GEF-7 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Medium-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

PART I: Project Information

Project Title:	Investing in energy efficiency to strengthen the cold value chain of small and medium enterprises		
Country(ies):	The Islamic Republic of Afghanistan	GEF Project ID:	
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	170167
Project Executing Entity(s):	National Environmental Protection Agency	Submission Date:	
GEF Focal Area(s):	Climate Change	Project Duration (Months)	60

A. INDICATIVE FOCAL/NON-FOCAL AREA ELEMENTS

Programming Directions	Trust Fund	(in $)	
		GEF Project Financing	Co-financing
CCM-1-3 Promote innovation and technology transfer for sustainable energy breakthroughs for accelerating energy efficiency adoption	GEFTF	1,321,141	9,000,000
Total Project Cost		**1,321,141**	9,000,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: The project objective is to encourage private financing to invest in energy efficiency of cold value chain and distribution channels operated by small and medium enterprises.

Project Components	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in $)	
					GEF Project Financing	Co-financing
1. Energy efficiency labeling and its legal framework and institutional capacity	Technical Assistance	1. Energy demand is reduced compared to the business as usual baseline with energy efficient domestic and commercial equipment promoted with energy efficiency labeling	1.1 Energy efficiency standards and labeling for refrigerators and air-conditioners adopted by governmental institutes in line with Afghanistan Energy Efficiency Policy 1.2 Energy efficiency standards and labeling implemented	GEFTF	141,041	667,000
2. Leveraging private finance for energy efficient and safe cold value chain	TA	2. Energy efficient and safe cold value chains including distribution channels are enhanced by private	2.1 SMEs along the cold value chains trained for energy efficiency and safe handling of flammable refrigerant charged equipment 2.2 Partnership	GEFTF	130,000	880,000

		finance including impact funds	established with financial institutes providing green financing opportunities for cold value chains 2.3 Match making facilitated between investors and SME beneficiaries			
2. Same as above	Inv	2. Same as above	2.4 Agreements reached for installment of energy efficient equipment along cold value chains for SMEs	GEFTF	850,000	6,200,000
3. Project monitoring and evaluation	TA	3. Baseline set, project monitored and evaluated	3.1 Baseline set and communication strategy mainstreamed 3.2 Project monitored 3.3 Project evaluated	GEFTF	80,000	653,000
			Subtotal	GEFTF	1,201,041	8,400,000
			Project Management Cost (PMC)	GEFTF	120,100	600,000
			Total Project Cost		1,321,141	9,000,000

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount ($)
Recipient Country Government	National Environmental Protection Agency (NEPA)	In-kind	Recurrent expenditures	2,000,000
Recipient Country Government	Ministry of Energy and Water (MEW)	In-kind	Recurrent expenditures	1,500,000
Recipient Country Government	Afghan National Standards Authority (ANSA)	In-kind	Recurrent expenditures	200,000
Recipient Country Government	Ministry of Industry and Commerce (MoIC)	In-kind	Recurrent expenditures	200,000
Recipient Country Government	Central Statistics Organization (CSO)	In-kind	Recurrent expenditures	150,000
Private Sector	Chamber of Commerce and Industries (ACCI)	In-kind	Recurrent expenditures	150,000
Private Sector	To be selected on a competitive basis	Unknown	Investment mobilized	1,000,000
Others	GIZ	Unknown	Investment mobilized	2,847,000
GEF Agency	UNIDO	Grant	Recurrent expenditure	153,000
Recipient Country Government	World Bank/Government			800,000
Total Co-financing				9,000,000

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

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
UNIDO	GEFTF		Climate Change	(select as applicable)	1,321,141	125,508	1,446,649
Total GEF Resources					1,321,141	125,508	1,446,649

E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee (b)	Total c = a + b
UNIDO	GEF TF	The Islamic Republic of Afghanistan	Climate Change	(select as applicable)	45,662	4,338	50,000
Total PPG Amount					45,662	4,338	50,000

F. PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Provide the relevant sub-indicator values for this project using the methodologies indicated in the Core Indicator Worksheet provided in Annex B and aggregating them in the table below. Progress in programming against these targets is updated at the time of CEO endorsement, at midterm evaluation, and at terminal evaluation. Achieved targets will be aggregated and reported at anytime during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Project Core Indicators		Expected at PIF
1	**Terrestrial protected areas** created or under improved management for conservation and sustainable use (Million Hectares)	
2	**Marine protected areas** created or under improved management for conservation and sustainable use (Million Hectares)	
3	Area of **land restored (**Million Hectares)	
4	Area of **landscapes under improved practices** (excluding protected areas)(Million Hectares)	
5	Area of **marine habitat under improved practices** (excluding protected areas) (Million Hectares)	
	Total area under improved management (Million Hectares)	
6	**Greenhouse Gas Emissions Mitigated** (million metric tons of CO2e)	1.28
7	**Number of shared water ecosystems** (fresh or marine) under new or improved cooperative management	
8	Globally over-exploited **marine fisheries** moved to more sustainable levels (thousand metric tons)(Percent of fisheries, by volume)	
9	**Reduction**, disposal/destruction, phase out, **elimination** and avoidance of **chemicals of global concern** and their waste in the environment and in	TBD

	processes, materials and products (thousand metric tons of toxic chemicals reduced)	
10	Reduction, avoidance of emissions of **POPs to air** from point and non-point sources (grams of toxic equivalent gTEQ)	
11	Number of **direct beneficiaries disaggregated by gender** as co-benefit of GEF investment	20 (4 women)

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicators targets are not provided. The amount of ozone depleting substances (ODS) and alternative substances with high global warming potentials (GWP) for the above project core indicator 9 will be phase out as co-benefit. The more accurate number is to be determined during the PPG phase.

G. PROJECT TAXONOMY

Please fill in the table below for the taxonomic information required of this project. Use the GEF Taxonomy Worksheet provided in Annex C to help you select the most relevant keywords/ topics/themes that best describe this project.

The taxonomic information required for this project is provided in Annex C

Level 1	Level 2	Level 3	Level 4
Influencing Models	(multiple selection)	(multiple selection)	(multiple selection)
Stakeholders	(multiple selection)	(multiple selection)	(multiple selection)
Capacity, Knowledge and Research	(multiple selection)	(multiple selection)	(multiple selection)
Gender Equality	(multiple selection)	(multiple selection)	(multiple selection)
Focal Area/Theme	(multiple selection)	(multiple selection)	(multiple selection)

PART II: PROJECT JUSTIFICATION

1a. *Project Description.* Briefly describe:
1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario with a brief description of expected outcomes and components of the project; 4) alignment with GEF focal area and/or Impact Program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovation, sustainability and potential for scaling up.

