Terminal Evaluation of 'Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS) (PIMS 5285)' Project.

Final Report

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Project title: Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS)	**UNDP PIMS ID number:** 5285 **Atlas Project ID/Award ID number:** 95939 **GEF ID number**: 9081
Evaluation timeframe: July-August 2023	GEF focal area: Climate Change Mitigation - CC-1 Program 1
GEF executing agency: United Nations Development Programme (UNDP). **Implementing partner**: Ministry of Industry and Technology	Project start date: 6 July 2017, End date: Extended to 6 January 2024 (originally July 2022)
GEF funding: USD $ 3,750,000 – Co-finance target: USD $ 28,340,000 **Country**: Türkiye	The project aims to promote significant additional investment in industrial energy efficiency in Türkiye by transforming the market for energy efficient motors used in small and medium sized enterprises.

Acknowledgements

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Disclaimer

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Acronyms and Abbreviations

AWP	Annual Work Plan
CEO	Chief Executive Officer
CO2	Carbon Dioxide
CPAP	Country Program Action Plan
DGP	Directorate General of Productivity
DGI	Directorate General of Industry
DGIP	General Directorate of Industry and Productivity
DGSIIP: General Directorate for Safety and Inspection for Industrial Products	
DGSRP: Directorate General Strategic Research and Productivity	
EE:	Energy Efficiency
EMOSAD	Association of Turkish Electric Motor Industrialists
EMU	Energy Management Unit
EOP	End-of project
EPC	Engineering, Procurement and Construction
ESCO	Energy Service Company
EU	European Union
EVD	Local energy efficiency consultants
EYODER	Association of Energy Efficiency and Management
FSM	Financial support mechanism
GEF	Global Environment Facility
GHG	Greenhouse Gas
IFI	International Finance Institution
KOSGEB	Small and Medium Industry Development Organization
KGF	Credit Guarantee Fund
LPAC	Local Project Appraisal Committee
kW	Kilowatt
LR	Literature Review
MoU	Memorandum of Understanding
MTR	Mid-Term Review
MW	Megawatt
MoIT	Ministry of Industry and Technology
MoENR	Ministry of Energy and Natural Resources
MEEIPs	Motor EE investment plans
MRV	Monitoring, reporting and verification
M&E	Monitoring and Evaluation
NIM	Nationally Implemented Measure
OFP	Operational Focal Point
OIZ	Organized Industrial Zone
PB	Project Board
PEEMS	Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises
PFIs	Partner Financial Institutions
PIF	Project Identification Form
PIR	Project Implementation Reviews
PIU	Project Implementation Unit
POPP	Programme and Operations Policies and Procedures
Prodoc	UNDP Project Document for "Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS)"
Project	The project under review: "Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS)"
PPG	Project Preparation Grant
PV	Photovoltaic
RE	Renewable Energy
RTA	Regional Technical Advisor
SDG	Sustainable Development Goals
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SME	Small and medium-sized enterprise
SMTPs	Standard motor testing reports
TE	Terminal Evaluation
TEVMOT	Türkiye'de Enerji Verimli Motorların Teşvik Edilmesi
ToR	Terms of Reference
TSI	Turkish Standards Institute
TurSEFF	Türkiye Sustainable Energy Financing Facility
UNDP	United Nations Development Programme
US$	US Dollar

Executive summary

Project information table

Project Title:	Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS) (PIMS 5285)			
GEF Project ID:	9081		*at endorsement (US$)*	*at completion (US$)*
UNDP Project ID:	5285	**GEF financing:**	US$ 3,750,000	US$ 2,836,389
Countries:	Türkiye	**IA/EA own:**	USD $ 300,000	US$ 242,720
Region:	Europe and CIS	**Co-financing:**	US$ 8,040,000	US$ 8,732,694
Focal Area:	Climate Change Mitigation	**Other:**	US$ 20,000,000	US$ 17,909,938 US$ 527,783 (NGOs)
FA Objectives, (OP/SP):	CC-1 Program 1	**Total co-financing:**	US$ 28,340,000	US$ 27,413,135
GEF executing Agency:	UNDP	**Total Project Cost:**	US$ 32,090,000	US$ 30,249,542
Implementing partner	Ministry of Industry and Technology (MoIT)	**ProDoc Signature (date project began):**		6 July 2017
		(Operational) Closing Date:	Original: 5 July 2022	Extended to: 6 January 2024

Project Description

The project objective is to promote significant additional investment in industrial energy efficiency in Türkiye by transforming the market for energy efficient motors used in SMEs. The project aims at reducing a total of 3,092 tons of CO2 from the replacement of inefficient motors with IE3 motors by end of project, reduce annual electricity consumption by 640,499 MWh and phase out a total of 5,000 inefficient electric motors. The key 5-step strategy to achieving the changes encapsulated in the Project objective of "promoting significant additional investment in industrial energy efficiency in Türkiye by transforming the market of EE motors used in SMEs" will be i) strengthening the enforcement framework that includes an improved MV&E strategy, market surveillance, trained field inspectors; ii) improving capacity of relevant stakeholders to promote the benefits of EE motors; iii) improving capacity for monitoring, verification and enforcement for better compliance of electric motors supply chain through upgrading test laboratories at the Turkish Standards Institute as well as improved MV&E strategy and training of field inspectors of MoIT; iv) launching of an operational and sustainable "one-stop-shop" for financing motor replacement programmes; and v) increasing the availability of EE motor information to raise stakeholder awareness on the benefits of EE motors and to sustain motor market transformation.

The PEEMS project is implemented by the Turkish Ministry of Industry and Technology (MoIT) following UNDP's National Implementation Modality (NIM). The GEF funding is US 3,750,000 over the initially 5 years started in 2017 and extended for 18 months to be closed in January 2024.

Evaluation Ratings Table

Table 1: Evaluation rating table

Monitoring & Evaluation (M&E)	Rating
M&E design at entry	Satisfactory (S)
M&E Plan Implementation	Moderately Satisfactory (MS)
Overall Quality of M&E	Moderately Satisfactory (MS)
Implementation & Execution	Rating
Quality of UNDP Implementation/Oversight	Moderately Satisfactory (MS)
Quality of Implementing Partner Execution	Moderately Satisfactory (MS)
Overall quality of Implementation/Execution	Moderately Satisfactory (MS)
Assessment of Outcomes	Rating
Progress towards objective, expected outcomes and impacts	Moderately Unsatisfactory (MU)
Relevance	Satisfactory (S)
Effectiveness	Moderately Satisfactory (MS)
Efficiency	Moderately Satisfactory (MS)
Overall Project Outcome Rating	Moderately Unsatisfactory (MU)
Sustainability	Rating
Financial	Moderately Unlikely (MU)
Institutional Framework and governance	Moderately Likely (ML)
Socio-political	Moderately Likely (ML)
Environmental	Moderately Likely (ML))
Overall Likelihood of Sustainability	Moderately Unlikely (MU)

Summary of the findings & rating justification

Project results: Overall, there has been limited progress towards the PEEMS project objective, outcomes 4 (financing for EE motor investments) and outcome 5 (Awareness), whereas targets of outcome 1 (regulatory framework), outcome 2 (improve capacity) and outcome 3 (testing and MVE) have been largely met. The PEEMS project targets as defined in the project document (reducing 640,499MWh annually & 3,092 ktonnes of CO2 lifetime, replacing 37,861 inefficient motors, and mobilizing USD 47.92 million) are overly ambitious and based on invalid assumptions around the market readiness and implementer partners' delivery capacities. Beyond the numbers, the project succeeded in setting up important elements for enabling the environment for EE motor replacements such as the regulation, testing capacities, monitoring and verification system, KOSGEB financing mechanism and improve the awareness to some extent, however, motivating SMEs to participate in motor replacement remains a fundamental challenge.

At the objective level, the PEEMS project remains far from fully achieving 3 out of 4 targets related to CO2 reduction, electricity saved, and number of inefficient motors replaced. There are number of contributing factors

for not meeting the objective targets including the low level of interest/uptake by the SMEs and externalities related to major changes at the macroeconomic level such as inflation, rising interest rate and dramatic changes in the currency exchange rate which had an impact on SMEs investment priorities and decisions in light of the uncertainties that these economic changes bring along.

Targets under outcome 1 are fully achieved, the project developed new regulation in line with the EU Regulation 20119/1781 on eco-design requirements for electric motors and variable speed drives. Under outcome 2, the PEEMS project engaged effectively with the electric motor manufacturers in Türkiye to promote the EE motor replacement activities and support local manufacturers to meet the new standards. Outcome 3 has been partially achieved. The MRV system has not matured enough, there are no systematic and well-capacitated individuals across OIZs to operate a sustainable MRV mechanism. The motor replacement proposals have been totally based on the energy audit numbers with no adequate MRV plans. The project supported the upgrade of TSI testing facility to improve the capacity to undertake market surveillance programs related to electric motors and strengthened program for monitoring, verification and enforcement of compliance with eco-design implementing measure 640/2009 and to assess the results and energy data including capturing the rebound effect.

The targets under outcome 4 have not been met. The project has come to realize that the idea of the 'one-stop-shop' was not feasible due to invalid assumption that EMUs at OIZs are equipped with technical capacities and financing instruments to run the 'one-stop-shop' mechanism. However, the project management and MoIT have eventually convinced KOSGEB to take a more prominent role in delivering the financial mechanism with LoA signed in April 2023 to implement the dissemination phase of motor replacements with $700K of GEF funds. Engaging KOSGEB is going to be a significant sustainability element beyond the PEEMs project boundaries, if these arrangements are agreed to continue after the project, which is not the case yet. So far, there has been limited SMEs participation in the dissemination stage with only 100 applications received by end of May 2023. On the other side, no other financial institutions or schemes are participating in the funding process, and the primary discussions and investigations done by the project with available financing options and schemes were inconclusive. .

On a positive side, The PEEMS project has successfully implemented a pilot project in 7 OIZs aiming at supporting SMEs to replace asynchronous electric motors with IE2, IE1 and EFF efficiency classes with high efficiency IE3 and IE4 motors with power between 0.75 kW and 375 kW. A total of 363 old and inefficient motors in 48 SMEs were replaced with new, highly energy efficient motors. The average payback period varies between 15 and 20 months and there is no clustering specific to the sector or motor power.

Under outcome 5, there is no formal registration of EE motors through the database system yet, and also no data to report on the change in the level of SMEs awareness on EE motors benefits. However, the PEEMS project implemented a variety of awareness raising activities including info days attended by more than 292 SMEs across 7 OIZs with active information sharing via social media platforms and the project website. Nevertheless, evidence gathered in this evaluation suggests that the low awareness level remains the main residual barrier towards getting the SMEs to replace motors. During the TE engagement, the SMEs who didn't replace motors yet were not fully aware of the benefits nor aware of the KOSGEB revised offer, for example, the facts that funding has been doubled up in response to the market inflation and more flexibility to apply for whole of motor-based system grant is available were not clear to the SMEs.

Relevance & Coherence: The PEEMS project is aligned with Turkish national strategies and development agenda, and the PEEMS project design has successfully captured the barriers towards widespread adoption of EE motors within industrial SMEs in Türkiye. The project design offers an integrated solution to achieve a sustainable market transformation of the Turkish motors market by addressing the policy and regulatory gaps, limited technical capacities, low level of awareness, lack of liquidity to pay the upfront costs for an EE motor investment and inefficient coordination in the implementation of the EE Law that slows the pace of legislative changes.

The project design flaws are mainly related to invalid assumptions around the market readiness, the immediate and speedy transition from the pilot stage into the dissemination stage (metaphorically referred to as 'popcorn effect') which resulted in setting overly ambitious targets of replacing 37,860 EE motors with US$ 47, 92 million invested by the project end. This is accompanied by another invalid assumption on the level of capacity of EMUs within OIZs to deliver technical and financial services though the one-stop-shop facilities.

Effectiveness: The effectiveness of this PEEMS project can be rated as MS (Moderately Satisfactory) since it met expectations as to the degree of the outcome 1,2 and 3 are achieved with some progress in outcome 4 and 5. In order to be effective, SMEs need to be motivated to participate in the motor replacements programme, however, during the dissemination phase SMEs have not shown enough interest to participate because of limited awareness, substantive macroeconomic changes (inflation, interest rate and currency exchange rate), limited finance options, incorrect assumptions around the adverse impacts of motor replacement on SMEs, unwillingness to give the old motor away, bureaucratic procedures and the need to replace of the whole motor-based system. The project faced a number of very forceful challenges including implementation delays, COVID and Earthquake that affected it effectiveness. On the other side, harmonization with the EU and appropriate partnership settings with TSI and manufacturers association have been among the factors that have aided or supported effective achievement of goals. Effectiveness is rated Moderately Satisfactory (MS).

Efficiency: The Project has been efficient in achieving outputs/products and in achieving some of the outcomes, it has provided value-for-money since it achieved the results within budgets, agreed disbursement, etc., while leveraging investments and in-kind support from sources external to the project per se (co-funding) particularly from KOSGEB to directly fund motor replacement program and TSI contribution into the establishment/upgrade of the motors testing facilities and strengthening the capacities. On project timeframe, the project has been going through a considerable delay including 21 months delay in initiating the pilot due to absence of clearly defined financing agency/mechanism at the beginning, institutional changes and delays from COVID-19. The MTR recommended 18 months extension at no cost. The extension is found to be reasonable given challenges and risks faced by the project from the beginning, however it is expected that some activities remain incomplete despite the significant extension granted, including, more importantly, the full execution of the dissemination phase and more awareness activities. Therefore, the overall ranking of efficiency is Moderately Satisfactory (MS).

Project management: The project implementation strategy has been following adaptive approach by testing ideas, learn and upscale. The piloting approach followed for replacing motors involved working in 7 OIZs targeting a total of 100 SMEs as a pilot stage. Stakeholders' engagement was critical in the PEEMS project given that the project has been working across wide spectrum of agencies to cover the policy, legislation, testing, manufacturing, financing and SMEs (though OIZs). Frequent institutional changes by participating stakeholders caused distractions of the PIU efforts and delays in decision making process. The effectiveness of the project board has been quite limited, in fact, the MTR has, rightly, recognised the need for increasing the frequency if the board meetings to at

least 2 times per year. Quite the opposite, the project board was convened only once in 2021 since the MTR was concluded, alternatively the main board discussion topics were shared via e-mail, but this process was not as effective as needed. This situation has been a critical hindrance to the project progress and decision making.

Co-financing target has been largely achieved and it mainly came from replacing the motors during the pilots stage. The M&E Framework meets the standard M&E template for projects of this size and complexity. The M&E design is found adequate for monitoring the project results and tracking the progress toward achieving the objectives. The M&E design is backed with adequate resources (a total of US$ 173,000 allocated for monitoring and terminal evaluations) and clearly defined roles and responsibilities. Therefore, the M&E design is rated Satisfactory (S).

The project monitoring function is critical for the project success, and based on shortcomings in M&E implementation in relation to limited role of the board in the second half of the project, the M&E implementation is rated Moderately Satisfactory (MS). A composite ranking that considers monitoring and evaluation design at entry together with the M & E plan's implementation for the overall quality of M&E is Moderately Satisfactory (MS).

UNDP has been providing direct project services as requested by Government, including recruitment and payroll management of project staff, purchase of goods and equipment and hiring of consultants as requested. UNDP CO has been supporting the project with monitoring the financial transactions by the project in terms of delivery, meeting targets and expenditure and ensuring there is no over-expenditure on the project. UNDP implemented a monitoring mission in May 2022 to monitor progress in pilot stage and provided corrective measures, a verification report was provided as a result. However, UNDP CO and other board members had little role in activating the board in the second half of the project and this affected project decision making adversely. Based on this, quality of UNDP implementation/oversight is rated Moderately Satisfactory (MS).

The Ministry of Industry and Technology (MoIT) has been responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. Institutional changes were among the reasons for delays and disruptions including decision making. Based on the above the quality of Implementing Partner Execution is rated Moderately Satisfactory (MS). A combined rating of overall project implementation/execution is Moderately Satisfactory (MS).

Sustainability: The PEEMS project succeeded in engaging KOSGEB and establishing the finance scheme, and funding is currently available for SMEs to replace their inefficient motors using this scheme. The signed LoA is valid until November 2023, the question is whether this funding scheme will continue beyond the PEEMS project timeframe. The continuation of the funding scheme is indeed a very critical element for achieving the project objective on the long term, especially in light of the fact that KOSGEB is, so far, the only finance mechanism established, KOSGEB noted that SMEs Energy Efficiency Support Programme is embedded within KOSGEB's program of work and shared information about its budgetary request for next year (i.e 2024) with 80 million TL to support SMEs in replacing EE . The project was unable to mobilize other financing options and institutions for the SMEs. There are no other financing options available for SMEs to replace EE motors. Therefore, due to this combination of factors, the general likelihood ranking of the financial sustainability is Moderately Unlikely (MU).

The project suffered from changes in the organizational structure of government institutions, these changes have placed a level of uncertainty on the future ownership of the project outcomes and benefits, and as discussed

earlier in this report, the level of MoIT engagement in the project and its board has been limited recently including limited participation in the project board which had an impact on decision making and approving work plan for the project. Also, the absence of fully functioning and integrated MRV system for accounting the energy benefits of EE motor replacement places a concern over the validity and accuracy of the energy benefits reported. On the other side, endorsing the new regulations and building human and institutional capacities are an important sustainability element in the future, this guarantees that new locally manufactured and imported motors will continue to meet the new approved standards in line with the EU directives. Therefore, due to this combination of factors, the general likelihood of institutional/governance sustainability is ranked Moderately Likely (ML).

At the SMEs level, the low level of awareness across the country on the benefits of energy efficiency remains a valid barrier. Lack of results from demonstration projects makes it difficult to increase awareness with SMEs. Therefore, the ranking for socio – economic sustainability is Moderately Likely (ML).

The main environmental risk identified is the risk of handling electrical waste and potentially hazardous waste being generated during motor replacement. This risk has been mitigated during the pilot stage through implementation of a well-designed waste management (recycling) programme in the pilot stage, however, during the dissemination stage, disposal, and recycling, of the old motor is no longer a requirement, with no incentives and no mechanism in place to implement the recycling program. The WEEE regulations would only apply during the dissemination stage if the old motor is identified as a waste by the SME. To mitigate this risk, the project has developed electronic and electric Waste Management Guide for Industrial Plants, the guide has been produced for industrial establishments that hold or generate WEEE so that they can manage waste electrical and electronic equipment (WEEE) in an environment-friendly and effective manner in Türkiye. Therefore, the ranking for environmental sustainability is Moderately Likely (ML) since there are no identifiable risks to sustainability in this regard. Taking a composite view of the rankings for financial, socio – political, institutional as well as environmental sustainability probabilities, the overall likelihood of sustainability is ranked as Moderately Unlikely (MU).

Recommendations summary table

Given that the project is so close to be operationally closed at the time of drafting this TE evaluation report, the following are a mix of recommendation for corrective actions in the remaining 4 months and forward-looking recommendations/lesson learned focussed on future programming: details available in section 4.2

Table 2: recommendations table

#	TE Recommendation	Entity Responsible	Timeframe
1	Develop and implement a comprehensive exit strategy for the PEEMS project. The strategy should be focused on strengthening the sustainability elements of the project by: *1.1 Engaging with KOSGEB to formally agree on the post project arrangements.* *1.2 Diversifying financing options available for SMEs to implement the replacement.* *1.3 Formally documenting the future roles and responsibilities for after-project era*	PIU	ASAP
2	Design and implement a country-wide awareness and marketing campaign targeting SMEs	PIU	ASAP

3	Reactivate and convene the project board to guide and oversee the exit strategy and make decision on the pending and new activities	UNDP senior management & PIU	ASAP
4	Develop and implement dissemination plan for all knowledge products including a final dissemination workshop	PIU	ASAP
5	Improve the design of future GEF projects (realistic targets, valid assumptions and appropriate management arrangements)	UNDP	Ongoing
6	UNDP to explore future opportunities with KOSGEB for future EE/RE projects	UNDP	Ongoing

1. Introduction

1.1 Purpose & scope

The Terminal Evaluation (TE) assessed the achievement of project results against what was expected to be achieved and drew lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. It measures the extent to which the Project has contributed to solve the needs identified in the design phase and degree to which implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised, thus, the TE report promotes accountability and transparency and assesses the extent of project accomplishments.

The TE assessed project performance against expectations set out in the project's Logical Framework/Results Framework and results according to the criteria outlined in the Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects'[1]

The TE provides evidence-based information that is credible, reliable and useful and comply with the UNDP/GEF Evaluation Guidelines. The TE was undertaken in line with UNEG principles concerning independence, credibility, utility, impartiality, transparency, disclosure, ethical, participation, competencies and capacities. The evaluation process has been independent of UNDP and project partners. The opinions and recommendations in the evaluation are those of the Evaluator and do not necessarily reflect the position of any stakeholders. The TE was carried out between July-August 2023 with a mix of face-to-face engagement in Türkiye and online engagement with project team and UNDP personnel.

Mixed methods[2] were used for the TE to generate mix of qualitative and quantitative data. The use of mixed methods has the advantage of supporting data triangulation across multiple sources, which creates the potential for increased data accuracy and credibility to inform the reliability of the evaluation results. Methods are explained in more details below.

1.2 Methods

Mixed methods[3] have been used for the TE to generate mix of qualitative and quantitative data. The use of mixed methods had the advantage of supporting data triangulation across multiple sources, which helped to increase data accuracy and credibility to inform the reliability of the evaluation results.

Data collection methods

To strengthen the robustness of the evaluation evidence, a mix method was used to generate qualitative and quantitative data to best describe project results based on the on the results framework as outlined in the project document. The evaluation used methods of document review, survey and interviews for data collection to obtain

[1] UNDP-Supported, GEF-Financed Guidance for conducting terminal evaluations, 2020. Available here.

[2] Mixed methods involve desk review, semi-structured interviews, and surveys for data collection, and also descriptive analysis, content analysis, thematic analysis and simple quantitative data analysis in excel for survey data and quantitative indicators for data analysis.

[3] Mixed methods involve desk review, semi-structured interviews, and surveys for data collection, and also descriptive analysis, content analysis, thematic analysis and simple quantitative data analysis in excel for survey data and quantitative indicators for data analysis. See below sections for more details.

answer all of the evaluation questions outlined in the TOR. The evaluation had three levels of data collection and validation of information:

- A desk review of project documentation where both qualitative and quantitative data have been collected – See annex 2 for list of 25 documents reviewed
- Semi-structured interviews with key stakeholders for qualitative data collection (Annex 8 list of 35 persons interviewed),
- Survey targeting pilot SMEs for collecting both quantitative and qualitative data sets. 54 responses out of 100 SMEs participated in the pilot stage.

An evaluation matrix was developed as a base for gathering of qualitative inputs for analysis. The evaluation matrix defined the objective for gathering non-biased, valid, reliable, precise, and useful data with integrity to answer the evaluation questions.

Engaging stakeholders has been critical for the success of the evaluation. The project involved multi-stakeholders and teams in different capacities and the TE engaged with various stakeholders to cover different perspectives taking into account the principle of gender responsiveness. Gender responsiveness has been integrated throughout the evaluation process including gender balance during the engagement with stakeholders by ensuring both gender are engaged, particularly when it comes to SMEs, assessing the gender integration in the project design and delivery, and ensuring that data collection and analysis are gender sensitive. The evaluation used gender-disaggregated data of personnel within SMEs and OIZs collected by the project to identify barriers and differentiate roles that may be more suited to each gender. The evaluation also checked whether all "people count" indicators are gender segregated and if the project had reported women ratio in related indicators. The evaluation reviewed the project Gender action plan and assess delivery against its activities including ways to overcome gender bias in targeting SMEs.

Throughout the evaluation process, the main stakeholders have been engaged and interviewed using semi-structured interview[4] and survey methods. Interviews and survey relied on targeted and purposive sampling strategy to include a diversity and balance of perspectives from each stakeholder category. The survey specifically targeted the SMEs that have been engaged in the project so far.

Data analysis methods

Data analysis was based on observed facts, evidence, and data. Findings are specific, concise, and supported by quantitative and/or qualitative information that is reliable, valid and generalizable.

The data analysis method involved 1) descriptive analysis to understand and describe the project main components, including related activities; partnerships; modalities of delivery; etc. 2) Content analysis of relevant documents and the literature conducted to identify common trends and themes, and patterns for each of the key evaluation issues (as the main units of analysis), 3) thematic analysis of responses collected from semi-structured interviews and observations, and 4) A Simplified quantitative analyses on all quantitative measures (for example energy savings and GHGs) by reviewing and validating project datasets on quantitative indicators, also

[4] A semi-structured interview is a method of research used most often in the social sciences. While a structured interview has a rigorous set of questions which does not allow one to divert, a semi-structured interview is open, allowing new ideas to be brought up during the interview as a result of what the interviewee says. The interviewer in a semi-structured interview generally has a framework of themes to be explored.

spreadsheet software (e.g. Excel) was used for analyzing survey data to generate summary statistics. Evaluation findings and conclusions were synthesized based on triangulated evidence from the desktop review, interviews, and survey.

In this evaluation, triangulation involved validation of data through cross verification from at least two sources, and evaluation findings and conclusions have been synthesized based on triangulated evidence from the desktop review, interviews, and survey.

1.3 Ethical Considerations

The TE consultant was held to the highest ethical standards and was required to sign a code of conduct upon acceptance of the assignment. This evaluation was conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'[5]. The evaluator ensured to safeguard the rights and confidentiality of information providers, interviewees, and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The evaluator also ensured security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process has been solely used for the evaluation and not be used for other purposes without the express authorization of UNDP and partners.

1.4 Limitations

The main limitations faced during the evaluation were related to the geographical distribution of the project activities and stakeholders over across Türkiye, this meant that the evaluator was not able to travel to all OIZs in person and undertake filed visits. Alternatively, the evaluator conducted the visits of 3 OIZs, and engaged with the rest of the stakeholders in other cities through the survey. Also, some of the project material (deliverables, minutes of meetings, others) has been done in Turkish language with no translation available, this has been limiting factor to access detailed information on project written outputs. Finally, the survey response rate has been limited at the beginning, and required constant follow up and reminders by the project team to increase the response rate.

1.5 Structure of the Report

The TE draft report follows the format suggested by the UNDP-GEF TE guidelines, with a description of the methodology, a description of the project and findings organized around: i) Project Design/Formulation; ii) Project Implementation; iii) Project Results and Impact. Conclusions, Recommendations and Lessons Learnt complete the report. Consistently with requirements, certain aspects of the Project are rated, according to the rating scale of the Guidelines. Co-financing information is presented in the chapter under financial management; and the updated Scorecard and core indicators are included in Annex 13. Comments addressed have been documented in an Audit Trail, prepared as a separate annex 12 to the TE Report.

[5] UNEG Ethical Guidelines for Evaluation, 2020, available here.

2. Project Description

2.1 Development context

Türkiye is already struggling with a rising energy import bill estimated at 103.5 billion dollars[6] for 2022 as well as an energy consumption subsidy bill of $12 billion. Turkish dependence on Russian gas imports will likely have to be reduced while, at the same time, accelerating a long-term energy transition towards renewable energy[7]. However, in the short-term, it might prompt increased gas exploration in the Black Sea near the Sakarya gas field, which is expected to meet approximately 30% of current domestic demand by 2028. This new source of energy is expected to enter the energy mix of the country in the first quarter of 2023, by production of around 3-4 bcm[8].

Türkiye is advancing steadily in terms of installed renewable electricity generation capacity**.** Electricity consumption in Türkiye slightly increased, and it surged by over 8% in 2021, driven by higher economic activity. Installed capacity reached 99.8 GW, 53.7% of which is from renewables in 2021, with increased investments. 98.4% of the additional capacity commissioned in the last two years comes from renewables. In 2021, solar and wind capacity addition reached almost 3 GW, which exceeds the target to operationalize 1 GW of solar and 1 GW of wind every year[9]. Türkiye is currently ranking 5th in Europe regarding renewable installed capacity[10].

Türkiye supports renewables through two main support mechanisms- the Renewable Energy Resources Support Scheme (RERSS) and the Renewable Energy Resource Areas (RERA). While RERSS offers purchasing guarantee with certain tariffs, RERA offers tender processes to allocate certain capacity.

Energy efficiency projects in the manufacturing industry are supported through grants and tax incentives. KOSGEB Organization under the Ministry of Industry and Technology which supports and funds the small and medium sized enterprises re-vitalized the energy efficiency support program in 2022 as a result of the energy efficiency projects implemented in cooperation with UNDP and the Ministry of Industry and Technology. The support program of KOSGEB has been planned as a sustainable financing mechanism. The remaining sectors with a high share of primary energy demand, namely buildings, services and agriculture, were added to the scope by amending the law no. 7346 in the last days of 2021[11].

National Energy Efficiency Action Plan for the period of 2017-2023 is aimed to reduce the primary energy consumption by 14% by 2023 through 55 actions defined in 6 categories namely: buildings and services; energy; transport; industry and technology; agriculture; and cross-cutting (horizontal) areas. This saving corresponds to 66.6 million tons of CO2 equivalent emissions. Between 2017-2020, there were 4.8 billion dollars of investment on energy efficiency under the action plan and 3.19 million tons of oil equivalent energy was saved. This saving

[6] Medium-Term Economic Program (2023-2025)

[7] https://www.chathamhouse.org/2022/05/Türkiyes-climate-opportunities-and-challenges

[8] https://www.dailysabah.com/business/energy/Türkiye-hopes-to-shrink-energy-import-bill-with-domestic-resources

[9] https://www.teias.gov.tr/kurulu-guc-raporlari

[10] https://www.irena.org/publications/2022/Jul/Renewable-Energy-Statistics-2022

[11] https://www.worldenergy.org/assets/downloads/World_Energy_Issues_Monitor_2022_Türkiye_commentary.pdf

corresponds to 10 million tons of CO2 equivalent avoidance[12]. Primary energy intensity was reduced by 2.7% in 2021 with the 20 years average reaching 1.5%.

