



GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Promoting Energy-Efficient Motors in Small and Medium Sized Enterprises (PEEMS)			
Country(ies):	Turkey	GEF Project ID: ¹	9081
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	5285
Other Executing Partner(s):	Turkey Ministry of Science, Industry and Technology (MoSIT) through the Directorate General for Productivity (DGP)	Submission Date:	4 Oct. 2016
		Resubmission Date:	3 Nov. 2016
GEF Focal Area (s):	Climate Change	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP	<input type="checkbox"/>
Name of Parent Program	[if applicable]	Agency Fee (\$)	356,250

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Co-financing
CCM-1 Program 1	Outcome A. Accelerated adoption of innovative technologies and management practices for GHG emission reduction and carbon sequestration	GEFTF	934,230	16,090,000
CCM-1 Program 1	Outcome B. Policy, planning and regulatory frameworks foster accelerated low GHG development and emissions mitigation	GEFTF	1,525,600	5,250,000
CCM-1 Program 1	Outcome C. Financial mechanisms to support GHG reductions are demonstrated and operationalized	GEFTF	1,290,170	7,000,000
Total project costs			3,750,000	28,340,000

B. PROJECT DESCRIPTION SUMMARY

Project Objective: 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.						
Project Components/Programs	Financing Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 1: Strengthened legislative and regulatory and policy framework for EE motors in Turkey	TA	Strengthened legislative and regulatory framework related to both new and existing EE motors in Turkey	Output 1.1: Augmented baseline survey on industrial SME electric motor usage; Output 1.2: Supportive policies for EE electric motors that are harmonized with international best practices;	GEFTF	200,515	4,250,000

¹ Project ID number remains the same as the assigned PIF number.

			Output 1.3: Strengthened institutional coordination mechanism.			
Component 2: Capacity building for relevant stakeholders to promote the benefits of EE motors	TA	Improved capacity of relevant stakeholders to promote the benefits of EE motors	Output 2.1: An established Turkish electric motors manufacturers association (TEMMA); Output 2.2: Technical training workshops on designing and implementing EE motor replacement programmes for SMEs; Output 2.3: Study tour to observe best international practices for EE motor replacement programmes.	GEFTF	189,220	9,650,000
Component 3: Upgraded Turkish Standards Institute (TSI) test laboratory and strengthened monitoring, verification and enforcement	TA	Improved capacity for monitoring, verification and enforcement of motors market transformation	Output 3.1: Completed assessment of Monitoring, Verification and Enforcement (MV&E) needs; Output 3.3: Developed plans for enforcement and market surveillance.	GEFTF	56,890	1,200,000
	Inv		Output 3.2: Upgraded electric motor testing facility	GEFTF	1,200,000	3,000,000
Component 4: One-stop-shop for financial support mechanisms	TA	One-stop shop improves industrial SME access to financing for EE motor investments	Output 4.1: Completed efficient motor assessed potential (EMAP); Output 4.2: Standard motor testing reports and MEEIPs; Output 4.3: Pilot EE motor replacements using "one-stop-shop" financing arrangements; Output 4.4: Scaled up one-stop-shop for replacing inefficient electric motors.	GEFTF	1,343,175	6,250,000
	Inv		Output 4.3: Pilot EE motor replacements using "one-stop-shop" financing arrangements	GEFTF	370,000	0
Component 5: Knowledge	TA	Availability of EE motor information that raises stakeholder	Output 5.1: National EE electric motor database;	GEFTF	211,740	3,270,000

management and M&E		awareness of the benefits of EE motors and sustain market transformation	Output 5.2: Nationwide public awareness raising campaign for EE motors that targets the general public; Output 5.3: EE motors website.			
Subtotal					3,571,540	27,620,000
Project Management Cost (PMC) ²				(select)	178,460	720,000
Total project costs					3,750,000	28,340,000

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount (\$)
GEF Agency	UNDP	Grants	80,000
GEF Agency	UNDP	In-kind	220,000
Recipient Government	MoSIT	Grants	500,000
Recipient Government	MoSIT	In-kind	2,000,000
Recipient Government	TSI	Grants	3,000,000
Recipient Government	TSI	In-kind	350,000
CSO	Ankara Chamber of Industry	In-kind	2,000,000
CSO	Istanbul Chamber of Industry	In-kind	190,000
Private Sector	Motor Manufacturers - Gamak, Arcelik, Volt and Aemot	In-kind	20,000,000
Total Co-financing			28,340,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee ^{a)} (b) ²	Total (c)=a+b
UNDP	GEF TF	Turkey	Climate change	CCM-1 Program 1	3,750,000	356,250	4,106,250
Total Grant Resources					3,750,000	356,250	4,106,250

a) Refer to the Fee Policy for GEF Partner Agencies

² For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS³

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>hectares</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	<i>3,092,263 (direct) and 6,184,526 (indirect) metric tons</i>
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF⁴

A.1. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline projects, 3) the proposed alternative scenario, GEF focal area⁵ strategies, with a brief description of expected outcomes and components of the project, 4) [incremental/additional cost reasoning](#) and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and [co-](#)

³ Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

⁴ For questions A.1 –A.7 in Part II, if there are no changes since PIF, no need to respond, please enter “NA” after the respective question.

⁵ For biodiversity projects, in addition to explaining the project’s consistency with the biodiversity focal area strategy, objectives and programs, please also describe which [Aichi Target\(s\)](#) the project will directly contribute to achieving.

[financing](#); 5) [global environmental benefits](#) (GEFTF) and/or [adaptation benefits](#) (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

1. The growth of GHG emissions in Turkey has been globally one of the highest, increasing from 188 million tonnes CO₂ in 1990 to 459 million tonnes CO₂ in 2013. According to Turkey's INDC, this can be attributed to the 230% increase of Turkey's GDP between 1992 and 2012, a 30% increase in its population since 1990, and annual increases in energy demand of 6 to 7%. According to the Ministry of Energy and Natural Resources (MoENR) of the Government of Turkey (GoT), demand for electricity power has been steadily increasing for the past decade; electricity demand in 2014 was 255.5 TWh, an increase of 3.7% from 2013. Moreover, the electricity growth forecast of Turkish Electric Transmission Company (TEIAS) is an electricity consumption increase of 72% from 2013 to 2023. With limited domestic reserves of fossil fuels, Turkey is highly dependent on energy imports with more than 70% of its energy needs and 60% of its electricity based on fossil fuel consumption.
2. While Turkey was a party to the Kyoto Protocol, it did not have targets due to the fact that it is not in Annex B, and that its national conditions include rapid industrialization and urbanization and a low per capita GHG emission rate. In the successor agreement to the Kyoto Protocol, adopted in Paris in 2015, Turkey's INDC states that the country will adopt GHG emission reduction targets along with all other nations that will include a 21% reduction in GHG emissions from the business-as-usual (BAU) level by 2030 that will enable the country to adopt low carbon development initiatives to limit the increasing global temperatures below 2°C. One of these low carbon development initiatives will be the implementation of the Strategy on Energy Efficiency (SEE), or more specifically, the National Strategy and Energy Efficiency Improvement Action Plan under 10th Development Plan that targets the industrial sector. Another important plan to be implemented under the INDC is to increase energy efficiency in industrial installations and provide financial support to energy efficiency projects.
3. In Turkey, 47% of net electricity consumption is from the industrial sector, with an estimated 70% of this energy consumption from electric motor-driven systems (EMDS), 90% of which use 3-phase squirrel cage asynchronous motors as defined in the EU Eco-design Implementing Measure 640/2009 on electric motors as amended by Implementing Measure 4/2014. Electric motors in Turkey, in general, are not energy efficient. Moreover, it is estimated that electric motors in Turkey vary considerably in efficiencies; for example, there can be a 3-5% difference between the efficiencies of an IE1 and IE3 15 kW motors assuming the IE1 motor has not been rewound. Based on DGP's 2015 motor inventory analysis, industrial IE1 motors are generally rewound 2 to 3 times (likely from old or burnt out wires) at local shops with a loss of 2 to 5% per re-winding, raising the difference of efficiencies between the IE1 and IE3 motors to 5 to 15%. In this case, these motors may consume an amount of energy equivalent to its purchase cost in about 5 to 6 months (assuming an 8-hour daily operation of the motor). 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.
4. 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 Turkey's energy intensity (energy consumption per unit of GDP) by 20% by Year 2023 from the levels of 2011. Promoting EE in Turkey'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. Details of applicable legislation and ongoing government initiatives to encourage EE motor adoption are provided in Annex I on the ProDoc.

5. The developmental challenge for Turkey on this proposed GEF project, is to achieve substantial energy savings in an industrial sector where more than 90% are SMEs⁶. SMEs in Turkey 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. Details of the aforementioned financial products can be found in Annex L in the ProDoc.
6. GoT have had and currently operate support programs to assist SMEs to improve their access to loans at concessional interest rates from banks contracted with KOSGEB⁷, and the involvement of the Credit Guarantee Fund (KGF) that is supported by the Turkish Treasury (KGF provides guarantees up to 80% of the loan amount). Despite these programs, these de-risked credit support schemes have been underutilized by industrial SMEs for the purposes of financing EE motor investments. Primary barriers to the wider adoption of EE electric motors in Turkey include:
- The low level of awareness amongst SME personnel on the benefits of energy efficiency. As a result, there is a lack of importance placed on energy efficiency by most SMEs. Decisions by these personnel on motor investments almost always involves lowest cost options (not life cycle costs)⁸, and optimizing production through minimization of downtime risks;
 - The general lack of liquidity of SMEs to pay up front costs for EE motor investments. Most SMEs do not have available cash for such investments, and are unable to make any down payments on new equipment;
 - SME aversion on the use of external engineers such as ESCOs and equipment suppliers to improve their energy efficiency. Many of these engineers are generally linked to preferred equipment suppliers. As such, general SME perceptions are that these engineers may not offer the best solutions for their operations. In addition, they feel that there are higher risks of operational disruptions if the equipment replacement does not function as designed. Overcoming this barrier will require the development of a trusting relationship between a trusted and independent equipment supplier and the end-user SME; and
 - Inefficient coordination in the implementation of the EE Law that slows the pace of legislative changes. Since the majority of institutional effort to implement the EE Law falls under the responsibilities of MoSIT (who in this instance have oversight of industrial issues and implementing EE), improving the coordination between MoSIT and other line agencies such as MENR is required; this would ensure efficient development and implementation of EE policies, regulations and government supported programs.

