust gas flow and land with it to the proposed agency.
- 1.3.5 It is envisaged that electricity will be generated using Heat Recovery Steam Generator and Turbo-Generator (as shown in figure above). In addition, there have been technological advancements in the area of power generation or steam utilisation. The agency/party is free to consider alternate technologies, provided that it has requisite certifications and complies with the regulations and laws of state and central governments.
- 1.3.6 The steam shall be generated through 2 (two) nos Heat Recovery steam generation units of equal rating to be put in the exhausts of each of the Rolls Royce RB 211-24 G (model 6562) Gas turbines.

Load on GTC	Ambient Temperature	Mass flow rate (kg/s) from each GT	Temperature (Deg C) from each GT
15 MW	30	75	450

Heat Recovery Steam Generation units shall be so designed so as to have minimum exhaust back pressure in Gas Turbines and available space for operation and maintenance is not adversely affected. The maximum allowable pressure drop in the system shall be considered as 250 mmWC from GT outlet to main stack outlet.

- 1.3.7 Since the Gas turbines are variable drive machines and being operated at Variable loads as per plant operational requirement all HRSG parts shall be designed for maximum operating conditions i.e. 86.9 Kg/s exhaust flow and 505 Deg C temperatures. The system shall be designed to produce the steam at all variable load as per the operational range defined below:

Turbine operating range for design purpose			
1	GT Load	%	60% to 100%
2	Exhaust flow range	Kg/sec	50 to 86.9
3	Ambient Temperature	Deg C	5 to 45



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4	Exhaust Duct Temperature	Deg C	380 to 505
<b>GT Exhaust gas composition for design purpose</b>			
1	CO2	% vol	1
2	N2	% vol	77.8
3	O2	% vol	17.6
4	H2O	% vol	3.6

**1.4 SCOPE OF WORK**

The brief typical scope of work as well as terms & conditions are as detailed below but not limited to the following:

**1.4.1 The interested agency / vendor shall have:**

- Complete EPC expertise for steam generation using exhaust flue gases
- Business acumen, Financial capability including commercial aspects to sell the power/ steam / end product
- Operation and maintenance experience of similar (WHR) Project executed / developed.

**1.4.2 The vendor will study and review the capacity, feasibility of final product requirement, resources, planning and construction, operation and maintenance etc., of WHR / HRSG associated systems, to utilise the exhaust flue gas effectively.**

**1.4.3 The vendor shall evaluate for the following, Based on the site visit and study/ review of the system, shall submit the following information in detailed manner:**

- Bidder to use flue gas in any way the bidder wants not limited just to electricity.
- Bidder to identify land requirement for the proposed system of WHR / HRSG with the end product set-up
- Constraints – both Technical / Commercial in execution of such WHR / HRSG Project.
- Bidder will have to explore potential consumers for purchase of steam and electricity.
- Bidder has to source raw water supply or other means, with necessary reservoir facility, for steam generation but GAIL will assist in obtaining clearance for water connection.



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**1.5 APPLICATION FORM FOR ENLISTMENT**

1	Name of the Organization	
2	Address of the Organization	
3	Contact details (Email / mobile) for communication	
4	Details of Organization who is bidding for enlistment	
5	Intended Utilisation of WHR /HRSG [Tick ✓ the relevant box]	Power Generation <input type="checkbox"/> Steam generation <input type="checkbox"/> Others <input type="checkbox"/>
6	Work Experience along with brief details of the Client(S)/Operator(s) where such WHR / HRSG System has been installed and successfully commissioned / operated with Capacities [Self-attested documentary evidence in support of above is required to be attached along with Application Form]	
7	Other information demonstrating bidder's competence [Self-attested documentary evidence in support of above is required to be attached along with Application Form]	

Place:

Date:

\_\_\_\_\_  
Authorized Signatory

Notes:

1. Submission of EOI doesn't provide the right to the parties for qualifying in the final bidding process.
2. GAIL reserves right for qualification of a party based on their technical & financial credentials.
3. Further, based on the response of EOI, the interested parties will be called for discussion regarding the requirements in details.

**ADDRESS FOR APPLICATION FORM & DOCUMENTS SUBMISSION**

**DGM / HoD (Mechanical)**

GAIL India Limited, HVJ Compressor Station, Hazira,

Surat, Gujarat - 394518.

Email: [rd00441@gail.co.in](mailto:rd00441@gail.co.in) latest by **20.01.2019**