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MAINTENANCE & SERVICES
CENTRAL FOUNDRY FORGE PLANT
BHARAT HEAVY ELECTRICALS LIMITED
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NOTIFICATION FOR EXPRESSION OF INTEREST

EOI for technological upgradation of Combustion System in nineteen Heat Treatment Furnaces of CFFP.

1. Introduction

Central Foundry Forge Plant (CFFP) a unit of BHEL was setup in 1976 at Haridwar to manufacture Steel Castings and Forgings. CFFP has 19 Heat Treatment furnaces of different capacity and sizes as attached vide Annexure-1. These furnaces are currently equipped with manual dampers for furnace pressure control, cold air burners, and four are additionally fitted with recuperators.

CFFP is planning to upgrade the combustion system of these furnaces with most efficient and financially viable combustion technology for RLNG as a fuel and normal air as combustion media available at Combustion blower by CFFP. CFFP aspires gain in efficiency of nearly 40 % or more in our heat treatment cycles for the furnaces with cold air as combustion media in the burners. This Gain in efficiency has to be achieved by waste heat recovery, automated furnace pressure control and optimisation of excess air requirement for complete combustion of natural gas limited to 2% Oxygen at any moment of time.

CFFP Invites expression of interest (EOI) from capable qualified and experienced manufacturers of Gas fired industrial, Furnaces/Burners for submitting their interest with details of technology proposed with detailed case studies, reports, performance certificates etc in support of advantages of the proposed technology.

Your participation will enable us to **initiate the tendering process by March 2025**, offering competent parties the opportunity to become business partners with a Maharatna company, contributing to national growth together.

2. Project Objective

The primary goal is to achieve a efficiency improvement in efficiency of nearly 40 % or more in the heat treatment process. This objective aims to be realised through:

Waste Heat Recovery: Maximising the capture and reuse of thermal energy from the combustion process. Saving potential of up-to 30 % is envisaged through waste heat recovery.

Optimization of Excess Air Requirement: Minimising excess air in the combustion process to achieve a maximum of 2% oxygen at any given time, thereby ensuring complete combustion with minimal wastage. The current system offers substantial savings potential through the

introduction of an automated mass flow control system, coupled with an efficient combustion system and burners, as existing oxygen levels range from 4-13%. Envisaged minimum saving here is 15-20% Vendors are welcome to conduct surveys to substantiate the efficiency gains achievable with the proposed system.

Automated Furnace Pressure Control and Reducing Losses from Air Infiltration: The introduction of an automated furnace pressure control system offers an energy-saving potential of up to 5-10%.

These potential saving percentages are based on the Bureau of Energy Efficiency (BEE) Guide Book for energy efficiencies (www.bee-india.nic.in) and references available on the website of the US Department of Energy (www.energy.gov).

Vendors are encouraged to visit CFFP to assess specific opportunities for optimising efficiency with the proposed system.

3. Scope of the EOI

CFFP invites Expressions of Interest (EOI) from qualified, experienced manufacturers and technology providers specialising in gas-fired industrial furnaces and burners. Interested parties are requested to submit details of the proposed combustion technology, demonstrating its capabilities to meet the outlined efficiency goals.

4. Requirements for EOI Submission

Respondents to this EOI are requested to include the following in their submission and any other document or report establishing the Credentials of the proposed savings.

Detailed Technology Proposal: Including a comprehensive description of the combustion technology to be utilised, specific to RLNG as fuel.

Case Studies and Performance Reports: Documented evidence from past implementations where similar efficiency gains were achieved.

Performance Certificates: Third-party validations or certifications indicating successful deployment and efficiency improvements from the proposed technology.

Technical Specifications and Operational Benefits: Insights into how the proposed solution aligns with CFFP's operational parameters and aspirations for efficiency gains.

Financial Viability: A preliminary cost-benefit analysis illustrating the proposed solution's financial merits over existing technology. Vendors must quote for maximum possible gains for our system in order to support technology selection with improved viability.

Offers in response to this EOI must be submitted on or before **20-12-2024** of issue of this EOI via email, registered post, courier, or in person.

5. Eligibility Criteria

Respondents must be capable, qualified manufacturers or providers of gas-fired industrial furnaces or combustion systems with proven expertise in similar upgrades and efficiency improvements.

Contact Information:

For inquiries or to schedule a site visit, please contact

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ANNEXURE-1

List of furnaces for technological upgradation of Combustion System in nineteen Heat Treatment Furnaces of CFFP

	FURNACE NAME	Hearth Size in (Mtr)	Loading Capacity (In T)	Installed Burner Capacity	MAX OPERATION TEMPERATURE (SOAKING)	MIN/MAX RISING RATE (°C/hr)
1	CF-01 (with Recuperator)	10 X 3 X 2.5	60	14X140KW	1120°C	20/100°C
2	CF-02(with Recuperator)	10 X 3 X 2.5	60	14X140KW	1120°C	20/100°C
3	13002A	10 X 2 X2.5	60	14x320KW	1120°C	20/100°C
4	13002	10 X2 X2.5	60	14x320KW	1120°C	20/100°C
5	13003	7 X 3 X 2	40	10x320KW	1120°C	20/100°C
6	13005	8 X2X2.5	30	12x320KW	1120°C	20/100°C
7	13004	7 X3X2	40	10x320KW	1120°C	20/100°C
8	8 M	8 X 6 X 2.5	90	24x320KW	1120°C	20/100°C
9	18 M	18 X 2.5 X 2.5	140	36x320KW	1120°C	20/100°C
10	100T(with Recuperator)	9X6X6	100	20x320KW (appx)	1120°C	20/100°C
11	HT22	9X4X3	50	12x320KW	1200°C	20/100°C
12	HT43	7X4.5X4	35	12x320KW	1120°C	20/100°C
13	HT 34	8X4X2.8	50	12x320KW	1120°C	20/100°C
14	HT24	6.5X3.5X2.5	30	10x320KW	1120°C	20/100°C
15	LF-01	2.5 X 2 X 5	10	8x320KW	1200°C	20/100°C
16	LF-02	1.6 X 1.6 X 2	5	4x320KW	1200°C	20/100°C
17	SC-01	4 X 5.5 X 2	20	6x600KW	1120°C	20/100°C
18	SC-02	2.3 X 1.3 X 3.6	5	4x320KW	1120°C	20/100°C
19	SC-03(with Recuperator)	4 X 6 X 3	30	10X320KW(appx)	1200°C	20/100°C