The Turkish electricity market has gone through a significant transformation in the past two decades and became functional with large-scale private sector participation. The share of the private sector in electricity generation rose to 84% in 2021 from 40% compared to 2016. Electricity and gas distribution were privatized. Energy Exchange Istanbul (EXIST) is an energy exchange company was established on March 12, 2015. Energy Exchange Istanbul currently operates electricity and natural gas markets. As part of the transition to liberal and competitive energy market model, day-ahead, intraday, and balancing power markets were established to provide market participants a trading platform based on integrity, transparency, and competition. Day-ahead and intraday markets are operated by the independent market operator Energy Exchange Istanbul, and the balancing power market is operated by the transmission system operator Turkish Electricity Transmission Corporation (TEIAS). All three markets are subject to regulation of EMRA which was established in 2001 in order to perform the regulatory and supervisory function13 Turkish electricity and natural gas commodity prices are among the lowest in Europe14.

Total CO2 equivalent greenhouse gas (GHG) emissions of Türkiye amounts to 523.9 million tonnes in 2020, which increased by 3.1% compared to the previous year, according to Turkstat. GHG intensities of Türkiye both on a per capita basis and per unit of GDP is below the OECD averages. Total GHG emissions per capita were calculated at 6.3 tonnes CO2 eq. for 2020 (see Figure 17).

In 2020, the energy sector had the largest share of total GHG emissions with 70.2%. The energy sector was followed by the agriculture sector (14%), the industrial processes and product use sector (12.7%) and waste sector (3.1%). The energy sector emissions were calculated at 367.6 Mt CO2 eq. in 2020, which increased by 0.6% compared to previous year. Similarly, emissions from the industrial processes and product use sector were calculated at 66.8 Mt CO2 eq. in 2020, which increased by 14% compared to previous year. Agriculture sector emissions were calculated at 73.2 Mt CO2 eq. in 2020, which increased by 7.5% compared to previous year. Waste sector emissions were calculated at 16.4 Mt CO2 eq. in 2020, which increased by 2.1% compared to previous year [15].

Similarly, the biggest share in CO2 emissions was observed in the energy sector with 85.4% of total CO2 emissions, including 31.6% of total CO2 emissions originating from electricity and heat production which is a sub-category of the energy sector. The remaining 14.2% of CO2 emissions originated from the industrial processes and product use sector and 0.4% from the agriculture and waste sectors in 2020. 61% of CH4 emissions originated from agriculture, 22.1% from waste, 16.9% from energy, and 0.02% from the industrial processes and product use sector, while 80.3% of N2O emissions originated from the agriculture sector, 9.1% from energy, 5.6% from waste and 5% from the industrial processes and product use sector. With these statistics, energy sector is the biggest driver of CO2 emissions, while agriculture is the biggest driver of CH4 and N2O emissions.

[12] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC208941/

[13] https://enerji.gov.tr/bilgi-merkezi-yatirim-destekleri-elektrik-yatirim-rehberi

[14] https://www.iea.org/policies/7964-national-energy-efficiency-action-plan-2017-2023

[15] https://data.tuik.gov.tr/Bulten/Index?p=Greenhouse-Gas-Emissions-Statistics-1990-2020-45862

In Türkiye, 47% of net electricity consumption is from the industrial sector[16], with an estimated 70% of this energy consumption from electric motor-driven systems. In general, electric motors in Türkiye are not energy efficient. Based on DGIP's 2015 motor inventory analysis, 72% of all motors in operation are in efficiency classes IE0 or IE1 and 99% of all motors are within efficiency class IE2 or lower. Only slightly more than 1% of motors are in classes IE3 or IE4. A typical electric motor causes an energy cost of more than 50 times its purchase cost during its 20 years of service life. This means that energy-efficiency is an extremely important consideration in the decision on which motor to purchase.

With most of the electric motors on the Turkish market are being used in the industrial sector, more than 95% of Türkiye's industrial sector is comprised mainly of SMEs. Out of Türkiye's more than 2.6 million SMEs, there are an estimated 355,312 SMEs in the industrial sector. SMEs comprise more than 99.5% of the enterprises within the industrial sector and produce more than 46% of the sector's outputs.

SMEs in Türkiye have traditionally had difficulties in obtaining access to finance primarily due to their creditworthiness, inability to provide sufficient collateral, and their lack of capacity to articulate their specific needs for financing to banks. Turkish commercial banks have historically been reluctant to offer EE financing product lines since they associated such funding with higher transaction cost and higher risk. Moreover, these banks typically had limited internal capacity to properly assess, develop, and EE market financing instruments. The challenge lies in convincing SMEs to utilize more efficient motors in their industrial processes to save energy as opposed to their current alternative of resorting to the cheapest options of restoring operations of a motor, mainly through the rewinding of the motor.

2.2 Problems that Project Seeks to Address

The developmental challenge for Türkiye on this proposed GEF project, is to achieve substantial energy savings in an industrial sector where more than 90% of the enterprises are SMEs[17]. SMEs in Türkiye have traditionally had difficulties in obtaining access to finance primarily due to their creditworthiness, inability to provide sufficient collateral, and their lack of capacity to articulate their specific needs for financing to banks. Turkish commercial banks have historically been reluctant to offer EE financing product lines since they associated such funding with higher transaction cost and higher risk. Moreover, these banks typically had limited internal capacity to properly assess, develop, and EE market financing instruments.

In the ProDoc, the barriers towards increased use of EE electric motors in SMEs in Türkiye were analysed in detail. The most relevant barriers are the following:

- Information and awareness barriers
- Technical barriers
- Institutional barriers
- Legal, regulatory and policy barriers
- Financial barriers
- Market barriers

Despite the availability of EE motors in the Turkish market, the level of awareness amongst policymakers, motor manufacturers in Türkiye, and industrial end-users (mainly SMEs) was limited on potential energy savings and

[16] TEDC (TEDAS), Electricity Distribution and Consumption Statistics of Türkiye, 2015

[17] The KOSGEB definition of an SME is "an enterprise with up to 249 employees and an annual turnover of up to 40 million Turkish Lira."

economic benefits. The limitation of this awareness within an industrial enterprise is also related to knowledge on the life-cycle benefits of energy efficiency. For many electric motor manufacturers in Türkiye, there was limited knowledge on the different technologies and methods of design and manufacture of IE3 and IE4 motors due to the various components which can be used to remanufacture motors that do not meet EE standards.

For industrial SMEs, CEOs who make investment decisions have limited awareness of the differences and benefits of motors in various efficiency categories. Moreover, SMEs do not regard energy efficiency as important when their main concerns are related to optimizing production and minimizing risks of interruptions. As such, if an SME experienced reduced production from a malfunctioning motor, the CEOs make the decisions opting for lowest cost solutions without consideration of life cycle costs. This typically involves the replacement of this malfunctioning motor with a spare electric motor that is stored onsite. While the spare electric motor may not have the required capacity, the broken electric motor is then repaired in a clandestine repair shop, where it is rewired and loses 2-3% efficiency with each rewiring.

With their small-scale operations and limited own funds, limited collateral and capacity to borrow money, SMEs have limited access to de-risked credit support that does exists in Türkiye. If a SME has money available to invest, either own means or bank credit, the SME typically will invest in increasing production rather than improving efficiency. As such, most industrial SMEs generally are unwilling to pay the replacement of this equipment with upfront costs for an energy efficient motor or measures.

Many industrial SMEs are located within the Organized Industrial Zone (OIZs) who employ energy managers within energy management units (EMUs) who provide advice to member SMEs on energy related matters. Capacity of these EMUs on issues related to energy efficiency is generally weak.

SME distrust in the use of external engineers, ESCOs and equipment suppliers to improve their energy efficiency stems from the fact these experts and engineers are generally linked to preferred equipment suppliers. Due to their small scale, SMEs typically do not have dedicated energy managers that understand and convince management to engage with external parties to replace electric motors. Given the risk aversion of SMEs due to their lack of liquidity, general SME perceptions are that these engineers and experts may not offer unbiased EE solutions for their industrial enterprise.

2.3 Project Description and Strategy

The project objective is to promote significant additional investment in industrial energy efficiency in Türkiye by transforming the market for energy efficient motors used in SMEs. The project aims at reducing a total of 3,092 tons of CO2 from the replacement of inefficient motors with IE3 motors by end of project, reduce annual electricity consumption by 640,499 MWh and phase out a total of 5,000 inefficient electric motors. The key 5-step strategy to achieving the changes encapsulated in the Project objective of "promoting significant additional investment in industrial energy efficiency in Türkiye by transforming the market of EE motors used in SMEs" will be i) strengthening the enforcement framework that includes an improved MV&E strategy, market surveillance, trained field inspectors; ii) improving capacity of relevant stakeholders to promote the benefits of EE motors; iii) improving capacity for monitoring, verification and enforcement for better compliance of electric motors supply chain through upgrading test laboratories at the Turkish Standards Institute as well as improved MV&E strategy and training of field inspectors of MoIT; iv) launching of an operational and sustainable "one-stop-shop" for financing

motor replacement programmes; and v) increasing the availability of EE motor information to raise stakeholder awareness on the benefits of EE motors and to sustain motor market transformation.

In order to achieve that, the project has been structured in 5 different components:

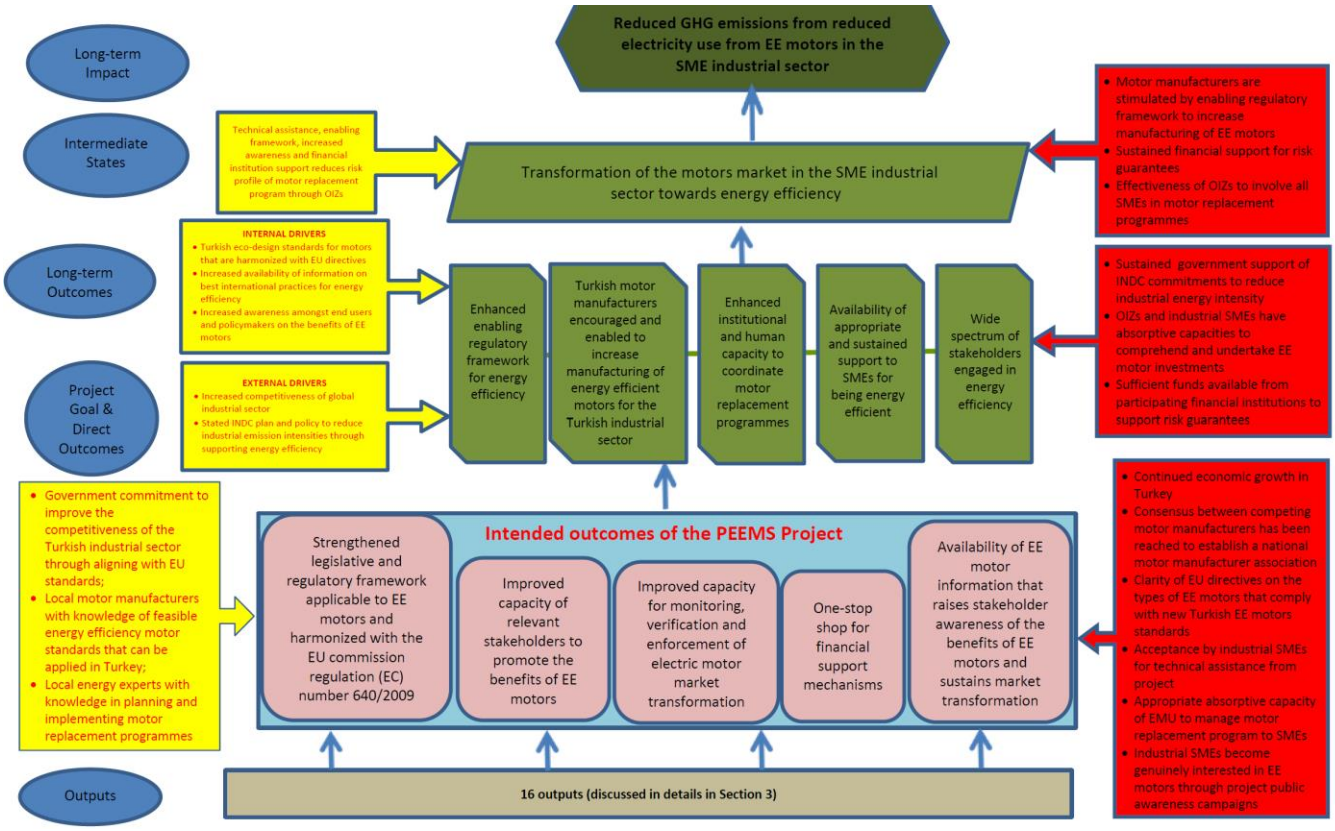
- Component 1: Strengthened legislative and regulatory and policy framework for EE motors in Türkiye: the component will lead to the outcome of strengthened policies, regulations and standards that are applicable to EE motors and harmonized with the EU commission regulation (EC) number 640/2009 that is designed to increase the energy efficiency of the electric motors. A direct benefit of the GEF project to the Government of Türkiye will be its strengthened capacity to adopt EU directives that will continually improve the efficiency of electric motors.
- Component 2: Capacity building for relevant stakeholders to promote the benefits of EE motors: the component addresses the barriers associated with the need for improved capacity within the local EE motors manufacturing industrial sector, OIZs and their EMU management personnel and industrial SME end-users. The intended outcome of this component will be the improved capacity of these relevant stakeholders to promote the benefits of EE motors.
- Component 3: Upgraded Turkish Standards Institute (TSI) test laboratory and strengthened monitoring, verification and enforcement: the component addresses the barriers associated with the need for improved capacity to undertake market surveillance programs related to electric motors. The intended outcome of this component is to have upgraded motor testing capacities of TSI and a strengthened program for monitoring, verification and enforcement of compliance with eco-design implementing measure 640/2009 (or future amendments).
- Component 4: One-stop-shop for financial support mechanisms: Outputs of this component will lead to an outcome of improved to SME access to available financial mechanisms and additional de-risking measures that will facilitate an increase in investments in energy efficient electric motors within industrial SMEs. Project resources in this component will be focused on building the capacity of the OIZs and their EMU to become lead entities in managing a motor replacement programmes that would include a one-stop-shop for financial support mechanisms for industrial SMEs. Project resources used towards building EMU capacity will enable them to comprehend and prepare an "efficient motor assessed potential" or EMAP that will provide an assessment of the potential motors to be replaced within an industrial SME. With an EMAP in place, the SME can target certain motors for a standard motor testing report (SMTR) that will provide recommended improvements not just to the electric motor itself, but to the entire electric motor drive system.
- Component 5: Knowledge management and M&E: This component is mainly focused on the management of knowledge that will sustain EE motors amongst stakeholders in manufacturing and sales of EE motors, intermediaries such as the OIZs and EMUs to manage motor replacement programmes and the SME end users in the industrial sector. The intended outcome of this component will be the increased availability of EE motor information that raises stakeholder awareness of the benefits of EE motors and sustains market transformation.

2.4 Theory of change

The project document defines the Theory of Change (ToC) that underpins the project design. The ToC illustrates the contribution of the Project outputs that will lead to desired Project and long-term outcomes and eventual long-term impacts comprising of reduced GHG emissions from reduced electricity use in the SME industrial subsector. Key barriers to the EE motor market transformation includes a lack of baseline information and awareness of technology, applications and EE potential of EE electric motors; inefficient coordination in the implementation of the EE Law that slows the pace of legislative changes; limited monitoring, verification and enforcement or MV&E capacity for EE motors market transformation and compliance with MEPS for EE motors; lack of enforcement capacity to improve implementation of the MVE strategy; unwillingness of industrial SMEs to pay upfront costs or make for EE motor investments; and a lack of available external experts who can provide an unbiased and cost effective motor replacement plan to industrial SMEs.

The key strategies to achieving the proposed Project objective of "promoting significant additional investment in industrial energy efficiency in Türkiye by transforming the market of EE motors used in SMEs" will be strengthening the enforcement framework that includes an improved MV&E strategy, market surveillance, trained field inspectors; improved capacity of relevant stakeholders to promote the benefits of EE motors; improved capacity for monitoring, verification and enforcement for better compliance of electric motors supply chain through upgrading test laboratories at the Turkish Standards Institute as well as improved MV&E strategy and training of field inspectors of MoIT; launching of an operational and sustainable "one-stop-shop" for financial support; and increasing the availability of EE motor information to raise stakeholder awareness on the benefits of EE motors and to sustain motor market transformation.

Figure 1: Project theory of change diagram



2.5 Main stakeholders

At the design level, a series of specific main stakeholder groups were identified with a breakdown of key stakeholder categories, their interest in the project and their anticipated roles. According to the Project Document, the main project stakeholders include:

- Directorate General of Industry and Productivity (DGIP) under the **Ministry of Industry and Technology (MoIT)**: the DGIP is serving as the national implementing agency of the PEEMS project and is also the main stakeholder to contribute to the development and to ultimately manage the market monitoring system under consideration.
- Directorate General of Safety and Inspection of Industrial Products (DGSIIP) under MoIT: is responsible for product safety and implements the market surveillance programs for EE electric motors that enter the Turkish market.
- **Turkish Small and Medium Enterprises Development Organization (KOSGEB**): provides services and support to Turkish SMEs. KOSGEB has experience with EE motors through its pilot project in Kayseri OIZ.
- **Organized Industrial Zones (OIZs):** are entities that manage and maintain infrastructure within a designated area where SMEs can operate. OIZ managers provide the administration for such services including the maintenance of factory buildings, utilities and roads. Provision of electricity to the SMEs at a lower rate is included in the OIZ services. In many cases, the OIZs generate their own electricity for supplying to the OIZ tenants. In addition to receiving revenues from SMEs to administer and maintain the OIZs, the OIZs also generate revenue from electricity sales and receive also some government support.

- **Energy Management Units (EMUs) within OIZs**: OIZs which accommodate more than 50 SMEs need to have their own EMU. The EMUs provide assistance and advice on all energy related issues, but mostly on energy efficiency aspects.
- **Association of Turkish Electric Motor Manufacturers (EMOSAD):** represents about 95% of Turkish manufacturers as its member, including WAT Motor (Arçelik AS), GAMAK (Gamak Machinery Industry Inc.), Volt Motor (Volt Electric Motor Industry and Trade Inc.), Emf Motor (Emf Motor San. Ve Tic. A.). Ş.), Miksan Motor (Miksan Motor Industry and Trade Inc.), Femsan Motor (Femsan Electric Mot. San. Tic. A.Ş.), Elsan Motor (Elsan Electric Industry and Trade Inc.), Aemot (Aem Electric Motors Ind. Trade Inc.), ELK Motor (ELK Motor Industry and Trade Inc.), KSB (KSB Pump Armature Industry and Trade Inc.) and Omega Motor (Omega Motor Industry Inc.).
- **Turkish Standards Institution (TSI):** is the Turkish standardization body and provides the standards aimed at enabling industrialists to produce goods and services in compliance with rules, laws, codes and standards in Türkiye.
- **Energy Efficiency and Management Association (EYODER):** an association of energy managers and Turkish ESCO companies, with around 80 members at the moment.
- **Chambers of Commerce** (Ankara, Istanbul): set up and operate Organized Industrial Zones (OIZs)

3. Findings

3.1 Project Design/Formulation

The PEEMS project design has successfully captured the barriers towards widespread adoption of EE motors within industrial SMEs in Türkiye, and in response the project design presented well-structured components to remove the identified barriers with specific activities leading to specific outputs and outcomes. The project design offers an integrated solution to achieve a sustainable market transformation of the Turkish motors market by addressing the policy and regulatory gaps, limited technical capacities, low level of awareness, lack of liquidity to pay the upfront costs for an EE motor investment and inefficient coordination in the implementation of the EE Law that slows the pace of legislative changes.

The project design encompasses the piloting, testing, learning and then upscaling approach in rolling out the motor replacement program. The demonstration phase involved working through only 7 OIZs with a limited number of SMEs engaged in to receive technical assistance (audit service) and financial support for motor replacement, with lessons learned from the pilot project to be used in designing a national motor replacement program.

However, there has been an assumption that an immediate and speedy transition from the pilot stage into the dissemination phase is going to occur once the pilot is implemented, or as metaphorically referred to as 'popcorn effect'. The design project suggests that once the first group of SMEs implement the motor replacement, benefits demonstrated, then 37,860 EE motors will be installed with US$ 47, 92 million investment through the 'one-stop-shop' facility during the dissemination phase, these targets are believed to be overly ambitious and cannot be achieved within the project timeframe and within available capacities.

On the other side, the project delivery mechanism is based on an invalid assumption around the capabilities of Energy Management Units (EMUs) within OIZs to provide the 'one-stop-shop' service to SMEs. The project design is primarily based on the essential role that EMUs were supposed to play in providing technical and financial services, however, OIZs in Türkiye either have no EMUs in place at all, or at its best an under resourced EMU with limited technical and financial capabilities, only 80 out of 400 OIZs have EMU in place. On the other hand, KOSGEB, the Turkish Small and Medium Enterprises Development Organization, is best positioned to host the financial mechanism based on its mandate and financial capacities, however, it is understood that there was no agreement on the financing mechanism at the design stage with potential financing agencies, and this could have been a contributing factor as to why the EMUs were assigned to take this role as an alternative. Nonetheless, the project management was able to adapt to these circumstances and worked further with KOSGEB until a final agreement is reached and a Letter of Agreement (LoA) is signed for financing SMEs to replace motors.

Results Framework Analysis: project logic and strategy, indicators

This section provides a critical assessment of the Project Results Framework (PRF) in terms of clarity, feasibility and logical sequence of the project outcomes/outputs and their links to the project objective. It also examines the specific indicators and their target values in terms of the SMART[18] criteria.

[18] SMART stands for Specific, Measurable, Attainable, Relevant, Time-bound.

The project's results framework monitoring system is composed of 19 indicators with its respective baseline, MTR and end of project targets (4 objective level, 3 for outcome 1, 2 for outcome 2, 3 for outcome 3, 4 for outcome 4 and 3 for outcome 5).

Generally, the PRF is found to be fit for purpose, and indicators provide a clear description of the intended target with an economy of words, and targets are largely broken down by MTR/EOP timeframe. The simplicity of the indicators provide clarity to the PMU in terms of the activities to be monitored and targets to be reached. Indicators and targets meet the "SMART" criteria (Specific, Measurable, Achievable, Relevant, Time-bound), the objective- level targets are appropriate and give a good sense of the scope and all that the Project intends to achieve from the outset.

However, here are few comments on the indicators:

- The motor replacements target (37,861 by end of the project) is overly ambitious, and as this has been the basis for setting other targets, so this subsequently meant that also ambitious targets set for CO2 emission reductions, MWh reduced electricity consumption and cumulative USD investments through an established "one-stop-shop" FSM (US$ 47, 92 million).
- Some indicators are output-based indicators as opposed to outcome indicators, for example "*Number of completed national surveys on motors in the industrial sector in Türkiye by Year 1*" is primarily an output to be achieved by the project and provides no insight of the strengthening the policy framework (i,e outcome 1).

Assumptions and Risks

Assumptions and risks were articulated in project planning documents. The stated risks were logical and robust at the time. The prodoc defines 6 key risks including, 5 of which are assessed as 'moderate' and 1 as 'low risk'. The identified risks are supported with a proper assessment based on impacts and livelihood and backed with relevant mitigation measures. The prodoc anticipated the key risks that the project may encounter during the implementation, including, the level of interest of SMEs in replacing motors and the risk of the one stop shop financial support mechanism does not properly functioning. The new risks emerged throughout the implementation are discussed in section 3.2.

Assumptions are clearly articulated in the PRF and ToC, they captures key assumptions underpinning the achievement of the outcomes, for example, the prodoc identifies a key assumption that EMUs have absorptive capacity for training on the management of motor replacement programmes with SMEs, such a critical assumption needed to be tested during the implementation, however there is no mention as to how this assumption (and others) will be monitored and tested during the project implementation. This is not unique to this project, in fact the GEF-UNDP project document template allows for the assumptions to be captured in the PRF and ToC, but it doesn't include information as to how these assumptions, at least the key ones, are going to be tested and/or monitored.

Other assumptions that underpin the project targets related to the total number of motor replacement could be achieved (37,861 motors) during the project timeframe, 500 SMEs were to be involved in the pilot stage only and 2,408 by the end of the project, and each SME would replace 15 motors during the project timeframe (42.5 kW average size). These assumptions have led to setting a very ambitious targets for energy savings and CO2 reductions.

It has become apparent during the early days of the project that these assumptions are nowhere near realistic with the existing challenging environment and especially in light of the emerged risks during implementation that

were not foreseen at the design stage, such as inflation and interest rate increase, dramatic change in the US$ exchange.

Lessons from other relevant projects

The prodoc references number of relevant projects identified at the time of PPG with limited information on the linkages and lessons learned, but largely presenting these projects as a baseline.

Among the most relevant projects is the motor energy efficiency program in Kayseri OIZ implemented by KOSGEB, it was a planned project at the time of developing project but was then implemented and completed by KOSGEB. The Kayseri project took place with several banks collaborated to enable small and medium-sized enterprises (SMEs) to access loans up to TL 300,000 (approximately US$ 100,000 at that time). KOSGEB covered the interest on these loans. To be eligible for this financial aid, SMEs were required to prepare an energy efficiency survey report and submit it to KOSGEB. Following approval, SMEs were expected to apply to the bank for the loan. Once approved, the banks played a role in streamlining the investment process, aiding in the recycling of outdated equipment by delivering inefficient motors to the Kayseri OIZ. This recycling occurred at a facility authorized by the Ministry of Environment and Urbanization.

The implementation of the Kayseri energy efficiency program yielded limited success, with only a minimal number of companies seeking support from KOSGEB. While assistance was provided in identifying energy efficiency enhancements, SMEs displayed a reluctance to secure loans for such investments. Furthermore, the obligation to return the old motors was perceived as a hindrance. It wasn't until December 2019 that agreement with KOSGEB on the financing mechanism was reached under the PEEMS initiatives, culminating in the signing of a protocol with DGIP. These findings were observed after the PEEMS project design stage, and therefore were not included in the project document.

Other projects referenced in the prodoc included the 'Efficiency Improvement Projects in Industrial Facilities' project implemented by DGRE, UNDP-UNIDO GEF project entitled "Improving Energy Efficiency in Industry" executed by DGRE, AfD and KOSGEB are jointly implementing the "Energy Efficiency in SMEs in Türkiye" project, the World Bank project "SME EE Project" under the coordination of MENR and others.

Planned stakeholder participation

The prodoc recognises that the primary stakeholder beneficiaries of the PEEMS Project are the motor manufacturers and the industrial SMEs and defines the range of benefits those beneficiaries could attain from the project. The project document outlines a long list of stakeholders and maps out their contributions and relevant to the project activities/outputs. The actual list of stakeholders involved in the project has been extended and now also includes the Ministry of Energy and Natural Resources, KOSGEB, EMOSAD, the Energy Efficiency and Management Association (EYODER) and the selected OIZs. Interestingly enough, the EMUs/OIZs have been recognised in the prodoc as a secondary stakeholder despite the fundamental role assigned to EMUs in establishing and running the one-stop-shop mechanism.

Gender responsiveness of project design

According to the prodoc, the project is classified as Gen1 which means the outputs of the project contribute in a limited way to gender equality, but not significantly. Public awareness raising and training activities are meant to be designed to encourage participation of women notably in the criteria for selection of OIZs and SMEs for implementation of pilot projects. To facilitate empowerment of women and increase their participation in all

stages of the Project cycle, a gendered disaggregated analysis of personnel within SMEs and OIZs is conducted to identify barriers and differentiate roles that may be more suited to each gender. Gender disaggregated data was meant to be obtained through surveys and socioeconomic monitoring to identify potential project impacts on each gender. The prodoc stipulates that surveys should also include gender-disaggregated data throughout the Project life cycle of any industrial sector pilot study to be implemented at OIZs with SMEs.

Social and Environmental Safeguards

The SESP of the project provides a clear definition of how the project incorporates overarching principles to enhance Social and Environmental Sustainability. It outlines the integration of a human-rights based approach and gender equality through awareness campaigns, empowering women-owned SMEs to participate to ensure equality of opportunity and contributing to more stable job opportunities for the communities.

Furthermore, the SESP emphasizes the project's commitment to mainstreaming environmental sustainability, which aligns with its overall objectives by reducing emissions. The prodoc explicitly states that the project is designed to avoid any social or environmental risks, and this commitment has been maintained throughout the three years of project operation.

Th SESP identifies two risks that are rated 'low', 1) Hazardous waste to be generated during motor replacement projects; and 2) Waste to be generated during motor replacement projects which were meant to be mitigated through implementation of a well-designed waste management (recycling) programme in accordance with the Regulation on Waste Electrical and Electronic Equipment (WEEE) transposing the WEEE Directive of the EU.