A more comprehensive discussion existing barriers to transforming the market and widespread usage of EE motors in the industrial sector in Turkey can be found in Annex M in the ProDoc.

7. The key 5-step strategy for the proposed PEEMS Project to achieving the changes encapsulated in the Project objective of “promoting significant additional investment in industrial energy efficiency in Turkey 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 MoSIT; iv) launching of an operational and sustainable “one-stop-shop” for financing motor replacement programmes under management of Energy Management Units (EMUs) under Organized Industrial Zones (OIZs); 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. Table 1 provides a summary of the changes in this project design with the PIF.

⁶ 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.”

⁷ Small and Medium Enterprises Development Organization of Turkish Republic, a public organization affiliated with MoSIT

⁸ Most industrial SMEs are reluctant to give up their inefficient motors, either selling them for scrap metal or re-wiring them for continued usage in their processes

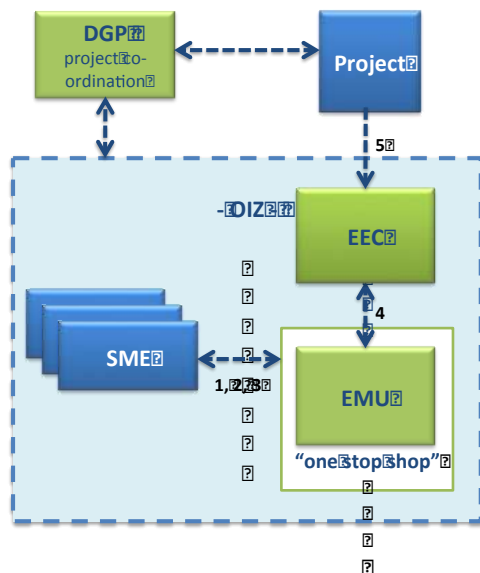
Table 1: Changes in PEEMS Design with PIF

PIF Component	PIF Outcomes	Changes to PIF outcomes in PEEMS Project design
<p>Component 1: Strengthened legislative and regulatory and policy framework for EE motors in Turkey</p>	<p>1.1 Minimum Energy Performance Standards (MEPS) for electric motors developed and adopted in line with EU Directives</p>	<p>No change. This corresponds to Output 1.2: supportive policies for EE electric motors that are harmonized with international best practices</p>
	<p>1.2 Strengthened legislative, regulatory, and policy frameworks for implementation and meeting of Eco-design standards for electric motors</p>	<p>Changes include:</p> <ul style="list-style-type: none"> • Output 1.1: Augmented baseline survey on industrial SME electric motor usage. DGP commenced a national survey in 2015 on electric motor usage that needs to have its sample size increased to increase the confidence level for a national survey that can serve as a basis for setting targets within policies and standards related to EE motor market transformation; • Output 1.2: Supportive policies for EE electric motors that are harmonized with international best practices. This output is designed to identify key electric motor policies and regulations including those for motor replacement programmes, in tandem with DGP efforts to design and implement a recycling program consistent with EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE); • Output 1.3: Strengthened institutional coordination mechanism. This output is designed to streamline coordination of all key stakeholders in the management of an EE motors replacement program that will accelerate the acceptance and adoption of MEPs for EE motors
<p>Component 2: Development of governance and information infrastructure in electric motors industry</p>	<p>2.1 Turkish EE Motors Manufacturers industry Association (TEMMA) created/strengthened and continues to operate effectively after the life-time of the project with sustainable business model which leads to greater awareness about the economic and environmental benefits of EE motors</p>	<p>Due to the imminent establishment of TEMMA, this component name was changed to reflect “<u>capacity building for relevant stakeholders to promote the benefits of EE motors</u>”. As such, assistance to TEMMA is reflected in Output 2.1 to accelerate their establishment as well as their linkages with DGP to maximize cooperation in setting MEPS, amending a MoSIT action plan for EE motors, and using TSI testing facilities for new electric motor designs</p>
	<p>2.2 Creation/Strengthening/Constant Updating of a National EE database for all electric motors in Turkey specifying all performance characteristics to be further enhanced by the EE Motors Manufacturers Association.</p>	<p>Work to be done on the national database as envisaged in the PIF was moved to Component 5 where all knowledge management activities are to be concentrated. This outcome was to be replaced by Output 2.2: Awareness raising seminars and training workshops on designing and implementing EE motor replacement programmes. This output was targeted mainly for smaller EE motor manufacturers, EE consultants, OIZ management and EMU personnel, and industrial SME end-users. This will include technical training workshops on motor recycling programs and facilities that are to be an integral part of the motor replacement program in tandem with DGP efforts to increase the number of accredited motor recycling facilities to assist members of TEMMA to comply with EU directive 2012/19/EU that obligates them to finance facilities and collective schemes for the recycling of inefficient motors that are replaced by IE2 and IE 3 motors.</p>

PIF Component	PIF Outcomes	Changes to PIF outcomes in PEEMS Project design
Component 3: Upgraded Turkish Standards Institute (TSI) test laboratory and strengthened monitoring, verification, and enforcement	<p>3.1 Upgraded Turkish Standards Institute (TSI) Test laboratory able to test for compliance with performance standards for EE motors</p> <p>3.2 Improved structured enforcement and verification program with adequately trained staff for laboratory testing and market surveillance</p>	No changes.
Component 4: One-Stop-Shop Financial Support Mechanism	4.1 At least 8 Energy audits and at least 4 feasibility studies successfully carried out for the four demonstration projects	<p>This outcome was changed to reflect the approaches taken by the Swiss EASY programme and was split into two outputs:</p> <ul style="list-style-type: none"> • Outcome 4.1: Completed efficient motor assessed potential (EMAP). This would replace the “8 energy audits in the PIF” and involve an assessment of the efficiency potential for all motor systems within an estimated 500 SMEs located in 3 to 5 OIZs using an established software tool to estimate the share of electric motors within the total electricity consumption of an SME; • Outcome 4.2: Standard motor testing reports (SMTRs) and motor EE investment plans (MEEIPs). This would replace the four feasibility studies in the PIF and involve on-site measurements of motors within 500 industrial SMEs, and preparation of bankable and MEEIPs that can be used to finance an EE motor replacement program for a participating industrial SME.
	4.2 At least 4 Demonstration Projects that successfully demonstrate the ‘One-Stop-Shop’ Financial Support Mechanism	<p>This outcome is reflected in <u>Output 4.3: Pilot EE motor replacements using one stop shop financing arrangements</u>. This output will provide technical assistance during Years 1 to 3 to an estimated 500 SMEs in implementing their MEEIPs using the one-stop shop financing arrangements that will be managed by the EMU within the OIZs with oversight being provided by DGP with the assistance of the PEEMS Project. Financial support mechanisms to be supported under this pilot scheme will include: a) direct finance to the SMEs; b) OIZ portfolio finance; c) vendor finance; and d) leasing. To catalyze interest in the pilot EE motor replacement program in this output, the Project will fully support motor replacements and variable speed drives for an estimated 12 SMEs over 3 to 5 OIZs during Year 1 for the purposes of demonstrating the benefits of the program. In addition, the Project allocate funds to pay for legal and other third party expenses to assist with further structuring of the financial models, including tailoring the GoT’s Kredit Guarantee Fund (KGF) to the requirements of the demonstration project. More details are provided in Para 26 of the Prodoc under output 4.3. An illustration of the institutional structure of the one-stop shop is provided on Figure 1.</p>

PIF Component	PIF Outcomes	Changes to PIF outcomes in PEEMS Project design
	4.3 Development and Successful Launch of ‘One-Stop-Shop’ Financial Mechanism within KOSGEB to identify, measure, and implement EE motors replacement projects	This outcome is reflected in <u>Output 4.4: Scaled up one-stop shop for replacing inefficient electric motors</u> . The development of the one-stop shop financial mechanism under this output will incorporate lessons learned from the pilot phase under Output 4.3 as well as the pilot interest rate support scheme for EE motor replacements by KOSGEB at the Kayseri OIZs. By Year 3, this scaled up and improved version of the one-stop shop mechanism will be developed, and during Years 3, 4 and 5, the mechanism would be expanded into 18 to 20 more OIZs.
Component 5: Training, Public Awareness, and PR campaign for EE Motors	5.1 Development and delivery of detailed training for test laboratory staff on improved testing procedures	This PIF outcome was subsumed under Output 3.2, and replaced with <u>Output 5.1: National EE electric motor database</u> , which originally came from outcome 2.2 in the PIF. The database was deemed important in the development of the EE motors replacement program under DGP to provide the institution with the tools to monitor motor market transformation, evaluate market transformation progress, and to set revised targets and policies.
	5.2 Raising awareness of electric motor manufacturers and industrial companies of the financial and environmental benefits of using EE motors	This PIF outcome has been subsumed under output 2.2 and replaced with <u>Output 5.2: Nationwide public awareness raising campaign for EE motors that targets the general public</u> that actually addresses PIF Outcome 5.3.
	5.3 Comprehensive nationwide PR and awareness campaign on EE Motors	This PIF outcome is Output 5.2, and is replaced with <u>Output 5.3: EE motors website</u> .
	5.4 Project Website	This PIF outcome is Output 5.3, and is replaced by Output 5.4: Midterm Review and Terminal Evaluation.

