

Improving thermal energy efficiency in the design, manufacture and operation of industrial boilers for low-carbon micro-, small and medium-sized enterprises in India

Basic Information

GEF ID
10878

Countries
India

Project Title
Improving thermal energy efficiency in the design, manufacture and operation of industrial boilers for low-carbon micro-, small and medium-sized enterprises in India

GEF Agency(ies)
UNIDO

Agency ID
UNIDO: 210191

GEF Focal Area(s)
Climate Change

Program Manager
Aloke Barnwal

PIF

Part I – Project Informatic

Focal area elements

1. Is the project/program aligned with the relevant GEF focal area elements in Table A, as defined by the GEF 7 Programming Directions?

Secretariat Comment at PIF/Work Program Inclusion

Yes. The project is linked with CCM Objective 1 and its two entry points related to accelerated energy efficiency adoption and cleantech innovation which aims to promote energy efficiency in industries and promote cleantech innovation in SMEs.

November 1, 2021

Thanks. Comment cleared.

Agency Response

Noted.

The contribution to cleantech innovation is further highlighted in the second bullet point of section II.a.(4) on alignment with GEF Focal Area strategy.

Indicative project/program description summary

2. Are the components in Table B and as described in the PIF sound, appropriate, and sufficiently clear to achieve the

project/program objectives and the core indicators?

Secretariat Comment at PIF/Work Program Inclusion

Please refer to the comment above for integration in the project design.

While the overall approach of demand creation, supporting market promotion and working with suppliers is a comprehensive approach, the project should also address the systemic policy barrier which restricts wide scale adoption of energy efficient boilers in SMEs. It is understood that the project's theory of change is based on the assumption that improved knowledge among boiler suppliers and SMEs and demonstration of technology will deliver the GEBs. However, without systemic change at policy level, the project will have limited scale up and replication benefits.

November 1, 2021

Thanks. Comment cleared.

Agency Response

Specific energy efficiency policy is already in place in India and matured through the Energy Conservation Act and the activities of the Bureau of Energy Efficiency. Moreover, energy efficiency is increasingly mainstreamed in sector policy and strategy including through the Ministry of MSME (national execution agency). Furthermore, boilers are already regulated through the India Boiler Regulations (IBR). Hence the policy framework and instrument for control of boilers are in place, requiring technical guidelines for enhanced impacts rather than systemic change. The Project, therefore, focuses on further operationalization and strengthening of existing policy and instruments through standardized energy efficiency specifications for boilers. In addition to creating knowledge and demonstrations of efficient boilers, the Project will advocate for the inclusion of thus derived energy efficiency guidance as part of comprehensive revision and expansion of the IBR (under output 2.1.2).

This project rationale has been further detailed throughout the PIF, in particular by articulating and underpinning the project's main policy and financing assumptions in the Theory of Change and further clarification thereof in the baseline section

Co-financing

3. Are the indicative expected amounts, sources and types of co-financing adequately documented and consistent with the requirements of the Co-Financing Policy and Guidelines, with a description on how the breakdown of co-financing was identified and meets the definition of investment mobilized?

Secretariat Comment at PIF/Work Program Inclusion

Co-financing amounts and sources are listed appropriately. Please clarify if the proposed investment mobilized \$13 million from the private sector will be a confirmed co-finance for the project. Please note that, a letter from the private sector entities will be required at the time of CEO ER submission. Often, a number of PIFs indicate high co-finance but reduce it drastically at CEO ER stage.

November 1, 2021

Thanks. Comment cleared.

Agency Response

Noted.

The co-financing contributions have been updated and further clarified. The 13 MUSD from the private sector is foreseen as confirmed co-financing, to be released largely through existing financial instruments for MSMEs of banks and financial institutions under which energy efficient boiler replacements and upgrades can be financed.

GEF Resource Availability

4. Is the proposed GEF financing in Table D (including the Agency fee) in line with GEF policies and guidelines? Are they within the resources available from (mark all that apply):

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

Noted

The STAR allocation?

Secretariat Comment at PIF/Work Program Inclusion The STAR requested is within the allocated amount of CCM FA.

Agency Response

Noted

The focal area allocation?

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

Noted

The LDCF under the principle of equitable access?