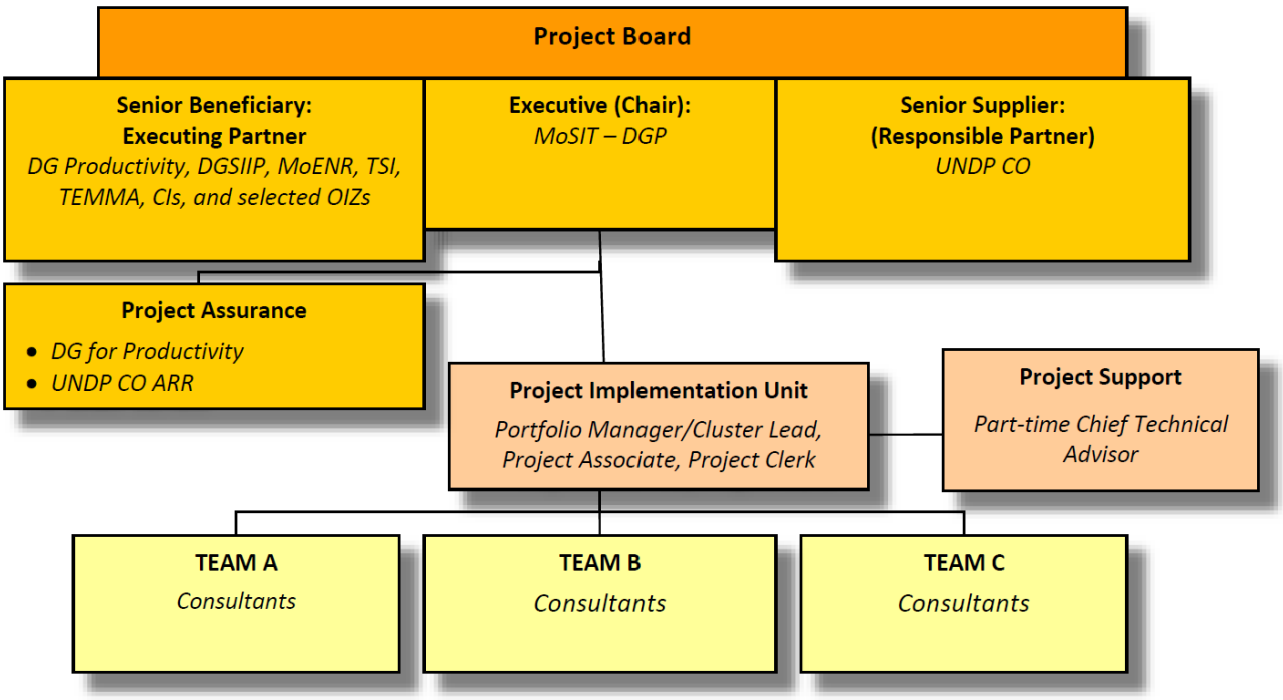
Management arrangements

The PEEMS Project was implemented following UNDP's National Implementation Modality (NIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of Türkiye, and the Country Program Action Plan (CPAP). The Implementing Partner for this Project is the Ministry of Industry and Technology (MoIT). The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. The project is executed by Mo-IT under the overall responsibility of the General Directorate for Strategic Research and Productivity (GDSRP).

Under the GDSRP oversight, the direct day-to-day oversight of the project sits with the Project Implementation Unit (PIU). The PIU develops annual work plans based on the multi-year work plan, including annual targets at the output level to ensure the efficient implementation of the project. The PIU ensures that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for reporting (i.e. GEF PIR), and reporting to the Project Board at least once a year on project progress. The PIU consists of a Project Manager, a Project Associate and UNV, the office of the PIU is located in the MoIT. The PIU is in daily contact with DGSRP and has weekly and monthly meetings to discuss progress and take necessary decisions.

The Project Board (PB, also called Project Steering Committee) is responsible for making management decisions for the Project including agreeing the annual project work plan, in particular when guidance is required by the Portfolio Manager and where important issues related to adaptive management need to be discussed and agreed. Key members of the PB are DGSRP and UNDP, other governmental and non-governmental agencies and project partners are invited as considered appropriate and necessary. The PB is supposed to meet at least once per year.

Figure 2: PEEMs project organizational structure[19]



The PB is comprised of:

- Senior Executive (Chairman of Project Board) – MoIT – GDSRP
- UNDP – Implementing partner
- Senior Beneficiary - Executing Partner: DG Productivity, DGSIIP, MoENR, TSI, TEMMA, CIs, and selected OIZs.

The presence of OIZs on the project board has been important to represent the SMEs perspective and convey within their OIZs, and to share lessons learned and other attendant issues that hinder progress of the intended market transformation objectives of the Project.

UNDP is the GEF Implementing Agency for the project and as such remains the ultimate responsible party towards the GEF Secretariat and Council with regard to the use of GEF financial resources – and of any cash co-financing passing through UNDP accounts. The Project assurance role has been provided by the DG for Productivity and UNDP CO Portfolio Manager. The project assurance supports the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed.

An obvious gap in the management arrangement from a project design perspective is the absence of any financial institution/scheme to play the most important role in the project i.e financing EE motor replacement. As no agreement was reached with any financing agency at the design stage, this gap was left unfilled. With the ambitious targets set to be achieved, the project could not afford to wait until the implementation stage to identify

[19] Source: Project document

a financing institution, this should have been done in the PPG stage. The impact of not having a financial institution defined upfront has been apparent during the implementation stage as a limiting factor.

3.2 Project Implementation

Assessment element	Rating
Monitoring & Evaluation (M&E) Design	Satisfactory (S)
Monitoring and Evaluation (M&E) implementation	Moderately Satisfactory (MS)
The overall assessment of the M&E	Moderately Satisfactory (MS)
Quality of UNDP Implementation /Oversight	Moderately Satisfactory (MS)
Quality of Implementing Partner Execution	Moderately Satisfactory (MS)
Overall project implementation/execution	Moderately Satisfactory (MS)

Adaptive management

GEF evaluations assess adaptive management in terms of the ability to direct the project design and implementation to adapt to changing political, regulatory, environmental, and other conditions outside of the control of the project implementing teams. The adaptive approach involves exploring alternative ways to navigate the projects towards meeting the planned objectives using one or more of these alternatives.

Adaptive management is defined as the project's ability to adapt to changes to the project design (project objective, outcomes, or outputs) during implementation resulting from: (a) original objectives that were not sufficiently articulated; (b) exogenous conditions that changed, due to which change was needed; (c) the project's restructuring because the original expectations were overambitious; or (d) the project's restructuring because of a lack of progress.

The PEEMS prodoc diagnosis on the experience and equipment for the implementation of energy efficiency projects financed by the GEF, and others linked to other initiatives. During the implementation, the PEEMs Project's adaptive management was a necessity to address several of the above facets of adaptation for implementation. The most salient ones are included here.

The project implementation strategy has been following adaptive approach by testing ideas, learn and upscale. The piloting approach followed for replacing motors involved working in 7 OIZs targeting a total of 100 SMEs as a pilot stage. The purpose of the pilot was to confirm the viable finance models with stakeholders and set up agreements for upscaling based on lessons learned. The piloting phase has been assessed once completed and lessons learned documented[20], including:

- Energy efficiency activities, especially investments related to energy efficient motors, are not included in the investment plans as a short-term/priority.
- Awareness of general energy efficiency applications and energy efficiency applications in electric motor systems is insufficient.
- There is reluctance to allocate resources such as time, people and money for energy audits.
- The share of motors in electricity consumption cannot be measured clearly with no effective tracking tools to quantify the actual use of the EE motors in the field.
- There is insufficient knowledge and motivation on the benefits of energy efficient transformation on the ground.

The transition from pilot to dissemination stage involved number of adaptive management changes into the financing model and the overall approaches, these included, for instance, allowing for a whole motor-based

[20] PEEMS Pilot programme evaluation report, 2022.

system upgrade including motors and other auxiliary components such as compressors and pumps to maximize the energy efficiency gains, such a change was introduced based on the feedback collected during the pilot stage and captured in the assessment report through an effective learning process.

Another avenue where the PEEMs project demonstrated adaptive management action is related to the **'one-stop-shop' service model**. The project management has come to realise the assumption that EMUs at OIZs are equipped with technical capacities and financing instruments to run the 'one-stop-shop' mechanism is rather unreal. This may have been risen from the fact that KOSGEB did not show enough interest at the design stage of the project. However, the project management and MoIT have eventually convinced KOSGEB to take more prominent role in delivering the financial mechanism as an alternative for EMUs, which in turn, is going to be a significant sustainability element beyond the PEEMs project boundaries, if it continues. As a result, the project has been integrated into the KOSGEB's support programme which is called SME Energy Efficiency Support Programme. In scope of the agreement with KOSGEB, it was agreed to support the motor audits and motor replacements with the project's GEF fund in coordination with the implementing partner. KOSGEB is well-placed to continue delivering on the financial mechanism based on its mandate and financial capacity.

Also, the pandemic has had multiple impacts on the PEEMS project especially that the pandemic came at a time when filed activities and direct engagement with the SMEs were due, and these were not possible and online engagements were done instead. The project managed to reach out to OIZs and SMEs via online engagement models despite challenges related to technical difficulties in getting large group of people to connect online and participate effectively.

Despite the good adaptive management actions above, there has been, and probably still is, a low level of interest by SMEs to invest in EE motors, and as outlined in the 'project results' section, there are multiple reasons[21] underpinning the low interest level, including low level of awareness despite awareness activities done. This could have been yet another opportunity to be adaptive, and innovative, in delivering awareness activities, to ensure that SMEs do actually understand the benefits and the opportunities. An example, of adaptive management action is to design and implement a targeted campaign to increase the SMEs awareness, especially about the new funding opportunity opened in the demonstration phase (i.e the fact that KOSGEB has doubled up its funding offer in response to the economic inflation).

Actual stakeholder participation and partnership arrangements

As established in the Project Document and at inception, a broad framework for stakeholder analysis was carried out at design. The main partnership arrangements with relevant stakeholders to be involved was established. The perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process were amply supported to be included in design process. The Project Documents contains evidence that captures the broad levels of participation that took place at design. There were national level consultations and site visits to the OIZs where the project operated to harness delivery. The implementation of project activities engaged with many key actors, fairly following the planned framework for stakeholder analysis.

However, stakeholders' engagement was critical in the PEEMS project given that the project has been working across wide spectrum of agencies to cover the policy, legislation, testing, manufacturing, financing and SMEs

[21] See the full list of reasons for low level of uptake in the effectiveness section of this report.

(though OIZs). The PEEMS's inception report recognises the importance of engaging the academic sector as well based on experience with other similar projects.

From design onward the project has a had a healthy inclusion of some stakeholders and beneficiaries. However, there have been challenges affecting the effective stakeholders' participation in the PEEMS, including:

- KOSGEB has a critical role in the PEEMS project based on its mandate, yet the lack of clearly defined finance mechanism at the beginning has been a significant challenge which could have, if continued, led to a substantive delivery risk. However, the project management has successfully agreed with KOSGEB on the finance mechanism which was crowned with signing a Letter of Agreement (LoA) for implementing the dissemination phase of the project in April 2023.
- Frequent institutional changes in the structure of participating stakeholders caused distractions of the PIU efforts and delays in decision making process. These disruptions have led to inability to make decisions and approve project activities in 2023, which is still the case at the time of this TE.
- The effectiveness of the project board has been quite limited, in fact, the MTR has, rightly, recognised the need for increasing the frequency of the board meetings to at least 2 times per year[22]. Quite the opposite, the project board was convened only once in 2021 since the MTR and was not convened in 2022 and 2023 at all, alternatively the main board discussion topics were shared via e-mail, but this process was not as effective as needed. This situation has been a critical hindrance to the project progress and decision making.

Apart from the issue of the project board, the project has been effective in coordinating, and building coherent partnership, with relevant organisations such as OIZs, TSI, EMOSAD and other. These stakeholders demonstrated strong sense of ownership when interviewed through the TE mission. The level of knowledge of the subject matter on the part of the technical team has helped a lot in this achievement as they themselves have brought other actors to the table and have a deep understanding of the SMEs problems and solutions. All this has meant that the level of participation of public and private actors has been moderate.

There is great recognition of the importance of the topic of EE and the work carried out by the project on the part of the representatives of public institutions and business leaders, who stated that the need is still very much alive and that it is very necessary to give continuity to the topic with the support of financial resources so that the benefit can be extended to a significant number of SMEs in Türkiye.

Project Finance and Co-finance

The Project had a total planned project cost of USD 32,090,000. Planned GEF financing was to be USD 3,750,000, and co-financing of USD $ 28,340,000. At the time of project start, the planned co – financing was to be provided by the following sources: UNDP (cash) USD 80 000, Government and other institutions USD$ 28,260,000 cash & in-kind, of which $20 million was meant to be parallel co-financing invested through the financial mechanism for funding the motor replacement.

After the start of the Project, the PIU was able to secure additional co-financing commitments. The Ministry of Energy and Natural Resources (MoENR) committed to an in-kind contribution of US$ 1 million, funding was allocated to be used for strengthening the regulatory framework, improve the financial support mechanism, develop capacities of ESCOs and contribute to training and public awareness activities. EMOSAD committed to contribute US$ 100,000 in kind, focusing on promotion of EE motors in SMEs, participation in development of governance and information infrastructure in electric motor industry, support investments for production of high EE motors, development and delivery of training and development of the financial support mechanism. EYODER

[22] Recommendation #7 of the Mid-term Review report.

(Association of Energy Efficiency and Management) committed to contribute US$ 100,000 in kind, focusing on contributing to the preparation of trainings and workshops, assisting EMUs in conducting motor assessments and organization of information and promotion meetings.

Co-financing has largely come from replacing the motors in the pilot and dissemination stages. In the dissemination stage, KOSGEB pays 100% of the audit costs for SMEs and up to 75% of the motor replacement cost during the dissemination phase, 50% of which are funded by the GEF. Although these are substantial percentages and desirable incentives, nonetheless, there has been low level of uptake by SMEs during the dissemination phase so far, due to multiple reasons explained under effectiveness section, however, the overall co-financing target has been largely met, around $ 27.4 mil have been documented, and this is 96% of the anticipated co-finance at the design stage.

Table 3: Finance and co-finance table

Co-financing (type/source)	UNDP own financing (mill. US$)		Government (mill. US$)		Partner Agency (NGOs partners) (mill. US$)		Private sector (mill. US$)		Total (mill. US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	0.08	0.02		3.5					0.8	3.52
Loans/Concessions										
• In-kind support	0.22	0.22	5.85	5.2	2.19	0.5	20	17.9	28.26	23.82
• Other										
Total	0.3	0.22	5.85	8.7	2.19	0.5	20	17.9	**28.34**	**27.4**

The project spent overall US$ 2,836,389 the GEF finance, this is 76% of the funds – with US$ 891,817 remaining according to the latest expenditures report – see table 5. It is also noted that there is a marginal variation in spending on third component where nearly 109% and component 4 120% of the budget has been spend, this is not seen to affect the overall spending strategy and allocations overall.

The remaining balance is quite substantial (~US$ 890K) and given the lack of decision making by the board on approving project activities, it is possible that these resources are not spent before the project is operationally closed. The TE recommends utilising these resources in implementing awareness campaign targeting SMEs to promote participation in the motor replacement programme (see recommendation section).

Table 4: GEF funds expenditures report at TE

Component	Budget US$	Cumulative expenditure up to June 2023. US$	Balance US$	% Spent
Component 1	200,541.00	151,541.55	48973.45	75%

Component 2	189,220	156,885.5	31,245.24	83%
Component 3	1,256,890	1,371,252.57	(114,362.57)	109%
Component 4	1,713,175	746,460.44	103,247.08	43.5%
Component 4	211,740	235,040	(42,105.58)	120%
Project management	178,460	157,208.53	11.078	88%
Total	**3,750,000**	**2,836,389**	**891,817**	**76%**

Regarding financial management, the project has gone through a mandated audit in 2019. The audit has been delivered by an independent party and found that expenditure statement in accordance with the UNDP accounting policies and in conformity with the approved budget, compliant with the regulations and rules and supported properly by approved vouchers and other supporting documents.

Monitoring & Evaluation: design at entry, implementation, and overall assessment of M&E

Assessment element	Rating
Monitoring & Evaluation (M&E) Design	Satisfactory (S)
Monitoring and Evaluation (M&E) implementation	Moderately Satisfactory (MS)
The overall assessment of the M&E	Moderately Satisfactory (MS)

The M&E Framework was described in detail in Section 6 of the Project Document. It comprises standard M&E items for UNDP-GEF project such as the Inception Workshop (IW), meetings of the project board, annual Project Implementation Reviews (PIRs), audit, Mid-Term Review (MTR), Terminal Evaluation (TE), UNDP / GEF Tracking Tools and the final report. Annex B of the prodoc includes a Monitoring Plan that defines data collection process for the defined indicators in the PRF including data collection methods, frequency, means of verification, assumptions and responsibility for data collection.

Also, according to the M&E section 6, the Project Implementation Unit (PIU) should prepare two reports prior to the completion of the PEEMS Project:

- "Lessons learned and knowledge generation" that summarizes best practices implemented by the project that can be shared with project stakeholders, other government and private sector agencies, and other EE practitioners from other regional countries.
- "Final Project Report" that will provide details of implementation and outcomes of the PEEMS project.

The M&E makes no mention of the exit strategy, although it is not a standard UNDP-GEF requirement, it is however, greatly needed to demonstrate continuity between projects ending and the post project period, especially to formally confirm post project arrangements with KOSGEB to continue delivering on the motor replacement programme. This is now evidently needed more than ever before as the signed LoA only covers the project period.

Nonetheless, the overall design of M&E framework meets the standard M&E template for projects of this size and complexity. Overall, the evaluator found the M&E design adequate for monitoring the project results and tracking the progress toward achieving the objectives. The M&E design is backed with adequate resources (a total of US$ 173,000 allocated for monitoring and terminal evaluations) and clearly defined roles and responsibilities. **Therefore, the M&E design is rated Satisfactory (S).**

Monitoring and Evaluation (M&E) implementation: The project board was activated in 2018, with the first meeting taking place on 17th January 2018. The project board was anticipated to hold at least 1 formal meeting per each year of the project duration in the project document. The board is responsible for making management decisions for the project, acts as the highest strategic and policy-level body of the project and provides overall guidance and direction to ensure the unity and coherence of the project. It can invite other stakeholders to participate in its meetings as needed. The MTR recommended to increase the frequency of the board meetings to at least 2 in the second half, but on contrary, there has been less board meetings in the second half, and the board didn't convene in 2022 nor in 2023 and this resulted in major interruptions related to approving project activities and spendings.

The board met only four time since the project started (2018-2021), during these meetings, the project board was updated with the progress and planned activities including challenges and opportunities, the board role in M&E was mainly to provide strategic guidance on oversight based on the progress made, and the board approved endorsed the project extension as suggested by the MTR in 2021.

The project inception workshop was held on 12 December 2017 in Ankara and was largely attended by 140 participants including representatives from different stakeholders from government, international organizations, finance institutions, NGOs, motor manufacturers as well as OIZs and SMEs. The main purpose of workshop was to inform a broader range of stakeholders about the start of the project, their roles in the project, and to allow discussion of important technical issues including providing a clear understanding to all participants of what the project is seeking to achieve and allow discussion of important technical and strategic issues for PEEMs project, more importantly capturing the changes in the project environment and implications on the project's risks, co-financing arrangements, scope and activities.

The inception phase of any project is critical for ensuring the successful future implementation, and usually involves a). an assessment of whether any factors have changed since project development, b). finalization/review of indicators, baseline / target data in PRF if such is needed and the updating / refinement of the original multi-year workplan (plus initial AWP). In the case of the PEEMS project, the top priority was to validate the regulatory and policy environment and update risks, and little has been done on validating the PRF, especially in terms of updating the baselines and targets.

The project submitted 4 PIRs in total and is currently in the process of submitting its 5th PIR in 2023, the first one was in 2019. The PIRs were sufficiently detailed to monitor the performance and impact of the project.

The project commissioned a Mid-Term Review (MTR) between April and July 2020, the MTR offered a total of 8 recommendations aiming at achieving corrective actions for the design, implementation, monitoring and evaluation of the project as well as reinforcing the initial benefits of the project. In response, the PIU prepared a management response plan articulating how each recommendation will be addressed, but there have been no regular updates on these recommendations documented through regular reporting processes, and 6 out of 8 recommendations have been met, and 2 not implemented at all (example the increase of the board meeting frequency).

UNDP implemented a monitoring mission carried out in May 2022 to monitor progress in pilot stage and address the way forward for replication stage by providing corrective measures. This involved semi-structured interviews

with stakeholders and ultimately an output verification report was developed focusing on corrective actions to be taken by the project management.[23]

The GEF tracking tools/core indicators were carried out during the project development and were updated at the MTR stage and end of the project (Annex 13) as part of this TE.

The evaluator has had access to all the reports presented to date and there is evidence of the effective monitoring being conducted by PIU. The format allows for a thorough description of the activities undertaken, hyperlinks to publications and published materials as well as financial reporting. Thus, they receive very well-organized information which helps to build the PIRs.

The project monitoring function is critical for the project success and based on shortcomings in M&E implementation in relation to limited role of the board in the second half of the project the **M&E implementation is rated Moderately Satisfactory (MS).**

A composite ranking that considers monitoring and evaluation design at entry together with the M & E plan's implementation for the **overall quality of M&E is Moderately *Satisfactory (MS).***

UNDP implementation/oversight (*) and Implementing Partner execution (*), overall project implementation/execution (*), coordination, and operational issues

Assessment element	Rating
Quality of UNDP Implementation /Oversight	Moderately Satisfactory (MS)
Quality of Implementing Partner Execution	Moderately Satisfactory (MS)
Overall project implementation/execution	Moderately Satisfactory (MS)

The project has been implemented following UNDP's NIM execution modality according to the Standard Basic Assistance Agreement between UNDP and the Government of Türkiye, and the Country Program Action Plan (CPAP). UNDP is the GEF Implementing Agency for the project and as such remains the ultimate responsible party towards the GEF Secretariat and Council with regard to the use of GEF financial resources – and of any cash co-financing passing through UNDP accounts.

UNDP Türkiye has been responsible for the overall supervision and monitoring of the project and has been providing project assurance through the country office and the UNDP-GEF RCU. UNDP has been providing direct project services as requested by Government, including recruitment and payroll management of project staff, purchase of goods and equipment and hiring of consultants as requested.

However, UNDP is also expected to play a strategic role in this project by creating linkages with the other projects that the CO is delivering, particularly EE, and convene the project board to support strategic decision making. UNDP CO and other board members had little role in activating the board in the second half of the project and this affected project decision making adversely. UNDP could have pushed harder for decisions and corrective measures to be taken through the board.

UNDP CO has been supporting the project with monitoring the financial transactions by the project in terms of delivery, meeting targets and expenditure and ensuring there is no over-expenditure on the project. UNDP was supposed to convene an annual audit of the project; however, audit was done only once. UNDP facilitated and supported the Project Implementation Reports (PIRs), MTR and TE.

[23] Output Verification Report, May 2022, Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS)

Based on this, quality of **UNDP implementation/oversight is rated Moderately Satisfactory (MS)**.

The Implementing Partner for this project is Ministry of Industry and Technology (MoIT). MoIT has been responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. MoIT execute the project activities under the overall responsibility of the General Directorate for Strategic Research and Productivity (GDSRP). Direct day-to-day oversight of the project has been ensured by the GDSRP.

Most of the ministries were merged or changed including MoIT. Restructuring was also done within the ministry, for instance, the General Directorate of Productivity who has been the Executing Agent is not separate and unique body anymore and was merged with the General Directorate of Industry to the General Directorate of Industry and Productivity (DGIP) and was renamed in April 2020 to Directorate General Strategic Research and Productivity (DGSRP). The structural changes also led to changes in persons responsible for and involved in the Project, which led to considerable delays and disruptions. Most recently, the MoIT has been unwilling to convene the board and sign off the work plan which is still causing delays.

Based on the above the **quality of Implementing Partner Execution is rated Moderately Satisfactory (MS).**

A combined rating of **overall project implementation/execution is Moderately Satisfactory (MS).**

Risk management and Social and Environmental Standards

UNDP's Social and Environmental Standards (SES) screening was carried out at design so that project programming would maximize social and environmental opportunities and benefits. Also, this analysis was carried out for ensuring that adverse social and environmental risks and impacts would be avoided, minimized, mitigated and managed.

Regarding risk management outside the SESP framework, the project document identified 5 risks, 4 of which are assessed as "moderate" risk and 1 as "low" risk. The key risks identified related to SMEs acceptance and engagement, the effectiveness of the one-stop-shop', lack of capital for funding and willingness of the financing institutions and banks to engage in funding the motor replacement.

As a standard UNDP requirement, the PIU is to monitor risks quarterly and report on the status of risks to the UNDP Country Office. The risks log has been updated and expanded during the project inception phase with 4 additional risks identified and recorded in ATLAS (and new system so called Quantum). PIRs have limited information on emerging risks and mitigation measures but risks were updated during implementation quarterly as envisaged the prodoc.

The macro-economic changes (such as inflation and substantial change in the dollar exchange rate) took place during project implementation have posed a serious risk on the project success due to the direct impact on the SMEs participation and the economic feasibility of motor replacement, the regular update of risks has captured the emerged risks with proper mitigation measures.

An effective risk management strategy allows the project to identify strengths, weaknesses, opportunities and threats. By planning the right mitigation measures, the project can be ready to respond when needed.

3.3 Project Results

Progress towards objective, expected outcomes and impacts (*)

Assessment element	Rating

Progress towards objective, expected outcomes and impacts	Moderately Unsatisfactory (MU)

Overall, there has been limited progress towards the PEEMS project objective, outcomes 4 (financing for EE motor investments) and outcome 5 (Awareness), partially achieved for outcome 3 (testing and MVE) whereases targets of outcome 1 (regulatory framework) and outcome 2 (improve capacity) have been largely met. The PEEMS projects targets as defined in the project document (reducing 640,499MWh annually & 3,092 ktonnes of CO2 lifetime, replacing 37,861 inefficient motors, and mobilizing USD 47.92 million) are overly ambitious and based on invalid assumptions around the market readiness and implementer partners' delivery capacities. Beyond the numbers, the project succeeded in setting up important elements for enabling the environment for EE motor replacements such as the regulation, testing capacities, monitoring and verification system, KOSGEB financing mechanism and improve the awareness to some extent, however, motivating SMEs to participate in motor replacement remains a fundamental challenge.

At the objective level, the PEEMS project remains far from fully achieving 3 out of 4 targets related to CO2 reduction, electricity saved, and number of inefficient motors replaced. There are number of contributing factors for not meeting the objective targets including the low level of interest/uptake by the SMEs and externalities related to major changes at the macroeconomic level such as inflation, rising interest rate and dramatic changes in the currency exchange rate which had an impact on SMEs investment priorities and decisions in light of the uncertainties that these economic changes bring along. In addition, SMEs' interest level has been affected by the limited awareness about the offer and the benefits, the desire to keep the old motor for other purposes, demanding whole system energy efficiency package (motor plus auxiliary components such as compressor, pumps, etc), limited financial resources to cover the 25% of the motor cost, long bureaucratic procedures and concerns over interrupting the production lines and insurance coverage. The project implemented a waste recycling programme during the pilot stage for the safe disposal of the replaced motors, however, the dissemination phase of the project doesn't recognize the recycling of the replaced motor as a condition with no incentives and no mechanism in place to implement the recycling program except some ideas are being discussed, and not agreed, with EMOSAD to implement an awareness campaign which might not be effective in absence of an incentives and or legally binding requirement. This raises serious concerns over the safeguarding environmental and social implication of potentially treating hazardous waste particularly when handling old motors, in addition to concerns on energy and CO2 gains that the project could achieve and report in case the inefficient motor continues to be used.

Targets under outcome 1 are fully achieved, the project developed new regulation in line with the EU Regulation 20119/1781 on eco-design requirements for electric motors and variable speed drives. Also, the project commissioned an update of an existing inventory included update of industrial electricity consumption database with the most recent 2017 data released and updating the estimates on the GHG reduction impact of the use of more energy efficient electric motors and electric motor driven systems in the Turkish manufacturing industry for years 2014 – 2017.

Under outcome 2, the PEEMS project engaged effectively with the electric motor manufacturers in Türkiye to promote the EE motor replacement activities and support local manufacturers to meet the new standards. And the project organized a number of trainings aiming at promoting Energy-Efficient Motors in SMEs, one-to-one trainings with OIZs, and more than 6 info days targeting different OIZs to present the motor replacement benefits

and the PEEMS project services and offer. The project supported EMOSAD to strengthen the dialog with other public stakeholders on the regulatory framework and establish supportive platforms for electric motor users to accelerate transformation to EE motors, in addition to establishing vocational training platform which can train potential candidates for the workforce in the sector and members already working in the sector.

Outcome 3 has been partially achieved. The MRV system has not been matured enough, the project prepared a training document and trainings were organized for market surveillances, but there is no systematic and well-capacitated individual across OIZs to operate a sustainable MRV mechanism. The motor replacement proposals have been totally based on the energy audit numbers with no adequate MRV plans. The project supported the upgrade of TSI testing facility to improve the capacity to undertake market surveillance programs related to electric motors and strengthened program for monitoring, verification and enforcement of compliance with eco-design implementing measure 640/2009 and to assess the results and energy data including capturing the rebound effect. A total of 5 TSI personnel and relevant inspection staff of MoIT were assigned for the testing compliance of the sample motors with new EE motor eco-design standard, and as a result, more than 90 (average) motors are being tested annually by TSI.