Figure 1: One-Stop Shop Institutional Structure



8. There are a number of baseline conditions that serve as drivers of change on which the Project can provide incremental assistance to augment the capacities or efforts of ongoing initiatives to achieve the Project objective:

- the GoT’s commitment to improve the competitiveness of Turkish industries through alignment with EU standards as reflected in their Energy Efficiency Law in 2007, the adoption of Turkey’s Energy Efficiency Strategy 2012 – 2023, and implementation of an “Energy Efficiency Improvement Program” Action Plan that was developed as a part of the 10th Development Plan (2014 – 2018). Details of the Strategy and other relevant EE legislation are provided in Annex I of the ProDoc;
- a small group of locally-based electric motor manufacturers who have knowledge of EU eco-design standards for motors to advance the Government’s EE agenda to meet national targets, and which EE standards can be applied in Turkey. The issue for these manufacturers are the poor sales of IE2 and IE3 motors in Turkey that indicate low compliance to the Government’s EE agenda;
- local energy experts with knowledge on planning and implementing motor replacement programmes. The relationship of these experts with industrial SMEs,

however, needs to be improved. Industrial SME perceptions of these experts is that they are linked with local motor manufacturers or multi-national companies, and as a result, are unable to provide impartial advice on equipment to be purchased in a motor replacement program; and

- the global industrial sector (including the global electric motor industry) that would force the Turkish industrial sector to further address energy efficiency as a means of maintaining its competitiveness in global markets.
9. By the end of project (EOP), there will still be key external drivers to exert a positive influence on the Project outcomes and the Project goal of reduced GHG emissions from the industrial sector of Turkey. This would include the improved energy efficiencies of the motors used in industrial SMEs, and continued Government support to encourage the use of EE motors that will support Turkey's INDC plan and policy to reduce industrial emission intensities and support energy efficiency. By the EOP, Project outputs will serve as internal drivers towards market transformation including adoption of upcoming EU eco-design measures for motors, increased availability of information on best international practices for energy efficiency, and increased awareness amongst end users and policy makers on the benefits of EE motors. These internal drivers are based on the experiences gathered in implementing a target investment of USD 47.92 million into EE motor replacements (equivalent to 37,861 EE motors of 42.5 kW equivalent) during the course of the PEEMS Project.
 10. A strength of the Project strategy will be the involvement of stakeholders that are key to market transformation of the motors market in the industrial sector of Turkey. Key stakeholders in this group includes 3 General Directorates under MoSIT, the Turkish Standards Institute, KOSGEB, the Kredit Guarantee Fund, electric motor manufacturers, OIZs, and energy efficiency consultants. Their involvement on the Project is further elaborated in Section A.3, as well as in the ProDoc in Section O.4 under Project Approach in Annex O.
 11. The key change that will be provided by the Project activities will be the creation of an enabling environment for market transformation for EE motors for the Turkish industrial sector. With the aforementioned 5-step strategy outlined in Para 7, the key change that the Project will facilitate will be the willingness of industrial SMEs to replace their existing inefficient motors with EE motors. The growth of the EE motors market from the PEEMS Project is illustrated numerically in Table 2. The innovation of the PEEMS Project design is to involve energy management units (EMUs) within OIZs and strengthen their existing and trusting relationship with industrial SMEs. The Project's capacity building activities and technical assistance will improve the technical knowledge of EMUs to promote and implement EE replacement programmes. The Project will also support the recruitment of qualified EE consultants who can provide the engineering expertise required to prepare an impartial motor energy efficiency investment program (MEEIP) for each industrial SME. The MEEIP will inform the industrial SME of which motors should be replaced, the cost and the payback period based on electricity savings.
 12. To overcome SME difficulties in obtaining access to finance, the Project will provide resources to develop a "pilot one-stop-shop" (to be managed by energy management units (EMUs) within OIZs) for industrial SMEs to identify the potential for EE motor replacements, design a replacement plan for EE motors and improve SME access to available financial products as well as new ones to be introduced by the Project. This will allow industrial SMEs to receive impartial technical advice through the EMU (a more trusted entity), and access to financing for an EE motor investment program with the knowledge that their investment can be paid back within a reasonable amount of time of under 2 years. The financial support mechanism will include the following options: a) direct finance to the SMEs; b) OIZ portfolio finance; c) vendor finance; and d) leasing. Under each of the financing options a) b) and c), the project funds shall be used as a guarantee to support up to a maximum 20% of the total project cost. Project budget is allocated to pay for legal and other third party expenses to assist with further design of the financial model(s).

Table 2: Growth of EE Motors Market from Project

Descriptor	2016	2017	2018	2019	2020	2021
Total number of electric motors on market	17,000,000 ⁹	18,020,000	19,101,200	20,247,272	21,462,108	22,749,835
Assumed growth rate of electric motors market (%)	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
% motors that are EE motors (IE2 with VSD or better)	28.00% ¹⁰	28.52%	29.00%	29.46%	29.89%	30.30%
Assumed baseline growth rate of EE motors (%)		2.1% ¹¹	2.1%	2.1%	2.1%	2.1%
Number of EE motors operating in industrial SMEs	4,760,000	5,138,420	5,539,545	5,964,738	6,415,442	6,893,189
Number of EE motors added		378,420	401,125	425,193	450,704	477,747
Local manufacturing capacity for EE motors	1,700,000 ¹²	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000
Number of EE motors installed by Project each year	0	1,572	3,144	13,145	10,000	10,000
Number of EE motors operating in industrial SMEs (project)		5,139,992	5,542,689	5,977,883	6,425,442	6,903,189
% EE motors that are EE motors (IE2 with VSD or better) with project		28.52%	29.02%	29.52%	29.94%	30.34%
% increase of EE motors from Project		0.01%	0.02%	0.06%	0.05%	0.04%
Estimated annual GHG reductions from Project (tonnes CO ₂ eq) ¹³		16,091	48,268	182,801	285,146	387,491

13. All these options will involve use of Project resources for the de-risking of SME financing through the involvement of loan guarantee funds (where the project will aim to guarantee up to 20% of the total project cost to complement the Credit Guarantee Fund) that currently exist to protect borrowers of bank funds including motor manufacturers, leasing companies, OIZs and industrial SMEs. The risk of SMEs defaulting on their monthly payment is too restrictive for banks, OIZ, motor manufacturers or leasing companies. To make these finance structures less risky, a guarantee will need to be provided, which will pay out when an SME defaults on a payment, possibly from the Credit Guarantee Fund (KGF). This fund is providing 80% guarantees to support SME finance. However, for a demonstration under the PEEMS Project, a guarantee that is tailored to the required needs of all stakeholders involved, such as a 20% guarantee for a full demonstration (instead of specific guarantees that would be unique for each case). By adding the 20% guarantee to a specific demonstration project and linking it to the Credit Guarantee Fund Guarantee, the overall guarantee then becomes 100%. In all cases, the SMEs would pay a fixed monthly fee for the use of the electric motors and the installation of the equipment. This fixed fee would be based on estimated electricity cost savings, whereby the fee should be lower than the estimated cost savings with a longer tenure than the payback period. This would allow the SME to benefit from the motor replacements. To further enhance the attractiveness of the scheme as a demonstration, the OIZ (with the assistance of their EMUs) will take central role in awareness creation amongst SMEs in the zone. A campaign will be organised with support from the Project. These financial support mechanisms are further explained in the ProDoc in Annex P, Paras P.31-P.36 and illustrated on Flowcharts 2 to

⁹ Estimate courtesy of ProMotE Araştırma ve Teknoloji Geliştirme A.Ş.

¹⁰ Based on 2015 DGP Motor Inventory Survey

¹¹ Ibid 8.

¹² Ibid 8.

¹³ Detailed GHG calculation is provided in Annex D.

14. The UNDP-GEF PEEMS Project design is innovative in the fact that the design provides more involvement of the EMU, a trusted entity of most industrial SMEs. Prior projects and existing financial products (as detailed in the ProDoc in Paras O.27 to O.35 in Annex O) have not taken advantage of this relationship, leaving the industrial SME to voluntarily undertake EE motor investments provided they are able to meet collateral and liquidity requirements of the lenders. For the SME, financial products for energy efficiency investments are available from a number of sources including KOSGEB, state development banks as well as private commercial banks all of whom have a number of credit lines, which can be used for the finance of EE motor investments. However, industrial SMEs who already have limited knowledge of the benefits of EE motors, are not highly motivated to initiate these investments given that they need to make the voluntary effort to access one of these credit lines. Additional difficulties for industrial SMEs includes qualifying for loan guarantees that can potentially reduce collateral requirements for these loans; loan guarantees from the KGF cover 80%. Furthermore, the administrative paperwork required to access these loan guarantees has been deemed onerous by many of the applicants. To date, there has not been significant uptake of these financial products for financing EE motor investments to the extent that the market is transformed. The strengthening of the industrial SME-EMU relationship to promote EE motor investments and the involvement of the credit loan guarantee funds increases the likelihood of an industrial SME implementing an MEEP.

A.2. *Child Project?* If this is a child project under a program, describe how the components contribute to the overall program impact.