(1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed:

Following three decades of conflict, Afghanistan's economy is finally showing a hint of recovery. According to World Bank data, Afghanistan's GDP is nearly five times greater than it was in 2002 and its GDP per capita has increased by 64% since 2002.

Afghanistan still remains one of the least developed countries in the world with an estimated population of nearly 35 million people (World Bank, 2016) and a GDP per capita of USD 562 (World Bank, 2016). Afghanistan is ranked amongst the most vulnerable countries in the world to the adverse impacts of climate change. Afghanistan's Initial National Communication 2012 (INC) report has documented an increase of 0.6 degrees celcius in the country's mean annual temperature since 1960. Emissions data in 1990 and 2010 were at 0.2 and 0.3 metric tons CO2 per capita, respectively, making Afghanistan one of the lowest GHG emitters globally. However, as the country's economy grows, the emission is projected to increase. According to the Afghanistan Greenhouse Gas Inventory Report by the National Environmental Protection Agency (NEPA, annual budget of USD 3.3 million with 850 staff) and the Asian Development Bank (2007), the most important sources of CO2 emissions are from land-use change and forestry and from the energy sector

(Table 1). On the other hand, the grid network in the country is still highly underdeveloped, as shown by the many international projects that are currently taking place in the country aiming at creating or improving the accessibility to constant electricity. Therefore GHG emissions from power supply are projected to further increase, as the economy grows, if renewable energy does not prevail as the major energy generation option. The energy demand for cooling infrastrucutre will also only increase in the coming decade.

Table 1: Green House Gas Emissions of CO_2, CH_4 and N_20 in Afghanistan in 2005 – 2030*

GHG Emission Sector	CO_2 Equivalent, Gg				2020	2025	2030
	CO_2	CH_4	N_20	Aggregated	CO_2-eq. Gg	CO_2-eq. Gg	CO_2-eq. Gg
Energy	2,910.04	736.00	129.83	3,775.87	9,745.46	10,849.02	12,087.00
Industry	312.15	-	-	312.15	791.57	878.25	974.42
Agriculture	-	9,296.49	5,812.50	15,108.99	24,665.30**	29,578.77**	35,471.04**
Land use change and forestry	9,341.13	80.64	9.30	9,431.07	10,949.18	11,507.70	12,094.71
Waste	-	130.41	-	130.41	330.70**	366.91**	407.09**
Total GHG Emission incl. LULUCF	12,563.32	10,243.54	5,951.63	28,758.49	46,482.20	53,180.64	61,034.25
Total GHG Emission excl. LULUCF	3,222.19	10,162.90	5,942.33	19,327.42	35,533.02	41,672.95	48,939.54

***Information used from ADB – Afghanistan Greenhouse Gas Inventory Report and projection for 2020-2030 using GACMO model**

****CH_4 (CH_4 emissions x 21) and N_20 (N_20 emission x 310) counted as CO_2.eq**

Afghanistan has just begun to access UNFCCC technology transfer opportunties. Increased national capacity is needed to use these opportunities more effectively. Programmes and projects, as well as support provided by the international community and multilateral agencies, have already laid the foundation for building adaptive capacity and resilience to climate change. To keep this momentum going, and with the scale and urgency of Afghanistan's adaptation needs, additional financial and other resources are strongly needed. With external support, the Intended Nationally Determined Contribution (INDC) targets a 13.6% reduction in GHG emissions by 2030 compared to a business as usual (BAU) 2030 scenario. To achieve the reduction, it is critical to have its Low Emission Development Strategies (LEDS) implemented. LEDS has been integrated into the Nationally Appropriate Mitigation Action (NAMA) of Afghanistan.

Currently, the industrial horizon in Afghanistan is dominated by the small and medium enterprises (SMEs), and a few sporadic larger scale operations in steel, power and mining/extraction. According to the Ministry of Industry and Commerce, the definitions of SMEs are as described in the table below.

Table 2. Definition of micro, small and medium enterprieses of the Afghan Government

Enterprises	Number of Employees	Manufacturing sector (Investment in plant and machinery)

Micro	less than 5	up to AFN 2.5 million
Small	5-19	AFN 2.5-5 million
Medium	20-99	AFN 5-10 million
Large	More than 100	More than 10 million AFN

SME development in Afghanistan currently demonstrates more features of a trading community as opposed to small-scale manufacturing and service delivery. The presence of a robust SME sector involved in manufacturing, service delivery, as well as trading activities are vital for the well being of an economy. Importantly, the sector has potential to engage female works in various activities. It is also a contributor to the state of the environment and, therefore a cleaner SME sector is a desired outcome. The National Programme for Agricultural Production and Market Development focuses on the need to develop SMEs under their Enterprise and Market Development. This project could help support the national programme through encouraging private investment in energy efficiency of cold value chains and distribution channels, as well as, helping establish energy efficiency labelling for refrigeration and air-conditioning.

In the last couple of years, the country has started a number of initiatives to control the emission of greenhouse gas emissions while addressing food and water security. The current national situation on energy efficiency is not yet fully conducive to the inclusive and sustainable growth of the industrial and services sectors. There is sufficient momentum in further improving energy efficiency and promoting more resource efficient industrial and commercial sectors. Today, most SMEs are operating on diesel, due to uncertain grid power supply, and poor quality of power especially in sustaining three phase loads (440 volts and more). Often the industrial sector and SMEs have to cope with low and fluctuating voltages and high reactive loads, which compromise efficiency of motors and pumps.

The Afghanistan Energy Efficiency Policy (AEEP) is an outcome of a consultative process which includes government and private sector. The policy is aimed at providing direction to the energy efficiency activities in the country. It envisions achieving this through utilizing the collective strength and interdependencies of several stakeholders and government departments by creating an enabling environment for the development of the energy efficiency sector in Afghanistan. The drafting of the AEEP is authorized by the Presidential Decree. AEEP outlines its actions on appliances and equipment in TERM 1 (2017-2020) and TERM 2 (2021-2030). In AEEP, energy efficiency opportunities are listed with their potentials. Cooling and refrigeration offers energy saving opportunities as below.

Table 3. List of cooling related energy efficiency potentials identified in the Afghanistan Energy Efficiency Policy

Process/Equipment	Efficiency improvement measures	Efficiency improvement potentials
Cooling and refrigeration in industrial processes	Systems optimization	8.0%
	Improved process measuring and control	5.0%
	Improved insulation	5.0%
Space conditioning alternative technology in public building	Variable air volume HVAC	u to 50%
	Building Management System	up to 25%
	Variable refrigerant volume space conditioning	up to 30%
	Variable frequency drives on air handling units	up to 30%
Space cooling alternatives in household	Air source heat pump	up to 50%
	Advanced air heat pump	up to 70%
	High efficiency ceiling fans	up to 20%

Whitegood appliances	Efficient appliance	up to 50%
	Best available technology appliance	up to 70%

Recognizing that energy consumed by appliances and equipment in household, commercial and industrial sector is a major source of greenhouse gas emissions, AEEP proposes i) energy performance standards such as Minimum Energy Performance Standards (MEPS) with it goal "100% of all new appliances and equipment manufactured or imported in Afghanistan to meet minimum energy performance and quality standards" and ii) energy efficiency labeling assisting consumers' smart choice by providing information such as life cycle costs with its goal "100% of all new appliances and equipment manufactured or imported in Afghanistan to meet energy efficiency labeling."