The targets under outcome 4 have not been met. The project has come to realize that the idea of the 'one-stop-shop' was not feasible due to invalid assumption that EMUs at OIZs are equipped with technical capacities and financing instruments to run the 'one-stop-shop' mechanism, this was further complicated with the fact that no financing mechanism/agency defined at the design stage to participate in the project. However, the project management and MoIT have eventually convinced KOSGEB to take a more prominent role in delivering the financial mechanism with LoA signed in April 2023 to implement the dissemination phase of motor replacements with $700K of GEF funds. Engaging KOSGEB is going to be a significant sustainability element beyond the PEEMs project boundaries, if these arrangements are agreed to continue after the project, which is not the case yet. KOSGEB is well-placed to continue delivering on the financial mechanism based on its mandate and financial capacity to support not only motor audits and motor replacements but also energy consumer systems' audits and the investments to improve the inefficient systems. So far, there has been limited SMEs participation in the dissemination stage with only 100 applications received by end of May 2023. On the other side, no other financial institutions or schemes are participating in the funding process, and the primary discussions and investigations done by the project with available financing options and schemes were inconclusive.

On a positive side, The PEEMS project has successfully implemented a pilot project in 7 OIZs aiming at supporting SMEs to replace asynchronous electric motors with IE2, IE1 and EFF efficiency classes with high efficiency IE3 and IE4 motors with power between 0.75 kW and 375 kW. A total of 363 old and inefficient motors in 48 SMEs were replaced with new, highly energy efficient motors. The average payback period varies between 15 and 20 months and there is no clustering specific to the sector or motor power. The benefits provided to SMEs through the PEEMS Project Pilot Program included reduced production costs, increased competitiveness, technical support/ raise awareness on energy efficiency, and non-energy benefits such as decreasing energy demand and consumption in SMEs, thus reducing energy and operating costs, minimizing the negative impact on the environment by reducing the greenhouse gas released.

Under outcome 5, there is no formal registration of EE motors through the database system yet, and also no data to report on the change in the level of SMEs awareness on EE motors benefits. However, the PEEMS project implemented a variety of awareness raising activities including info days attended by more than 292 SMEs across

7 OIZs with active information sharing via social media platforms and the project website. Nevertheless, evidence gathered in this evaluation suggests that the low awareness level remains the main residual barrier towards getting the SMEs to replace motors. During the TE engagement, the SMEs who did not replace motors yet were not fully aware of the benefits nor aware of the KOSGEB revised offer, for example, the facts that funding has been doubled up in response to the market inflation and more flexibility to apply for whole of motor-based system grant is available were not clear to the SMEs.

Project Objective: To promote significant additional investment in industrial energy efficiency in Türkiye by transforming the market for energy efficient motors used in small and medium sized enterprises.

Indicator Obj1: Lifetime direct project CO2 emission reductions from the replacement of inefficient motors with IE3 motors by end-of-project (EOP), ktonnes CO2. Target: 3092 ktonnes CO2.

In its recent PIR 2023, the project reported a total of 0.685 ktonnes of CO2 annually has been reduced (in other word 'avoided'). This represents the amount CO2 reduced during the pilot stage only, while the dissemination stage data has not yet been reported yet by KOSGEB, the report is due by the end of the year.

The total is likely to increase by the end of 2023 when KOSGEB reports on funded motor replacements including CO2 reductions, however, based on the low level of uptake by SMEs, the target remains unachieved by far.

The likelihood of achieving further CO2 reductions in the future depends on so many factors including the ability to motivate SMEs as much as possible to participate in motor replacement programme, and the sustainability of the finance mechanism by KOSGEB (see sustainability for more details on this).

It worth noting that the target in itself is quite ambitious, this is not to justify under delivery, but the target is underpinned by number of inaccurate assumptions including:

- Assuming the replacement of 37,861 motors during the project timeframe
- 500 SMEs were to be involved in the pilot stage only and 2,408 by the end of the project.
- Each SME would replace **15 motors** during the project timeframe (42.5 kW average size)

It has become apparent during the early days of the project that these assumptions are nowhere near realistic with the existing challenging environment and especially in light of the emerged risks during implementation that were not foreseen at the design stage, such as inflation, interest rate increase, dramatic change in the US$ exchange rate and the recent earthquake. All of these have been great challenges in the face of SMEs and affected their investment decisions. This is discussed further under the effectiveness section.

Few considerations to be taken into account with regards to the CO2 calculations:

- Electricity saving data is not based on actual metering, but it is derived from the energy audit data that is estimated based on the characteristics of the electric motors in use bs the new motors to be used.
- Unlike the pilot stage, the dissemination stage doesn't require the disposal and recycling of the replaced motor, which means that the old one is likely to continue be used. However, data reported in this TE is only based on the pilot data only where the old motor was recycled.
- There is no consideration given to the rebound effects in calculating electricity savings and CO2 reductions. The rebound effect in this case involved that SMEs purchase higher KW capacity motor than the one they have to increase the efficiency of the whole system. Calculations assume that the replaced motor is the same capacity as the new motor.
- The dissemination stage will involve the whole motor-based system change (pumps, compressors, etc.), this means that reported savings and CO2 from the dissemination phase will represent the whole system change

benefits not only motors. This is not an issue for the pilot stage data because only motors were included in the pilot scope.

Indicator 2. MWh of annual reduced electricity consumption in Türkiye through the installation and use of EE motors installed during the Project by EOP. Target: 640,499 MWh.

The 2023 PIR reports a total of 1,493 MWh of annual savings with the replacement of 363 motors within the pilot motor replacement programme.

As reduced electricity consumption is the basis for CO2 reduction, this indicator mirrors indicator number 1 in terms of level of achievement of the target, reasons and the underlying assumptions that led to an ambitious target. Same analysis applies.

Indicator 3: % of SMEs with firm plans to procure and install EE motors by using the financial mechanism developed by the Project by EOP. Target: 5%.

The project reported that 7.08% (177 out of 2,500) of the SMEs have developed firm plans to procure and install EE motors by using the financial mechanism developed. 177 SMEs represent the total number of SMEs who have gone through the energy audit process, 94 of which during the pilot stage and 83 during the dissemination stage.

Energy audits are 100% funded and identified energy saving opportunities and calculate potential electricity savings and CO2 reductions from replacing motors in each SME.

It is interesting to note that only 51% (48 SMEs out of the 94) of those SMEs who have gone through the energy audits in the pilot stage have actually taken this into the next level by implementing the motor replacement process, the rest did not. This may be attributed to a number of factors including macro-economic changes (inflation, interest rate increase, and currency exchange rate) and limited awareness about the benefits.

Indicator 4: Cumulative number of phased out inefficient electric motors taken into a recycling program by EOP. Target: 5000 motors.

The project reported a total of 357 inefficient motors taken into a recycling program during the pilot stage. This means that 357 out of 363 motors have been sent to the recycling programme during the pilot stage, and 6 were kept in the SME premises and continued to be used, which places concerns on the electricity calculations attributed to these 6 motors.

As a part of pilot phase, the inefficient electric motor recycling programme in accordance with the requirements of Directive 2012/19/EU has been designed and implemented. A Guide on electronic waste has also been prepared and published.

Nonetheless, unlike the pilot stage, the dissemination phase of the project does not recognize the recycling of the replaced motor as a condition for funding the new motor. This raises serious concerns over the safeguarding environmental and social implication of potentially treating hazardous waste when handling old motors, in addition to concerns on energy and CO2 gains that the project could achieve and report in case the inefficient motor continues to be used.

Outcome 1: Strengthened legislative and regulatory framework related to both new and existing EE motors in Türkiye.

Indicator 5. Number of completed national surveys on motors in the industrial sector in Türkiye by Year 1. Target: 1 (by year 1).

There has been no new survey initiated by the project. A national motor inventory survey was done by the MoIT in 2015 before the PEEMS project commences and was used to establish a baseline.

The inventory was done with the "Program for the Transformation of Inefficient Electric Motors in Industry" to set the road map to motor transformation, which has a savings potential estimated of more than 8 billion TL annually (as in 2015) and was anticipated to make a significant contribution to country's economy.

The project commissioned an update of the inventory included update of industrial electricity consumption database with the most recent 2017 data released, analysis of the differences in the industrial electricity consumption between the DGEA energy balance tables and the TUIK sectoral energy consumption statistics and updating the estimates on the GHG reduction impact of the use of more energy efficient electric motors and electric motor driven systems in the Turkish manufacturing industry for years 2014 – 2017.

Indicator 6. Number of Turkish policies, regulations and standards applicable to motors harmonized with EU Eco-design standards by Year 1. Target: 2.

The project developed new regulation in line with the EU Regulation 20119/1781 on eco-design requirements for electric motors and variable speed drives which replaces the previous Regulation (EU) 640/2009 has been entered into force on 15 Aug 2021 in the frame of legislative framework for EE motors in Türkiye.

The PEEMS project also assessed current market surveillance including the review of best practices in the selected EU Member States and recommendations for improvement of market surveillance activities in Türkiye. A report on Screening of European and National Legislation to Accelerate Replacement of Inefficient Industrial Electric Motors and a Roadmap for Adoption of Possible Regulatory Framework

Also, an inefficient electric motor recycling programme in accordance with the requirements of Directive 2012/19/EU has been designed and implemented during the pilot stage. A Guide on electronic waste has also been prepared and published.

Indicator 7. Number of government officers who are involved with implementing policies and measures for EE motor replacement programmes by EOP. Target: 10.

The PEEMS project reported a total of 29 involved with implementing policies and measures for EE motor replacement programmes. The number includes key teams involved in KOSGEB, MoIT and OIZs.

Outcome 2: Improved capacity of relevant stakeholders to promote the benefits of EE motors.

Indicator 8. Number of electric motor manufacturers registered and engaged with promotional activities with an established national motor manufacturer association by EOP. Target: 6.

A total of 4 EE motors manufacturer companies registered and engaged with the PEEMS project activities, these are Wat, Volt Motor, Aemot and Gamak. These companies are the co-financers that have actively engaged with the promotional and awareness raising activities under the Project.

Two additional companies are engaged and seeking to be engaged in the promotional awareness raising activities: Omega Motor and WEG Motors and requested to be the project partner.

At the time of the preparation of the ProDoc, 6 prominent electric motor manufacturers in Türkiye were in the process of forming the Turkish Electric Motor Manufacturers Association (TEMMA). In 2016, the association was registered under the name "Elektrik Motorları Sanayicileri Derneği" (EMOSAD) and now comprises the following 11 manufacturers: Wat Motor, GAMAK, Volt Motor, Emf Motor, Miksan Motor, Femsan Motor, Elsan Motor, Aemot, Elk Motor, KSB and Omega Motor.

Therefore, the project supported EMOSAD to strengthen the dialog with other public stakeholders on the regulatory framework and establish supportive platforms for electric motor users to accelerate transformation to EE motors, in addition to establishing vocational training platform which can train potential candidates for the workforce in the sector and members already working in the sector.

Indicator 9. Number of attendees at 20 technical training seminars on EE motors that are targeted for manufacturers and end-users by EOP. Target: 1,000

The project reported a total of 1,204 attendees in technical seminars and workshops on EE motors.

The PEEMS project organized a number of training courses aimed at promoting Energy-Efficient Motors in SMES. The objective of these trainings was to provide a uniform methodology to equip motor system auditors to assist Turkish industry in selecting the most energy efficient motor system solution.

Other training organized by the project included market surveillance training, and one-to-one trainings with OIZs, and more than 6 info days targeting different OIZs to present the motor replacement benefits and the PEEMS project services and offer.

The project also participated in several public awareness events organized by the project partners. For instance, the Webinar facilitated by Istanbul Chamber of Industry and EMOSAD on "*Replacement, Financing and Energy Saving of Electric Motors in the Industry Sector*" where 247 participants attended on 13 June 2023. Also, the PEEMS project team participated in "Energy Efficiency and Management Symposium" held in Istanbul on 3-4 May 2023. One of the panels titled "Energy Efficiency in Electric Motors" was moderated by EMOSAD, and the Project Manager presented the dissemination efforts and the collaborations to be carried out with the stakeholders. KOSGEB also attended as a speaker on the same panel.

Outcome 3: Improved capacity for monitoring, verification and enforcement of motors market transformation

The project supported the upgrade of TSI testing facility to improve the capacity to undertake market surveillance programs related to electric motors and strengthened program for monitoring, verification and enforcement of compliance with eco-design implementing measure 640/2009.

The project conducted assessment of current market surveillance and conformity assessment capacity in Turkey in the field of market surveillance of industrial ErPs, including best practices in the selected EU Member States and recommendations for improvement of market surveillance activities in Turkey.

The MRV system has not been matured enough, the project prepared a training document and trainings were organized for market surveillances, but there is no systematic and well-capacitated individual across OIZs to operate a sustainable MRV mechanism. The motor replacement proposals have been totally based on the energy audit numbers with no adequate MRV plans.

The absence of effective MRV system affected the accuracy of energy benefits reported by the PEEMS project and as noted earlier under indicator 1 that CO2 (electricity saving) calculations have been impacted by number of factors such as absence of MRV.

Indicator 9. Number of TSI personnel who are testing compliance with new EE motor eco-design standards by EOP. Target: 5.

A total of 5 TSI personnel and relevant inspection staff of MoIT were assigned for the testing compliance of the sample motors with new EE motor eco-design standards. The motor testing programme has been implemented in two phases which took place throughout 2021 and completed by February 2022. It started with an assessment of the needs of DGSIIP for capacity building in the field of market surveillance of industrial energy using products for compliance with eco-design requirements was carried out by an international consultant. The assignment also included the conformity assessment infrastructure for testing of electric motors for eco-design requirements under the relevant EU regulation and delivery of necessary training for MoIT and selected conformity assessment bodies.

Before the start of the PEEMS project, the TSI laboratory was only equipped to carry out tests for motors of up to 90 kW. Under Output 3.2, the capacity for testing was increased to a capacity of 375 kW, the upgrade was finalized in December 2019. The contribution of the PEEMS project was US$ 1.2 million, TSI provided significant co-financing of around US$ 1.43 million to allow the laboratory to test motors between 90 and 375 kW.

Indicator 10. Number of DGSIIP personnel who are involved in PMSP for EE motors compliance in industrial SMEs by EOP. Target: 50

All field inspection staff of DGSIIP (26 in total) who are in charge of inspecting EE motors have been provided with market surveillance training under the project. The target of 50 is unreasonable as there is no 50-inspection staff in MoIT.

The PEEMS project started with conducting a Training Needs Assessment and provided recommendations of a training needs assessment inventory and capacity assessment of MoIT – DGSIIP in the field of market surveillance of industrial ErPs for compliance with eco-design requirements.

Indicator 11. Annual number of motors sent for testing at upgraded TSI motor testing facilities by EOP. Target: 250.

The PEEMS project reported a total of 323 motors tested over the period 2020-2023 (cumulative), this means, on average, 90 motors annually are tested by TSI.

Outcome 4: One-stop shop improves industrial SME access to financing for EE motor investments.

The PEEMS project implemented a pilot project in 7 OIZs aiming at supporting SMEs to replace asynchronous electric motors with IE2, IE1 and EFF efficiency classes with high efficiency IE3 and IE4 motors with power between 0.75 kW and 375 kW. The OIZs were selected based on their willingness to participate, involvement in energy efficient motor or general energy efficiency projects, capacity and availability of energy audit equipment and systems and the number of women entrepreneurs within the OIZ.

With the support of EMU teams established in pilot OIZs, 363 old and inefficient motors in 48 SMEs were replaced with new, highly energy efficient motors. The average payback period varies between 15 and 20 months and there is no clustering specific to the sector or motor power.

Table 5: Results of the pilot programme, disaggregated by OIZ.

OIZ	Number of SMEs Performed Replacement / Detailed Audits	Number of Replaced Motors	Ratio of SMEs That Have Replaced Motors (%)	Contribution to Project Motor Replacement (%)
Uşak	17/30	151	53	**41,6**
Ankara ASO 1	6/11	48	55	**13,2**
Antalya	6/11	48	55	**13,2**
Adana Hacı Sabanci	7/15	42	47	**11,6**
Kemalpaşa	7/20	39	35	**10,7**
Bursa	3/5	18	20	**5,0**
Gebze	2/2	17	100	**4.7**
Total	***48/94***	***363***	***47***	***100***

The benefits provided to SMEs through the PEEMS Project Pilot Program include grants for motor energy audits and efficient motor replacement investments, as well as reduced production costs, increased competitiveness, technical support/consultancy services to raise awareness on energy efficiency, environmentally friendly solution proposals and experience in implementing the ISO 50001 Energy Management System. In addition, the Project has increased the capacity and awareness of all stakeholders such as motor manufacturers and suppliers, EEC Companies, EMUs, etc.

With the project, indirect (non-energy) benefits have been provided as well as direct benefits such as decreasing energy demand and consumption in SMEs, thus reducing energy and operating costs, minimizing the negative impact on the environment by reducing the greenhouse gas released.

Indicator 12. Number of motor energy efficiency investment plans (MEEIPs) for industrial SMEs in OIZs by Year 2 and EOP. Target: 2408.

The project considered the audit report to replace the MEEIPS, as the produced audit reports using a standard template and include i) a technical component, which covers the proposed electric motors (brand, capacity and efficiency) with limited amount of associated equipment to fully benefit from potential cost savings (such as a pump, fan or compressor); and (ii) a financial component, which includes the cost savings, payback period, monthly fee calculation with a simple sensitivity analysis. Thus, the audit reports serve as the basis on which financing (or leasing as the case may be) will be arranged.

To this end, the project reported a total of 190 audit reports produced until July 2023. All audit reports are uploaded into an online system managed by MoIT.

Indicator 13. Cumulative USD investments through an established "one-stop-shop" FSM by EOP. Target: $ 47.92 million.

A total of US $ 1,040,622 has been invested and this represents the cost of energy audits and motor (motor-driven system) replacement in both pilot and dissemination phases.

This indicator mirrors the objective level indicators in terms of analysis and reasoning provided for not achieving objective-level targets apply here too. Primarily, due to limited interest in the SMEs. Also, similar argument around assumptions underpinning the target apply here and resulted in overly ambitious target for the US$ invested.

Indicator 14. % of SMEs where MEEIP investment is paid back in less than 24 months. Target: 90.

There is no data collected on the actual payback period for funded SMEs in the pilot stage. However, according to the audit reports and issued investment plans, 30 out of 48 SMEs payback period is less than 24 months, by taking this as a proxy, the percentage would be 62.5%. Also, 10 out of 48 SMEs' payback period is between 24 and 60+ months according to their investment plan. 8 out of 48 SMEs' payback period is greater than 60 months.

Indicator 15. Number of financial institutions involved with inefficient motor replacement programmes by EOP. Target: 6.

There is only 1 financial institution involved in the motor replacement and that is KOSGEB. KOSGEB has been engaged with again and resulted in signing a Letter of Agreement (LoA) in April 2023. The scope of the LoA is to implement the dissemination phase in cooperation with KOSGEB and provide a co-financing contribution to the Energy Efficiency Support Programme for SMEs including expenses of motor audits and investments of motor replacements in SMEs to the extent that EE motors towards a greater use by the end of Project.

The expected impact of this cooperation with KOSGEB will be the improve of the access of SMEs to the available and sustainable financial mechanisms and additional de-risking measures that will facilitate an increase in investments in energy efficient electric motors within industrial SMEs.

The project produced a report to define the strategic focus of the project in terms financing, the work involved defining the role of possible intermediary bodies to facilitate SMEs access to finance and mapping potential intermediaries in the country. It was recommended to involve an intermediary or combinations of multiple intermediaries to support EE motor replacement for SMEs, and accordingly the PIU started preliminary discussions with these agencies but were inconclusive, the project could have benefited from a specialised climate finance expert to assess the opportunities, engaged with the financing agencies and produce financing products attractive for SMEs as well as financing agencies.

Outcome 5: Availability of EE motor information that raises stakeholder awareness of the benefits of EE motors and sustain market transformation.

Indicator 16. Number of EE motors registered in national motors database hosted and maintained by the DGP by EOP. Target: 37861.

There have been no EE motors registered. The current database (Industrial Registration Information System) of MoIT has been developed by collecting data from the all enterprises in country-wide but does not include the technical data of electric motors in detail, just a list of equipment.

Market Monitoring and GHG Reduction Analysis for Energy Efficient Electric Motors was conducted and it aimed to facilitate the establishment of a sustainable market monitoring system, acting upon the electric motors inventory database developed by the MoIT, including information on the annual sales of electric motors covered

by the Project (0-375 kW, 2- to 6-pole, 3-phase squirrel cage asynchronous induction motors) as per their efficiency levels (IE classes).

Indicator 17. % of industrial SMEs who are aware of the benefits of EE motors by EOP. Target: 25%.

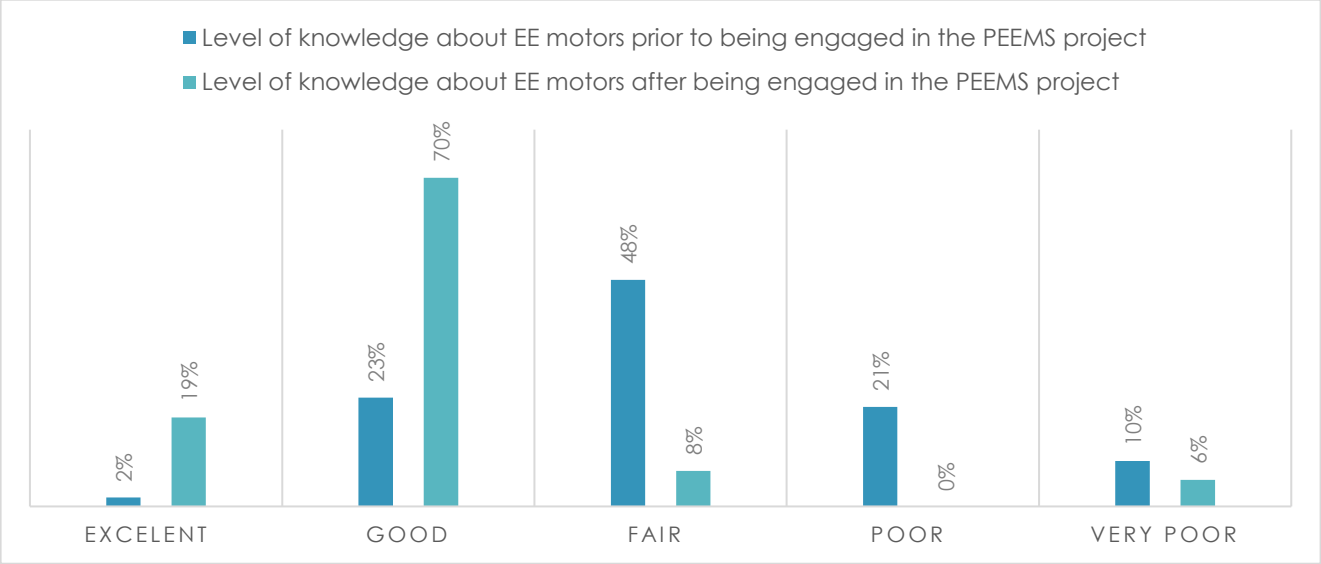
There has been no awareness survey conducted to report on this indicator. The project team calculated this indicator on the base of the participations in the info-day events which are organized for awareness raising on the benefits of EE motors and financial mechanism at the beginning of the pilot phase.

To this end, 292 SMEs attended the info sessions out of 1,582 SMEs that have been invited. As a proxy indicator, this is 18% of the invited SMEs have attended and presumably became aware of the EE motors benefits.

Through the TE survey, SMEs engaged in the pilot stage have reported improved awareness about the EE motor technologies and solutions after been engaged by the PEEMS project. Only 25% of the survey respondents reported 'Good' or 'Excellent' knowledge in EE motors before the project, this percentage grew to around 89% after the engagement (n=54). Similarly, the percentage of SMEs who had 'poor' or 'very poor' knowledge dropped from 31% to 6% -before and after engagement in the project. See figure below.

It is important to note that the improvement in knowledge is measured by this survey to those who participated in the pilot and attended information sessions, so this is indicative of the success of those sessions, however, it is not indicative of the overall awareness change across all SMEs. In fact, SMEs outside the targeted 7 OIZs have not been exposed to intensive awareness process and their interest to participate in motor replacement remains limited based on the uptake data so far during the dissemination phase.

Figure 3: Change in level of awareness about the EE motors before and after being engaged by the PEEMS project (n=54)



Indicator 18. Number of hits on the motors website by EOP. Target: 10,000 hits.

A total of 88,083 views done on the tevmot.org.tr, and 3749 active users of the MailChimp email system for the e-bulletin campaign, 105 followers on twitter, 40 subscribers 6,779 views on Youtube, 145 followers on Instagram,

493 followers on LinkedIn, 148 followers on Facebook. Also, 6 e-bulletins have been developed and posted online for SMEs.

Relevance (*)

Assessment element	Rating
Relevance	Satisfactory (S)

Relevance is the extent to which a project's objectives are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies.

Regarding alignment with national development and environmental priorities, the PEEMS project is aligned with the National Energy Efficiency Action Plan for the period of 2017-2023 that aims to reduce the primary energy consumption by 14% by 2023 through 55 actions defined in 6 categories namely: buildings and services; energy; transport; industry and technology; agriculture; and cross-cutting (horizontal) areas. This saving corresponds to 66.6 million tons of CO2 equivalent emissions.

The GoT recognizes the opportunity to transform the market for electric motors towards energy efficient electric motors (EE motors) and electric motor driver systems (EMDS), and has made energy efficiency a priority of industry, development and climate change policy. The new Strategy on Energy Efficiency (SEE), in this context, sets an overall target of reducing Türkiye's energy intensity (energy consumption per unit of GDP) by 20% by Year 2023 from the levels of 2011. Promoting EE in Türkiye's industrial and service sectors is among the top-priority actions outlined in the SEE. In addition, the GoT has adopted and transposed the EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) into Turkish regulations that obligates electric motor manufacturers to recycle discarded inefficient motors.

Industries have been recognised as a standalone sector under the revised Nationally Determined Contributions (NDCs) of Türkiye of 2021. The revised NDC stipulated the need for increasing energy efficiency in industrial installations and providing financial support to energy efficiency projects and reducing emission intensity with the implementation of National Strategy and Action Plan on Energy Efficiency, to which the PEEMS project aligns directly.

The PEEMS project is aligned with the United Nations Sustainable Development Cooperation Framework (UNSDCF) between Government of Türkiye and the United Nations System in Türkiye. The UNSDCF recognises Energy efficiency is an area with a room for improvements in Türkiye, and addresses energy efficiency under key priority area #3 Climate Change, Sustainable Environment and Liveable Cities with aim of reducing greenhouse gas emissions where the PEEMS project aligns with and contribute to.

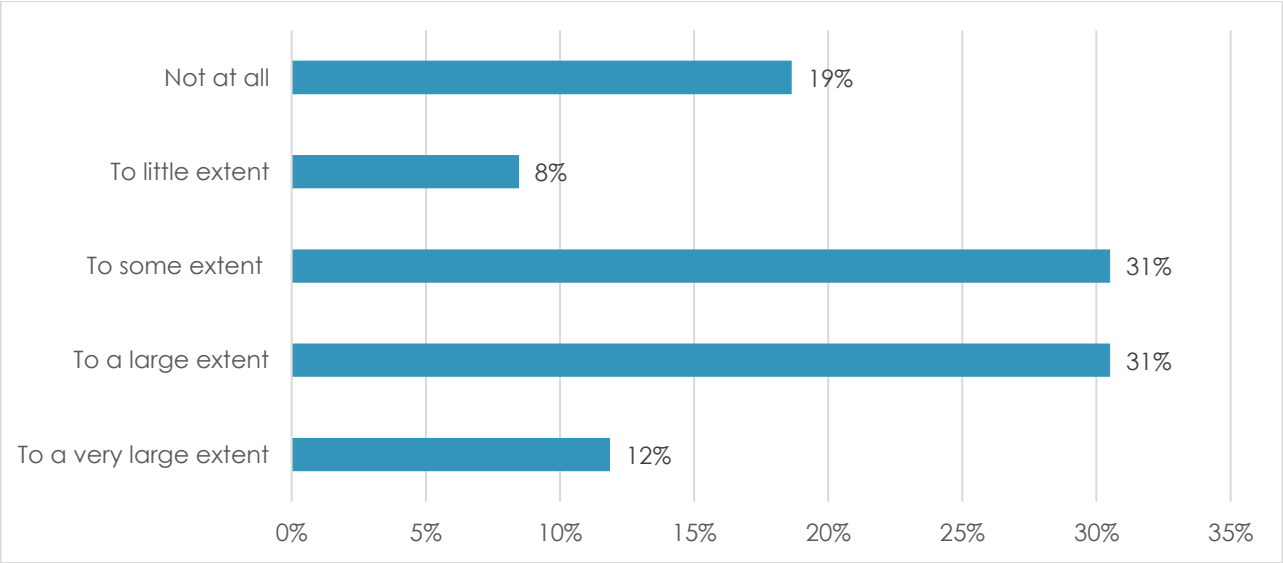
The project is also aligned with the UNDP development agenda, particularly with UNDP Country Programme Document (CPD). Under outcome 2 of UNDP Türkiye's CPD is – Accelerate structural transformations for sustainable development, Output 3.3 Solutions developed, financed and applied at scale for energy efficiency and transformation to clean energy and low-carbon development. It also directly addresses Climate Change Mitigation Objectives of the GEF 6, particularly: CC-1 Program 1: Acceleration of low emission technology, innovation, and update through demonstration, deployment and transfer using policies and mechanisms.