N/A

A.3. *Stakeholders.* Identify key stakeholders and elaborate on how the key stakeholders engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes ✓ /no)? and indigenous peoples (yes /no ✓)? ¹⁴

15. The key stakeholder of the PEEMS Project is the Ministry of Science, Industry and Technology (MoSIT). Their engagement on the project is channeled through three of their Directorate Generals engaged: a) Directorate General of Productivity (DGP) who will serve as the national implementing agency and assume the overall responsibility for the achievement of Project results; b) the Directorate General of Industry who are currently and will be formulating and strengthening EE motor policies and standards in harmony with EU eco-design directives; and c) the Directorate General of Safety and Inspection of Industrial Products (DGSIIP) who are currently implementing a proactive market surveillance program (PMSP) for 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).
16. In addition, there are number of other stakeholders that will be involved in the implementation of the PEEMS Project including i) the Ministry of Environment and Urbanization (MoEU) who currently serve as the authorizing body for the approval of motor recycling facilities; the Project will provide incremental assistance to MoEU efforts to bring motor recycling efforts in Turkey in line with international best practices; ii) the Ministry of Energy and Natural Resources (MoENR) who prepare EE legislation, authorisation of ESCO (EVD) on EE and control of sanctions in the EE legislation; the Project can work with MoENR to accelerate the setting of MEPS for electric motors that are in line with EU directives; iii) the Turkish Standards Institute in developing a more comprehensive motors testing facility; iv) civil society organizations that includes the Chambers of Industry in Ankara and Istanbul in raising awareness and technical knowledge of industrial SMEs on energy efficiency; v) motor manufacturers; vi) energy efficiency consultants to provide technical assistance to OIZs and their industrial SME tenants, and vii) financial institutions who will be providing credit and loan

¹⁴ As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.

guarantee facilities for industrial SMEs seeking finance for their motor energy efficiency investment plans (MEEIPs).

A.4. *Gender Equality and Women's Empowerment.* Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes /no)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes /no)?; and 3) what is the share of women and men direct beneficiaries (women 50%, men 50%)? ¹⁵

17. With the primary objective of the PEEMS Project involving the promotion of energy efficient motors to industrial SMEs, the Project will be gender responsive. Public awareness raising and training activities will be designed to encourage participation of women notably in the criteria for selection of OIZs and SMEs for implementation of demo 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 will be conducted to identify barriers and differentiate roles that may be more suited to each gender. Gender-disaggregated data will also be obtained through surveys and socioeconomic monitoring to identify potential project impacts on each gender. The 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.

A.5 *Risk.* Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Risk Description	Type	Impact & Probability ¹⁶	Mitigation Measures
Industrial SME owners of inefficient motors may not want to purchase new or IE 2 or IE 3 motors due to insufficient incentives provided by the financial support system	Financial	P = 2 I = 4 Moderate risk	Mitigation of this risk will include information dissemination and promotion to ensure industrial SMEs understand the lifecycle benefits of EE motors, notably from an energy and cost savings perspective. The Project will also develop tailored financial assistance packages that will make the payback periods attractive to the SMEs as well as other measures that include a 20% loan guarantee provided by the project combined with the 80% loan guarantee of the Credit Guarantee Fund and assistance to streamline the application process for loans and loan guarantees.
One stop shop financial support mechanism does not properly function	Organizational	P = 3 I = 3 Moderate risk	Mitigation of this risk will be achieved through the pilot testing of the one-stop shop financial support mechanism to be managed by the OIZs and their EMUs during Years 1 and 2. Once the mechanism has been demonstrated successfully, efforts will be made by the Project in Year 3 to incorporate lessons learned for the scaled up mechanism to increase the number of EE motor investments within selected OIZs.
Lack of longer-term incremental investment capital and access to finance	Financial	P = 2 I = 3 Moderate risk	The Project will mitigate this risk by strengthening the Government's knowledge of the motors market and its ability to set firm targets form EE motor replacements as well as to set financial requirements to implement these replacements. In addition, the Project will also have developed a one-stop shop financial support mechanism which facilitate improved access for industrial SMEs to financing for EE motor investments.

¹⁵ Same as footnote 8 above.

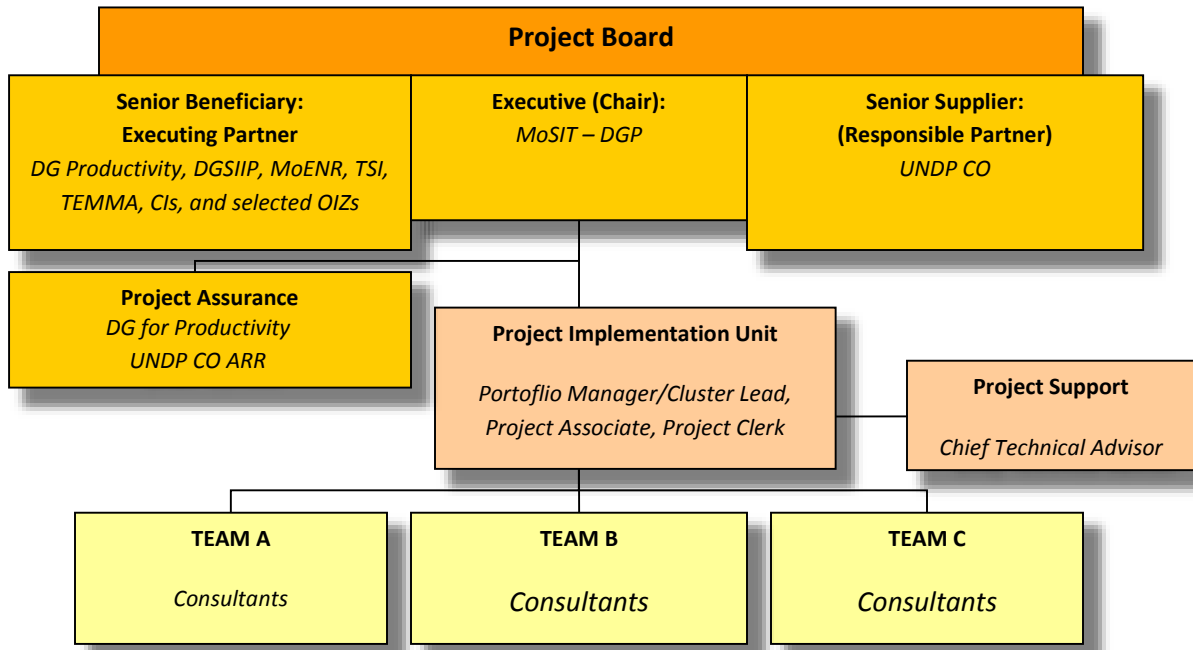
¹⁶ P= probability, and I=Impact, both rated on a scale from 1 (low) to 5 (high)

Risk Description	Type	Impact & Probability ¹⁶	Mitigation Measures
Financial institutions and banks unwilling to make loans available to OIZs and SMEs	Financial	P = 2 I = 4 Moderate risk	Mitigation of this risk will be achieved through piloting of the one-stop shop financial mechanism, and providing initial funds to a guarantee facility, all of which will be tailored to ensure the coverage of all risks to financial institutions and banks making these loans. Successful piloting of this mechanism should instill confidence in other financial institutions in providing loans to OIZs and SMEs.
Entry of noncompliant motors to eco-design standards into the industrial sector	Regulatory	P = 2 I = 3 Moderate risk	This risk will be mitigated through Project activities that strengthen the government's enforcement of its standards through proactive market surveillance, improved equipment testing capacities, and the training of staff to enforce standards.
Climate change	Environmental	P = 1 I = 2 Low risk	Though climate risks are low in the context of the PEEMS Project, extreme climatic events may disrupt Turkey's power supply and energy security from hydro, wind and solar sources. This may cause potential disruptions to manufacturing outputs that use electric motors. Since the Project's objective is to reduce electricity demand from motors in the industrial sector, the impact of the Project's activities to increase the use of EE motors in the industrial sector is the reduction of the country's demand for electricity, reduction in the use of fossil fuels for electricity generation and a reduced risk of climate change impacts.

A.6. Institutional Arrangement and Coordination. Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

18. The PEEMS Project will be implemented following UNDP's national implementation modality (NIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of Turkey, and the Country Program Action Plan (CPAP). The Implementing Partner for this Project is the Ministry of Science Industry and Technology (MoSIT). 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.
19. The project will be executed by the MoSIT under the overall responsibility of the General Directorate for Productivity (GDP) over a five-year time period. Direct day-to-day oversight of the project will be ensured by the GDP.
20. The UNDP will support and monitor the project's implementation and achievement of the project outputs, and ensure the proper use of UNDP/GEF funds. The UNDP Country Office (CO) will be responsible for: (i) providing financial and audit services to the project; (ii) recruitment and contracting of project staff; (iii) overseeing financial expenditures against project budgets; (iv) appointment of independent financial auditors and evaluators; and (v) ensuring that all activities, including procurement and financial services, are carried out in strict compliance with UNDP/GEF procedures. The project organization structure will consist of a Project Board, Project Assurance and a Project Implementation Unit (PIU) as illustrated in Figure 2.

Figure 2: PEEMS Project Organization Structure



21. The Project Board (also called Project Steering Committee) will be responsible for making management decisions for the project, in particular when guidance is required by the Project Manager. It will play a critical role in project monitoring and evaluations by assuring the quality of these processes and associated products, and by using evaluations for improving performance, accountability and learning. The Project Board will ensure that required resources are committed. It will also arbitrate on any conflicts within the project and negotiate solutions to any problems with external bodies. In addition, it will approve any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans and also approve any essential deviations from the original plans. In order to ensure UNDP’s ultimate accountability for project results, Project Board decisions will be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. Members of the Project Board will consist of key national governmental and non-governmental agencies, UNDP, and Project Partners as well as appropriate local level representatives. Representatives of other stakeholder groups may also be included in the Project Board as considered appropriate and necessary.

22. The Project Board will contain three distinct roles:

- Senior Executive (Chairman of Project Board) – MoSIT – DG for Productivity: The Senior Executive is ultimately responsible for the project, supported by the Senior Beneficiary and Senior Supplier. This role requires representing the interests of the Ministry of Science Industry and Technology (MoSIT) who will ultimately benefit from the project. The Senior Executive’s primary function within the Board will be to ensure that the project is focused throughout its life cycle on achieving its objectives and delivering outputs that will contribute to higher level outcomes. The Senior Executive has to ensure that the project gives value for money, ensuring a cost-conscious approach to the project, balancing the demands of beneficiary and supplier;
- Senior Beneficiary (Executing Partner) – DG for Productivity: The Senior Beneficiary is responsible for validating the needs and for monitoring that the solution will meet those needs within the constraints of the project. The role represents the interests of all those who will benefit from the project, or those for whom the deliverables resulting from activities will achieve specific output targets. The Senior Beneficiary role

monitors progress against targets and quality criteria. The DG for Productivity will appoint a senior official to this role;

- Senior Supplier (Implementing Partner) – UNDP: The Senior Supplier represents the interests of the parties which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The Senior Supplier’s primary function within the Board will be to provide guidance regarding the technical feasibility of the project. This role will rest with UNDP-Turkey represented by the Resident Representative.