Urbanization and industrialization are posed to be two critical drivers of development in the 21st century. The city of Kabul, the capital city of Afgthanistan, is also growing steadily and high-rise buildings and shopping centers are becoming hubs for people's daily movements. Kabul is fast growing not only because it is the center of the governmental and commercial functions but also a key trade hub in the government's effort to boost national export. The suburb of the city now embraces factories and cold storages. The implementation of energy efficient cooling systems is the national priority in this urban setting to provide safe and high quality food, both imported and exported, as indicated in AEEP.

"Cold value chain" is defined as the specific supply chain scheme which requires that all elements of the food process are carried out under prescribed low temperatures to ensure the safety and the quality of the product. As such, inefficiencies within the supply chain result in the food becoming spoilt and being wasted. Over 40% of all food requires cooling (Meneghetti and Monti, 2014) and according to the Rockefeller Foundation, 42% of fruits and vegetables in developing regions spoil before they can be consumed due to the absence of proper refrigeration. As such, this is a key problem which needs to be addressed.

The main cause of the problem originates from the lack of and malfunctioning of the equipment along the cold value chain. Cold chain, in fact, consumes a remarkable quantity of energy. It is reported to account for 30% of total world energy consumption (Adekomaya et al., 2016). The implementation of AEEP will need to be drastically boosted by the private finance in order to keep the soaring energy demand within the power supply capacity of the country. Small and medium enterprises which are important nodes of the cold chain as well as service providers to maintain the cold chain. However, the technical capacities of such SMEs are not propoerly supported, despite the government's efforts to strengthen the basic technical absorption capacities of the SME stakeholders by designing certification systems and raising awareness. The investment made in this sector further need to allocate the investment into more energy efficient equipment and required servicing exercises.

(2) The baseline scenario or any associated baseline projects:

Due to the electricity instability in the country, having equipment that requires less energy load, as well as low maintence is fundamental to develop resilient and effective cold chains. The baseline scenario would be a gradual but steady expansion of the cold value chains with lower energy efficient equipment installed. Improper maintenance of equipment could also become common practice without proper knowledge on safe handling of flammable refrigerants and appliances charged with such refrigerants. The lack of technical capacities to choose adequate appliances taking the total life cost into consideration would lead to more energy consumption, fluctuating temperatures causing lower food quality, and more operation costs for the companies along the cold value chains in the long run; and therefore higher environmental impact.

Without the project support, the introduction of energy efficiency labeling will be delayed, while cold value chains that are put in place in implementing the National Export Strategy could be established without enhanced awareness on its energy efficiency. Household and commercial consumers as well as industrial end

users would be kept away from the information related to energy efficiency of the appliances so as to make purchasing decisions most likely based only on the capacities and prices.

In Afghanistan, the domestic demands for refrigerators and air-conditioners are met mainly by imported equipment. The graph, shown in Annex E, highlights the decrease in 2014 in the number of imported refrigerators and air-conditioners. This trend can be explained by the reduction in Net ODA by almost 20% between 2013 and 2015 (OECD), as well as the tighter restriction toward HCFC phase out of 10%. The number of commercial refrigerators manufactured in Afghanistan is increasing. This predicted increase is supported by a UNIDO delegate visit to Herat, in August 2017, which brought to UNIDOs attention eight companies with a total capacity of 100 commercial refrigerators a month (Annex F) and the expected increase in manufacturing activities in the coming years. Unfortunately, these companies are not eligible for the support of the Multilateral Fund for the Implementation of the Montreal Protocol.

This information was not visible yet in the ODS survey conducted by the Government and UN Environment in 2015. One of the mainly used ODS is HFC-134a.The ozone depletion potential of HFC-134a is 0. The GWP of HFC-134a is 1300, and the refrigerant considered as medium GWP refrigerant. Assuming that Afghanistan ratifies the Kigali Amendment, the country can use HFC until its phase down plant starts. The details of this plan will be further determined during the enabling activity of the Amendment that will be funded by the MLF.

The International Standards Organization (ISO) and International Electrotechnical Commission (IEC) have already started adjusting and updating their existing standards in order to encourage safe use of low GWP refrigerants many of which are flammable substances. Under the Kigali Amendment, some low-GWP refrigerants will be alternative refrigerants and, therefore will be increasingly used to ensure that hydrochlorofluorocarbons (HCFCs) are smoothly phased out and hydrofluorocarbons (HFCs) are successfully phased down. In the business as usual scenario, the adoption of the updated standards could be delayed without a specific driving force in this government priority area.

Implementation of the Afghanistan Energy Efficiency Policy (AEEP)
Over the last decade, Afghanistan has made substantial reconstruction efforts at all levels of the energy supply chain, in particular, the electricity sector. However, energy access continues to be an imposing challenge for the government. While Afghanistan is building up its domestic generation capacity, it becomes imperative to integrate energy efficiency principles within Afghanistan's energy policy landscape in order to best utilize the scarce energy resources, and reduce costs in the long term.

The Ministry of Energy and Water (MEW), as one of the key ministries to plan and direct the development of energy sector in Afghanistan, has now prepared the Afghanistan Energy Efficiency Policy (AEEP) which aims to provide direction to the energy efficiency activities in the country. The Inter-Ministerial Commission for Energy (ICE) has focused its resources and attention to the power generation and transmission as seen in its activities listed on https://sites.google.com/site/iceafghanistan/ . It is expected that more focuses will be shifted to energy efficiency with the prioritized opportunities listed in the above in the second term (TERM2, 2021-2030) starting 2021. AEEP's Sections *4.1 Greening of Building Sector* and *4.3 Appliances and Equipment of AEEP* are particularly relevant to this project. It is noted that buildings account for approximately 93% of all electrical energy in Afghanistan and a significant share of greenhouse gas emissions.

The Afghanistan Natoinal Standards Authority (ANSA) is a cooperating agency of the implementation of AEEP. The role of ANSA is to develop minimum energy performance standards (MEPS) of appliances and equipment. The baseline scenario is that ANSA will need to develop this without proper technical capacities. There are no technical capacities to certify energy efficiency specifications of appliances currently in ANSA based on the assessment during a UNIDO delegation visit in Nov 2017.