The PEEMS project is also directly relevant to SDG 7 "Ensure access to affordable, reliable, sustainable and modern energy for all', more specifically to SDG 7.3 target that calls for global progress on energy efficiency by doubling

the rate of improvement in energy efficiency globally by 2030. The PEEMS project contributes directly to reduce energy intensity by reducing the amount of energy used to produce a given output or service (industrial products in case of PEEMS).

The pilot phase SMEs who responded to the TE survey (n=54) assessed the extent to which the PEEMS project support (awareness activities, motor replacement pilot, energy audits, financing options) has been relevant to their needs, and only 43% if the responds confirmed that PEEMS support was relevant to their needs to large extent or to a very large extent, and 39% assessed the PEEMS support to be medium relevance and 19% considered that PEEMS support was not at all relevant. This variation in opinion is consistent with the feedback from SMEs in relation to their expectations, specifically, the demand to address the whole motor-based system not only motors to increase the feasibility of the investment, as well as all other concerns explained under the effectiveness section.

Figure 4: SMEs assessment of the PEEMS support relevance to their needs (n=54).



Therefore, relevance is assessed on a six-point scale as **Satisfactory (S).**

Effectiveness (*)

Assessment element	Rating
Effectiveness	Moderately Satisfactory (S)

The effectiveness of a project is defined as the degree to which the development intervention's objectives were achieved or are expected to be achieved. The valorization of effectiveness is used as an aggregate for judgment of the merit or worth of an activity, (i.e., the extent to which an intervention has attained, or is expected to attain, its major relevant objectives proficiently in a sustainable fashion and with a positive institutional development impact).

The effectiveness of this PEEMS project can be rated as MS (Moderately Satisfactory) since it met expectations as to the degree of the outcome 1,2 and 3 are achieved with some progress in outcome 4 and 5. Objective level targets are not met yet, but policy settings and finance mechanism with KOSGEB are instrumental sustainability elements in advancing the motor replacement in the future if accompanied with appropriate awareness and education activities targeting SMEs, and if financing options are available.

As explained earlier in this report, in order to achieve the PEEMS project objective, SMEs need to be motivated to participate in the motor replacements programme, however, during the dissemination phase SMEs have not shown enough interest to participate in the motor replacement process, and here are some of the reasons gathered through the TE engagement with SMEs:

- **Limited SMEs awareness**: At first, the project awareness activities have been focused on those OIZs participating in the pilot stage only, this means that other OIZs had less chances of getting the right information, except through the social media and online resources. Despite efforts made, there is still a case of limited awareness observed in fully understanding the merit and benefits of motor replacements, and more importantly limited awareness about the details of the funding offer made by the PEEMS project and KOSGEB in the dissemination phase. The TE also engaged SMEs who didn't implement replacement and turns out that they are not aware of the funding offer details – for example not aware that the funding has been doubled up by KOSGEB in response to the market inflation.
- **Substantive macroeconomic changes:** The Turkish economy has been going through major changes recently, including an unprecedent inflation in consumer prices at a rate of 72.3% in 2022 according to world bank[24], rapidly increasing interest rate in 2023 (currently 17.5% as of July 2023)[25], and the ongoing decline in the Turkish Lira exchange rate. These changes also meant that Cost Benefit Analysis (CBA) needed to be thought through again and updated. All of these changes have created uncertainty in the investment environment for SMEs and forced SMEs to re-consider their investment priorities. This externality has been a major contributing factor in the SMEs' reluctance in joining the motor replacement program. It may be argued that resource efficiency and cost savings become more beneficial in light of the inflation, particularly as electricity prices are increasing, however, getting this message through to the SMEs requires an innovative awareness campaigning targeting the SMEs.
- **Limited financing options**: despite the generous incentives (i.e 100% of the audit cost plus 75% of the motor cost), SMEs financial capacity to pay the 25% of the motor replacement cost varies from one to another, it is a challenge for some SMEs who lack enough financial liquidity to make it, notwithstanding the need to pay 100% of the cost and reimbursed the 75% later on. The project was meant to diversify financial institutions involved in funding the replacement of inefficient motors (project target is 6 financing institutions to be involved) to offer SMEs different financing options including guarantees for loans. Unfortunately, the primary discussions and investigations done by the project with available financing options and schemes were inconclusive, and eventually the project has only worked with KOSGEB to establish the only financing mechanism available for the SMEs at the moment.
- **Incorrect assumptions around the adverse impacts of motor replacement on SMEs**: This is also associated somehow with the awareness point in changing incorrect perceptions. SMEs assumed that motor replacement will result in a substantive disruption for their production lines and changing motors may influence the validity of their insurance policies in place. It is evident through the feedback collected from SMEs who implemented the motor replacement that there have been minimum disruptions for the production line, some SMEs replaced motors over the weekend, and their insurance policies have not been impacted.
- **Willingness to give the old motor away**: One of the reasons cited by SMEs is that they did not want to give away the old motor while welcoming the new one during the pilot stage. This requirement has been scraped in the dissemination stage, but the implication on the validity of the energy and costs savings need to be reconsidered.
- **Bureaucratic procedures**: SMEs also complained about the application process which is rather overwhelming and it takes so much energy and effort to fulfil the application requirements. Also, the lengthy procedure takes a long time to get the final approval.

[24] Data World Bank – available here.

[25] https://tradingeconomics.com/Türkiye/interest-rate

- **Demanding replacement of the whole motor-based system**: The pilot stage allowed funding for motor replacement only, however, from SMEs perspective, in order for this to be effectively rewarding (energy and cost savings) the funding should consider the whole motor-based system, this could include, for example, compressor, pumps, etc in addition to the motor itself.

On the other hand, the project faced a number of very forceful challenges that, although taken care of adaptively to the degree possible, in some ways required resources (mainly time) to adapt and these externalities had had an impact on the project implementation as well as on the results. The main hindering issues are:

- **COVID**: The pandemic has had multiple impacts on the PEEMS project, 1) the pandemic came at a time when filed activities and direct engagement with the SMEs were due particularly for awareness purposes, and these were not possible and online engagements were done instead. The project managed to reach out to OIZs and SMEs via online engagement models despite challenges related to technical difficulties in getting large group of people to connect online and participate effectively, 2) COVID created uncertainty for the industries and SMEs were economically impacted, and 3) the Gov priorities have been re-focused on dealing with COVID impacts.
- **Earthquake**: Türkiye has recently witnessed a massive earthquake of magnitude 7.8 that occurred in southern Türkiye resulted in direct impacts on communities, properties and infrastructure. SMEs in the earthquake areas have also been impacted including damage to the production lines, and this has changed investment priorities for these SMEs in the earthquake-affected areas.

The factors that have aided or supported effective achievement of goals have been identified as follows:

- **Harmonization with the EU**: In the process of harmonization with the EU, Türkiye has taken steps in the field of environment and climate change and still continues to align its regulations with the EU. The harmonization process enabled the environment for reviewing the national regulatory framework for the EE motors in Türkiye to align with the EU commission regulation (EC) number 640/2009 that is designed to increase the energy efficiency of the electric motors, and this explains the smooth delivery of component 1 of the PEEMS project. A direct benefit of the GEF project to the Government of Türkiye was to strengthened capacity to adopt EU directives that will continually improve the efficiency of electric motors.
- **Appropriate partnership settings with TSI and manufacturers association**: The success achieved in outcomes 1,2 and 3 has been underpinned by adequate partnerships established by the PEEMS project management with the TSI and manufacturers through EMOSAD. These organization

Efficiency (*)

Assessment element	Rating
Efficiency	Moderately Satisfactory (MS)

Efficiency is defined as the extent to which results have been delivered with the least costly resources possible. Efficiency is a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted into results.

The Project has been efficient in achieving outputs/products and in achieving some of the outcomes, it has provided value-for-money since it achieved the results within budgets, agreed disbursement, etc., while leveraging investments and in-kind support from sources external to the project per se (co-funding) particularly from KODGEB to directly fund motor replacement program.

The cost-effectiveness of the PEEMS stems from its foundation on the barrier removal approach, which is inherently cost-effective, as reasonably argued in the project document. By addressing all these barriers in the PEEMS Project design through demonstrating a viable financial support mechanism, an increase is expected in the implementation of EE motor investments by industrial SMEs.

Also, the partnership approach with TSI, manufacturers and KOSGEB established cost sharing environment in implementing the project activities, for instance, KOSGEB has been contributing to the cost of motor replacement as per the signed LoA, and TSI also contributed into the establishment/upgrade of the motors testing facilities and strengthening the capacities.

As of July 2023, the project reports that 76 percent delivery. It is important to note here that there is a high possibility that a large amount of the GEF funding remains unspent by the end of the project, the exact amount to be the returned to the GEF depends on the SMEs uptake level on KOSGEB offer for replacing motors during the dissemination stage. This can be accurately estimated once KOSGEB reports on the implementation of the dissemination phase.

On project timeframe, the project has been going through a considerable delay considerable delay including 21 months delay in initiating the pilot due to absence of clearly defined financing agency/mechanism at the beginning, institutional changes and delays from COVID-19. The MTR recommended 18 months extension at no cost. The extension is found to be reasonable given challenges and risks faced by the project from the beginning, however it is expected that some activities remain incomplete despite the significant extension granted, including, more importantly, the full execution of the dissemination phase and more awareness activities.

As explored elsewhere in this report, the project had to adapt (successfully) to a series of externalities that could have profoundly hindered achievements largely.

Given the above, the efficiency of implementation met expectations with some shortcomings. Therefore, the overall ranking of efficiency is Moderately Satisfactory (MS).

Overall Outcome (*)

Given the objective-level, outcome 4, outcome 5 and part of outcome 3 targets are not met, the overall project outcome is ranked as Moderately Unsatisfactory (MU).

Sustainability: financial (*), socio-political (*), institutional framework and governance (*), environmental (*), and overall likelihood (*)

Assessment element	Rating
Financial	Moderately Unlikely (MU)
Institutional Framework and governance	Moderately Likely (ML)
Socio-political	Moderately Likely (ML)
Environmental	Moderately Likely (ML)
Overall Likelihood of Sustainability	Moderately Unlikely (MU)

Sustainability of the project is judged by the commitment of the project benefits to continue and replicate beyond the project completion date. The evaluation identifies key risks to sustainability and explains how these risks may affect continuation of the project benefits after the project closes. The assessment covers institutional/governance risks, financial, socio-political, and environmental risks.

Conceptually, the sustainability of the PEEMS project is grounded on the removal of barriers to sustained replacement of inefficient motors with efficient and up to standards motors. Therefore, assessing the sustainability of the PEEMS project invisible needs a collective review of removed barrier and assesses the residual barriers that from future risks on the sustainability of the PEEMS outcomes.

Financial sustainability

The financial risks to sustainability relate to the likelihood of continuation of the funding offer for SMEs to replace inefficient motors.

The PEEMS project succeeded in engaging KOSGEB and establish the finance scheme, and funding is currently available for SMEs to replace their inefficient motors using this scheme. The signed LoA is valid until November 2023, the question is whether this funding scheme will continue beyond the PEEMS project timeframe. It is understood that KOSGEB intends to keep this funding scheme into their agenda beyond the project which then will be funded 100% by KOSGEB, however, there is no formal commitment made in this direction, what is going to happen after the project dissemination phase is not covered in the scope of the LoA, as UNDP could only sign LoA within the project timeframes and funding. KOSGEB noted that SMEs Energy Efficiency Support Programme is embedded within KOSGEB's program of work, and it will continue as per the responsibilities defined by macro political documents and KOSGEB's institutional strategy. Also, KOSGEB shared information about its budgetary request for next year (i.e 2024) with 80 million TL to support SMEs in replacing EE motors.

On a positive note, a new funding opportunity has recently emerged with $250 million from the World Bank to help SMEs improve their resource performance and reduce carbon emissions and foster green innovation activities by Turkish enterprises, research institutions and universities. This project will enable industrial firms to harness the power of renewable energy, implement energy-efficient technologies, and adopt circular economy principles. EE technologies and EE motors will be eligible for the funding as on opportunity to build on what has been achieved by the PEEMS project.

As noted earlier in this report, the objective of the project has not been fully achieved yet, and the continuation of the funding scheme is indeed a very critical element for achieving the project objective on the long term, especially in light of the fact that KOSGEB is, so far, the only finance mechanism established, and the continuation of budgetary allocations for EE motor replacement on the long-term remains unconfirmed . The project was unable to mobilize other financing options and institutions for the SMEs.

The project produced a report to define the strategic focus of the project in terms financing, the work involved defining the role of possible intermediary bodies to facilitate SMEs access to finance and mapping potential intermediaries in the country. It was recommended to involve an intermediary or combinations of multiple intermediaries to support EE motor replacement for SMEs, and accordingly the PIU started preliminary discussions with these agencies but were inconclusive, the project could have benefited from a specialised climate finance expert to assess the opportunities, engaged with the financing agencies and produce financing products attractive for SMEs as well as financing agencies.

Accordingly, there are no other financing options available for SMEs to replace EE motors. The project did not establish partnerships with other financial institutions and schemes, nor with banks to facilitate different financing options for SMEs.

On a positive aspect, investments in EE motors are financially very attractive considering the 75% of the cost is covered by a grant incentive. With payback periods of around 15-20 months[26], there are various business opportunities – either for SMEs and other companies by investing in EE motors or by service providers such as ESCOs.

[26] Based on the pilot reports

Therefore, due to this combination of factors, the general likelihood ranking of the financial sustainability is Moderately Unlikely (MU).

Institutional framework and governance risks to sustainability

Experience in the past has shown that the project suffered from changes in the organizational structure of government institutions. Ministries were merged or their responsibility was changed, similar changes happened on the level of General Directorates. Key persons with institutional memory and good understanding of the work to be carried out by the PEEMS project were replaced. All these changes have placed a level of uncertainty on the future ownership of the project outcomes and benefits, and as discussed earlier in this report, the level of MoIT engagement in the project and its board has been limited recently including limited participation in the project board which had an impact on decision making and approving work plan for the project.

The limited functionality of the project board in the second half of the project (in contrary to the MTR recommendation) raises a concern on the level of ownership by key executing partners. On the other side, the ability of engaging KOSGEB in the project delivery will be instrumental in the continuity and sustainability of the project services, mainly, funding motor replacements.

Also, the absence of fully functioning and integrated MRV system for accounting the energy benefits of EE motor replacement places a concern over the validity and accuracy of the energy benefits reported by the project.

On the other side, endorsing the new regulations under outcome 1 of the PEEMS project is an important sustainability element in the future, this guarantees that new locally manufactured and imported motors will continue to meet the new approved standards in line with the EU directives.

Further, PEEMS project invested heavily in building human and institutional capacities (particularly under outcome 2 and 3), these capacities will continue to serve the purpose of the PEEMS project, for example, TSI testing capacities is an important sustainability element that will continue beyond the project's boundaries.

Therefore, due to this combination of factors, the general likelihood of institutional/governance sustainability is ranked Moderately Likely (ML).

Socio-political risks to sustainability

When analysing socio economic risks to sustainability, an examination is made of the potential social or political risks that may jeopardize sustainability of project outcomes.

As a result of the change in the Government administration, it is very likely that there will be structural change accompanied with a high turnover in senior public positions; however, energy efficiency issues have remained during several changes within the MoIT and KOSGEB. MoIT's limited participation in the project board brings an ownership question.

At the SMEs level, the low level of awareness across the country on the benefits of energy efficiency remains a valid barrier. Lack of results from demonstration projects makes it difficult to increase awareness with SMEs.

Therefore, the ranking for **socio – political sustainability is Moderately Likely (ML).**

Environmental risks to sustainability

The main environmental risk identified during is the risk of handling electrical waste and potentially the hazardous waste being generated during motor replacement, particularly the risks associated with handling old motors. This risk has been mitigated during the pilot stage through implementation of a well-designed waste management (recycling) programme during the pilot stage in accordance with the Regulation on Waste Electrical and Electronic Equipment (WEEE) transposing the WEEE Directive of the EU. However, during the dissemination stage, disposal, and recycling, of the old motor is no longer a requirement, with no incentives and no mechanism in place to implement the recycling program.

The WEEE regulations would only apply during the dissemination stage if the old motor were identified as a waste by the SME. The Ministry of Environment, Urbanization and Climate Change advised that waste motor can be managed with non-hazardous codes if it is not exposed to hazardous contamination while operating.

To further mitigate the risk of handling waste, the project has developed electronic and electric Waste Management Guide for Industrial Plants, the guide has been produced for industrial establishments that hold or generate WEEE so that they can manage waste electrical and electronic equipment (WEEE) in an environment-friendly and effective manner in Türkiye. It includes the definition and scope of WEEE, the

information on prevention, reuse, collection, recovery and recycling of WEEE, the contribution of WEEE management to Sustainable Development Goals, and finally the information on management of Waste Motors as per the WEEE Regulation. It attempts to convey briefly and in a practical manner the way that industrial establishments should follow to recycle their electrical and electronic equipment in an environment-friendly manner at the end of its life cycle.

Additional ideas are being discussed, and not yet agreed, with EMOSAD to implement an awareness campaign which might not be effective in absence of an incentives and or legally binding requirement. The PIU started discussions with EMOSAD (Turkish Electric Motors Manufacturers Association) to explore the potential for the motor manufacturers to take on the responsibility of collecting the used motors from the market, but still inconclusive.

Therefore, the ranking for environmental sustainability is Moderately Likely (ML).

Sustainability risk assessment at the outcome level

Outcome	Assessment of sustainability	Ratings
Outcome 1: Strengthened legislative and regulatory framework related to both new and existing EE motors in Türkiye	Financial sustainability: No financial risks, the new regulations are endorsed, and the operation cost is embedded into the government system.	L
	Institutional framework and governance: The new regulations are formally endorsed; this guarantees that new locally manufactured and imported motors will continue to meet the new approved standards in line with the EU directives.	L
	Socio-political: No socio-political risk identified for outcome 1	L
	Environmental sustainability: no environment risk identified in relation to outcome 1.	L
	Overall rating	

		L
Outcome 2: Improved capacity of relevant stakeholders to promote the benefits of EE motors	Financial sustainability: There is no specific financial resources allocated to continue the capacity building activities, however, the new Green Transition project funded by the world bank could be potentially leveraged to implement EE capacity building activities. Institutional framework and governance: The PEEMS project invested heavily in building human and institutional capacities, including for local manufacturers, these capacities will continue to serve the purpose of the PEEMS project. Socio-political: No socio-political risk identified for outcome 2 Environmental sustainability: no environment risk identified in relation to outcome 2. Overall rating	ML L L L ML
Outcome 3: Improved capacity for monitoring, verification and enforcement of motors market transformation	Financial sustainability: No financial allocation to improve the MRV in the future. The testing operation is embedded into the TSI functions and ongoing cost of EE motors testing will either be secured through revenues and TSI budgets. Institutional framework and governance: No specific owner agency identified to own the MRV. On contrary, the EE motor testing is fulling institutionalise in the TSI. 5 TSI personnel and relevant inspection staff of MoIT were assigned for the testing compliance. Socio-political: No socio-political risk identified for outcome 3. Environmental sustainability: no environment risk identified in relation to outcome 3. Overall rating	ML ML L L ML
Outcome 4: One-stop shop improves industrial SME access to financing for EE motor investments	Financial sustainability: Except KOSGEB, no other financial institutions or schemes are participating in the funding process, and the primary discussions and investigations done by the project with available financing options and schemes were inconclusive. There is no formal commitment made in this direction, what is going to happen after the project dissemination phase is not covered in the scope of the LoA, as UNDP could only sign LoA within the project timeframes and funding. Institutional framework and governance: KOSGEB is well-placed to continue delivering on the financial mechanism based on its mandate and financial capacity to support not only motor audits	MU ML

	and motor replacements but also energy consumer systems' audits and the investments to improve the inefficient systems. Socio-political: the low level of awareness across the country on the benefits of energy efficiency remains a valid barrier Environmental sustainability: The main environmental risk identified during is the risk of handling electrical waste and potentially the hazardous waste being generated during motor replacement, particularly the risks associated with handling old motors. Overall rating	ML ML MU
Outcome 5: Availability of EE motor information that raises stakeholder awareness of the benefits of EE motors and sustain market transformation	Financial sustainability: No specific budgetary allocations available for the data base and awareness beyond the project resources. Institutional framework and governance: No formal registration of EE motors through the database system Socio-political: Low awareness level remains the main residual barrier towards getting the SMEs to replace motors. Environmental sustainability: no environment risk identified in relation to outcome 5. Overall rating	MU ML ML L MU

Taking a composite view of the rankings for financial, socio – political, institutional as well as environmental sustainability probabilities, the overall likelihood of sustainability is ranked as Moderately Unlikely (MU).

Country ownership

Country ownership from national governmental institutions in targeted countries is reasonable. The endorsement of the policies and regulations in line with the EU Regulation 20119/1781 on eco-design requirements for electric motors which replaces the previous Regulation (EU) 640/2009 has been entered into force on 15 Aug 2021 in the frame of legislative framework for EE motors in Türkiye.

The TSI totally owns and operates the upgraded testing facility and has built its internal capacities to meet the standards. TSI is currently working on the international accreditation. OIZs have also shown genuine interest to mobilise financial and technical support to their SMEs.

As pointed earlier, the MoIT had limited involvement in the board recently, as this is negative ownership sign. Also, KOSGEB has expressed their intention to continue playing the role of financial mechanism verbally bit there is nothing totally committed at this point in time.

Gender equality and women empowerment

The representation of women within the project management and teams seems to be appropriate, women are actively participating in events, and efforts are being made to maintain gender balance. Gender equality has been

promoted across project activities and platforms such as Steering Committee Meetings, technical meetings and workshops, study tours, monitoring and reporting; and forums in which energy efficient related issues are discussed and in which potential solutions are proposed tend to have an inadvertent male bias.

The PEEMS project has been taking into account and emphasizing the special measures for gender mainstreaming in development of new financial mechanisms and incentives in cooperation with the financial institutions and development agencies by ensuring that there is no discriminative language and/or applications in legal and regulatory frameworks that prevent women from accessing credit and other financial services, and any other product, promote transformation towards gender responsive and equality approach.

During the pilot stage, the project has been working to overcome gender bias issues by making opportunities available for women-led SMEs to participate effectively in the project. Selection of OIZs to be targeted in the pilot stage involved criteria related to number of businesses owned by women, number of staff in Energy Management Unit (EMU) in OIZ and number of Woman worker in EMU.

Unfortunately, no indicators on gender issues were developed in PRODOC, nor were indicators and goals established and assumed by the project.

Cross-cutting Issues

The PEEMS Project aligned Turkish legislation with the EU directives and international practices for motor replacement design and implementation to developed countries, notably in the EU. As such, the PEEMS Project supported South-South or Triangular cooperation through successful demonstration of the adoption of best international practices that can be used as inputs into a global knowledge management platform.

As a result of replacing inefficient motors with energy efficient motors for SMEs. The project achieved reduction in operational costs resulting from energy savings from the use of EE motors which had an impact on improving the financial situation of SMEs, and in turn, possibly increases the employment security of personnel within these enterprises. This reinforces the human right to work and protect against unemployment and promote poverty alleviation efforts.

The principle of Leave no one behind (LNOB) has been implicit in the PEEMS project design and delivery by implementing inclusive SMEs targeting approach during the pilot and dissemination stages with all SMEs in all OIZs have been given equal opportunities to participate in the EE motor replacement programme.

Cross-cutting issues such as poverty alleviation, disaster prevention and recovery and human rights have been integrated into UNDP Social and Environmental and Social Screening (SESP) as relevant.

GEF Additionality

GEF additionality, defined as the additional outcome (both environmental and otherwise) that can be directly associated with the GEF-supported project. In December 2018, the GEF Council approved 'An Evaluative Approach to Assessing GEF's Additionality'. GEF IEO classifies additionality into six factors: Specific Environmental Additionality; Legal/Regulatory Additionality; Institutional Additionality/Governance additionality; Financial Additionality; Socio-Economic Additionality; and Innovation Additionality[27].

[27] GEF -IEO, An Evaluative Approach to Assessing GEF's Additionality, 2018.

The GEF additionality in the PEEMS project involves overcoming the key barrier to the wider adoption of EE electric motors in the industrial sector in Türkiye that would have not been achieved without the GEF funding, the PEEMS project contributes 4 main types of additionalities, these include:

Additionality	PEEMS project contribution
Legal/Regulatory Additionality	Overcoming the regulatory barriers by introducing the of new EU eco-design regulation on electric motors (2019/1781) in line with the EU directives
Institutional Additionality/Governance additionality	Overcoming the limited capacity barrier building the individual and institutional capacities for testing EE motors and for measurement and verification of energy efficiency
Financial Additionality	Overcoming the financial barrier by introducing financial mechanism to fund the motor replacement through KOSGEB financing scheme
Specific Environmental Additionality	Co2 reduction and overcoming the awareness barrier by increasing, to a certain extent, the awareness of SMEs on the importance of energy efficiency and its benefits, and the opportunities to achieve energy and non-energy benefits from energy efficiency.

Catalytic Role / Replication Effect

Replication of the project's approach is at the heart of the project strategy and design, conceptually the project is meant to remove barriers and enable the environment for large scale adoption of EE electric motors in the industrial sector in Türkiye and develop a sustainable financing model that continue to attract SMEs' attention to invest in EE motors. The established regulatory framework along with capacity building are instrumental elements for replication, however, the replication is challenged by unguaranteed funding from KOSGEB beyond the project timeframe and limited awareness of the SMEs about the importance and benefits if the energy efficiency – as explained in detail in the sustainability section.

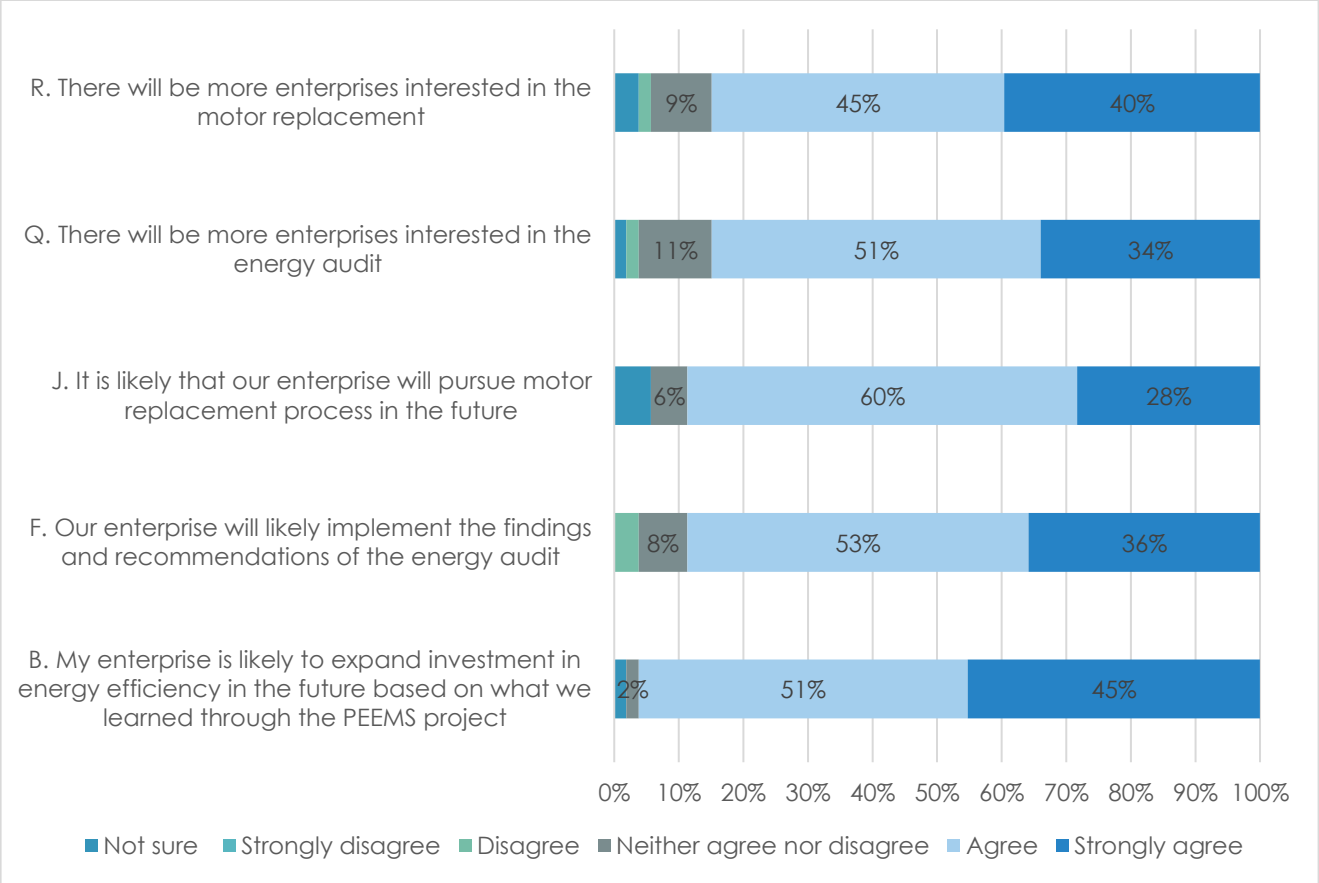
Progress to impacts

Long-term impacts (of different sorts) can be expected from the PEEMS project on the short term and long-term. The project achievements on regulatory framework, capacity building, testing capacities, finance mechanism and awareness will result in number of impacts including more reduction of CO2 emission, electricity savings, cost savings and non-energy benefits (for example increased productivity/quality or reduced maintenance costs).