Secretariat Comment at PIF/Work Program Inclusion NA

Agency Response

NA

The SCCF (Adaptation or Technology Transfer)?

Secretariat Comment at PIF/Work Program Inclusion NA

Agency Response NA

Focal area set-aside?

Secretariat Comment at PIF/Work Program Inclusion NA

Agency Response NA

Impact Program Incentive?

Secretariat Comment at PIF/Work Program Inclusion NA

Agency Response

NA

Project Preparation Grant

5. Is PPG requested in Table E within the allowable cap? Has an exception (e.g. for regional projects) been sufficiently substantiated? (not applicable to PFD)

Secretariat Comment at PIF/Work Program Inclusion Yes.

Agency Response

Noted

Core indicators

6. Are the identified core indicators in Table F calculated using the methodology included in the corresponding Guidelines? (GEF/C.54/11/Rev.01)

Secretariat Comment at PIF/Work Program Inclusion

The emission estimation is based on assumptions for which any background reference is not provided. Please refer to GEF's guidance on approved methodologies for assessing the emission reduction. Also, there are only direct emission reductions and no estimate of indirect.

November 1, 2021

Thanks. Comment cleared.

Agency Response

The methodological notes and references for the GHG estimates have been included in the PIF (section II.1(6)).

Project/Program taxonomy

7. Is the project/program properly tagged with the appropriate keywords as requested in Table G?

...the project/program properly tagged with the appropriate keywords as requested in Table 1.

Secretariat Comment at PIF/Work Program Inclusion

Please include Taxonomy keywords related to Technology, given that it's central to the project.

November 1, 2021

Thanks. Comment cleared.

Agency Response

Done, technology keywords such as technology transfer; and also innovation has been added in the project taxonomy list.

Part II – Project Justification

1. Has the project/program described the global environmental/adaptation problems, including the root causes and barriers that need to be addressed?

Secretariat Comment at PIF/Work Program Inclusion

The justification is fine. Boilers are a key equipment in a number of MSMEs in India which are largely inefficient and leads to high emissions. Uptake of energy efficient boilers is limited due to limited demand, evidence of its efficiency and benefit in long term, limited supply and lack of a policy/regulatory environment. The PIF also alludes to the point that there is an initial investment barrier which restricts SMEs to deploy the efficient alternatives. While these are described well in the PIF, the two key barriers related to policy and investments are not systematically addressed in the project design. The Agency is requested to address this and include in the project design.

November 1, 2021

Thanks. Comment cleared.

Agency Response UNIDO and its partners observe that MSMEs are investing from their own financial resources and/or through readily accessible financing in techno-economically feasible energy efficient technologies even during the stressed COVID19 period. This indicates that there is adequate energy efficiency focus in policy and among businesses, whilst available MSME financing is increasingly directed to

energy efficiency investments. The project, therefore, focuses on bringing energy-efficient boilers into techno-economic feasibility and acceptance and thereby realize the full potential of existing policy and available MSME finance. This has been further substantiated in the baseline section, and more clearly articulated with reference to project assumptions in the Theory of Change and associated description of project components and outputs.

2. Is the baseline scenario or any associated baseline projects appropriately described?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response Noted.

3. Does the proposed alternative scenario describe the expected outcomes and components of the project/program?

Secretariat Comment at PIF/Work Program Inclusion

Yes. Please consider comments made earlier related to project design. Additional specific comments are as follows:

- Demand, market facilitation and supply is a well integrated approach. The project needs to address two other major issues which are related to policy and investment barriers.
- The project activity to set up a system of energy efficiency specifications for industrial boilers looks strategic. Please elaborate how will these specifications be integrated in national or state level policies/regulations? There is also no reference to minimum performance standards which can drive energy efficiency in MSMEs. Please clarify and if they don't exist, the project should consider a component focusing on this.
- The output 2.1.2 seems to be a very strategic component of the project but has been given relatively less importance. The project should go beyond just highlighting the issues to actually strengthening relevant guidelines and policies directly.
- Output 3.1.1- how will the manufacturers be selected and which technical institutions will be involved to help them design the energy efficient boilers and steam systems?
- As stated previously, the project should include an activity focusing on engaging with energy efficiency accelerators in line with the GEF 7

strategy.

November 1, 2021

Thanks. Comment cleared.