According to the World Bank, while the midium-term fiscal developments of the country remain uncertain, the agricultural sector drove the economic growth rate to 2.2% in 2016. The energy efficient and safe cold chain infrastructure is critical to harness its agricultural sector's development momentum as it could contribute to improving the quality and trade of Afghanistan fresh produce.

Baseline projects

UNIDO Afghanistan Country Programme 2017-2020
This project is to implement a road map towards Inclusive and Sustainable Industrial Development (ISID) in line with the Afghanistan National Peace and Development Framework (ANPDF 2017-2021). This articualtes UNIDO's interventions in the country. The component 4 of ANPDF is to promote energy efficiency and renewable energy in small and medium enterprises in Afghanistan. It aims at developing legal and institutional framework for the adoption of energy efficiency technologies in the industrial sector, raise awareness and capacities on energy efficieny, demonstrate relevant technologies, and upascaling energy efficiency in the SME sector. This proposed GEF project is to implement the component of the country program identified as the national priority by the Minister of Commerce and Industries.

UNIDO HCFC Phase out Management Plan in Afghanistan
UNIDO has an the on-going project "HCFC phase-out management plan to phase out HCFC-22 in accordance with Afghanistan's obligation under the Montreal Portocol." This project is assisting a designated vocational center offering technical training courses for refrigerant servicing practices to adopt an updated curriculum on safe handling of flammable refrigerants while keeping the energy efficiency of serviced appliances. This proposed GEF project will further build its technical capacities on the baseline foundation and network of teaching staff and graduated trainees supported by this baseline project.

The World Bank is planning to launch a project, "Opportunity for Maximizing Agribusiness Investments and Development." The project's objective is to enhance the competitiveness of key agri-value-chains in Afghanistan for increased market access and value-addition for farmers and agri-entrepreneurs. A geographic concentration of investments within the broader project area could achieve a larger impact that can eventually crowd-in future economic activities. While the Agribusiness Charter is national, specific support will be offered to certain provinces, considering their comparative advantages, economic potential, access to basic infrastructure, trade and transit routes and market opportunities. This is based on the understanding that success in those provinces could subsequently serve as a blueprint for other regions. Therefore, under this Project, the focus would be on the following provinces: Balkh, Kandahar, Kabul, Herat, and Nangarhar which include major and growing cities in terms of population (high potential markets) and are located in major trade routes. In these provinces, based on positive feasibility study results, the Project will promote the creation of Integrated Agri-Food Parks (IAFPs) which will be linked to producers in selected catchment areas via a network of strategically placed Farmers Collection Centers (FCCs) and Rural Transformation Hubs (RTHs). This project is still at a concept level.

GIZ - IDEA
GIZ implements the Afghanistan Energy Efficiency Policy with GIZ’s Institutional Development for Energy in Afghanistan (IDEA) as the main operator of the project. GIZ/IDEA has assisted the country in improving power supply and transmission by supporting political reforms and significant renewable energy capacities. An initial analysis the renewable energy sector and a market study for photovoltaic power were conducted. The shift to renewable energy has become visible. The current plan foresees that 500 MW of renewable energy capacity/power plants will have been added by 2020. GIZ is supporting MEW with the tendering procedure for the first plants to be approved. Energy efficiency will be its focus in the coming years synchronizing its work plan with AEEP's TERM2 (2021-2030). The legal/policy and institutional framework to promote energy efficiency has been preliminarily established by internationally funded projects by IDEA. The achievements by GIZ provides an important foundation from which this proposed GEF project will be closely cooperating with and further building on.

USAID - The Commercial Horticulture and Agricultural Marketing Program (CHAMP)
The agricultural sector in Afghanistan predominately uses cold-storage for post-harvest fruits and vegetables, as well as processed products such as; juices, compotes and dry fruits. However, there are main concerns related to cold storages which need to be addressed, namely, the unstable electricity network. For example, the instability has caused companies to equip themselves with emergency alternatives such as diesel generators in the event of blackouts and the high electricity price.

USAID partners with Afghanistan's Ministry of Agriculture, Irrigation and Livestock to increase the productivity and incomes of Afghan farmers, build value chains that connect farmers, processors, and wholesalers, and expand opportunities to export Afghan goods to international markets. The Commercial Horticulture and Agricultural Marketing Program (CHAMP) is a USAID-funded project (USD 61 million, Feb 2010 – Dec 2019) working with leading Afghan processing and export firms to enhance the country's supply chain, marketing abilities, and export promotion of its' fruits and nuts. CHAMP is looking to strengthen the capacity of local packaging manufacturers, improve the skills of exporters in business administration and finance, establish an Agricultural Export Knowledge Management Unit, promote investment in cold storages and pack house facilities, support freight and logistics, and expand quality standard certification. The program is currently supporting traders through its trade offices based in New Delhi, India and Dubai, UAE with the aim of boosting Afghan agricultural exports in both these markets and other major regional markets by up to 15,000 metric tons (MT) annually. A few examples of the achievements of the project to date include; the training of more than 104,000 farmers (2,700 being women) on improved agriculture techniques, including planting, fertilization, irrigation, and disease and pest control, trained more than 4,500 apricot producers (750 being women) in sulfur drying, constructed over 200 raisin-drying facilities and cold storage rooms to help farmers reap the highest profit from their harvests, and generated more than 7,400 permanent full-time jobs in areas such as pre-harvest and post-harvest handling as well as exporting. This proposed GEF project will strengthen the cold chain identified as a priority cold chain infrastructure by this USAID project.

USAID project, "Agricultural Credit Enhancement Phase-II (ACE-II)"
The Agricultural Credit Enhancement (ACE) project established and managed the Agricultural Development Fund (ADF) until it was transferred to the Afghan government in 2015. ACE-II expands access to agriculture-related credit to increase commercial viability of small-and medium size farms and agribusinesses as a necessary condition for a thriving agricultural economy. ACE-II is expected to catalyze its transition to a sustianable agricultural development financial institution. This proposed GEF project will benefit from the technical and financial capacities built including 8,931 farmers and MSMEs.

DFID – The Afghanistan Investment Climate Programme (AICP) and the Comprehensive Agriculture and Rural Development Facility Phase II
DFID has implemented several projects related to climate change and food security. Two examples of these include; the Afghanistan Investment Climate Programme (AICP) (Budget: £5,599,620) which aims to support inclusive economic development in Afghanistan through improvement in the investment climate, including (i) strengthening legal and regulatory frameworks, investor protection, investment risk-sharing instruments and access to land; (ii) building partnerships and dialogue between the private sector and government; (iii) advocacy for the role of private sector in economic development; and (iv) increasing women's access to capital, assets and business services. This proposed GEF project will benefit from the investment framework and capacities this DFID project has strengthened.