Pilot-phase SMEs who responded to the TE survey (n=54) have been largely positive on the future impacts that the PEEMS project has initiated, these included 85% agreed that there will be more SMEs interested in energy audits and EE motor replacement in the future, 88% agreed that it is likely that SMEs will pursue EE motor replacement in the future, and 96% agreed that SMEs are likely to expand investment in EE in the future based on the learning from the PEEMS project.

It is important to note that the survey positive percentages are coming from those who have been heavily engaged in the pilot stage including through extensive training and awareness in the pilot stage, this doesn't necessarily represent the whole SMEs sector.

Figure 5: SMEs perspective on the future impacts (n=54)



4. Conclusions, Recommendations & Lessons

4.1 Main Findings & conclusions

Project results: Overall, there has been limited progress towards the PEEMS project objective, outcomes 4 (financing for EE motor investments) and outcome 5 (Awareness), partially achieved for outcome 3 (testing and MVE) whereases targets of outcome 1 (regulatory framework) and outcome 2 (improve capacity) have been largely met. The PEEMS projects targets as defined in the project document (reducing 640,499MWh annually & 3,092 ktonnes of CO2 lifetime, replacing 37,861 inefficient motors, and mobilizing USD 47.92 million) are overly ambitious and based on invalid assumptions around the market readiness and implementer partners' delivery capacities. Beyond the numbers, the project succeeded in setting up important elements for enabling the environment for EE motor replacements such as the regulation, testing capacities, monitoring and verification system, KOSGEB financing mechanism and improve the awareness to some extent, however, motivating SMEs to participate in motor replacement remains a fundamental challenge.

At the objective level, the PEEMS project remains far from fully achieving 3 out of 4 targets related to CO2 reduction, electricity saved, and number of inefficient motors replaced. There are number of contributing factors for not meeting the objective targets including the low level of interest/uptake by the SMEs and externalities related to major changes at the macroeconomic level such as inflation, rising interest rate and dramatic changes

in the currency exchange rate which had an impact on SMEs investment priorities and decisions in light of the uncertainties that these economic changes bring along.

Targets under outcome 1 are fully achieved, the project developed new regulation in line with the EU Regulation 20119/1781 on eco-design requirements for electric motors and variable speed drives. Also, the project commissioned an update of an existing inventory included update of industrial electricity consumption database with the most recent 2017 data released and updating the estimates on the GHG reduction impact of the use of more energy efficient electric motors and electric motor driven systems in the Turkish manufacturing industry for years 2014 – 2017.

Under outcome 2, the PEEMS project engaged effectively with the electric motor manufacturers in Türkiye to promote the EE motor replacement activities and support local manufacturers to meet the new standards. And the project organized a number of trainings aiming at promoting Energy-Efficient Motors in SMEs, one-to-one trainings with OIZs, and more than 6 info days targeting different OIZs to present the motor replacement benefits and the PEEMS project services and offer. The project supported EMOSAD to strengthen the dialog with other public stakeholders on the regulatory framework and establish supportive platforms for electric motor users to accelerate transformation to EE motors, in addition to establishing vocational training platform which can train potential candidates for the workforce in the sector and members already working in the sector.

Outcome 3 has been partially achieved. The MRV system has not been matured enough, the project prepared a training document and trainings were organized for market surveillances, but there is no systematic and well-capacitated individual across OIZs to operate a sustainable MRV mechanism. The motor replacement proposals have been totally based on the energy audit numbers with no adequate MRV plans. The project supported the upgrade of TSI testing facility to improve the capacity to undertake market surveillance programs related to electric motors and strengthened program for monitoring, verification and enforcement of compliance with eco-design implementing measure 640/2009 and to assess the results and energy data including capturing the rebound effect. A total of 5 TSI personnel and relevant inspection staff of MoIT were assigned for the testing compliance of the sample motors with new EE motor eco-design standard, and as a result, more than 90 (average) motors are being tested annually by TSI.

The targets under outcome 4 have not been met. The project has come to realize that the idea of the 'one-stop-shop' was not feasible due to invalid assumption that EMUs at OIZs are equipped with technical capacities and financing instruments to run the 'one-stop-shop' mechanism. However, the project management and MoIT have eventually convinced KOSGEB to take a more prominent role in delivering the financial mechanism with LoA signed in April 2023 to implement the dissemination phase of motor replacements with $700K of GEF funds. Engaging KOSGEB is going to be a significant sustainability element beyond the PEEMs project boundaries, if these arrangements are agreed to continue after the project, which is not the case yet. So far, there has been limited SMEs participation in the dissemination stage with only 100 applications received by end of May 2023. On the other side, no other financial institutions or schemes are participating in the funding process, and the primary discussions and investigations done by the project with available financing options and schemes were inconclusive.

On a positive side, The PEEMS project has successfully implemented a pilot project in 7 OIZs aiming at supporting SMEs to replace asynchronous electric motors with IE2, IE1 and EFF efficiency classes with high efficiency IE3 and

IE4 motors with power between 0.75 kW and 375 kW. A total of 363 old and inefficient motors in 48 SMEs were replaced with new, highly energy efficient motors. The average payback period varies between 15 and 20 months and there is no clustering specific to the sector or motor power.

Under outcome 5, there is no formal registration of EE motors through the database system yet, and also no data to report on the change in the level of SMEs awareness on EE motors benefits. However, the PEEMS project implemented a variety of awareness raising activities including info days attended by more than 292 SMEs across 7 OIZs with active information sharing via social media platforms and the project website. Nevertheless, evidence gathered in this evaluation suggests that the low awareness level remains the main residual barrier towards getting the SMEs to replace motors. During the TE engagement, the SMEs who didn't replace motors yet were not fully aware of the benefits nor aware of the KOSGEB revised offer, for example, the facts that funding has been doubled up in response to the market inflation and more flexibility to apply for whole of motor-based system grant is available were not clear to the SMEs.

Gender equality has been promoted across project activities and platforms such as Steering Committee Meetings, technical meetings and workshops, study tours, monitoring and reporting; and forums in which energy efficient related issues are discussed and in which potential solutions are proposed tend to have an inadvertent male bias. Also, the principle of Leave no one behind (LNOB) has been implicit in the PEEMS project design and delivery by implementing inclusive SMEs targeting approach during the pilot and dissemination stages with all SMEs in all OIZs have been given equal opportunities to participate in the EE motor replacement programme.

Relevance & Coherence: The PEEMS project is aligned with Turkish national strategies and development agenda, including the National Energy Efficiency Action Plan for the period of 2017-2023, the new Strategy on Energy Efficiency (SEE), and the revised NDC that stipulated the need for increasing energy efficiency in industrial installations. The project is also aligned with the UNDP and GEF strategies, particularly with UNDP Country Programme Document (CPD) and GEF 8 programming strategy.

The PEEMS project design has successfully captured the barriers towards widespread adoption of EE motors within industrial SMEs in Türkiye, the project design presented well-structured components to remove the identified barriers with specific activities leading to specific outputs and outcomes. The project design offers an integrated solution to achieve a sustainable market transformation of the Turkish motors market by addressing the policy and regulatory gaps, limited technical capacities, low level of awareness, lack of liquidity to pay the upfront costs for an EE motor investment and inefficient coordination in the implementation of the EE Law that slows the pace of legislative changes. The project design encompasses the piloting, testing, learning and then upscaling approach in rolling out the motor replacement program.

The project design flaws are mainly related to invalid assumptions around the market readiness, the immediate and speedy transition from the pilot stage into the dissemination stage (metaphorically referred to as 'popcorn effect') which resulted in setting overly ambitious targets of replacing 37,860 EE motors with US$ 47, 92 million invested by the project end. This is accompanied by another invalid assumption on the level of capacity of EMUs within OIZs to deliver technical and financial services though the one-stop-shop facilities, however, OIZs in Türkiye either have no EMUs in place at all, or at its best an under resourced EMU with limited technical and financial capabilities and incapable of running the one-stop-shop services, only 80 out of 400 OIZs have EMU in place. Technically the project design didn't identify any financial institution/scheme to play the most important role in the project i.e financing motor replacement.

Effectiveness: The effectiveness of this PEEMS project can be rated as MS (Moderately Satisfactory) since it met expectations as to the degree of the outcome 1,2 and 3 are achieved with some progress in outcome 4 and 5. In order to be effective, SMEs need to be motivated to participate in the motor replacements programme, however, during the dissemination phase SMEs have not shown enough interest to participate because of limited awareness, substantive macroeconomic changes (inflation, interest rate and currency exchange rate), limited finance options, incorrect assumptions around the adverse impacts of motor replacement on SMEs, unwillingness to give the old motor away, bureaucratic procedures and the need to replace of the whole motor-based system.

The project faced a number of very forceful challenges including implementation delays, COVID and Earthquake that affected its effectiveness. On the other side, harmonization with the EU and appropriate partnership settings with TSI and manufacturers association have been among the factors that have aided or supported effective achievement of goals. Effectiveness is rated Moderately Satisfactory (MS).

Efficiency: The Project has been efficient in achieving outputs/products and in achieving some of the outcomes, it has provided value-for-money since it achieved the results within budgets, agreed disbursement, etc., while leveraging investments and in-kind support from sources external to the project per se (co-funding) particularly from KOSGEB to directly fund motor replacement program and TSI contribution into the establishment/upgrade of the motors testing facilities and strengthening the capacities. On project timeframe, the project has been going through a considerable delay including 21 months delay in initiating the pilot due to absence of clearly defined financing agency/mechanism at the beginning, institutional changes and delays from COVID-19. The MTR recommended 18 months extension at no cost. The extension is found to be reasonable given challenges and risks faced by the project from the beginning, however it is expected that some activities remain incomplete despite the significant extension granted, including, more importantly, the full execution of the dissemination phase and more awareness activities. Therefore, the overall ranking of efficiency is Moderately Satisfactory (MS).

Project management: The project implementation strategy has been following an adaptive approach by testing ideas, learn and upscale. The piloting approach followed for replacing motors involved working in 7 OIZs targeting a total of 100 SMEs as a pilot stage. As for the 'one-stop-shop' service model. The project management has come to realise the assumption that EMUs at OIZs are equipped with technical capacities and financing instruments to run the 'one-stop-shop' mechanism is rather unreal. However, the project management and MOIT have eventually convinced KOSGEB to take more prominent role in delivering the financial mechanism as an alternative. KOSGEB is well-placed to continue delivering on the financial mechanism based on its mandate and financial capacity.

Stakeholders' engagement was critical in the PEEMS project given that the project has been working across wide spectrum of agencies to cover the policy, legislation, testing, manufacturing, financing and SMEs (though OIZs). Frequent changes in the structure of the participating stakeholders, caused distractions of the PIU efforts and delays in decision making process. The effectiveness of the project board has been quite limited, in fact, the MTR has, rightly, recognised the need for increasing the frequency if the board meetings to at least 2 times per year. Quite the opposite, the project board was convened only once in 2021 since the MTR was concluded, alternatively the main board discussion topics were shared via e-mail, but this process was not as effective as needed. This situation has been a critical hindrance to the project progress and decision making.

Co-financing target has been largely achieved and it mainly came from replacing the motors during the pilot stage. The M&E Framework meets the standard M&E template for projects of this size and complexity. The M&E design

is found adequate for monitoring the project results and tracking the progress toward achieving the objectives. The M&E design is backed with adequate resources (a total of US$ 173,000 allocated for monitoring and terminal evaluations) and clearly defined roles and responsibilities. Therefore, the M&E design is rated Satisfactory (S).

The project monitoring function is critical for the project success and based on shortcomings in M&E implementation in relation to limited role of the board in the second half of the project, the M&E implementation is rated Moderately Satisfactory (MS). A composite ranking that considers monitoring and evaluation design at entry together with the M & E plan's implementation for the overall quality of M&E is Moderately Satisfactory (MS).

UNDP has been providing direct project services as requested by Government, including recruitment and payroll management of project staff, purchase of goods and equipment and hiring of consultants as requested. UNDP CO has been supporting the project with monitoring the financial transactions by the project in terms of delivery, meeting targets and expenditure and ensuring there is no over-expenditure on the project UNDP implemented a monitoring mission in May 2022 to monitor progress in pilot stage and provided corrective measures, a verification report was provided as a result. However, UNDP CO and other board members had little role in activating the board in the second half of the project and this affected project decision making adversely. UNDP could have pushed harder for decisions and corrective measures to be taken through the board. Based on this, quality of UNDP implementation/oversight is rated Moderately Satisfactory (MS).

The Ministry of Industry and Technology (MoIT) has been responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. Frequent institutional changes were among the reasons for delays and disruptions including decision making. Based on the above the quality of Implementing Partner Execution is rated Moderately Satisfactory (MS). A combined rating of overall project implementation/execution is Moderately Satisfactory (MS).

Sustainability: The PEEMS project succeeded in engaging KOSGEB and establishing the finance scheme, and funding is currently available for SMEs to replace their inefficient motors using this scheme. The signed LoA is valid until November 2023, the question is whether this funding scheme will continue beyond the PEEMS project timeframe. The continuation of the funding scheme is indeed a very critical element for achieving the project objective on the long term, especially in light of the fact that KOSGEB is, so far, the only finance mechanism established, and the continuation of budgetary allocations for EE motor replacement on the long-term remains unconfirmed. The project was unable to mobilize other financing options and institutions for the SMEs. There are no other financing options available for SMEs to replace EE motors. KOSGEB noted that SMEs Energy Efficiency Support Programme is embedded within KOSGEB's program of work, and it will continue as per the responsibilities defined by macro political documents and KOSGEB's institutional strategy. Also, KOSGEB shared information about its budgetary request for next year (i.e 2024) with 80 million TL to support SMEs in replacing EE motors. Therefore, due to this combination of factors, the general likelihood ranking of the financial sustainability is Moderately Unlikely (MU).

The project suffered from changes in the organizational structure of government institutions. Ministries were merged or their responsibility was changed, similar changes happened on the level of General Directorates. Key persons with institutional memory and good understanding of the work to be carried out by the PEEMS project were replaced. All these changes have placed a level of uncertainty on the future ownership of the project outcomes and benefits, and as discussed earlier in this report, the level of MoIT engagement in the project and its

board has been limited recently including limited participation in the project board which had an impact on decision making and approving work plan for the project. Also, the absence of fully functioning and integrated MRV system for accounting the energy benefits of EE motor replacement places a concern over the validity and accuracy of the energy benefits reported by the project. On the other side, endorsing the new regulations and building human and institutional capacities are an important sustainability element in the future, this guarantees that new locally manufactured and imported motors will continue to meet the new approved standards in line with the EU directives. Therefore, due to this combination of factors, the general likelihood of institutional/governance sustainability is ranked Moderately Likely (ML).

As a result of the change in the Government administration, it is very likely that there will be structural change accompanied with a high turnover in senior public positions; however, energy efficiency issues have remained during several changes within the MoIT and KOSGEB. MoIT's limited participation in the project board brings an ownership question. The continuation of budgetary allocations for EE motor replacement on the long-term remains unconfirmed. At the SMEs level, the low level of awareness across the country on the benefits of energy efficiency remains a valid barrier. Lack of results from demonstration projects makes it difficult to increase awareness with SMEs. Therefore, the ranking for socio – economic sustainability is Moderately Likely (ML).

The main environmental risk identified is the risk of handling electrical waste and potentially hazardous waste being generated during motor replacement. This risk has been mitigated during the pilot stage through implementation of a well-designed waste management (recycling) programme in the pilot stage, however, during the dissemination stage, disposal, and recycling, of the old motor is no longer a requirement, with no incentives and no mechanism in place to implement the recycling program except some ideas are being discussed, and not agreed, with EMOSAD to implement an awareness campaign which might not be effective in absence of an incentives and or legally binding requirement. Therefore, the ranking for environmental sustainability is Moderately Likely (ML) since there are no identifiable risks to sustainability in this regard.

Taking a composite view of the rankings for financial, socio – political, institutional as well as environmental sustainability probabilities, the overall likelihood of sustainability is ranked as Moderately Unlikely (MU).

4.2 Recommendations and Lessons Learned

Given that the project is so close to be operationally closed at the time of drafting this TE evaluation report, the following are a mix of recommendations for corrective actions in the remaining 4 months and forward-looking recommendations/lesson learned focussed on future programming:

1. **Develop and implement a comprehensive exit strategy for the PEEMS project.** The strategy should be focussed on strengthening the sustainability elements of the project by:
    - 1.1 **Engaging with KOSGEB to formally agree on the post project arrangements** regarding the continuation of the financing scheme (i.e the SME Energy Efficiency Support Programme) beyond the LoA boundaries, timeframes and funding.
    - 1.2 **Diversifying financing options available for SMEs to implement the replacement**, this could involve mapping the existing international and national financing options, financial institutions, schemes and banks in Türkiye and engage with those who could be potentially interested in financing EE motor replacement, demonstrate the work done so far by the PEEMS project and establish agreements with those interested. Delivering this recommendation would require contracting an international financial expert to identify the financing opportunities and establish the required arrangements. Shall this not be possible due to time constraints, alternatively, it is recommended that the PIU leads a roundtable discussion with potential financing agencies mapped earlier, and engage actively with Word Bank's Green Transition Project to identify opportunities for funding EE motors in the new programmes.
    - 1.3 **Formally documenting the future roles and responsibilities for after-project era** with project partners particularly in relation to testing, market surveillance, measurement and verification, disposal and recycling of old motors.

Responsibility: PIU, timeframe: ASAP

2. **Design and implement a country-wide awareness and marketing campaign targeting SMEs**. As discussed in this report, SMEs awareness about the opportunities and benefits in EE motor replacements remains a fundamental barrier. Given that GEF funds are still available, if time allows, a specialised consulting firm could be hired to design and implement the campaign. The awareness and marketing strategy needs to be innovative to reach as many SMEs as possible, and also should use the successes achieved with SMEs in the pilot stage for demonstrating the benefits of real cases on the ground to further motivate SMEs participation in the EE motor replacement programme. Responsibility: PIU, timeframe: ASAP
3. **Reactivate and convene the project board to guide and oversee the exit strategy and make decision on the pending and new activities**. As noted earlier in this evaluation, the board was not as active as it should be in the second half of the project timeframe. The board strategic guidance and oversight will be needed more than ever before in the last few months to strategically guide and oversee the exit strategy, strengthen the project sustainability and make decision on the pending and new activities. Responsibility: UNDP senior management and PIU, timeframe: ASAP
4. **Develop and implement dissemination plan for all knowledge products including a final dissemination workshop.** This is to ensure that the wealthy knowledge products are well stored, accessible and handed over to the recipient stakeholders. The final dissemination/closing workshop is an opportunity to increase the visibility of the project and its achievement, and outline the benefits made by the project and seek an expression of interest from specific stakeholders for taking over and sustaining each benefit. Responsibility: PIU, timeframe: ASAP
5. **Improve the design of future GEF projects.** UNDP should ensure that the project designers undertake a careful assessment of the potential provision of global environmental benefits from projects at this scale within short period of time. This includes.
    - 1) **The need to be realistic in setting project targets** at the level of the project objective in terms of what a GEF project can actually achieve during the typical relatively short implementation period.

- 2) **Validating key assumptions in the project theory of change** (the maturity and readiness of the EE motors market in SMEs).
- 3) **Stronger implementation arrangements** with clarity on roles and responsibilities with implementing partners and stakeholder particularly with financing agencies that are anticipated to fund or co-fund the project activities; and
- 4) **Consider gender indicators** in the project results framework where appropriate and ensure data collection is disaggregated by gender when needed.

Responsibility: UNDP, timeframe: ongoing

6. **UNDP to explore future opportunities with KOSGEB for future EE/RE projects**. There are numerous opportunities for future projects with KOSGEB based on its mandate and technical and financial capacities. KOSGEB is well-positioned to leverage domestic and international financing to advance RE/EE solutions at the SMEs level. The signed LoA between UNDP and KOSGEB is described as 'door opening' for more projects to support SMEs in the future. KOSGEB recognises that moving to EE/RE is not only an environmental imperative but also a tremendous economic growth opportunity for SMEs Türkiye. On the other side, SMEs in Türkiye have limited access to renewable energy and energy efficiency technologies with a mix of financial and technical barriers. Based on the learnings from the PEEMS project in introducing integrated solutions for addressing complex development issues, UNDP is well-positioned to deploy its comparative advantage in overcoming the technical and regulatory barriers in these areas complement KOSGEB's financial capacities and address the needs of SMEs, which creates a fertile environment for future programming. Responsibility: UNDP, timeframe: ongoing

Lessons learned

- **Aiming for 'too big too soon' makes the project design appear attractive, sometimes, at the expense of feasibility**. Experience from the PEEMS project shows the importance of setting realistic project indicators and targets at the level of the project objective in terms of what a GEF project can actually achieve during the typical relatively short implementation period and based on a well-studied assumptions about the size and readiness of the market. 'Aiming for too big too soon' makes the project design appears attractive but in fact not realistic and not applicable. Also, opportunities to bring the project back on the realistic track are not to be missed, such as inception and MTR.
- **We cannot afford waiting until implementation stage to define financing partners**. In a project like the PEEMs that is primarily around enabling the environment for financing EE technology deployment, the financing partners should be identified during the PPG stage, or else, we set the project to carry on a very serious risk during the implementation. Experience from similar projects delivered under the GCF could be learned from in establishing the right financing settings upfront.
- **Present integrated EE solutions to meet the expectation of the beneficiaries**. We learned from the PEEMS project that EE solutions with limited scope (i.e only EE motors as opposed to whole motor driven systems - pumps systems, fan systems, air compressors, etc) was not totally welcomed by the SMEs in the pilot stage, whereas the whole system EE solution was more attractive in the dissemination stage. Expanding eligibility scope of EE solutions creates better, and more feasible, opportunities for project beneficiaries.
- **Consider the rebound effect of EE projects in the design stage.** It is not unique to the PEEMS, in fact, all EE projects resulted in a rebound effect in some way. The project design needs to acknowledge and identify the possibilities for rebound actions and more importantly to define clearly how energy benefits (i.e electricity savings and accordingly Co2 reductions) should be accounted for when the rebound happens.
- **The oversight role of the project board should not be undermined**. It is evident that the PEEMS project experienced limited oversight and guidance by the board, particularly in the second half of the project, at a time when the project board was needed most to be actively providing strategic guidance. The project oversight and strategic guidance role is very instrumental in overcoming constraints and mobilise strategic partnerships for the benefit of the project. Also, based on the evaluator experience, the frequency of the board meeting being only once a year has never been enough and needs to be reconsidered as a minimum standard.

- **Energy audits are powerful to advocate for recognizing energy efficiency solutions by the beneficiaries**. The PEEMS project experience demonstrated how powerful the energy audits have been in convincing the SMEs to accept EE solutions based on well-studied evidence. Energy audits accompanied with strong awareness messaging could lead to greater rate of acceptance by the targeted groups particularly in case of industries where engineers responsible for energy management have recognised and owned the energy audit outcomes and recommendations including triggering additional EE measures beyond the motors.

Annexes

Annex 1: TE ToR (excluding ToR annexes)

Terms of Reference for ICs and RLAs through /GPN ExpRes

Services/Work Description:

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the full-sized project titled "Promoting Energy Efficient Motors in Small and Medium Sized Enterprises (PEEMS)" (PIMS ID: 5285) implemented through the Implementing Partner Directorate General for Strategic Research and Productivity (DGSRP) of the Ministry of Industry and Technology (MoIT). The project started on the 6 July 2017 and is in its 6th year of implementation. The TE process must follow the guidance outlined in the document 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects'.

Project/Programme Title:

UNDP GEF Promoting Energy Efficient Motors in Small and Medium Sized Enterprises (PEEMS) Project (PIMS ID: 5285)

Consultancy Title:

Terminal Evaluation (TE) – UNDP GEF Promoting Energy Efficient Motors in Small and Medium Sized Enterprises (PEEMS) Project

Duty Station:

Duty Station for the assignment is home-based with specific travel requirements for the field mission. The Individual Consultant will be requested to travel to provinces where the Project is being implemented, as indicated in the expected interview schedule.

Duration:

Approximately 30 working days (including travel days).

Expected contract start and end dates:

15-Jun-2023-30-Nov-2023

1. **BACKGROUND**

The project was designed to promote significant additional investment in industrial energy efficiency in Turkey by transforming the market for energy efficient motors used in small and medium sized enterprises (SMEs). This objective is designed to be achieved by strengthening the legislative and regulatory framework related to both new and existing Energy Efficient (EE) motors in Turkey, developing appropriate governance and information infrastructure, upgrading test laboratories at the Turkish Standards Institute (TSI), launching a sustainable financial support mechanism (FSM), and developing and implementing a comprehensive public awareness and training programme.

The project is divided in 5 components focused on;

Component 1: Strengthened legislative and regulatory and policy framework for EE motors in Turkey. The outputs from this component will lead to the outcome of strengthened policies, regulations and standards that are applicable to EE motors and harmonized with the European Union (EU) commission regulation (EC) number 2019/1781 that is

designed to increase the energy efficiency of the electric motors and replaced the regulations of (EC) 640/2009 and 641/2009. A direct benefit of the GEF project to the Government of Turkey will be its strengthened capacity to adopt EU directives that will continually improve the efficiency of electric motors. The intended outcome of this component will be strengthened legislative and regulatory framework related to both new and existing EE motors in Turkey.

Component 2: Capacity building for relevant stakeholders to promote the benefits of EE motors. This component is intended to address the barriers associated with the need for improved capacity within the local EE motors manufacturing industrial sector, Organized Industrial Zones (OIZs) and their Energy Management Unit (EMU) personnel and industrial SME end-users. The intended outcome of this component will be the improved capacity of these relevant stakeholders to promote the benefits of EE motors. This will be implemented in tandem with ongoing efforts by DGSRP to increase the number of accredited motor recycling facilities where members of TEMMA can meet their obligations for recycling electric motors as per EU Directive 2012/19/EU.

Component 3: Upgraded Turkish Standards Institute (TSI) test laboratory and strengthened monitoring, verification and enforcement. This component is intended to address the barriers associated with the need for improved capacity to undertake market surveillance programs related to electric motors. The intended outcome of this component is to have upgraded motor testing capacities of TSI and a strengthened program for monitoring, verification and enforcement of compliance with eco-design implementing measure 2019/1781 (or future amendments future amendments).

Component 4: One-stop-shop for financial support mechanisms. This component is intended to address two barriers:

i) Lack of financial liquidity of SMEs to pay up front and financing costs for energy efficient motor investments; and

ii) SME aversion on the use of external engineers such as ESCOs and equipment suppliers to improve their energy efficiency.

Outputs of this component will lead to an outcome of improved to SME access to available financial mechanisms and additional de-risking measures that will facilitate an increase in investments in energy efficient electric motors within industrial SMEs. Project resources in this component will be focused on building the capacity of the OIZs and its EMU to become lead entities in managing a motor replacement programmes that would include a one stop shop for financial support mechanisms for industrial SMEs. Project resources used towards building EMU capacity will enable them to comprehend and prepare an "efficient motor assessed potential" or EMAP that will provide an assessment of the potential motors to be replaced within an industrial SME. With an EMAP in place, the SME can target certain motors for a standard motor testing report (SMTR) that will provide recommended improvements not just to the electric motor itself, but to the entire electric motor drive system. From this information, a "Motor Energy Efficiency Investment Plan" (MEEIP) can be prepared to include:

(i) a technical component, which will include the proposed electric motors (brand, capacity and efficiency) with limited amount of associated equipment to fully benefit from potential cost savings (such as a pump, fan or compressor); and

(ii) a financial component, which will include the cost savings, payback period, monthly fee calculation with a simple sensitivity analysis.

The MEEIP can serve as the basis on which financing (or leasing as the case may be) will be arranged and therefore will be shared with relevant parties, such as banks for financing or with leasing company in case of leasing.

Component 5: Knowledge management and M&E. This component is mainly focused on the management of knowledge that will sustain EE motors amongst stakeholders in manufacturing and sales of EE motors, intermediaries

such as the OIZs and EMUs to manage motor replacement programmes and the SME end users in the industrial sector. The intended outcome of this component will be the increased availability of EE motor information that raises stakeholder awareness of the benefits of EE motors and sustains market transformation.