Agency Response

Noted, and please refer to earlier comments with regard to observed policy and financing context for energy efficiency investments, and the resulting need to provide technical guidance to maximize impact and realize fuller potential of already existing policy and available MSME financing.

The Project will promote addition of the energy efficiency specifications into the system of Indian Boiler Regulations (IBR) under the India Boiler Act. The IBR though covers all aspects of manufacturing, operation and ownership of boilers, including occupational and community safety, registrations and inspections, emergency preparedness, liability, etc. A comprehensive update of IBR covering both addition of energy efficiency as well as update on all other aspects is required. Such comprehensive IBR revision is well beyond the GEF climate change mandate and scope of this Project, whereas a more limited energy efficiency addition to the IBR is unlikely to be acceptable nor effective. Hence, the Project will seek to create momentum for a comprehensive update of IBR as its spin-off. The Energy Conservation Act does provide in principle room for minimum energy efficiency performance standards, however, these have not yet been operationalized in India. Given the complex interplay between safety, efficiency, and other boiler parameters minimum energy performance standards are less suited for industrial boilers. Collaboration with the GEF industrial energy efficiency accelerator is referenced in the baseline description and has been further added as a specific activity for knowledge management (output 1.1.4).

Kindly refer to the updated description of project components, and improved narrative of the Theory of Change.

4. Is the project/program aligned with focal area and/or Impact Program strategies?

Secretariat Comment at PIF/Work Program Inclusion

Please see comment above regarding alignment with GEF 7 strategy.

https://www.thegef.org/sites/default/files/publications/GEF-7%20Programming%20Directions%20-%20GEF_R.7_19.pdf Please refer to page 39.

November 1, 2021

Thanks. Comment cleared.

Agency Response

The project design is informed by achievements and lessons learned from past and ongoing GEF and related projects and is foreseen to be further developed and delivered using these and further partnerships. The project is fully aligned with CCM Strategy 1, aimed at sustainable energy breakthroughs by debottlenecking demand and supply of energy efficient boilers (under entry point 3) whilst also supporting cleantech innovation on the side of boiler makers and suppliers (under entry point 4). This has been further clarified in respective section.

Also see the above comments on Focal Area elements.

5. Is the incremental/additional cost reasoning properly described as per the Guidelines provided in GEF/C.31/12?

Secretariat Comment at PIF/Work Program Inclusion

In this section, please elaborate briefly how GEF fund will deliver incremental benefits along with the co-finances identified and over the baseline.

November 1, 2021

Thanks. Comment cleared.

Agency Response

The GEF funding will be used for awareness-raising, capacity building, knowledge management, development of technical guidance on boiler efficiency, and advisory support to both suppliers and users of boilers. The co-financing is largely foreseen to be spent on efficiency upgrades and/or replacements of industrial boilers, for which 13 million USD worth of investment as equity and loan is anticipated.

6. Are the project's/program's indicative targeted contributions to global environmental benefits (measured through core indicators) reasonable and achievable? Or for adaptation benefits?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response Noted

7. Is there potential for innovation, sustainability and scaling up in this project?

Secretariat Comment at PIF/Work Program Inclusion

Yes. However, please refer to comments earlier regarding sustainability and scaling up challenges which this project may face if there isn't a focus on addressing policy and financing barriers.

November 1, 2021

Thanks. Comment cleared.

Agency Response

Please refer to earlier comments on policy and financing, as also reflected in further improvement of Theory of Change and description of project components.

Sustainability and scaling up will be pursued through the promotion of standardized energy efficiency boiler guidelines, including for de-risking of boiler investments and potential for cost reduction through bulk procurement; advocacy for energy efficiency inclusion as part of possible wholesale revision of the IBR; and alignment with current MSME financing sources (including MSME government support schemes, financial institutions and banks)

Project/Program Map and Coordinates

Is there a preliminary geo-reference to the project's/program's intended location?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response Noted

Stakeholders

Does the PIF/PFD include indicative information on Stakeholders engagement to date? If not, is the justification provided appropriate? Does the PIF/PFD include information about the proposed means of future engagement?

Secretariat Comment at PIF/Work Program Inclusion

Under private sector, the project should also engage with existing energy efficient boiler manufacturers in India and explore how they can supply to MSMEs through innovative business models or through incentives.

November 1, 2021

Thanks. Well noted. Comment cleared.