23. The Project assurance role will be 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. Project Assurance has to be independent of the Project Manager; therefore, the Project Board cannot delegate any of its assurance responsibilities to the Project Manager. The Project Assurance role will rest with combination of several positions.
24. The Project Implementation Unit consisting of ISG Portfolio Manager/Cluster Lead, Project Associate and Project Clerk will run the project on a day-to-day basis on behalf of the Implementing Partner in line with the decisions taken by the Board. The Project Implementation Unit’s function will end when the final project terminal evaluation report, and other documentation required by the GEF and UNDP, has been completed and submitted to UNDP (including operational closure of the project).
25. Governance role for Project target groups: Project target groups will include OIZs and their Energy Management Units or EMUs. In the governance of the PEEMS Project, they will be represented on the Project Board by designated senior personnel from OIZs that are undertaking demonstration projects with the “one-stop-shop” as well as representatives from their respective Chambers of Industry. Their presence on the Project Board is important to convey the progress of the one-stop shop and its impact on the level of EE motor investments within their OIZs, and to share lessons learned and other attendant issues that hinder progress of the intended market transformation objectives of the Project.
26. The PEEMS Project will also be coordinated with the ongoing UNDP-UNIDO GEF project entitled “Improving Energy Efficiency in Industry (IEEI)” that is being executed by Directorate General of Renewable Energy (DGRE) under the Ministry of Energy and Natural Resources (MoNRE) that aims to improve energy efficiency of Turkish industry by enabling and encouraging companies in the industrial sector to implement various energy efficiency techniques and system optimization. Even though the IEEI project is not specifically focused on the replacement of electric motors but on enhancing overall energy efficiency of the plants, there are numerous overlapping activities. As an Energy Management Systems (EnMS) approach basically requires prioritization of “low hanging fruits” for implementation, electric motor replacements are viewed by energy experts as investments with high rates of return. Initial findings of the audit reports mostly include the proposals on more efficient motor replacements. The importance of the topic has been and will be underlined through the produced technical materials and EnMS trainings. This will also involve the improvement of the readiness of EECs and selected OIZs to implement electric motor replacements. Last but not the least, the developed products and completed studies for financial mechanisms in the IEEI project may be used in the support mechanisms that will be designed for electric motors.
27. The PEEMS Project will also collaborate with a proposed GEF project entitled “Leapfrogging Markets to High Efficiency Products” (GEF Program ID 9083) under UNEP. This Global Leapfrogging project” which will utilize resources from the SE4ALL Global Project is designed to increase the number of countries committed to advancing energy efficiency products through country assessments. Possible collaborative efforts between these projects may include a national assessment to estimate country savings from EE motor market transformation (complements Output 1.1), support for policy guides for EU directives specifically for motors (complements Output 1.2), and support for study tours (complements Output 2.3).

28. The PEEMS Project will coordinate collaborations with the European Bank for Reconstruction and Development (EBRD) supported Turkey Private Sector Sustainable Energy Finance Facility or TURSeFF. TURSeFF is a credit line that provides commercial loans, at their own risk, to borrowers with eligible investment opportunities which includes load matching variable speed motor controls. Currently funds available for financing are estimated to be USD 265 million under which one of the eligible types of financing is vendor finance; this would allow a manufacturer (in the context of the PEEMS Project, a motor manufacturer), to borrow money from one of the banks to provide finance for the sale of their equipment. The end-user would pay for the equipment with a monthly annuity payment covering interest and principal repayments until the loan is fully paid off. With SME access to these credit lines being voluntary and approved by commercial banks on a case-by-case basis, SMEs have not accessed these credit lines for motor replacements. With the de-risking measures being set up by the PEEMS Project, there would be an increased likelihood of SME utility of these credit lines for motor replacements.
29. The PEEMS project will be borrowing approaches from the ongoing UNDP GEF Orkoy Solar PV Project where early adopters of solar PV technology would be eligible for close to 100% financing from GEF in return for allowing the Project to be used for awareness raising purposes. Such an activity (under Output 4.3) would certainly attract industrial SMEs to come forward and participate on the PEEMS Project to demonstrate the energy savings and operations cost reductions from the EE motors.
30. Finally, coordination of the project partnerships will be undertaken by the executing partner of the Project, DGP. Formalization of partnerships between the PEEMS Project and other projects will be done through the Project Board. In support of the TE, the Project Implementation Unit (PIU) will 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.
31. UNDP Direct Project Services as requested by Government: The project is to be managed on the 100% Country Office Cost Recovery basis, upon request of the government, the implementing partner. The estimated cost includes: (i) recruitment and payroll management of project staff; (ii) purchase of goods and equipment as requested; and (iii) hiring of consultants. In accordance with GEF Council requirements, the costs of these services will be part of the executing entity’s Project Management Cost allocation identified in the project budget. DPC costs would be charged at the end of each year based on the UNDP Universal Pricelist (UPL) or the actual corresponding service cost. The amounts here are estimations based on the services preliminarily indicated, however as part of annual project operational planning the DPC to be requested during the calendar year would be defined and the amount included in the yearly project management budgets and would be charged based on actual services provided at the end of that year.

Additional Information not well elaborated at PIF Stage:

A.7 Benefits. Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCE/SCCF)?

32. The expected global environmental benefits (GEBs) from the PEEMS Project can be summarized as follows: direct lifetime GHG emission reductions are estimated to be 3,092,263 tonnes CO_{2eq} over the 7-year lifetime of the EE motors expected to be installed by the Project over its 5-year duration. Indirect lifetime emission reductions are estimated to be 6 million tonnes CO_{2eq}.

33. The GEBs generated by the PEEMS Project will provide a number of positive socio-economic benefits from its implementation including:
- at a local level, reduced operational costs for industrial SMEs that would improve the financial situation of industrial SMEs, increase the employment security of personnel within these enterprises, and reinforce the human right to work and protect against unemployment;
 - at a national level, reduced dependence on fossil fuel power generation that would improve the country's balance of payments for imported fossil fuels;
 - at a national level, contributing to climate change mitigation through reduced use of fossil fuel consumption for generating electricity for electric motors that will reduce GHG emission intensity from the industrial sector.

A.8 Knowledge Management. Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

34. The knowledge management approach of the PEEMS Project 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 knowledge management activities will be the increased availability of EE motor information that raises stakeholder awareness of the benefits of EE motors and sustains market transformation. In particular, the importance of disseminating the lessons learned during the pilot of the one-stop shop mechanism in Output 4.3 cannot be overstated; these lessons will be used to redesign the one-stop shop mechanism in Output 4.4 and scale up the market transformation of EE motors within a greater number of OIZs in Turkey. In summary, lessons learned from the pilot phase of the one-stop shop plus information generated from the National EE motors database (Output 5.1), and the EE motors website (Output 5.3) will be set up by the Project to create increased availability of EE motors information, and to increase the confidence of OIZs and industrial SMEs to make investments and implement motor energy efficiency investment plans (MEEIPs).

B. Description of the consistency of the project with:

B.1 Consistency with National Priorities. Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:

35. The Project is consistent with Turkey's 2015 INDC to increase energy efficiency in industrial installations and provide financial support to energy efficiency projects¹⁷. To implement these commitments, the Government of Turkey already has in place commitments to improve the competitiveness of Turkish industries through alignment with EU standards as reflected in their Energy Efficiency Law in 2007, Energy Efficiency Strategy 2012 – 2023, and “Energy Efficiency Improvement Program” Action Plan that was developed as a part of the 10th Development Plan (2014 – 2018). Details of the Strategy and other relevant EE legislation are provided in Annex I of the ProDoc.

C. DESCRIBE THE BUDGETED M & E PLAN:

36. This can be found on Table 1.

¹⁷ http://www4.unfccc.int/submissions/INDC/Published%20Documents/Turkey/1/The_INDC_of_TURKEY_v.15.19.30.pdf

Table 1: Mandatory GEF M&E Requirements and M&E Budget

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ¹⁸ (US\$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP CO	USD 10,000	None	Within two months of project document signature
Inception Report	PIU	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP CO	None	None	Quarterly, annually
Monitoring of indicators in project results framework	PIU	Per year: USD 4,000 x 5 yrs = USD 20,000		Annually
GEF Project Implementation Report (PIR)	PIU, UNDP CO and UNDP-GEF team	None	None	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	Per year: USD 3,000 x 5 yrs = USD 15,000		Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation	PIU	15,000		Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	PIU UNDP CO	None		On-going
Addressing environmental and social grievances	PIU, UNDP CO-BPPS as needed	None		
Project Board meetings	Project Board, PIU and UNDP CO	None		At minimum annually
Supervision missions	UNDP CO	None ¹⁹		Annually
Oversight missions	UNDP-GEF team	None ¹⁹		Troubleshooting as needed
Knowledge management as outlined in Outcome 5	PIU	37,500 (1% of GEF grant)		On-going
GEF Secretariat learning missions/site visits	UNDP CO, PIU and UNDP-GEF team	None		To be determined.
Mid-term GEF Tracking Tool to be updated	PIU	USD 2,500	None	Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP CO, Project Team and UNDP-GEF team	USD 24,000	None	Between 2 nd and 3 rd PIR.
Terminal GEF Tracking Tool to be updated	PIU	USD 10,000	None	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP CO, Project team and UNDP-GEF team	USD 39,000	None	At least three months before operational closure
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		USD 173,000		


¹⁸ Excluding project team staff time and UNDP staff time and travel expenses.