Project Title:	*Promoting Energy Efficient Motors in Small and Medium Sized Enterprises (PEEMS)*
UNSDCF Outcome and CPD Output:	*UNSDCF Outcome 3.1: By 2025, all relevant actors take measures to accelerate climate action, to promote responsible production and consumption, to improve the management of risks and threats to people, to ensure sustainable management of the environment and natural resources in urban and ecosystem hinterlands.* *CPD Output 3.3: Solutions developed, financed and applied at scale for energy efficiency and transformation to clean energy and low-carbon development*
SDGs served	*SDG 7, to ensure access to affordable, reliable, sustainable and modern energy for all,* *SDG 9, to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, and* *SDG 12, to promote responsible production and consumption* *SDG 13, to take urgent action to combat climate change and its impacts*

GEF Project ID:	9081		*at endorsement (Million US$)*	*at the time of evaluation (Million US$)*
UNDP Project ID:	5285	GEF financing:	3.75	2.81
Country:	Türkiye	IA/EA own:	0.3	0.19
Region:	Europe and CIS	Government:	3.5 cash + 3.35 in-kind	3.28 cash + 2.57 in-kind
Focal Area:	Climate Change	Other:	22,39 (in-kind)	9,46 (in-kind)
FA Objectives, (OP/SP):	CC-1 Program 1	Total co-financing:	29.54	15.50
Implementing Partner:	Directorate General for Strategic Research and Productivity (DGSRP) under the Ministry of Industry and Technology (MoIT)	Total Project Cost:	33.29	18.31
Other Partners involved:	N/A	ProDoc Signature (date project began):		6 July 2017
		(Operational) Closing Date:	Proposed: 6 January 2024	Actual: 6 January 2024

For Output 4.3 pilot stage, so far, within the successfully completed pilot stage, energy audits were completed in 100 SMEs, 363 electric motors were replaced by 48 SMEs and 357 motors were sent to recycling. The Project

Management Unit (PMU) composed of MoIT and UNDP staff, the Small and Medium Enterprises Development Organization (KOSGEB) and OIZ EMUs worked together to deliver the assistance and guidance formerly expected from a one-stop-shop mechanism. Under Output 4.4 scale-up output, for the replication stage, LOA with KOSGEB has been signed for continuation of the partnership through KOSGEB's recently launched Green Transformation Support Programme to support SMEs in energy efficiency and green investments building on the success of the pilot stage. KOSGEB's provincial directorates will take over one-stop-shop mechanism functions such as selecting eligible SMEs, providing 100% grants for audits, proposing ESCOs to SMEs for audits, imposing an audit format in line with project requirements, reviewing and approving the audits, processing applications and making payments.

Amendments and extensions:

09.07.2020 – Mid-Term Review

26.05.2022 – Project Extension granted for 18 Months

2. SCOPE OF WORK, RESPONSIBILITIES AND DESCRIPTION OF THE PROPOSED WORK

The TE will be conducted as all full-sized projects (FSPs), projects with a GEF grant value of more than US$2 million, and all programmes must complete a Mid-Term Review and Terminal Evaluation.

This Terminal Evaluation has the following ***purposes***:

- To measure to what extent the Project has contributed to solve the needs identified in the design phase.
- To measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised.
- To measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), United Nations Sustainable Development Cooperation Framework (UNSDCF), Turkey's Nationally Determined Contribution (NDC) submitted to UNFCCC, 10th National Development Plan of Turkey, Turkey's National Climate Change Strategy and Action Plan, Strategic Plan of Ministry of Energy and Natural Resources, National Energy Efficiency Action Plan 2017-2023, along with relevant SDGs.
- To assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors/environment, weakness in design, management and resource allocation.
- To assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project.
- To generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components.

The TE report must provide evidence-based information that is credible, reliable and useful.

The TE IC will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP) the Project Document, project reports including annual PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the IC considers useful for this evidence-based evaluation. The TE IC will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO

endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

The TE IC is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office, the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Board, project beneficiaries, academia, local government and CSOs, etc. specified in the below list:

- The main stakeholder of EE Motors Project is **Directorate General for Strategic Research and Productivity (DGSRP-old DGP)** of the Ministry of Industry and Technology (MoIT). DGSRP is the key stakeholder of the PEEMS Project for serving as the national implementing partner.**Industry and Technology (MoIT)** is the stakeholder to ensure EE motors entering the market, develop, post and maintain the national motors database.
- **Directorate General of Industry (DGI) under MoIT** is the partner responsible for formulating and strengthening EE motor policies and standards in harmony with EU eco-design directives.
- **Directorate General of Metrology and Safety of Industrial Products** (**DGMSIP-old DGSIIP)** under MoIT is the partner responsible for supporting the proactive market surveillance program (PMSP) for EE electric motors that enter the Turkish market. DGMSIP currently implements a comprehensive PMSP for other electronic appliances and white appliances in Turkey under the "Development of Energy Efficiency in Industry Action Plan" and in close collaboration with the Turkish Standards Institute (TSI).
- **Turkish Standards Institute (TSI)** is the stakeholder of the project. TSI currently operates several test laboratories for the testing of electronic equipment as part of a proactive market surveillance plan to ensure compliance of new and existing electronic products to adopted MEPS. Motor testing laboratory of TSI has been upgraded to have the capacity to test motors between 0.75 and 375 kW for 2, 4, and 6 pole induction motors in the scope of the project and the institution is responsible for conducting the motor tests for market surveillance in the scope of the project.
- **Energy Efficiency and Environment Department under The Ministry of Energy and Natural Resources (MoENR)** is the stakeholder responsible for providing support on establishing minimum energy performance standards (MEPS) that are in line with EU directives and best international practices.
- **Presidency of Strategy and Budget (PSB)** is responsible for defining, assessing, and monitoring programme outputs towards country-level outcomes that will ensure the project results are linked to national development plans.
- **Electric motor manufacturers (Gamak, Volt, WAT (Arçelik) and AEMOT)** are the stakeholders of the project. Electric motor manufacturers are responsible for contributing their knowledge of EU eco-design standards for motors, and the manufacturing of various models of EE motors. Electric motor manufacturers have established the Turkish Electric Motor Manufacturers Association (TEMMA-EMOSAD in Turkish).

- **Turkish Electric Motor Manufacturers Association (TEMMA-called EMOSAD in Turkish)** is the stakeholder responsible for promoting increased use of EE motors in the industrial sector and contributing the awareness raising activities. The members of the TEMMA is responsible for contributing their knowledge of EU eco-design standards for motors, and the manufacturing of various models of EE motors.
- **Energy Efficiency and Management Organization (EYODER**) which is the head organization for Energy Service Companies (ESCOs - referred to as EVDs in Turkish) and individual energy managers is the stakeholder of EE Motors Project. They are responsible for providing technical support to design the energy audit process in the scope of the project as well as to conduct technical trainings in the aim of the capacity building of other partners.
- **Chambers of Industry (CIs) (Istanbul-ISO, Ankara ASO)** are the stakeholder of the project. They are responsible for contributing to the training workshops on designing and implementing EE motor replacement programmes as well as nationwide PR campaign for EE motors targeting the general public.
- **The Small and Medium Enterprises Development Organization (KOSGEB)** is the partner responsible for contributing the support programme for SMEs to promote EE motors usage.
- **Organized Industrial Zones (OIZs) and Energy Management Units (EMUs) under OIZs** are the partners of EE Motors Project. They are responsible for supporting the energy audits conducted and motor replacement activities in the fields of SMEs which are located in their boundary.
- **The Small and Medium Sized Enterprises (SMEs)** are the primary beneficiaries of the EE Motor Project.

Additionally, Duty Station for the assignment is home-based with specific travel requirements for the field mission. The Individual Consultant will be requested to travel to provinces where the Project is being implemented, as indicated in the expected interview schedule table below. The TE IC is expected to conduct field missions to sites in *ASO1 OIZ (Ankara), Gebze OIZ (Kocaeli) and Usak OIZ (Usak), for the evaluation of the awareness raising campaign, EE audits, pilot motor replacement programme, and scale-up stage* in addition to some of the project sites in the following locations if required:

The locations of beneficiary OIZs and SMEs that participated in the pilot stage and key stakeholder

- MoIT (Ankara)
- MoENR (Ankara)
- KOSGEB (Ankara)
- Antalya OIZ (Antalya)
- ASO1 OIZ (Ankara)
- Bursa OIZ (Bursa)
- Gebze OIZ (Kocaeli)
- Hacı Sabancı OIZ (Adana)
- Kemalpaşa OIZ (İzmir)

- Uşak OIZ (Uşak)
- EMOSAD (İstanbul)
- EYODER (İstanbul)
- Chambers of Industry ASO (Ankara)
- Chambers of Industry ISO (İstanbul)
- Manufacturers (Aksaray, Çerkezköy/Tekirdağ, İzmir, Dudullu / İstanbul)

Evaluation should employ a combination of qualitative and quantitative evaluation methods and instruments. The evaluator is expected to follow a participatory and consultative approach that ensures close engagement with the evaluation managers, implementing partners and male and female direct beneficiaries. Suggested methodological tools and approaches may include:

- **Document review.** This would include a review of all relevant documentation, inter alia

o Project document (contribution agreement).

o Theory of change and results framework.

o Programme and project quality assurance reports.

o Annual workplans.

o Activity designs.

o Consolidated quarterly and annual reports. o Results-oriented monitoring report.

o Highlights of project board meetings.

o Technical/financial monitoring reports.

- **Interviews and meetings** with key stakeholders (men and women) such as key government counterparts, donor community members, representatives of key civil society organizations, United Nations country team (UNCT) members and implementing partners:

o **Semi-structured interviews**, based on questions designed for different stakeholders based on evaluation questions around relevance, coherence, effectiveness, efficiency, and sustainability.

o Key informant and **focus group discussions** with men and women, beneficiaries and stakeholders.

o All interviews with men and women should be undertaken in full confidence and anonymity. The final evaluation report should not assign specific comments to individuals.

- **Surveys and questionnaires** including male and female participants in development programmes, UNCT members and/or surveys and questionnaires to other stakeholders at strategic and programmatic levels.
- **Field visits** and on-site validation of key tangible outputs and interventions.
- **Other methods** such as outcome mapping, observational visits, group discussions, etc.
- **Data review and analysis** of monitoring and other data sources and methods. To ensure maximum validity, reliability of data (quality) and promote use, the evaluator will ensure triangulation of the various data sources.

- **Gender and human rights lens.** All evaluation products need to address gender, disability, and human right issues.

The specific design and methodology for the TE should emerge from consultations between the TE IC and the above-mentioned parties regarding what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The TE IC must use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the TE report.

The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders and the TE IC.

The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

Gender and Human Rights-Based Approach

As part of the requirement, evaluation must include an assessment of the extent to which the design, implementation, and results of the project have incorporated gender equality perspective and rights-based approach. The Individual Consultant is requested to review UNEG's Guidance in Integrating Human Rights and Gender Equality in Evaluation during the inception phase.

In addition, the methodology used in the final evaluation, including data collection and analysis methods should be human rights- and gender-sensitive to the greatest extent possible, with evaluation data and findings disaggregated by sex, ethnicity, age, etc. Detailed analysis on disaggregated data will be undertaken as part of final evaluation from which findings are consolidated to make recommendations and identify lessons learned for enhanced gender responsive and rights-based approach of the Project.

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects.

The Findings section of the TE report will cover the topics listed below. A full outline of the TE report's content is provided in ToR Annex C.

The asterisk "(*)" indicates criteria for which a rating is required.

Findings

i. Project Design/Formulation

- National priorities and country driven-ness
- Theory of Change
- Gender equality and women's empowerment
- Social and Environmental Standards (Safeguards)
- Analysis of Results Framework: project logic and strategy, indicators
- Assumptions and Risks

- Lessons from other relevant projects (e.g. same focal area) incorporated into project design
- Planned stakeholder participation
- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation)
- Actual stakeholder participation and partnership arrangements
- Project Finance and Co-finance
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/implementation and execution (*)
- Risk Management, including Social and Environmental Standards (Safeguards)

iii. Project Results

- Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements
- Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*)
- Sustainability: financial (*) , socio-political (*), institutional framework and governance (*), environmental (*), overall likelihood of sustainability (*)
- Country ownership
- Gender equality and women's empowerment
- Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant)
- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to impact

Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE IC will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.

- The section on conclusions will be written in light of the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses and results of the project, respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equality and women's empowerment.
- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.
- The TE report should also include lessons that can be taken from the evaluation, including best practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE IC should include examples of good practices in project design and implementation.
- It is important for the conclusions, recommendations and lessons learned of the TE report to incorporate gender equality and empowerment of women.

The TE report will include an Evaluation Ratings Table, as shown below:

ToR Table 2: Evaluation Ratings Table for PEEMS Project

Monitoring & Evaluation (M&E)	Rating[28]
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementation & Execution	**Rating**
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
Assessment of Outcomes	**Rating**
Relevance	
Effectiveness	

[28] Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight & Execution, Relevance are rated on a 6-point scale: 6=Highly Satisfactory (HS), 5=Satisfactory (S), 4=Moderately Satisfactory (MS), 3=Moderately Unsatisfactory (MU), 2=Unsatisfactory (U), 1=Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4=Likely (L), 3=Moderately Likely (ML), 2=Moderately Unlikely (MU), 1=Unlikely (U)

Efficiency	
Overall Project Outcome Rating	
Sustainability	Rating
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

Considering the evaluation parameters, the TE IC is expected to analyze data and share his/her findings, conclusions and recommendations generated by this analysis. As a reference point for the evaluation, the TE IC is provided with indicative evaluation questions in Annex D, which are expected to be amended, elaborated and submitted in the TE Inception Report in line with the categorization within the above Evaluation Ratings Table and shall be included as an annex to the final version of the evaluation report.

3. Expected Outputs and deliverables

The total duration of the TE will be approximately 30 working days (including travel days). The tentative TE timeframe is as follows:

Deliverable	**Related Activity**	**Responsible Party**	**Expected Date of Completion**
Selection of the TE IC	Contracting of TE IC	UNDP	15.06.2023
Inception Report	Kick off meeting	UNDP, Evaluation Consultant	19.06.2023
	Review of relevant documentation and secondary data collection	Evaluation Consultant	20.06 – 02.07.2023
	Submission of Draft TE Inception Report	Evaluation Consultant	03.07.2023
	Providing feedbacks to Draft TE Inception Report	UNDP	14.07.2023
	Finalized Inception Report based on the feedback received from UNDP	Evaluation Consultant	21.07.2023
	Primary data collection and interviews with UNDP and key stakeholders	Evaluation Consultant	24.07 – 09.08.2023

Draft Evaluation Report	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission	Evaluation Consultant	10.08.2022
	Delivery of Draft TE Report compiling findings from data collection and interviews with key stakeholders	Evaluation Consultant	25.08.2023
Final Evaluation Report	Review the Draft Evaluation Report and provide feedback	UNDP, Evaluation Reference Group	15.09.2023
	Delivery of the Final TE Report and Recommendations by taking into consideration the feedback from UNDP	Evaluation Consultant	02.10.2023
De-briefing/Presentation	**De-briefing/Presentation to UNDP and Stakeholders**	Evaluation Consultant	06.10.2023
	Preparation and Issuance of Management Response	UNDP, Evaluation Consultant	20.10.2023

Options for site visits should be provided in the TE Inception Report.

#	Deliverable	Due Date	Review and Approvals Required
1	Final TE Inception Report	21 July 2023	Reviewed and approved by M& E Officer in consultation with the CCE Portfolio Manager
2	Draft TE Report	25 August 2023	Reviewed and approved by M& E Officer, in consultation with the CCE Portfolio Manager and reviewed by RTA
3	Final TE Report* + Audit Trail	2 October 2023	Reviewed and approved by M& E Officer in consultation with the CCE Portfolio Manager
4	Presentation	6 October 2023	Reviewed and approved by M& E Officer in consultation with the CCE Portfolio Manager

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[29]

4. Institutional arrangements/reporting lines

A team of one international IC will conduct the TE. The principal responsibility for managing the TE resides with UNDP. UNDP will contract the IC and ensure the timely provision of per diems and travel arrangements within the country for the

[29] Access at: http://web.undp.org/evaluation/guideline/section-6.shtml

IC. The Project Team will be responsible for liaising with the TE IC to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

UNDP will provide the IC all relevant background documents. Neither UNDP nor any of the project partners are required to provide any physical facility for the work of the Consultant.

The IC shall report to the Monitoring and Evaluation Officer. The IC shall conduct the TE in collaboration with Portfolio Manager and Monitoring & Evaluation Officer of CCE Portfolio at UNDP.

The principal responsibility for managing this evaluation lies with UNDP. UNDP will assign a facilitator to set up the stakeholder interviews, arrange the field visits, coordinate with the GDF and provide translation (when necessary).

In preparation for the evaluation mission, which would last for 30 working days (including travel days), Project Manager, with assistance of CCE portfolio M&E officer, will provide the necessary documentation for the TE IC who will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

These Terms of Reference follow the UNDP-GEF policies and procedures.

The TE IC shall be responsible to the Evaluation Manager (in this case UNDP CCE Portfolio's Monitoring and Evaluation Officer) for the completion of the tasks and duties assigned throughout these Terms of Reference. All the reports are subject to approval from Evaluation Manager, for the payments to be affected to the Individual Consultant.

The following are the key actors involved in the implementation of this TE:

1. Evaluation Manager

This role will be conducted by the **Monitoring and Evaluation Officer of UNDP's CCE Portfolio** who will have the following functions:

- Supervise the evaluation process throughout the main phases of the evaluation (preparation of the ToR, implementation and management and use of the evaluation)
- Participate in the selection and recruitment of the Individual Consultant
- Provide the TE IC with administrative support and required data and documentation
- Ensure the evaluation deliverables meet the required quality
- Safeguard the independence of the exercise, including the selection of the Individual Consultant
- Review the Inception Report, Draft TE Report and Final TE Report and give necessary approvals on behalf of UNDP
- Collect and consolidate comments on draft evaluation reports and share with the evaluation consultant for finalization of the evaluation report
- Contribute to the development of management responses and key actions to all recommendations addressed to UNDP
- Ensure evaluation Terms of Reference, final TE reports, management responses are publicly available through Evaluation Resource Center within the specified timeframe
- Facilitate, monitor and report on implementation of management responses on a periodic basis

2. Climate Change and Environment Portfolio Manager will have the following functions:

- Establish the Evaluation Reference Group with key project partners when needed

- Ensure and safeguard the independence of the evaluation
- Provide comments and clarifications on the Terms of Reference, Draft TE Inception Report and Draft TE Report
- Ensure the Individual Consultant's access to all information, data and documentation relevant to the intervention, as well as to key actors and informants who are expected to participate in interviews, focus groups or other information-gathering methods
- Respond to evaluation recommendations by providing management responses and key actions
- Ensure dissemination of the evaluation report to key stakeholders
- Be responsible for implementation of key actions of the management response

3. TE Individual Consultant will be responsible for the overall coordination and quality of all the deliverables to be produced. It is the Individual Consultant who will be held accountable to UNDP in the quality of the final product. The Individual Consultant will conduct the evaluation study by fulfilling their contractual duties and responsibilities in line with this ToR, United Nations Evaluation Group (UNEG) norms and standards and ethical guidelines. This includes submission of all deliverables stipulated under Section 12 (Payment Schedule) of this ToR, to the satisfaction of UNDP. Individual Consultant's functions do not include any managerial, supervisory and/or representative functions in UNDP, end beneficiaries and implementing partners. All documents and data provided to the Individual Consultant are confidential and cannot be used for any other purpose or shared with a third party without any written approval from UNDP. There will be only one IC conducting the Terminal Evaluation for this project. The IC shall not have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities. The scope of work for the Individual Consultant of this evaluation will include but not be limited to:

- To develop and finalize the TE inception report that will include elaboration of how each evaluation question will be answered along with proposed methods, proposed sources of data, and data collection and analysis procedures;
- To design the tools and data collection;
- To conduct data collection, analysis and interpretation;
- To develop the draft evaluation report;
- To finalize the evaluation report;
- To present findings and debrief;
- To plan, execute and report, kickoff and feedback meetings and debriefings;
- To ensure compliance with the ToR of the TE for PEEMS Project; and
- To utilize best practice evaluation methodologies.

The IC shall avoid any kind of discriminatory behavior including gender discrimination and ensure that

- human rights and gender equality is prioritized as an ethical principle within all actions;
- activities are designed and implemented in accordance with "Social and Environmental Standards of UNDP";
- any kind of diversities based on ethnicity, age, sexual orientation, disability, religion, class, gender are respected within all implementations including data production;

- differentiated needs of women and men are considered;
- inclusive approach is reflected within all actions and implementations, in that sense an enabling and accessible setup in various senses such as disability gender language barrier is created;
- necessary arrangements to provide gender parity within all committees, meetings, trainings etc. introduced.

4. Evaluation Reference Group: Ministry of Industry and Technology, DG Strategic Research and Productivity will function as the Evaluation Reference Group. This Group is composed of the representatives of the major stakeholders involved in decision making in the Project and will review and provide advice on the quality of the evaluation process, as well as on the evaluation products (more specifically comments and suggestions on the draft report and final report) and options for improvement.

UNDP will assist the IC with below services;

- Provide support in collection of background materials;
- Participation in debriefings with UNDP CO and GDF representatives;
- Organize the mission program together with the Project Management Unit, arrange and facilitate meetings with key stakeholders;
- Assistance to the IC in conducting interviews with relevant stakeholders and provide translation during the interviews when necessary;
- Participation in debriefing with UNDP and project partners;
- Necessary support will be provided to IC in circulation of the draft TE report among the key project stakeholders for review and commenting.

Reporting Line

The Individual Consultant will be responsible to the Evaluation Manager (in this case UNDP's Monitoring and Evaluation Officer) for the completion of the tasks and duties assigned throughout this Terms of Reference. All the reports are subject to approval from Evaluation Manager, for the payments to be affected to the Individual Consultant.

Reporting Language and Conditions

The reporting language shall be in English. All information should be provided in electronic version in word format. The Individual Consultant shall be solely liable for the accuracy and reliability of the data provided, along with links to sources of information used.

Title Rights

The title rights, copyrights and all other rights whatsoever nature in any material produced under the provisions of these TORs will be vested exclusively in UNDP.

Duty Station for the assignment is home-based with specific travel requirements for the field mission. The Individual Consultant will be requested to travel to provinces where the Project is being implemented, as indicated in the expected interview schedule table below. All the costs associated with travel, accommodation and any other living costs shall be borne by UNDP, therefore should not be included in the price proposal of the TE IC. UNDP will arrange economy class roundtrip flight tickets through its contracted Travel Agency.

Assignment-related travel and accommodation costs outside of the Duty Station, which are pre-approved by UNDP, will be borne by UNDP in line with UNDP's corporate rules and regulations. The costs of these missions may either be;

- Arranged and covered by UNDP CO from the respective project budget without making any reimbursements to the Consultant, through UNDP's official Travel Agency or,
- Reimbursed to the Consultant upon the submission of the receipts/invoices of the expenses by the Consultants and approval of the UNDP. The reimbursement of each cost item is subject to the following constraints/conditions provided in below table or,
- Covered by the combination of both options.

The following guidance on travel compensation is provided as per UNDP practice:

Cost item	Constraints	Conditions of Reimbursement
Travel (intercity transportation)	Full-fare economy class tickets	1- Approval by UNDP of the cost items before the initiation of travel 2- Submission of the invoices/receipt, etc. by the Consultant with the UNDP's F-10 Form 3- Acceptance and approval by UNDP of the invoices and F-10 Form.
Accommodation	Up to 50% of the effective DSA rate of UNDP for the respective location	
Breakfast	Up to 6% of the effective DSA rate of UNDP for the respective location	
Lunch	Up to 12% of the effective DSA rate of UNDP for the respective location	
Dinner	Up to 12% of the effective DSA rate of UNDP for the location	
Other Expenses (intra city transportations, transfer cost from /to terminals, etc.)	Up to 20% of effective DSA rate of UNDP for the respective location	

As per UNDSS rules, the IC is responsible for completing necessary online security trainings and submitting certificates and travel clearance prior to assignment-related travels. "Interviews" referred in this Terms of Reference comprises such telecommuting and online conferencing tools as well. All travel arrangements shall be subject to pre-approval of the UNDP.

Travel:

- International travel will be required to Turkey during the TE mission;
- The BSAFE course must be successfully completed prior to commencement of travel;
- Individual Consultants are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director.
- Consultants are required to comply with the UN security directives set forth under: https://dss.un.org/dssweb/
- All related travel expenses will be covered and will be reimbursed as per UNDP rules and regulations upon submission of an F-10 claim form and supporting documents.

Expected Interview Schedule

Partners/Stakeholder(s) to be Interviewed	Location[30]	Estimated Day(s) of Interview	Method
UNDP	Ankara, Turkiye	0.5	Remote or in person
MoIT/DGSRP	Ankara, Turkiye	1	In person
EMOSAD	İstanbul, Turkiye	0.25	Remote or in person
EYODER	İstanbul, Turkiye	0.25	Remote or in person
KOSGEB	Ankara, Turkiye	0.25	Remote or in person
ASO1 OIZ	Ankara, Turkiye	0.25	In person
Gebze OIZ	Gebze, Kocaeli, Turkiye	0.25	In person
Usak OIZ	Usak, Turkiye	0.25	In person
TSI	Gebze Kocaeli, Turkiye	0.5	In person
Sample beneficiaries (SMEs)	Ankara, Turkiye	0.5	In person
Sample beneficiaries (SMEs)	Gebze, Kocaeli, Turkiye	0.25	In person
Sample beneficiaries (SMEs)	Usak, Turkiye	0.50	In person
KOSGEB Usak Province	Usak, Turkiye	0.25	In person
ESTIMATED TOTAL		5.0	

***COVID-19 Specific Measures:**

The Individual Consultant shall review all local regulations, as well as that of UN and UNDP concerning the measures, he/she must take during performance of the contract in the context of COVID-19. The Individual Consultant shall take all

[30] The locations of partners and stakeholders do not rule out the probability of a remote monitoring mission if approved by the Commissioning Unit under exceptional circumstances. The names of cities are there to inform the reader about the location of stakeholders and do not mean that the Individual Consultant must pay an in-person field visit to each city indicated in this list.

measures against COVID-19 imposed by local regulations, as well as by UN and UNDP during performance of the contract to protect his/her health and social rights, as well as UNDP personnel, Project Stakeholders and third parties. UNDP shall not be held accountable for any COVID-19 related health risks or events that are caused by negligence of the Individual Consultant and/or any other third party.

The contract is expected to start on 15/06/2023 (starting date is indicative and may be updated considering actual contract signature date) and expire on 30/11/2023.

Evaluator Ethics

The TE IC will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The evaluator must safeguard the rights and confidentiality of information providers, interviewees and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The evaluator must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

5. Experience and qualifications

An Individual Consultant will conduct the TE and will be responsible for the duties outlined in the above sections regarding the design and writing of the TE report.

The evaluator cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), must not have conducted this project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

I. Academic Qualifications:

- At least a Master's Degree in environmental studies, economics, international relations, engineering, development studies or any other relevant field. (5 points)

Assets:

- Ph.D. Degree in environmental studies, economics, international relations, engineering, development studies or any other relevant field. (5 points)

II. Years of experience:

- Minimum 7 years of overall professional experience in research design, field work, qualitative, quantitative, and mixed-method research strategies, including but not limited to focus groups, surveys and interview techniques. (15 points)

Assets:

- Project monitoring or implementation experience in UN agencies (10 pts)

III. Language:

- Good command of spoken and written English.

IV. Competencies:

- Minimum 5 years of professional international experience in conducting and managing evaluations, assessments, research or review of development projects, programmes or thematic areas either as team leader, sole evaluator or as a team member. (15 points)
- Experience in evaluation of energy efficiency, renewable energy, sustainable finance, resource efficiency, industrial production, environment or climate change projects, programmes or thematic areas either as team leader or sole evaluator. (15 points)

Assets:

- Having conducted 3 to 5 evaluations, assessments, research or review of energy efficiency projects, programmes or thematic areas either as team leader or sole evaluator. (10 points)
- Relevant experience in Turkey or RBEC region. (10 points)
- Experience in evaluation of GEF financed programmes or projects (15 points)

V. Notes:

- Internships (paid/unpaid) are not considered professional experience.
- Obligatory military service is not considered professional experience.
- Professional experience gained in an international setting is considered international experience.
- Experience gained prior to completion of undergraduate studies is not considered professional experience.

UNDP is committed to achieving workforce diversity in terms of gender, race, ethnicity, indigenous identity, disability and culture. Individuals from all genders, minority groups, indigenous groups and persons with disabilities are equally encouraged to apply. All applications will be treated with utmost confidentiality.

6. Payment Modality

Contracting Authority

Contracting Authority for this Assignment is UNDP, and the contract amount will be provided through the respective project budget.

Contracting Modality

IC – Individual Contract of UNDP.

Payment Schedule

Payments will be made within 30 days upon acceptance and approval of the corresponding deliverable by UNDP on a lump-sum basis indicated below and the pertaining Certification of Payment document signed by the IC and approved by the Monitoring and Evaluation Officer, in consultation with the CCE Portfolio Manager.

- 10% payment upon satisfactory delivery of the final TE Inception Report and approval by UNDP
- 20% payment upon satisfactory delivery of the draft TE report and approval by UNDP
- 60% payment upon satisfactory delivery of the final TE report and approval by UNDP and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

- 10% payment upon satisfactory presentation/de-briefing of evaluation report findings.

Criteria for issuing the payment of 60% for Final TE Report[31]:

- The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
- The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other TE reports).
- The Audit Trail includes responses to and justification for each comment listed.

If the Individual Contractor is a Turkish national residing in Türkiye, the payment shall be realized in Turkish Liras (TRY).