The second example; the Comprehensive Agriculture and Rural Development Facility Phase II (Budget: £29,099,991) aims to increase legal rural employment and income opportunities through more efficient agricultural value chains and markets. Further aims include the coordination and integration of government and donor support to agriculture and rural development, and the improvement of government capacity to lead and coordinate donor initiatives to deliver provincial and district-level programmes. During the PPG phase, more details will be looked into in order to identify possible synergies along the cold chain suggested by this project.

National Government's Projects in 2018
The national budget 2018 lists several renewable power and energy efficiency projects such as LED light (USD 100,000) and solar power projects in Kabul, Kandahar, Hisar-e-Shahi, Naghlu, Shindand, Farah, and Khost (USD 100,000 each standard project), as well as Dailundi province for USD 485,000. Considering the small budget scale of the national budget, the acceleration for the implementation of the energy efficiency part of AEEP is still currently depending on the internationally funded projects. In addition, the inter-ministerial coordination mechanism in the government on energy efficiency has not been convened for more than a year. Even after 2021, the national budget scale to improve energy efficiency will not be drastically expanded more than this scale. This will be the baseline scenario without this proposed GEF project's support.

(3) The proposed alternative scenarios address each of the problems emerged in the baseline scenario:

Outcome 1. 1. Energy demand is reduced compared to the business as usual baseline with energy efficient domestic and commercial equipment promoted with energy efficiency labeling:

This component will assist the government to partially execute the energy efficiency component of AEEP which is expected to begin from the second half o TERM1 (2017-2020) and need to be fully initiated at the onset of TERM2 (2021-2032). The initiation of the energy efficiency activities of AEEP ensures that the power demand hike will be mitigated within the expected range in the coming years when both energy supply and demand are projected to increase. As discussed in the above AEEP outlined energy efficiency labeling, and this project will assist the government to implement the energy efficiency labeling for refrigerators, air-conditioners and a limited number of other equipment as a test phase before the government will apply the policy to all other appliances with support from GIZ/IDEA.

Output 1.1 Energy efficiency standards and labeling for refrigerators and air-conditioners adopted by governmental institutes in lines with Afghanistan Energy Efficiency Policy

This output is to respond to the government's request to assist its planning of energy efficiency labeling on appliances. Following up on the latest discussion on promoting energy efficiency at the Presidential Office, the Ministry of Energy and Water (MEW), the Ministry of Commerce and Industries, the Ministry of Urban Development, and other energy efficiency technical committee members, energy efficiency labeling policy will be offically tabled by the National Ozone Office of the National Environmental Protection Agency (NEPA) in consultation with MEW. This project will demonstrate energy efficiency labels by testing and rolling out labeling mainly for refrigerators and air-conditioners both domestic and commercial equipment, before the labeilng will be appiled to other types of appliances specificed in AEEP. The standards and labeling framework will incorporate AEEP's plan as well as the phase down plan of hydrofluorocarbons (HFC) under the Kigali Amendment of the Montreal Protocol. The full implementation of the Kigali Amendment is expected to globally avoid an increase in atmospheric temperature of 0.5°C by the end of the century. Furthermore, it could reduce the emission of CO_2 equivalents in the atmosphere by 70 billion tons by 2050.

The scope of the energy efficiency labeling will be further determinded during the PPG phase. The possible target equipment in this project include refrigerators (both domestic and commercial), self-contained air-conditioners, spilt type air conditioners and water chilling units. The project will consider during the PPG phase if it can include boilers and electric water heaters in the scope of the project depending on the priorities and interests of the governmental stakeholders.

The energy efficiency labeling could be designed to have two crucial roles; (i) information on provision for consumers/end-users, and (ii) guiding the market transformation by incentivising manufacturers and importers to gradually shift energy efficient equipment. The strategy on how to set and how to frequently

update energy efficiency labeling would be key to paving a way for most energy efficient development of the country, as well as the market acceptance, therefore, leading to the overall success of the labeling system.

In this output, there are three main activities; (i) legal framework, (ii) institutional framework, and (iii) national standard and certification/licensing systems. As discussed in the baseline and project, AEEP has articulatd its plan on the energy efficiency labeling system but no action plan has been developed. This GEF project will expedite this process by focusing on the energy efficiency labeling mainly for refrigerators and air-conditioners, while the overall legal framework and policies in this project will be designed in a way that it's applicable to other appliances in consultation with the relevant governmental counterpart. Other appliances will be added by phase so that the same energy efficiency labeling regulations and policies will be applied across different appliances such as HVAC systems, heaters, flat-screen TV's, washers and driers. For this purpose, the project will engage the inter-ministry energy efficiency labeling technical sub-committee under ICE or a relevant coordinationg government body including; relevant ministries, customs office, standard authorities, possible certification institutions, representatives of importers, retail stores and consumers.

The legal/policy and institutional framework will articulate the responsibilities and roles of participating governmental institutions. The main focus of this output will be to establish technical capacities to set the standard, certify the labeled appliance, inspect imported equipment, and assess/plan energy efficiency market status needed for updating energy efficiency labels for the selected appliances. Due to the limited resources, the project will prioritize, whenever needed, the practical aspects of the implementation process of the labeling system. This includes setting the legal base including the label design, a sustainable mechanism to update the energy efficiency criteria, and enforcement to remove market transformation inhibitors.

The last critical result of this output is to determine how technical capacities are developed in the country. The foundation of the energy efficiency labeling need to be supported by the technical capacity to set up and certify the energy efficiency labeling in the country. Afghan National Standards Authority (ANSA) has a designated role to set standards and codes including minimum energy performance standards (MEPS) which sets minimum energy energy demands allowed for different types of appliances. How to set the minimum thresholds for various appliances is key to a successful implementation of MEPS which could promote energy efficient appliances at a pace suitable for the local market while keeping energy demands of the country within an acceptable level. It should be also noted that a few countries have successfully introduced MEPS. This project will learn from such success stories such as Ghana.

Output 1.2 Energy efficiency standards and labeling implemented

This output implements the standards and labeling scheme set in Output 1.1. This output will be implemented by closely monitoring the amount of equipment imported or manufactured complying with energy efficiency standards and the amount of equipment imported or manufactured with energy efficiency labels.

The decision making body of the proper implementation of the energy efficiency standards and labeling should be an inter-ministry technical committee fully endorsed by the Office of the President. In particular, NEPA and MEW will closely work to put the regulation and policy in place, plan the test-phase roll-out, train staff and stakeholders, and implement the national roll-out reflecting the feedback received from the test-phase. The execution of the national roll-out will be supported by the provincial and municipal government offices under the supervision of NEPA and MEW. Due to the high risk security status of some provinces, the implementation will focus on those provinces that are considered as relatively stable.

It is also important that both business and consumer communities believe that the labeling system is rolled out without loop holes and implemented with nationwide consistency. For doing so, the commitment of provincial offices of the national government, as well as strong political will of municipal governments are also keen to ensure the launching will be executed in a short period of time all over the country. Particularly

the enforcement by the customs office at border and other points of entry into the country will be announced with enough lead time and, once introduced, ought to be persistently applied to all imported equipment placed under this labeling system.