Agency Response

COVID19 conditions have restricted the extent and depth of project-specific stakeholders' consultations during PIF preparation, in particular with local boiler manufacturers, which is foreseen to be compensated during PPG.

Under output 3.1.3 it is already indicated that alternative financing options, including vendor finance, ESCO, etc. will be actively pursued by the Project.

Gender Equality and Women's Empowerment

Is the articulation of gender context and indicative information on the importance and need to promote gender equality and the empowerment of women, adequate?

Secretariat Comment at PIF/Work Program Inclusion

The gender ratio of beneficiaries is too low.

November 1, 2021

Thanks. Comment cleared.

Agency Response

UNIDO is committed to ensuring maximum benefits to women, in their diverse roles as owners or employees of MSMEs and recipients of knowledge and training. However, UNIDO is equally aware of the current lower levels of women participation in the economy, with economy-wide female labor force participation of 20%, female employment share in MSMEs of 24% (and generally observed to be even lower in manufacturing MSMEs), and female business leadership in MSME sector (20%). The gender ratio among project beneficiaries has been increased and updated against this low baseline scenario of women's participation in the economy and manufacturing sector.

Private Sector Engagement

Is the case made for private sector engagement consistent with the proposed approach?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response

Noted

Risks to Achieving Project Objectives

Does the project/program consider potential major risks, including the consequences of climate change, that might prevent the project objectives from being achieved or may be resulting from project/program implementation, and propose measures that address these risks to be further developed during the project design?

Secretariat Comment at PIF/Work Program Inclusion

Please provide more detailed analysis of climate related risks on the project as per guidance from GEF STAP.

November 1, 2021

Thanks. Additional details are fine. Comment cleared for now.

Agency Response Included in expanded form in table 6 and the accompanying narrative.

Coordination

Is the institutional arrangement for project/program coordination including management, monitoring and evaluation outlined?
Is there a description of possible coordination with relevant GEF-financed projects/programs and other bilateral/multilateral initiatives in the project/program area?

Secretariat Comment at PIF/Work Program Inclusion

Yes. The institutional arrangement for project/program coordination including management, monitoring and evaluation is outlined in the project/program area.

Yes. The detailed institutional arrangement will be reviewed at the CEO ER stage if the PIF is approved.

Agency Response Noted and agreed that the institutional arrangement will be further detailed for extensive review and approval at the CEO ER stage.

Consistency with National Priorities

Has the project/program cited alignment with any of the recipient country's national strategies and plans or reports and assessments under relevant conventions?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response Noted

Knowledge Management

Is the proposed "knowledge management (KM) approach" in line with GEF requirements to foster learning and sharing from relevant projects/programs, initiatives and evaluations; and contribute to the project's/program's overall impact and sustainability?

Secretariat Comment at PIF/Work Program Inclusion

Please elaborate the KM approach more with more specific information. Currently, it just indicates the intention to do KM. Please provide information on: 1) proposed tools and methods for knowledge exchange, learning and collaboration, 2) proposed knowledge outputs to be

produced and shared with stakeholders, 3) a discussion on how knowledge and learning will contribute to overall project impact and sustainability, and 4) plans for strategic communications.

November 1, 2021

Thanks. Comment cleared.

Agency Response

The requested elaboration is provided in brief in the description of output 1.1.4 and further elaborated in the knowledge management section (section (8) in PIF).

Environmental and Social Safeguard (ESS)

Are environmental and social risks, impacts and management measures adequately documented at this stage and consistent with requirements set out in SD/PL/03?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response Noted

art III – Country Endorsements

Has the project/program been endorsed by the country's GEF Operational Focal Point and has the name and position been checked against the GEF data base?

Secretariat Comment at PIF/Work Program Inclusion

Yes.

Agency Response Noted

Termsheet, reflow table and agency capacity in NGI Projects

Does the project provide sufficient detail in Annex A (indicative termsheet) to take a decision on the following selection criteria: co-financing ratios, financial terms and conditions, and financial additionality? If not, please provide comments. Does the project provide a detailed reflow table in Annex B to assess the project capacity of generating reflows? If not, please provide comments. After reading the questionnaire in Annex C, is the Partner Agency eligible to administer concessional finance? If not, please provide comments.