¹⁹ The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies²⁰ and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Adriana Dinu UNDP-GEF Executive Coordinator		3 November, 2016	John O'Brien, RTS- EITT	+905382212189	John.obrien@undp.org

²⁰ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF
GEF6 CEO Endorsement /Approval Template-Dec2015

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Complete project result framework can be found in PROJECT RESULT FRAMEWORK Section of the Project Document on pages 26-30.

	Objective and Outcome Indicators	Baseline ²¹	Mid-term Target ²²	End of Project Target ²³	Assumptions
Project Objective: 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.	Lifetime direct project CO ₂ emission reductions from the replacement of inefficient motors with IE2 (with VSD) and IE3 motors by end-of-project (EOP), ktonnes CO ₂	0	372 ²⁴	3,092 ²⁵	<ul style="list-style-type: none"> ▪ Economic growth in the country will continue ▪ Government support for industrial energy efficiency and energy efficient motors will not change ▪ Targets will be verified through: <ul style="list-style-type: none"> ○ Project final report as well as annual surveys of energy savings from EE motor installations on demo projects ○ Reports developed by OIZs energy management units on adoption of EE motors within SMEs ▪ Willingness of SMEs to give their motors to a recycling centre
	MWh of annual reduced electricity consumption in Turkey through the installation and use of EE motors installed during the Project by EOP	0	302,160	640,499	
	% of SMEs with firm plans to procure and install EE motors by using the financial mechanism developed by the Project by EOP	>0.1%	1	5	
	Cumulative number of phased out inefficient electric motors taken into a recycling program by EOP	0 ²⁶	2,000	5,000	
Outcome 1: Strengthened legislative and regulatory framework related to both new and existing EE motors in Turkey	Number of completed national surveys on motors in the industrial sector in Turkey by Year 1	0	1 ²⁷	1	<ul style="list-style-type: none"> • Target would be verified through the completion of a national survey on current motor usage in the SME industrial sector in Turkey
	Number of Turkish policies, regulations and standards applicable to motors harmonized with EU Eco-design standards by Year 1	0	1 ²⁸	2 ²⁹	<ul style="list-style-type: none"> • Documentation and resolutions passed during technical working group meetings on EE motor policies, regulations and standards

²¹ Baseline, mid-term and end of project levels must be expressed in the same neutral unit of analysis as the corresponding indicator.

²² Expected level of progress by completion of 2nd GEF PIR

²³ Expected level when terminal evaluation undertaken

²⁴ Assumes replacement of 17,861 inefficient (average 42.5 kW) motors by the mid-point of the Project with IE3 motors or IE2 with VSD and a lifetime of 20 years for the investment

²⁵ Assumes replacement of 37,861 inefficient (average 42.5 kW) motors over a 5-year period of the Project with IE3 motors and a lifetime of 20 years for the investment

²⁶ There are no known motor recycling centres at the time of writing of this report.

²⁷ The survey will include an estimate of the number of motors being used in the industrial sector, their energy consumption and the potential for energy savings from the installation of EE motors.

²⁸ Well elaborated MV&E strategy is in placed for eco-design market surveillance for electric motors and updated eco-design regulations.

²⁹ In addition to the well-elaborated MV&E strategy, the Project will also update the eco-design regulation for electric motors and motor-driven ErPs
GEF6 CEO Endorsement /Approval Template-Dec2015

	Objective and Outcome Indicators	Baseline ²¹	Mid-term Target ²²	End of Project Target ²³	Assumptions
					that are harmonized with EU directives
	Cumulative number of phased out inefficient electric motors taken into a recycling program by EOP	0 ³⁰	2,000	5,000	<ul style="list-style-type: none"> Willingness of SMEs to give their motors to a recycling centre
	Number of government officers who are involved with implementing policies and measures for EE motor replacement programmes by EOP	0	10	10	<ul style="list-style-type: none"> Officers involved with motor replacement programmes are not moved to another portfolio in the latter stages of the Project
Outcome 2: Improved capacity of relevant stakeholders to promote the benefits of EE motors	Number of electric motor manufacturers registered and engaged with promotional activities with an established national motor manufacturer association by EOP	0	3 ³¹	6	<ul style="list-style-type: none"> Consensus between competing motor manufacturers has been reached to establish a Turkish Electric Motor Manufacturer Association (TEMMA) Target would be verified through the completion and acceptance by all members of a Charter of TEMMA
	Number of attendees at 20 technical training sessions on EE motors that are targeted for manufacturers and end-users by EOP	0	250	1,000	<ul style="list-style-type: none"> Government continues its strong support for the promotion of motors in industry Target would be verified through documentation on training sessions for motor manufacturers and end-that includes participant feedback
Outcome 3: Improved capacity for monitoring, verification and enforcement of motors market transformation	Number of TSI personnel who are testing compliance with new EE motor eco-design standards by EOP	0	5	5	<ul style="list-style-type: none"> Risk that clarity on EU directives on the types of EE motors that comply with new Turkish EE motor standards to enhance market surveillance activities will not be obtained before EOP Targets will be verified through: <ul style="list-style-type: none"> Reports on training curricula and feedback from the participants; Established Motor Testing Centre for 90 to 375 kW motors; Motor testing reports.
	Number of DGSIIP personnel who are involved in PMSP for EE motors compliance in industrial SMEs by EOP	0	25	50	
	Annual number of motors sent for testing at upgraded TSI motor testing facilities by EOP	0	10	250	

³⁰ There are no known motor recycling centres at the time of writing of this report.

³¹ This would include the main motor manufacturers in Turkey: Arcelik, Gamak, Wat Motor, Volt Motor and Aemot
GEF6 CEO Endorsement /Approval Template-Dec2015

	Objective and Outcome Indicators	Baseline ²¹	Mid-term Target ²²	End of Project Target ²³	Assumptions
Outcome 4: One-stop shop improves industrial SME access to financing for EE motor investments	Number of motor energy efficiency investment plans (MEEIPs) for industrial SMEs in OIZs by Year 2 and EOP	0	500 ³²	2,408 ³³	<ul style="list-style-type: none"> • Acceptance by industrial SMEs for technical assistance from appointed ESCOs working with OIZ EMUs • Signed agreements on leased EE motors between industrial SMEs, OIZ utilities and EMUs housed within OIZs by Year 1; • Target verified by the participant banks annual reports; • EMUs have absorptive capacity for training on the management of motor replacement programmes with SMEs; • Targets will be verified through: <ul style="list-style-type: none"> ○ Completed assessments of motor efficiency potential and SMTRs for industrial SMEs³⁴ ○ Reports on energy savings within industrial SMEs ○ OIZ monitoring reports on actual investments through the one-stop shop facility
	Cumulative USD investments through an established “one-stop-shop” FSM by EOP	0	22.72 million ³⁵	47.92 million ³⁶	
	% of SMEs where MEEIP investment is paid back in less than 24 months	0	75	90	<ul style="list-style-type: none"> • Assumption: OIZs and SMEs comply to conditions for PEEMS Project support that includes allowing the PEEMS Project to monitor their progress and energy savings for the purposes of disseminating pilot project information to other OIZs and SMEs.

³² For calculation purposes for this Project, the assumption is made that there is an average of 15.72 motors per MEEIP with each motor being 42.5 kW in size with an average cost of TL 3,600 (or USD 1,272) for each SME. Each MEEIP was assumed to have an average investment proposal of USD 20,000/SME. Under PEEMS, 100 SMEs would have 100 MEEIPs fully supported by the Project in Year 1, 200 SMEs would have 200 MEEIPs with 50% support in Year 2 for a total of 500 at the mid-point of the Project

³³ In addition to the mid-term target of 500 MEEIPs, there will be another 3x636 MEEIPs for Year 3, Year 4 and Year 5 under the “scaled-up” one-stop shop under Output 4.4.

³⁴ These will be closely aligned with efforts to improve energy audits of industrial SMEs within the sister GEF project “Improving Energy Efficiency in Industry”, a Project that focuses on a suite of energy efficiency and conservation measures for larger industries.

³⁵ Corresponds to the procurement of 17,861 EE motors (42.5 kW average size) with an average price of USD 1,272 per EE motor.

³⁶ The success of this demonstration will lead to 1,572, 3,144 and 3,144 EE motors during Years 1, 2 and 3 respectively followed by 10,000 EE motors during Years 3, 4 or 5 for the scaled-up portion of the Project. This should lead into the target of 37,860 EE motors installed by the EOP.