The inspections of energy efficiency labels and energy efficiency performance will be undertaken by a designated unit in the National Environmental Protection Agency. This activity will be supported by the training and awareness raising activities conducted in parallel. The training for trainers/faciliators will be followed by a national roll-out of stakeholder training and awareness raising events including policy makers, importers, retail sector, consumers, inspectors and servicing maintenance technicians. The outstanding trainees will be selected as influencers who are expected to play a change agent role to further disseminate the benefits and possible results of switching to properly energy efficiency labelled equipment.

Outcome 2. Energy efficient & safe cold value chains including distribution channels are enhanced by private finance

Output 2.1 SMEs along the cold value chains trained for energy efficiency and safe handling of flammable refrigerant charged equipment

This output will assist SMEs to strengthen absorption capacities of SME to install and maintain cold value chains in an energy efficient and safe manner. The majority of the private sector stakeholders constituting the cold value chain in the country are small and medium enterprises (SMEs) as defined in Table 2. Many of the companies have not been properly registered in the national business strategy. This output is to encourage the business registration while surveying potential key cold value chains to be further strengthened. In doing so, benefits of the business registration will be emphasized such as receiving training and capacity building opportunities. The pre-requisite of all companies which are interested in expressing their interests in receiving benefits from this project will be the full compliance in the process of the business registration process of the Afghanistan government.

As indicated in the section 4.8 of AEEP, behavioural change of the industrial end-users and household cosumers of energy in the form of energy conservation, lifestyle, awareness, low-cost actions, and small investments can lead to 5% to 10% in energy savings at a household or workplace level. Among the measures identified in AEEP, this proposed GEF project will assist the government in implementing the following activities for refrigerators and air-conditioners in close condition with GIZ.

For SME as industrial end-users, guidance documents providing information and guidance to help industrial end users identify energy efficiency opportunities in their processes and equipment. Relevant details can also be provided to implement basic energy efficiency, and refrigerant safety measures can be disseminated among government institutions and industrial associations. In particualr, how to benefit from energy efficiency labeling and how to communiate technical information for both business to business (B to B) marketing and business to consumer (B to C) advertisement will be highlighted.

Public campaigns through television programs and newspaper advertisements to reach out to the public sector and commercial enterprises propagating energy efficiency benefits and encouraging energy saving behaviour. The objectives are to induce a change in the users' behaviour by creating awareness of energy use and interest in its reduction.

An energy efficiency and refrigerant safety information website can be established and maintained jointly by the National Ozone Office and the Office of Energy Effficiency (OEE) to be established in NEPA which will have comprehensive information on incentives and policies that support energy efficiency in Afghanistan, case studies of sucessful implementation, information on manufacturer of energy efficient and safe equipment and guidance documents on energy efficient technologies and practices.

Three companies operating in different fields of cold storage and fruit processing industry have been visited by the UNIDO delegation as examples of possible beneficiary companies:

i) Heydari cold storage. Located close to Kabul fresh fruit center, it stores a wide range of fruits such as mangos, apples, peaches and cherries. It can store up to 1,300 tons of fruits at a temperature between -1 and 4 degrees. At the moment, the refrigeration cycle is manufactured by the American company carrier and uses R22 as a refrigerant. Due to the irregular flow of electric energy, Heydari also uses a diesel generator in case of emerency.

ii) Omaid Bahar Group. Established in 2009, it's the state-of-the-art facility with the most modern fruit processing technology imported from Italy and Sweden. The factory operates to the highest international standards of hygiene and safety. As such, it is one of a handful of factories in Afghanistan to have received ISO 22000 and HACCP certificates. Omaid Bahar employs around 150 workers and processes more than 40,000 tons of fruit annually, for a production rate of 70,000 liters/year.Omaid Bahar has a cold storage with R22, a 500 tons capacity and an energy consumption of around 25 ampere/hour. As Heydari, Omaid Bahar has its own diesel generator that is used in case of electricity cut offs.

iii) Ayoub Seyam Co. Ltd. has one of the largest cold storages in the country. It is located in the outskirts of Kabul and mainly stores imported frozen chicken in 7 cold storages each of which have a capacity of approximately 600m3. The cold storage is maintained under freezing temperatures with three Turish refrigeration systems. The power grid is unstable and the voltage of 220V power line showed only 187 voltage at the time of UNIDO's delegation visit. Therefore, the company has not only generators, but also large transformers to keep the input voltage at 220V.

The output of this assessment will include existing private sector's cold chain capacity referring to the baseline projects. Identified cold chain companies and contributors could be given priorities for the training sessions in the energy efficient and safe refrigerants funded by the MLF-funded projects in order to create synergies between the projects funded by GEF and MLF. The selection of the beneficiary companies will be made following UNIDO's procurement rules and regulations including posting call for interests with conditions and requirements to be selected as project beneficiary companies.

As a result of this output there will be a list of potential SMEs which could be further considered as potential beneficiaries of the investment matching. Business management consultation will be provided to convert their financial needs to investment opportunities.

Output 2.2 Partnership estalished with financial institutes providing green financing opportunities for cold value chains

This outcome will scale up the cold value chains by leveraging private finance by further building on UNIDO's established financing modalities and experiences.

UNIDO has closely worked with local, traditional financing institutions such as public and private banks in some projects requiring the establishment of financing instruments to scale up demonstrated results. In partnering with such financing institutions, beneficiary companies will be assessed from the traditional investment and business growth perspectives. The project will seek bankable opportunities in strengthening the cold value chain. For SMEs, technical, financial and business capacity building will be likely required to identify qualified bankable projects. This proposed GEF project will provide technical assistance to selected SMEs and financially support such capacity building and business assessment to help reduce investment risks.

In addition to the UNIDO's established network with financing and investment organizations, this project plans to engage fast growing impact investment communities and their investment resources. This proposed GEF project will present investment opportunities by identifying potential beneficiaries, their technical

capacities and financial robustness, market expectations, and its social and environmental benefits. In parallel to this, UNIDO plans to strengthen its SDG accelerator investment mechanism which could be in place in time to support this project. The project will support the establisment of how the SDG results can be defined and measured which will be reported to the investors. The SDG accelerator funding mechanism could leverage private finance from institutional investors and create more investment opportunities, while tracing and reporting the SDG results in a cost-conscious manner.

The expected results of this output include signed partnership documents, contracts issued to financial institutions, lists of selected SMEs which benefit from technical assistance and presented bankable projects related to cold value chains.