Payment amount will be converted from United States Dollar (USD) to Turkish Liras (TRY) by the UN operational rate of exchange valid on the date of UNDP's official written acceptance of deliverables. If the Individual Contractor is not a Turkish national, the payments shall be effected in United States Dollar. UN Operational Exchange rates can be accessed through https://treasury.un.org/operationalrates/OperationalRates.php

If the deliverables are not produced and delivered by the IC in due time and to the satisfaction of UNDP, no payment will be made even if the IC has invested time to produce and deliver such deliverables. Expected delivery dates of the reports will be finalized by UNDP during the Briefing Meeting that will be conducted upon contract signature.

The amount paid to the IC shall be gross and inclusive of all associated costs such as social security, pension and income tax etc. The amount to be paid to the Individual Consultant is fixed regardless of changes in the cost components. The price proposal amount should be indicated in gross terms and hence should be inclusive of costs related to tax, social security premium, pension, visa (if needed), etc. UNDP will not make any further clarification on costs related to tax, social security premium, pension, visa, etc. It is the Individual Consultant's responsibility to make necessary inquiries on these matters.

Tax Obligations: The IC is solely responsible for all taxation or other assessments on any income derived from UNDP. UNDP will not make any withholding from payments for the purposes of income tax. UNDP is exempt from any liabilities regarding taxation and will not reimburse any such taxation to the IC.

TOR ANNEXES

- ToR Annex A: Project Logical/Results Framework
- ToR Annex B: Project Information Package to be reviewed by TE IC
- ToR Annex C: Content of the TE report
- ToR Annex D: Evaluation Criteria Matrix template
- ToR Annex E: UNEG Code of Conduct for Evaluators

[31] UNDP is obligated to issue payments to the TE IC as soon as the terms under the ToR are fulfilled. If there is an ongoing discussion regarding the quality and completeness of the final deliverables that cannot be resolved between the UNDP and the TE IC, the Regional M&E Advisor and Vertical Fund Directorate will be consulted. If needed, the UNDP's senior management, Procurement Services Unit and Legal Support Office will be notified as well so that a decision can be made about whether or not to withhold payment of any amounts that may be due to the evaluator(s), suspend or terminate the contract and/or remove the individual contractor from any applicable rosters. See the UNDP Individual Contract Policy for further details:

https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Individual%20Contract_Individual%20Contract%20Policy.docx&action=default

- ToR Annex F: TE Rating Scales
- ToR Annex G: TE Report Clearance Form
- ToR Annex H: TE Audit Trail

Annex 2: List of documents reviewed.

List of documents that have been reviewed includes, but not limited to:

1. Project Identification Form (PIF)
2. Final UNDP-GEF Project Document with all annexes
3. CEO Endorsement Request
4. UNDP Social and Environmental Screening Procedure (SESP) Form
5. Inception Workshop Report
6. Mid-Term Review report and management response to MTR recommendations
7. All Project Implementation Reports (PIRs)
8. Minutes of Project Board Meetings and of other meetings (i.e., Project Appraisal Committee meetings)
9. GEF Tracking Tools (from CEO Endorsement, midterm and terminal stages)
10. GEF/LDCF/SCCF Core Indicators (from PIF, CEO Endorsement, midterm and terminal stages); for GEF-6 and GEF-7 projects only
11. Financial data, including actual expenditures by project outcome, including management costs, and including documentation of any significant budget revisions
12. Co-financing data with expected and actual contributions broken down by type of co-financing, source, and whether the contribution is considered as investment mobilized or recurring expenditures
13. Audit reports (Dec 2019)
14. Electronic copies of project outputs (booklets, manuals, technical reports, articles, etc.)
15. Sample of project communications materials
16. Summary list of formal meetings, workshops, etc. held, with date, location, topic, and number of participants
17. Motor Inventory Survey and OIZ selection survey
18. List of contracts and procurement items over ~US$5,000 (i.e., organizations or companies contracted for project outputs, etc., except in cases of confidential information)
19. List of related projects/initiatives contributing to project objectives approved/started after GEF project approval (i.e., any leveraged or "catalytic" results)
20. Data on relevant project website activity – e.g., number of unique visitors per month, number of page views, etc. over relevant time period, if available
21. UNDP Country Programme Document (CPD)
22. List/map of project sites, highlighting suggested visits
23. List and contact details for project staff, key project stakeholders, including Project Board members, RTA, Project Team members, and other partners to be consulted
24. Project deliverables that provide documentary evidence of achievement towards project outcomes
25. Reports on monitoring missions/output verification visits/on the spot checks

Annex 3: Evaluation Question Matrix

Evaluation matrix is important to identifying the key evaluation questions and how they will be answered through the selected methods. The evaluation matrix is a tool that evaluators create as a map and reference in planning and conducting an evaluation. It also serves as a useful tool for summarizing and visually presenting the evaluation design and methodology for discussions with stakeholders. It details evaluation questions that the evaluation will answer, data sources, data collection and analysis tools or methods appropriate for each data source, and the standard or measure by which each question will be evaluated.

Table 6: Evaluation Matrix

Evaluative Criteria Questions	Indicators/evidence	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities a the local, regional and national level?			
- To what extent was the project in line with GEF focal area, UNDP CPD, UNSDCF, Türkiye's Nationally Determined Contribution (NDC), 10th National Development, Türkiye's National Climate Change Strategy and Action Plan, Ministry of Energy and Natural Resources (MENR) 2019-2023 Strategic Plan, National Energy Efficiency Action Plan 2017-2023 along with relevant SDGs?	- Level of alignment of project's activities with relevant stakeholders' plans - Stakeholders' perceptions on the relevance of project's activities to their needs - Degree of involvement and inclusiveness of beneficiaries and stakeholders in project design and implementation	- project documentations - national policies or strategies, project websites - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- To what extent was the theory of change applied in the project relevant to promoting investment in energy efficient electric motors and expanding access to efficient industrial technologies for the micro businesses and SMEs	- Degree of coherence of the project design in terms of theory of change, components, choice of partners, structure, delivery mechanism, scope, budget, use of resources, etc.	- project documentations - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- Are the project objectives and outputs clear, practical and feasible	- Level of coherence between programme design and project implementation approach	- project documentations - Project stakeholders feedback	- Desk review - Stakeholders' interviews

within its frame? Do they clearly address target groups?	- Identification of the problem and its causes in the project being addressed?		
- To what extent were lessons learned from other relevant projects considered in the design?	- Degree to which other projects are referenced in the project design with lessons identified and built upon	- project documentations - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- To what extent does the Project create synergy/linkages with other projects and interventions in the country?	- Project's strategic partnerships and complementarities with other projects	- project documentations - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- To what extent was this Project designed as rights based and gender sensitive?	- Degree to which the project design identifies and address gender and human rights issues - Existence of gender actions plan	- project documentations - Project stakeholders feedback	- Desk review - Stakeholders' interviews
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
- To what extent did the Project contribute to the attainment of the development of outputs and outcomes initially expected/stipulated in the Project Document's logical framework until the end of the project duration?	- Delivery on project targets defined in the PRF - Stakeholder feedback on the delivery and most significant achievements	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent has the UNDP partnership strategy been appropriate and effective?	- Partners feedback - Evidence on co-design and co-delivery of project activities	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or	- Geographical distribution of benefits - Evidence of success factors - Stakeholders feedback on the upscaling potential	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey

expand these achievements?			
- In which areas does the project have the fewest achievements? What have been the constraining factors and why? How can or could they be overcome?	- Geographical distribution of benefits - Stakeholders perceptions on the constraints	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- What, if any, alternative strategies would have been more effective in achieving the project objectives?	- Evidence of adaptive management actions where alternative strategies have been identified and addressed - Stakeholders feedback on project implementation strategies and alternatives	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent are project management and implementation participatory, and is this participation of target groups/stakeholders contributing towards achievement of the project objectives?	- Stakeholders feedback on the effectiveness of their participation - Number, and type, of engagements with stakeholders - Extent to which stakeholders are aware of the project and its activities	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent has the project been appropriately responsive to the needs of the target groups and changing partner priorities?	- Stakeholders feedback on the extent to which their needs are addressed - Documented adaptive management actions to accommodate the changing priorities	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent has the grant blended KOSGEB support scheme programme been effective in improving SMEs' economic standing and energy savings?	- SMEs feedback on the usefulness and relevance of the grant blended KOSGEB - Cost savings achieved by SMEs attributed to energy savings	- project documentations (PIRs) - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent has the grant blended KOSGEB support scheme programme been effective in	- SMEs feedback on the usefulness and relevance of the grant blended KOSGEB - SMEs change in level of awareness	- project documentations (PIRs) - Progress reports - Project deliverables	- Desk review - Stakeholders' interviews - Survey

creating awareness in SMEs operating at OIZs for energy efficient electric motors and in demonstrating a functioning and viable financing model?		Project stakeholders feedback	
Did Covid-19 measures have a positive or negative effect on the achievement of Project results?	Documented implications of the COVID 19 Documented delays that are directly attributed to the COVID 19 Changes on project results as a result of the COVID 19.	project documentations (PIRs) Progress reports Project deliverables Project stakeholders feedback	Desk review Stakeholders' interviews Survey
Efficiency: Was the project implemented efficiently, in line with international and national norms and standards?			
How well did Project Management work for achievement of results?	Extent to which project targets are met Stakeholders feedback on the effectiveness of the project management Effectiveness of the M&E functions Frequency and effectiveness of the board in decision making and strategic guidance	project documentations (PIRs) board MoM Progress reports Project deliverables Project stakeholders feedback	Desk review Stakeholders' interviews
To what extent has there been an economical use of financial and human resources? Have resources (funds, staff, time, expertise, etc.) been allocated strategically and cost-effectively to achieve outcomes?	Cost in view of results achieved compared to costs of similar projects from other organizations Project team feedback	project documentations (PIRs) board MoM Progress reports Project deliverables Project stakeholders feedback	Desk review Stakeholders' interviews
To what extent have project funds and activities been delivered in a timely manner?	Level of discrepancy between planned and utilized financial expenditures Planned vs. actual funds leveraged Timeliness of activities delivery Co-financing data and evidence	project documentations risk/issue register PIRs Project stakeholders feedback	Desk review Stakeholders' interviews

	- Level of cash and in-kind co-financing relative to expected level		
- To what extent do the M&E systems utilized by UNDP ensure effective and efficient project management?	- Existence, quality and use of M&E, feedback and dissemination mechanism to share findings, lessons learned and recommendation - Quality of M&E at the design stage - Quality of M&E throughout the implementation - Adequacy of the M&E budget - Alignment of M&E to the GEF requirements - Response to the MTR findings	- project documentations (PIRs) - board MoM - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- To what extent was there any identified synergy between UNDP initiatives/projects that contributed to reducing costs while supporting results?	- Linkages with the UNDP energy portfolio in the country - Documented cooperation and complementarities	- project documentations (PIRs) - board MoM - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews
- To what extent SMEs with limited financial capacity were reached and applied for electric motor replacement support?	- Distribution of the benefits across SMEs - SMEs feedback *Assuming that SMEs with limited financial capacity are identified by the project	- project documentations (PIRs) - board MoM - Progress reports - Project deliverables - Project stakeholders feedback	- Desk review - Stakeholders' interviews
Sustainability: To what extent are there financial, institutional, socio-political, and/or environmental risks to sustaining long-term project results?			
- To what extent will targeted SMEs benefit from the project interventions in the long-term?	- SMEs feedback on the long term benefits - Level of ownership of the project benefits by the SMEs - Existence of financial and institutional settings to support long term benefits -	- project documentations (PIRs) - Risk log - Progress reports - Project deliverables - Project stakeholders feedback -	- Desk review - Stakeholders' interviews - Survey
- Are there any political or financial risks that may jeopardize	- Evidence of commitments from government or other stakeholder to financially	- project documentations (PIRs) - Risk log - Progress reports	- Desk review - Stakeholders' interviews - Survey

sustainability of project results?	support relevant sectors of activities after project end - Level of recurrent costs after completion of project and funding sources for those recurrent costs	- Project deliverables - Project stakeholders feedback -	
- Are the legal frameworks, policies and governance structures and processes in place for sustaining Project benefits?	- Efforts to support the development of relevant policies at the country level	- project documentations (PIRs) - Risk log - Progress reports - Project deliverables - Project stakeholders feedback -	- Desk review - Stakeholders' interviews - Survey
- To what extent have development partners committed to providing continuing support? What is the risk that the level of stakeholder ownership will be insufficient to allow for the Project outcomes/benefits to be sustained?	- Level of project stakeholders ownership - Evidence of commitments from government or other stakeholder to financially support relevant sectors of activities after project end - Level of capacities at the country level to continue delivering on the project results -	- project documentations (PIRs) - Risk log - Progress reports - Project deliverables - Project stakeholders feedback -	- Desk review - Stakeholders' interviews - Survey
- To what extent does this UNDP intervention have a well-designed and well-planned exit strategy?	- Exit strategy in place and actively operationalisation	- project documentations (PIRs) - Risk log - Progress reports - Project deliverables - Project stakeholders feedback -	- Desk review - Stakeholders' interviews -
Cross-cutting issues and gender equality and women's empowerment: How did the project contribute to gender equality and women's empowerment?			
- To what extent has the Project contributed to increasing resilience of SMEs?	- Extent to which the SMEs have been more financially capable - SMEs level of awareness & capacity to deal with energy efficiency -	- project documentations - PIRs - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent have gender equality and the empowerment of women been addressed in the design,	- Extent to which programme products are sensitive to gender - Extent to which project data are sex-disaggregated	- project documentations - Project stakeholders feedback - List of project participants	- Desk review - Stakeholders' interviews -

implementation and monitoring of the project?	- Existence of logical linkages between gender results and project outcomes and impacts		
- Is the gender marker assigned to this project representative of reality?	- Existence of gender marker	- project documentations	- Desk review
- Impact: Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status?			
- To what extent has the project provided an enabling environment and basis for deployment of energy efficient electric motor replacements in SMEs operating under OIZs?	- Elements in place in those different management functions, at appropriate levels in terms of adequate structures, strategies, systems, skills, incentives and interrelationships with other key actors - Evidence/Quality of steps taken to create an enabling environment and sustainability - Degree to which project activities and results have been taken over by local counterparts	- project documentations - PIRs - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey
- To what extent has the project established a sustainable financing mechanism for energy efficient electric motors especially for smaller segments of the industry sector? To what extent is the financing model piloted by the project replicable and up-scalable for other settings and target groups?	- Effectiveness of the financing mechanism - Stakeholders feedback the financing mechanism - Evidence of the SMEs update on the new financing mechanism	- project documentations - PIRs - Project stakeholders feedback	- Desk review - Stakeholders' interviews - Survey

Annex 4: Survey questions targeting SMEs

1) Which of the following Organized Industrial Zones (OIZs) do you belong to?

- Antalya OIZ (Antalya)
- ASO1 OIZ (Ankara)
- Bursa OIZ (Bursa)
- Gebze OIZ (Kocaeli)
- Hacı Sabancı OIZ (Adana)
- Kemalpaşa OIZ (İzmir)

- Uşak OIZ (Uşak

2) To what extent has the PEEMS project support (awareness activities, motor replacement pilot, energy audits, financing options) been relevant to your needs? To a very large extent, To a large extent, To some extent, To little extent, Not at all

Awareness

3) How do you rate your knowledge in the available solutions for energy efficiency in motors prior to being engaged in the PEEMS project? On a scale of: Excellent, Good, Fair, Poor, Very poor.

4) How do you rate your knowledge in the available solutions for energy efficiency in motors after being engaged in the PEEMS project? On a scale of: Excellent, Good, Fair, Poor, Very poor.

How strongly do you agree or disagree with each of the following statements? Scale: Strongly agree, Agree, Neither agree nor disagree, Disagree Strongly, disagree, Not sure.

A. I am confident that motor replacement will actually be useful for my enterprise

B. My enterprise is likely to expand investment in energy efficiency in the future based on what we learned through the PEEMS project

C. Overall, I am satisfied with the PEEMS awareness activities

Energy audit

D. The energy audit has been useful to my enterprise

E. We would NOT have done the energy audit if it was not for the PEEMS project support

F. Our enterprise will likely implement the findings and recommendations of the energy audit

G. Overall, I am satisfied with the energy audits facilitated by the PEEMS project

Motor replacement

H. The motor replacement support has been useful to our enterprise

I. We would NOT have done motor replacement without the PEEMS project support

J. It is likely that our enterprise will pursue motor replacement process in the future

K. Overall, I am satisfied with the motor replacement support by the PEEMS project

Financing

L. I am aware about the available financing options for energy efficiency in motors

M. I am confident that the proposed financial solutions are feasible for my enterprise

N. Overall, I am satisfied with the financing options presented by the PEEMS project

Sustainability/scale up

O. Enterprises have enough capacity and well-equipped to continue implementing energy efficiency solutions after the PEEMS project concludes

P. There are adequate financing solutions for replacing motors available for enterprises

Q. There will be more enterprises interested in the energy audit

R. There will be more enterprises interested in the motor replacement

General feedback

S. Has your enterprise invested in motor replacement already? Yes/no. Why or why not?

T. Are there any other energy efficiency measures that your enterprise implemented or intends to implement in the future?

U. What challenges did you face during the implementation of the PEEMS project? open text

V. What would you have done differently to better improve PEEMS project support? open text

W. What would you recommend for the next steps to be? *open text*

Thank you for participating in the survey!

Annex 5: Interview questions

It should be noted that below interview questions has been used as a guide in the interviews, however, each individual interview is unique, and questions have been tailored to the interviewees' roles and perspectives. In addition, follow up questions have been asked based on the responses to obtain a full story from each response.

Introductory question

Could you please introduce yourself and explain your involvement and the role of your organization/agency in the PEEMS project?

Effectiveness

1) In your opinion, what has been the greatest achievement in the PEEMS project to date? And why?
2) What were the challenges in delivering PEEMS project? How could we overcome these challenges?
3) What factors have contributed to achieving intended PEEMS outputs and outcomes?
4) What worked so well and what didn't work so well? and why?

Impacts

5) What sort of impacts did the PEEMS project deliver to its stakeholders?
6) What trends do you foresee in the implementing EE measures in targeted industries, particularly related to EE in motors?

Relevance

7) In your opinion, to what degree the PEEMS project activities are aligned to the needs of the participating stakeholders?

8) In your opinion, to what degree the PEEMS project activities are aligned with the strategic plans and strategies of the participating stakeholders?

Efficiency

9) In your opinion, has the PEEMS project been delivered on time and on budget? Has there been anything underachieved or overachieved within agreed framework of the PEEMS project, and what are the reasons/explanation for it?
10) In what ways has the PEEMS project been adaptive to emerging issues and opportunities? Examples?

Sustainability

11) Do you foresee any social, financial or political risks that may jeopardize sustainability of the PEEMS project outputs and outcomes?
12) What would happen to the PEEMS project output and benefits when the GEF funding finishes?
13) Going forward, how do you see the capacity of participating stakeholders to pursue delivering on PEEMS related outcomes?
14) What lessons have been learnt for the PEEMS project in achieving outcomes?

Closing

- In what ways gender has been mainstreamed in the project? Do you have any gender-related concerns?
- Anything else you would like to add that we haven't covered?

Thank you for your kind participation!

Annex 6 TE Mission itinerary and meetings agenda

TRAVEL PLAN	
2023-07-30	Arival to Ankara from Sydney
2023-07-31	Interviews in Ankara
2023-08-01	Interviews in Ankara
2023-08-02	Interviews in Ankara
2023-08-03	Travel from Ankara to Kocaeli By Vehicle (5:00 am departure from Ankara)
2023-08-03	Interviews in Kocaeli
2023-08-03	Travel from Kocaeli to Usak By Vehicle (Departure at the end of the interviews)
2023-08-03	Accomodation In Usak
2023-08-04	Interviews in Usak
2023-08-04	Travel from Usak to Ankara By Vehicle (Departure at the end of the interviews)
2023-08-05	Travel to Sydney from Ankara

INTERVIEW PLAN			
DATE	**TIME INTERVAL**	**TEAM**	**LOCATION**
2023-07-31	08:15 - 09:45	UNDP PROJECT TEAM	ANKARA

	10:30 - 12:30	ASO1 OIZ	ANKARA
	13:30 - 15:30	SME-1 (KALIPSAN)	ANKARA
	15:45 - 17:45	SME-2 (SEDAT TAHIR)	ANKARA
2023-08-01	8:30 - 10:00	UNDP PROJECT TEAM	ANKARA
	10:30 - 12:30	KOSGEB PRESIDENCY	ANKARA
	13:00 - 15:00	EMOSAD (ONLINE)	ANKARA
	15:00 - 17:00	EYODER (ONLINE)	ANKARA
	17:00 - 18:00	UNDP PROJECT TEAM	ANKARA
2023-08-02	09:00 - 18:00	MoIT - DGSRP	ANKARA
2023-08-03	09:00 - 13:00	TSI LABORATORY	GEBZE – KOCAELI
	14:15 - 16:15	GEBZE OIZ	GEBZE – KOCAELI
	16:30 - 18:30	SME-3 (HAS ALUMINYUM)	GEBZE – KOCAELI
2023-08-04	08:30 - 10:30	USAK OIZ	USAK
	10:45 - 12:45	SME-4 (BERNI TEKSTIL)	USAK
	13:30 - 15:30	SME-5 (SACLI TEKSTIL)	USAK
	16:00 - 18:00	KOSGEB DIRECTORATE	USAK

2023-08-16	10:30 - 11:00	UNDP RTA (ONLINE)	ONLINE

Annex 7: TE Rating scales

Evaluation criteria and ratings: The standard evaluation criteria according to UNDP/GEF evaluation policy are Relevance, Impact, Effectiveness, Efficiency and Sustainability. The different scales for rating various criteria are shown in the tables below.

Table 7: TE Rating Scales & Evaluation Ratings Table

TE Rating Scales	
Ratings for Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight, Execution, Relevance	**Sustainability ratings:**
6 = Highly Satisfactory (HS): exceeds expectations and/or no shortcomings 5 = Satisfactory (S): meets expectations and/or no or minor shortcomings 4 = Moderately Satisfactory (MS): more or less meets expectations and/or some shortcomings 3 = Moderately Unsatisfactory (MU): somewhat below expectations and/or significant shortcomings 2 = Unsatisfactory (U): substantially below expectations and/or major shortcomings 1 = Highly Unsatisfactory (HU): severe shortcomings Unable to Assess (U/A): available information does not allow an assessment	4 = Likely (L): negligible risks to sustainability 3 = Moderately Likely (ML): moderate risks to sustainability 2 = Moderately Unlikely (MU): significant risks to sustainability 1 = Unlikely (U): severe risks to sustainability Unable to Assess (U/A): Unable to assess the expected incidence and magnitude of risks to sustainability

Annex 8: list of persons consulted

Stakeholders and beneficiaries engaged:

NAME	UNIT/DEPARTMENT	POSITION
1. ÖZGE RENKLİDAĞ	UNDP CCE Portfolio	PROJECT MANAGER
2. MELTEM ÜZEL	UNDP CCE Portfolio	PROJECT ASSOCIATE
3. ALPEREN KAMİLOĞLU	UNV	PROJECT ASSISTANT
4. MEHMET OZAN BERK	ENERGY MANAGEMENT UNIT (EMU)	ENERGY SYSTEMS ENGINEER
5. ŞENOL YAKIDEMİR	AY-BAL PLASTİK	COMPANY OWNER
6. DERŞAN AYKUT	KALIPSAN	MAINTENANCE CHIEF
7. GÖKHAN GÜVEL	SEDAT TAHİR	MAINTENANCE MANAGER
8. SERAY İÇÖZ	SEDAT TAHİR	METHODS SPECIALIST

9. FARUK KAHVECİOĞLU	KOSGEB PRESIDENCY	HEAD OF PROJECT MANAGEMENT UNIT
10. FİRDEVS KILIÇ	KOSGEB PRESIDENCY	SUSTAINIBILITY SUPPORTS MANAGER UNDER THE PROJECT MANAGEMENT UNIT
11. SEDA KALAYCI	KOSGEB PRESIDENCY	SME SPECIALIST
12. UFUK KESKİN	KOSGEB PRESIDENCY	SME SPECIALIST
13. BARIŞ TUĞRUL ERTUĞRUL	TEMMA (EMOSAD)	SECRETARY GENERAL
14. TUNÇ İŞCAN	TEMMA (EMOSAD)	REPRESENTATIVE OF MEMBER RELATIONSHIP
15. NACİ IŞIKLI	EYODER	SECRETARY GENERAL (FORMER)
16. ARZU GÜRKAN	EYODER	BOARD MEMBER
17. HÜLYA ÖZTOPRAK YILMAZ	DIRECTORATE FOR STRATEGIC RESEARCH AND PRODUCTIVITY	DEPUTY DIRECTOR GENERAL
18. FATMA ÇİL	DIRECTORATE GENERAL FOR STRATEGIC RESEARCH AND PRODUCTIVITY	INDUSTRY AND TECHNOLOGY EXPERT
19. ÖZKAN ÖZKARA	DIRECTORATE GENERAL FOR INDUSTRY	INDUSTRY AND TECHNOLOGY EXPERT
20. DR.GÜVENİR KAAN ESEN	TSE PRESIDENCY	DEPUTY SECRETARY GENERAL
21. BURCU PALA	GEBZE TSE	ELECTROTECH LAB MANAGER
22. VOLKAN ERGİNER	GEBZE TSE	DIRECTOR OF LABS
23. AHMET GÜL	GEBZE TSE	TEST ENGINEER
24. HÜLYA KAYNAK	GEBZE OIZ	DEPUTY REGIONAL DIRECTOR
25. SUAT ÖZGÜR	ENERGY MANAGEMENT UNIT (EMU)	ENERGY MANAGER
26. BARIŞ KUTLAY	ENERGY MANAGEMENT UNIT (EMU)	NATURAL GAS AND MAINTENANCE SERVICES ENGINEER
27. MURAT ŞAHİNKAYA		FACTORY MANAGER
28. ENGİN MALKOÇ		TECHNİCAL MANAGER
29. LÜTFİ UYSUN	ENERGY MANAGEMENT UNIT (EMU)	ENERGY MANAGER
30. MÜNEVVER ŞENOL		FACTORY MANAGER
31. CELAL BESCİ		COMPANY OWNER
32. RUHİ TİRİÇ		ENGINEER
33. YASİN TUNÇAY		SME SPECIALIST
34. ADEM AYPAR		DIRECTOR OF UŞAK PROVINCE
35. Jana Koperniech	UNDP	Regional Technical Advisor

Annex 9: Signed UNEG Code of Conduct form

Independence entails the ability to evaluate without undue influence or pressure by any party (including the hiring unit) and providing evaluators with free access to information on the evaluation subject. Independence provides legitimacy to and ensures an objective perspective on evaluations. An independent evaluation reduces the potential for conflicts of interest which might arise with self-reported ratings by those involved in the management of the project being evaluated. Independence is one of ten general principles for evaluations (together with internationally agreed principles, goals, and targets: utility, credibility, impartiality, ethics, transparency, human rights and gender equality, national evaluation capacities, and professionalism).

Evaluators/Consultants:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings, and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.
8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Evaluator: _____Mohammad Alatoom ____

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at ___August 2023_____ (Place) on _____ (Date)

Signature: _____Mohammad Alatoom DocuSigned by: Mohammad Alatoom D947CE9700A4427...

Annex 10: Signed TE Report Clearance form

Terminal Evaluation Report for Terminal Evaluation of 'Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS) (PIMS 5285)' project. Reviewed and Cleared By:

Commissioning Unit (M&E Focal Point)

Name: _____Nurettin Cemil Gökpınar_____

Signature: _____ DocuSigned by: Nurettin Cemil Gokpinar 604204C45EE7481... _____

Date: _____13-Oct-2023_____

Regional Technical Advisor (Nature, Climate and Energy)

Name: _____Jana Koperniech_____

Signature: _____ DocuSigned by: Jana Koperniech ED5C241FBA2C457... _____

Date: _____13-Oct-2023_____

Annex 11: Co-Financing for The Project By Name and By Type

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Investment Mobilized	Amount ($)
GEF Agency	UNDP TUKIYE	Grant	Recurrent expenditures	22,720
GEF Agency	UNDP TURKIYE	In-kind	Investment mobilized	220,000
Recipient Country Government	The Ministry of Industry and Technology (MoIT)	Grant	Recurrent expenditures	343,767
Recipient Country Government	The Ministry of Industry and Technology (MoIT)	In-kind	Recurrent expenditures	1,648,439
Recipient Country Government	Turkish Standard Institute (TSI)	Grant	Investment mobilized	3,160,000
Recipient Country Government	Turkish Standard Institute (TSI)	In-kind	Recurrent expenditures	2,290,000
Civil Society Organization	NGO - Ankara Chamber of Industry (ASO)	In-kind	Recurrent expenditures	134,965
Civil Society Organization	NGO - Istanbul Chamber of Industry (ISO)	In-kind	Recurrent expenditures	179,581
Private Sector	Private Sector (Motor Manufacturers)	In-kind	Recurrent expenditures	17,909,938
Recipient Country Government	The Ministry of Energy and Natural Resources (EVCED)	In-kind	Recurrent expenditures	1,290,488
Civil Society Organization	The Energy Efficiency and Management Association (EYODER)	In-kind	Recurrent expenditures	88,600
Civil Society Organization	Turkish Elerctric Motor Manufacturers Association (EMOSAD)	In-kind	Recurrent expenditures	124,637
Total Co-financing				27,413,135

Annex 12: TE Audit Trail (in a separate file)

Annex 13: Tracking Tools (in a separate file)