	Objective and Outcome Indicators	Baseline ²¹	Mid-term Target ²²	End of Project Target ²³	Assumptions
	Number of financial institutions involved with inefficient motor replacement programmes by EOP	0	3 ³⁷	6 ³⁸ financial institutions	<ul style="list-style-type: none"> Assumption: Participation of the guarantee facility. With no guarantee facility, the risk of other financial institutions not participating is not guaranteed.
Outcome 5: Availability of EE motor information that raises stakeholder awareness of the benefits of EE motors and sustain market transformation	Number of EE motors registered in national motors database hosted and maintained by the DGP by EOP	0	0	37,861 ³⁹	Targets to be verified through national motor database report outputs and audits prepared by ESCOs and OIZ energy management units
	% of industrial SMEs who are aware of the benefits of EE motors by EOP	0	5	25	<ul style="list-style-type: none"> Targets to be verified through surveys on the level of raised awareness of the benefit of EE motors (surveys to be done during Years 1 and 5 of Project) Industrial SMEs become genuinely interested in EE motors as a result of public awareness campaigns supported by the Project
	Number of hits on the motors website by EOP	0	2,500	10,000	

³⁷ Should include a commercial bank, leasing company and a guarantee facility,

³⁸ Ibid 45

³⁹ Consistent with the number of motors to be installed on the demonstration program under Outcome 4. GEF6 CEO Endorsement /Approval Template-Dec2015

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

(i) *Comments by Germany*

Germany welcomes the proposal for increasing energy efficiency in the electric motor segment of Turkish industry. The potential for GHG savings, cost savings and replication are all high. Suggestions for improvements to be made during the drafting of the final project proposal:

Q#	Comment	Response
	<p>Risk Management: the higher cost associated with replacing the standard motors with EE motors is listed as a medium risk, based on concerns that industry will be unwilling to invest. Given the volume of motors and potential end-users, it is recommended during the project preparation stage to organize potential user-group meetings to inquire about what the users are looking for in their motors and identify any current shortcomings. The EE motor offer could be better tailored to suit individual needs and thereby ease concerns about higher costs and gather information about financing concerns that could be addressed by innovative finance packages.</p>	<p>The PPG team conducted user group meetings with motor manufacturers, motor market analysts based in Turkey, local energy efficiency consultants (or EVDs as referred to in Turkish legislation) and several OIZs whose tenants comprise of industrial SMEs. In addition, the PPG team also had a number of individual meetings with SMEs. The purpose of these meetings was to core deep into the issues of poor uptake of energy efficient motors within industrial SMEs. The key issues exposed during these meetings was: (i) lack of awareness of SMEs in the benefits of electric motor replacement; (ii) limited availability of own funds at SMEs to invest; (iii) the limited availability of collateral for credit; and (iv) limited interest to invest available funds or credit for replacing electric motors. Furthermore, these industrial SME seem to distrust the advice from EVDs for replacing their inefficient motors, as some of the most active of these companies are aligned with a particular brand of motors; SME perception of these consultants was that there technical advice was not impartial, leading to the perception that the consultant was not looking after the SMEs best interests.</p> <p>As such, the PEEMS Project solution to this impasse was to develop a trusting relationship between the end-user industrial SME and an impartial entity, and enable such an entity to assist the SME with the replacement of electric motors. Most of the stakeholders at the group meetings agreed that developing the energy management units (EMU) within OIZs to provide technical advice to industrial SME tenants had potential. Since the role of the OIZs is to provide infrastructure and services to its SME tenants at least cost, the PEEMS Project needed to look at strengthening of the EMU capacity to provide “impartial” technical assistance to its SME tenants. Provision of Project technical assistance would include information dissemination and promotion to ensure industrial SMEs understand the lifecycle benefits of EE motors, notably from an energy and cost savings perspective. In addition to existing financial mechanisms that are available for procuring equipment for energy efficiency, the Project will be developing tailored financial assistance packages that will make the payback periods attractive to the SMEs as well as other measures that include full coverage of loan guarantees and assistance to streamline the application process for loans and loan guarantees. The PEEMS Project will then pilot test a “one-stop shop” mechanism to be managed by the OIZs and their EMUs during Years 1 and 2 where informed SMEs will have motor energy efficiency investment plans (MEEIP) and a suite of financial assistance packages to choose from implementing their MEEIP. Once the mechanism has been demonstrated successfully, efforts will be made by the Project in Year 3 to scale up the mechanism and</p>

		increase the number of EE motor investments by industrial SMEs in selected OIZs.
	<p>Risk management: The risk of the KOSGEB not working is listed as “medium” and one possible way forward that is proposed is to continue demonstrations until commercial phase becomes viable. Germany recommends further clarifying how the project could be steered towards commercial-scale in the event that the demonstration phase does not have the desired outcomes. What incentives can government provide industry? How can financial packages be made more attractive? Can payment plans be introduced?</p>	<p>Under the current PEEMS Project design, the potential involvement for the MoSIT-affiliated KOSGEB would be to finance the technical assistance required to prepare EMAPs as well as the MEEIPs (Outputs 4.1 and 4.2). During Year 1, PEEMS Project funds will provide 100% support for EMAPs and MEEIPs “pilot preparation”. This support declines in Years 2 and 3 to 50%. Assuming the pilot project during Year 1 is successful and results in the implementation of the MEEIPs, there will be KOSGEB interest in providing 50% support during Years 2 and 3, and eventually 100% support for the remainder of the project. Since KOSGEB is affiliated with MoSIT, there is a strong likelihood of KOSGEB involvement in providing the 50% support during Years 2 and 3 for preparing EMAPs and MEEIPs (these financial measures under any voluntary agreements will comply with Annex VIII to Eco-design Directive 2009/125/EC “9.Incentive Compatibility”).</p> <p>In summary, the current one-stop shop and financing mechanisms does not involve KOSGEB. KOSGEB is currently participating in a number of other energy efficiency programs and projects and therefore has indicated not to participate in the PEEMS project for the time being until completion of Year 1 and the pilot preparation phase. Nevertheless, SMEs are still able to apply for financial support that KOSGEB has made available for energy efficiency measures in industrial SMEs. In the absence of KOSGEB, there are a number of Electric Motor Manufacturers have stated their interest in supporting the project with expertise and in kind contributions under a vendor finance modality but through the EMUs within the OIZs. In the unlikely event that KOSGEB is not involved beyond Years 2 and 3 of the project, DGP have stated that there are a number of other technical assistance funds within MoSIT to finance EMAP and MEEIP preparations. In addition, Project personnel will also seek external sources of technical assistance funds at an early stage of the project for financing EMAP and MEEIP preparations that may include energy efficiency technical assistance from the various chambers of industry in Turkey. The availability of this technical assistance to an OIZ will serve as a primary selection criteria of an OIZs to participate on the Project during Year 1 as well as Years 2 and 3 if appropriate.</p>

(ii) Scientific and Technical Advisory Panel (STAP) comments – May 8, 2015

Based on this PIF screening, STAP’s advisory response to the GEF Secretariat and GEF Agency(ies): **Concur**. STAP comments to be considered during further project development are as follows:

Q#	Comment	Response
1	A large number of sectors and industries deploy electric motors. Thus, there is a need for identifying the sectors or industries where there are the greatest opportunities for improving energy efficiency in motors. The energy audit process of evaluating existing motors installed has already commenced.	According to the Turkish Electricity Transmission Company (TEDAS), 47% of net electricity consumption is represented by industry in 2015. It is estimated that 70% of energy consumption in industry is by electric motor-driven systems (EMDS), 90% of which use 3-phase squirrel cage asynchronous motors as defined in the EU Eco-design Implementing Measure

		<p>640/2009 on electric motors as amended by Implementing Measure 4/2014 (Para M.6 and M.7 in ProDoc).</p> <p>Identification of the best opportunities for deploying efficient electric motors within Turkey’s industrial sector can be found in Annex K of the ProDoc. This Annex provides details of the national survey of electric motor usage undertaken by the Directorate General for Productivity (DGP) under the Turkish Ministry of Science, Industry and Technology (MoSIT) since early 2015. Preliminary survey results from late 2015 covering more than 887 industries in 62 provinces, indicates that 76% of all electric motors ranged in size between 7.5 to 37 kW, and that the average life of these motors was 12 years that have been rewired an average of 2 to 3 times (with each rewiring causing 2 to 3% loss in efficiency). Furthermore the survey found that 63% of the motors are IE1 class and 20% being in the IE2 class with an annual average working hours of each motor being 5,456 hours and a loading rate of 78%. The average size of motor in the survey was 42.5 kW (Para K.9 in ProDoc).</p> <p>The survey results were compared with a similar electric motors survey conducted by the Swiss government under the EASY programme (conducted between 2010 and 2014). There is a high probability that the characteristics of motor usage in the Swiss industrial sector resembles that of industrial SMEs in Turkey. One of the findings of the EASY programme was confirming that by improving the energy efficiency of the frequently used motors (in the order of 20% of all installed motors), more than 80% of the potential energy savings could be realized, leading to the use of a “20-80 rule”. The EASY programme also found that less than 20% of all motors were equipped with VFD (Paras 19 and K.10 in ProDoc).</p> <p>With the use of the 20-80 rule, the potential number of electric motors that could be <i>economically</i> changed to comply with IE2 or IE3 standards will be considerably less than the estimated 10 million electric motors operating within industrial SMEs in Turkey. In fact, it is likely that less than 5% of all electric motors in Turkey are equipped with VFD, increasing the energy efficiency potential of a motor replacement programme (Para K.11 in ProDoc).</p> <p>With most of Turkey’s industrial SMEs located within organized industrial zones (OIZs), this Project has been designed to focus on OIZs where the best opportunities for implementing an EE motors program. Paras 11 to 16 in the ProDoc provide further details to this approach.</p>
2	<p>Demonstration projects aimed at gaining the attention of end-users are planned to show the benefits of energy audits and financial support mechanisms. It is anticipated together "they will save approximately 15,000 MWh of electricity". (Is this per year, or over the 5 year project period, or over the lifetime of the motors?). The actual amount of electricity saved will depend on the choice of the 4 demonstration projects and the number and size of the motors involved with each.</p>	<p>Outputs 4.1 to 4.3 provide details of the proposed demonstration project to be conducted within OIZs to show the benefits of energy audits and pilot a one-stop shop financial support mechanism for promoting EE motors (Para 26). Output 4.4 provides details of the initial scaled-up phase of the EE motors replacement program initiated under Output 4.3. Table 1 in the ProDoc provides details of the demonstration project. Figure D.3 in the ProDoc provides details of the energy savings and GHG emission reductions resulting from the demonstration project in Output 4.3. The cumulative electricity savings (over the 5-year period of the project) to the EOP is estimated to be</p>