Output 2.3 Match making facilitated between investors and SME beneficiaries

National Agriculture Fair is held twice a year (March / October) by the Ministry of Agriculture in the country. A trade show was recently hosted in Mumbai, India for the Afghan products where contracts worth more than 166 confirmed deals and 600 memorandums were signed between Afghan and foreign businesses. Such trade shows usually happens in Dubai, Turkey and Delhi as well for product marketing and B to B matchmaking with Afghan SME's. This is an example of existing matchmaking opportunities. Both physical and virtual market places will be organized in the area of cold value chain and related areas such as building construction, agricultulral produces, frozen products, dairy produts, and/or medicines.

Once the selected SMEs are ready to offer investment opportunities with impacts clearly defined including how they are measured, an investment match making platform will be established to provide a market place where investors and beneficiaries could seek partners to an extent possible by targeting impact investors. In partnerships with International Finance Institutes (IFIs) which operates impact investment fund the investment opportunities will be grouped into impact related categories.

This proposed GEF project will provide the platform or strengthen an existing platform, if identified during the project preparation or implementation phase. This could be face-to-face opportunities in and outside the country or virtual ones. In doing so, influencers will be identified through UNIDO's existing investment network such as Private Financing Advisory Network (PFAN), UNIDO/GEF Global Cleantech Programme, global shapers of the World Economic Forum and other global leader/investment initiatives, and the platform will be jointly strengthened or created. Depending on the type of the platform, at the end of the project, it will be closed or handed over to an organization selected going through due diligence.

For this match-making exercise, mobile facilities and transport equipment such as refrigerator trucks could be included. Such equipment are usually diesel powered and cause air pollution as well. In this sector, the main target would be servicing sector for the mobile air conditioner (air conditioner units installed in passenger cabins) as well as refrigerator containers loaded on trucks.

The expected results of this output include investment opportunities including business plans to be presented to potential investors, organized matchmaking events, and records of communications between beneficiary companies and potential investors

Output 2.4 Agreements reached for installment of energy efficient equipment along cold value chains for SMEs

The project looks into each case of identified combinations of possible impact investors and SME beneficiaries in order to accelerate the adoption of energy efficient cold chain technologies. This output will identify additional financing institutes to further sweeten the deal so that investment decisions could be made and agreements will be signed. In case that a structured financing makes sense, international or local banks could be invited to take over the less risky/higher return part of the structured financing. The project will

establish a revolving fund for the purpose of cover the high risk part of the investment. Due to the limited time constraints, the project might not be able to follow up until the completion of the invested facilities.

The impact of the investment, if impact investors are identified, will be agreed on how to define, measure and report. The agreed impact indicators will be linked to the Sustainable Development Goal (SDGs) indicators, and so the investors could claim their impacts as their contribution to the SDGs. The indicators will follow the SMART criteria (specific, measurable, assignable, realistic, and time-related) but refer to outcome indicators that involve the reactions, behavior change, and commitment from the beneficiary companies (e.g. Bennet hierarchy levels 3-7 or impact indicators selected by the Global Impact Investment Network (https://iris.thegiin.org/) or Impact Investment Project (www.impactinvestmentproject.com).

In order to establish a technical foundation for launching a national energy efficiency and its labeling scheme, a laboratory facility to standardize the energy efficiency measurements for Afghanistan is required. Following the legal and institutional framework to be finalized by Outputs 1.1 and 1.2, this output will seek private finance to build the national technical capacities to support the implementation of the energy efficiency labeling. The beneficiary of this output will be expected to maintain and provide the energy efficiency laboratory function for standard setting and/or certification, as decided in the framework in Output 1.1. The process of selection of the beneficiary will be decided during the project preparation phase including the terms of reference of the beneficiary and/or memorandum of understanding that will further articulate co-financing requirements and institutional responsibilities as beneficiary. Co-financing requirements could include own investment by the beneficiaries and sustainable financial mechanisms to sustain and update the testing facility. The output will assist the government to set up its certification service center capable of certifying energy efficiency specifications of appliances where the energy efficiency of domestic and commercial refrigerators and air-conditioners can be tested. A climate chamber or testing room will be capable of testing internationally accepted standards such as domestic refrigeration EN 62552, commercial refrigerators UNI23953 (ex EN 441), and domestic and commercial air-conditioning system EN 14511/EN 14825.

The expected results of this output include selected impact indicators including their definition and how they are measured, its association to SDGs, drafted investment agreements and signed invesetment agreements.

Outcome 3 Project monitoring and evaluation

Output 3.1 Baseline set and communication strategy mainstreamed
The logframe of this project will incorporate UNIDO's set of outcome and project output indicators. The baseline set during the PPG phase will be updated at the onset of the project initiatial phase. Some indicators set by UNIDO now require beneficiary's reactions and responses. Project outputs will be also monitored as part of the work to report success stories of the project. A project communication strategy will be developed to mainstream project activities to ensure the impact of the project activities and responses from beneficiaries are properly recorded and communicated among stakeholders.

Output 3.2 Project monitored
The project monitoring will be a part of the project office set up by the project jointly with the National Execution Agency, NEPA. The targets of the indicators set in the logframe will be further adjusted during the PPG phase, while they will be updated regularly including at the time of mid-term and terminal evaluations.

Output 3.3 Project evaluated
The project evaluation (A mid term and final evaluations will be carried out locally) will be conducted following the evaluation process of UNIDO in line with the GEF's evaluation policy.

(4) Alignment with GEF Focal Area and/or Impact Program strategies

The programming directions of CCM-1-3 has been chosen for this project. This project both expands the availability of energy efficient technologies/proven approaches and the adoption and up-scale of the energy efficient technologies in prescribing technical options suited for the local market conditions. As prioritized in the GEF7 Programming Directions, this project focuses on creating an enabling environmetn for energy efficient equipment and appliances with UNIDO's technical assitance and abundant experiences in this area. The outputs are designed to address to introduce the labeling, providing technical assitance and awareness and financing for scaling up to accelerate the technical transfer process which is the government's priority clearly articualted in AEEP.

(5) Incremental/additional cost reasoning and expected contributions from the baseline, GEFTF and co-financing:

The baseline projects listed in the above have established founations on which this project could be futher implemented. GIZ has led the development aid work with other agencies to build energy related infrastructure by assisting the Ministry of Energy and Water to develop its technical and institutional capacities. The agricultural sector has smoothly reconstructed limited but improved irrigation systems and trade infrasructure, leading to increased harvesting and trading.

Therefore, the demand for the cold value chains for building, agricultural products and medisines is expected to hike up as the economy grows. As AEEP indicates, more efforts would be needed to ensure the new equipment imported and introduced to the local market is energy efficient. For achieving this, the combination of awareness, policies, technical capcities and financing in the area of cold supply chains is critical. The incremental cost of GEFTF requested in this project will support the country's prioritized policies to ensure the energy demand will stay within its power generation capacity.