Secretariat Comment at PIF/Work Program Inclusion

NA

Agency Response

NA

EFSEC DECISION

RECOMMENDATION

Is the PIF/PFD recommended for technical clearance? Is the PPG (if requested) being recommended for clearance?

Secretariat Comment at PIF/Work Program Inclusion

Please address the comments provided in the review sheet and resubmit the PIF for consideration

Please address the comments provided in the review sheet and resubmit the PIF for consideration.

ADDITIONAL COMMENTS

Additional recommendations to be considered by Agency at the time of CEO endorsement/approval.

Secretariat Comment at PIF/Work Program Inclusion

The PIF is technically cleared. At the CEO Endorsement stage, the Secretariat will review following additional details:

- A more detailed stakeholder engagement especially with existing boiler manufacturers and also with policy makers and financial institutions. The outputs of this engagement should be clearly integrated in the detailed project design.
- A more comprehensive analysis of existing baseline, especially the financing and policy scenario that will complement the project activities. The project also should elaborate how each co-financing will contribute to specific project components.
- More detailed background calculation for estimated GHG emission reduction.

Review Dates

	PIF Review	Agency Response
First Review	10/5/2021	
Additional Review (as necessary)	10/12/2021	
Additional Review (as necessary)	11/1/2021	
Additional Review (as necessary)		
Additional Review (as necessary)		

PIF Recommendation to CEO

PIF Recommendation to CEO

Brief reasoning for recommendations to CEO for PIF Approval

The PIF is technically cleared as it has addressed the key comments in the review sheet. The detailed rationale for technical clearance is below:

The project "Improving thermal energy efficiency in the design, manufacturing and operation of industrial boilers for low carbon MSMEs in India" aims to scale up and mainstream thermal energy optimization in manufacturing MSMEs through creation of ecosystem for the design, manufacture and operation of efficient industrial boilers. Through GEF financing of \$ 3million and co-financing of \$17.8 million, the project will lead to reduction of nearly 1.37 million tons of GHG emissions and benefit 9000 beneficiaries directly.

The GEF grant will support awareness-raising, capacity building, knowledge management, development of technical guidance on boiler efficiency, and advisory support to both suppliers and users of boilers to enhance use of energy efficient boilers in MSME sector in India. The project will seed and nurture the emergence of a business and technology support ecosystem for industrial boilers and auxiliary equipment and steam systems. It will adopt an integrated approach to work on demand creation through upskilling boiler users, facilitate market development for energy efficient boilers and retrofits through energy efficient boiler specifications, and facilitate supply by supporting boiler manufacturers through technology demonstration and marketing support. Through these interlinked project components the project will support manufacturing MSMEs install, operate & maintain industrial boilers & associated steam systems for enhanced energy efficiency, investment in industrial boilers & boiler retrofits with high energy efficiency performance and increased manufacturing of energy efficient boilers & components for energy efficient boiler retrofits in India. Through this whole of market approach, the project will engage with MSME owners and operators, their technical and maintenance workforce, regulators and financial institutions. The market based approach of the project is substantiated by a significant mobilization of private sector co-financing (nearly 70%) which will be used to commercialize the energy efficient boilers and auxiliary equipment for industrial applications. The project has a strong focus on knowledge management and development of tools and specifications for energy efficient boilers which lead to increased uptake of efficient boilers beyond the project focus areas. The project has a strong inherent public-private partnership model approach which will lead to both innovation and long term sustainability of the project outcome.

The project has duly factored in COVID-19 related risks and opportunities in its design. The project will operate, including in the PPG stage, in a COVID appropriate manner and will utilize virtual mode of working to the maximum extent possible. It will work closely with relevant government ministries to ensure their co-financing and policy support towards green recovery in MSMEs. In terms of opportunity, Energy efficiency, and the centrality of boilers and steam systems therein, will be strongly positioned and promoted as an essential part of COVID-19 recovery strategy building on UNIDO's Building Back Business from Crises Initiative in India www.b3cmmsme.org. Taking COVID19 as an example the project will promote broad-based risk awareness and management, including for climate risks, and business contingency planning, including through GHG mitigation measures. The project activities will highlight and promote co-benefits of efficient boiler and steam systems with regard to reduction of air emissions and waste generation, and their contributions to alleviating severe environmental health concerns.