		879,345 MWh that would be generated over 3 to 5 demonstration OIZs. Several discussions between the project preparation team and the DGP resulted in the setting of realistic EE motor targets for this project.
3	Calculations of the GHG emission reductions of "450,000t CO ₂ -eq" (PART I, section F) over the lifetime of the motors to be installed during the project period, and the assumptions made on continuing emission reductions over the life expectations for the motors, are difficult to reconcile and need revising. In Section A.1.5 it states: "9,075 tons of CO ₂ eq or approximately 90,750-121,000 tons of CO ₂ eq over the 15-25 year lifetime of investment. But if 9,075t is per year, then the range shown is for over a 10 to 13 year lifetime of investment, not 15-25 years. Also it states: Indirect emissions reductions of 453,750 tons CO ₂ eq with 2,722,500 - 3,630,000 tons of CO ₂ eq over the lifetime of investment." But if 453,750t is per year, then the lifetime is only 6 to 8 years. If it is the cumulative emissions over 2 years it would be 12-16 years lifetime; if 3 years, 18-24 years); and if 4 years (24-32 years). Once the actual demonstration projects have been determined, then the baselines for each can be assessed from the four energy audits. Then a more accurate assessment of target emission reductions and also their costs in terms of \$/t CO ₂ -eq avoided can be presented.	The 37,861 EE motors (average size of 42.5 kW) to be installed under Outputs 4.3 and 4.4 are shown in Table 1 (pg 20) of the Prodoc. These numbers were used to calculate the direct lifetime GHG emission reductions with an assumed lifetime investment of 7 years. As shown on Table D.2 (pg 60), the lifetime indirect GHG reduction has been calculated at 3,092 ktonnes of CO ₂ eq, and the cumulative direct GHG emissions reductions saved by the EOP is 920 ktonnes of CO ₂ eq.
4	But how will the demonstration projects be selected? They will need to represent a wide cross section of the major end-users in order to be most relevant. Component 4 states: "Demonstration projects will provide examples in different types of industries". So there is awareness of the issue but how will the largest users of motors be identified before demonstrations are selected. Feasibility studies and business plans will be produced for all four, which, assuming they will need to be made public, assumes the selected businesses will be willing to divulge this information.	Selection criteria for OIZs to demonstrate a one-stop shop financial mechanism for EE motor replacement programs and be found in Annex N of the ProDoc. One of the more important criteria provided in Annex N is the OIZ and industrial SME willingness to share the findings of the pilot EE motor replacements with other SMEs including energy savings and payback periods.
5	Since the project includes training courses for electric motor manufacturers and disseminating information on improved motor product design and production, it would be useful to integrate experiences and lessons learned on improving the efficiency of electric motors from other countries, for example through IEA's implementing agreement - http://www.iea-4e.org/ and https://www.motorsystems.org/ .	During a September 2015 consultation with domestic motor manufacturers in Istanbul, they did not request assistance on improved motor product design and production. Rather, they were more interested in EE motor replacement programs implemented in other countries. To this end, the EASY program, and EE motor replacement program successfully implemented by the Swiss government between 2010 and 2014 it is seen as a program that would be very similar to a proposed program in the Turkish industrial sector. Details of the EASY program and its applicability to the Turkish industrial sector can be found in the ProDoc in Paras 19 and K.10 to K.14.
6	One of the most important barriers identified in the project is the absence of domestic EE motor manufacturing. In this regard, it seems from the PIF, project activities are largely focused on removing information barriers (Components 3 and 5). Component 4 focuses on the financial support mechanism that will address replacement or re-manufacture of electric motors. It's not clear if any	Domestic EE motor manufacturers have been proactive in the setup of the Turkish Electric Motor Manufacturers Association (TEMMA). During a September 2015 meeting with these manufacturers, they requested project assistance to improve dialogue and cooperation with the Government in the setting of minimum energy performance standards (MEPS); this would allow these manufacturers to more confidently invest in their own production lines for EE motors. Project assistance of this

	<p>institutional, technical and most importantly, financial support will be provided to help establishing DOMESTIC manufacturing capacity for EE motors. STAP recommends that project proponents address this challenge during project preparation.</p>	<p>nature has been provided through Output 2.1. In addition, the Project will be supporting domestic EE motor manufacturers by strengthening the enforcement of MEPS through strengthened market surveillance activities (Output 3.3 with DGSIIP) and upgraded electric motor testing facilities with the Turkish Standards Institute (Output 3.2 with TSI). Through the successful delivery of these outputs, the market for noncompliant motors (especially the less costly and imported motors) will be reduced substantially, thereby increasing demand for EE motor from domestic manufacturers. No financial assistance to domestic EE motor manufacturers is required.</p>
--	---	---

(iii) GEF Secretariat review – October 20, 2016

Q#	Comment	Response
1	<p>Component 1, 2 and 4: Development and implementation of recycling scheme is not eligible under CCM strategy. Please implement this component by co-financing.</p> <p>Component 2: Awareness raising of general public will be implemented in component 5. Please delete this target from Component 2.</p>	<p>We have left in references to the recycling scheme with additional text to indicate that they are co-financing activities and not supported with GEF resources. Please see CEO doc, pg 7, and ProDoc, pgs 14 (Para 24) and 16 (Para 25). In Output 4.3 (in ProDoc on pgs 17-18), the reference to “taking back all phased-out inefficient motors that are being replaced to an accredited recycling facility” is for the set up of agreements that will enable the 3 to 5 selected OIZs to become the primary management entities of the one-stop shop facility for industrial SMEs to implement motor replacement programmes. Reference to cofinancing of recycling scheme can be found on Prodoc, pg 40 (Table 4).</p> <p>Reference to awareness raising of general public has been removed from ProDoc, pgs 14, 29 and 52.</p>
2	<p>Output 1.1 Please explain why the survey on electric motor will not collect information on energy efficiency classes.</p> <p>Output 5.2 Awareness raising for industrial sectors (manufactures and user of motors) will be implemented under Component 2. Please focus on general public in Component 5.</p>	<p>The survey will cover the motors already in use, and only include rough estimations on their possible EE classes (IE classes) considering their efficiency coefficient and the absence of information on the lifecycle history of the motors in use (i.e. ambient operating conditions, # of rewinding, etc.).</p> <p>Edits to refocus raising awareness for the general public and the industrial sector has been placed in the ProDoc on pgs 20 and pg 14 respectively.</p>
4	<p>Please provide response to the comments from Germany on risk. (page 39) https://www.thegef.org/sites/default/files/work-programdocuments/Compilation_of_GEFTE_WP_Council_Comments_June_2015_0.pdf</p>	<p>These responses can be found on pgs 25 and 26 of this CEO document.</p>
5	<p>Please provide translation of the letter from Ankara Chamber of Industry.</p>	<p>Provided</p>
9	<p>Outcome 1 Indicator 2: Project activities will support adoption of several measures, but target is on "1" in mid-term and "2" at the end of the project, which are very small and limited. Please improve the targets.</p>	<p>There can only be a target of 2 for this indicator which is related to motors harmonization with EU Eco-design standards: (1) the eco-design regulation for electric motors (which is already in force in Turkey) and expected to be recast in near future with extended scope and other eco-design requirements (which will be transposed by the Project); (2) MV&E regime to be</p>

<p>Outcome 1 Indicator 3: Target on the number of phase out of inefficient motors should be developed not under outcome 1 but under overall project objective or under outcome 3. Please revise. Also please delete target on recycling program.</p> <p>Outcome 2 Indicator 2: Please delete general public from this indicator. Please see box 1.</p> <p>Outcome 2 Indicator 3: Officials are not targeted in Component 2. Please use this indicator under Component 1 so that enough officials will work to implement policies and measures.</p> <p>Outcome 3 Indicator 2: Please explain why this indicator limited to "industrial SMEs".</p> <p>Outcome 4: Please consider to include an indicator on local financial institutions. It is understood that this project will reduce barriers and the local financial institution is an important barrier to be addressed.</p> <p>Outcome 5: Please consider to include an indicator on EE motors market sustainability.</p> <p>Outcome 5 Indicator 3: Please explain how the target of 2,500 and 10,000 hits are calculated.</p>	<p>established by the Project. These are covered under Footnotes 36 and 37 of ProDoc.</p> <p>Changes made in the PRF as found in CEO ER document, pg 21, and ProDoc, pgs 28 and 52</p> <p>Changes have been made in the PRF as found in CEO ER document, pg 22, and ProDoc, pg 29</p> <p>Changes have been made in the PRF as found in CEO ER document, pg 22, and ProDoc, pgs 29, 53 and 54</p> <p>Industrial electric motors (3-phase induction motors) are mostly used by industrial SMEs in Turkey as mentioned in Annex K of the ProDoc, and specifically in Paras K.1 and K.2. As such, this Project only intended to focus on electric motors in industrial SMEs</p> <p>Changes have been made in the PRF as found in CEO ER document, pg 24, and ProDoc, pgs 31 and 55</p> <p>No changes have been made to the PRF due to the following explanations of relevant indicators including Indicator 1: Number of motor energy efficiency investment plans (MEEIPs) for industrial SMEs in OIZs by Year 2 and EOP, and Indicator 2: "Cumulative USD investments through an established "one-stop-shop" FSM by EOP". Both of these indicators are designed to reflect market transformation sustainability through tracking the "scale-up" of the number of MEEIPs completed and investments made from Year 2 (or the mid-point of the Project) to the EOP.</p> <p>The target of 2,500 hits in Year 2 was tied to the 2,408 MEEIPs by the EOP. With over 355,000 industrial SMEs (see Para K.2 in ProDoc), the number of hits would increase dramatically towards the EOP, assumed to be 10,000.</p>
---	--

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS⁴⁰

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: \$ 100.000,00			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$) (*)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Component A: Technical Review	28.000,00	26.012,50	1.987,50
Component B: Institutional arrangements, stakeholder consultations, monitoring and evaluation and draft documentations	7.000,00	4.915,17	2.084,83
Component C: Design of Sustainable Energy Financing Mechanism (SEEFM) and Analysis of Opportunities for ESCO Business Model	25.000,00	22.887,24	2.112,76
Component D: Project Documentation – UNDP Project Document and GEF CEO Endorsement Document & GEF Tracking Tool	40.000,00	22.503,08	17.496,92
Total	100.000,00	76.317,99	23.682,01

(*) Figures are as of 06 September 2016

⁴⁰ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

N/A