A majority part of the incremental cost should come from co-financing activity contributions of stakeholders. Their contribution are expected for each output as described in the table under the Stakeholders section below. The government counterpart contributes to the project by working to integrate project resources and results into the government's own initiative and providing political and legislative support. The National Environmental Protection Agency (NEPA) will establish a project office where UNIDO project staff will be given office spaces and relevant office adminitration support as its co-financing contribution. The project staff involved in the project willl be dedicated to providing political support to the project, ensuring that the project activities are well coodinated with the government's activities and that administration procedures of the project's support activities are smoothly followed up along its work flow. The Ministry of Energy and Water (MEW) is expected, through the inter-ministerial project coordination mechanism designated for this project, to advise the project personnel to align its activities with other energy providion and efficiency related activities. The results of the project will need to be scaled up/rolled out to equipment other than home appliances and cold chain equipment. The advice and support from the Ministry of Industry and Commerce (MoIC) would be critical in identifying the best available platform and network for promoting the investment in energy efficient and safe cold chain. Therefore MoIC will be kept informed of the project from the onset of the project.

GIZ who leads the energy related international development aid in the country has agreed to contribute as a co-financing partner. The activities of GIZ will be wider in topics and larger in scale. The energy efficienty, however, has not been a priority until now, as it is planned in the TERM 2 of AEEP. It is expected that the GIZ activities focus on power generation and transmission. The nation-wide roll out of energy efficiency labels for appliances and equipment other than home appliances and cold chain related equipment could be taken care of by GIZ as its co-financing activities.

The Afghan-Korean Institute will function as a training hub for replicating the technical capacity building on energy efficient and safe cold chain. It is likely that AKI will need initial training on how to best maintain the equipment condition to keep the energy efficiency to the original specification during servicing of the home appliance and cold chain equipment.

Based on the contributions from baseline projects and co-financing contributions, this proposed GEF project request GEF to provide the incremental cost in order to deliver the outputs described in the above. The project outputs are in line with the national plans and policies of Afghanistan where many baseline projects have invested in generating and transmitting electricity as well as producing more agricultural products, and this proposed GEF project with all climat change STAR allocation will further assist the national development by accelerating the implementatin of the national energy efficiency action plan.

(6) Global environmental benefits:

The effect of energy efficiency labeling is known as 5-10% of the household power consumption. The direct and indirect reduction of greenhouse gas as CO2 is calculated. The calculation does not include HCFC phase out benefits at the PIF stage despite the fact that will be reported to MLF in the equivalent of CO2 reduction. If possible, HCFC's contribution as CO2e will be estimated durign the PPG phase and added as co-benefit of this project. In addition, it is expected that this project promoting the safe use of low GWP refrigerants will lead to the accelerated HFC phase down and, therefore, such estimations are included wherever possible by clearly indicating the calculation breakdown.

The direct and indirect CO2 emission avoided by the introduction of the energy efficiency labeling have been estimated as 0.126 million tons under the assumption that every year 12,000 refrigerators and 1400 air-conditioners will be imported with labels after the project starts. The expected life year has been assumed as 10 years. More details are provided in Annex B. Energy efficiency gains from the cold chain through investment will be further estimated during the PPG.

Where possible, CO2eq emission reduction benefit by avoided food loss and waste will be also counted as GEB benefits.

(7) Innovation, sustainability and potential for scaling up:

Until recently there have been a limited number of cold chain projects which have attempted to generate synergies between projects funded by GEF and the Multilateral Fund for the Implementation of the Montreal Protocol (MLF), particularly in the area of energy efficiency and safety of alternative flammable refrigerants. The Kigali Amendment which enters into force in 2019, however, highlighted the global need for such projects and has resulted in an increase in attention. The cold chain projects funded by GEF have not been necessarily focusing on the flammability of the alternative refrigerants. The phase-down of HFC mandated by the Kigali Amendment along its long term planning will give challenges to a country such as Afghanistan. The incremental operational cost of the flammable natural refrigerants are usually close to zero or minus, and therefore there is a business case where the conversion to non-HFC refrigerants should be supported. The barrier to the conversion is the safety of the alternative choices and perception of the stakeholders and consumers.

This project will be a model for seeking synergies between different environmental funds to focus on a common goal by clarifying how to divide the work to promote the energy efficient and safe cold value chain without funding overlapping activities. This could be replicated, with some customization needed for specific conditions of each eligible country, in most developing countries where energy efficient and safe cold chain could benefit sustainable development toward the 2030 Sustainable Development Goals.

The energy efficiency labels will need to be updated every couple of years in order to ensure the market leading energy efficient equipment is adequately promoted in a fast changing market. During the project preparation period, a sustainable implementation mechanism of energy efficiency labeling to assess the energy efficiency specifications of home appliances available on the local market periodically will be proposed. The sustainability of the energy efficiency labeling can be maintained only by having this implementation mechanism in place, which will be made possible jointly by NEPA and MEW.

Refrigeration extends shelf life and decreases the overall spoilage, but it also leads to consumption habits that increase food waste (Heard and Miller, 2016). Such as, the tendency to overbuy - an issue that has started taking place in developed countries. Throwing food away represents not only a loss, but it is also a misuse of the resources employed in the production process such as land, water, energy, fertilizer and, more generally, money. Therefore, the sustainability of an efficient cold chain can be effectively exploited only if coupled with the fostering of sustainable habits of the end consumers such as awareness raising of avoiding food loss and waste.

The potential for scaling up is supported by the investment component of this project. As explained in Outputs 2-2 to 2-4, this project will tap into the possible investors' interests in green financing opportunities for cold value chains by partnering with financial institutes and possible beneficiary companies. This project will build on existing investment match making events and, where relevant, UNIDO's existing financing models will be also engaged.

1b. *Project Map and Coordinates.* Please provide geo-referenced information and map where the project interventions will take place.

The project will focus on Kabul and Herat. Kabul (34.5553° N, 69.2075° E) is not only a financial/industrial hub but also logistical hub for cold value chains due to trade air corridors being strengthened. Herat (34.3529° N, 62.2040° E) is the third largest city of the country and is one of the agricultural production hubs in the country. There are also some agricultural processing factories in the city.

2. *Stakeholders.* Select the stakeholders that have participated in consultations during the project identification phase:

☐ Indigenous Peoples and Local Communities;

☒ Civil Society Organizations;

☒ Private Sector Entities;

☐ If None of the above, please explain why.

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Some of the responsibilities by major stakeholders include but not limited to the following.

Outputs	Responsibilities and stakeholders (proejct funds)	Co-financing contributions
1.1 Energy efficiency standards and labeling for refrigerators and air-conditioners adopted by governmental institutes in line with Afghanistan Energy Efficiency Policy.	National Execution: National Environmental Protection Agency (NEPA) Drafting legislative documents, labeling documents and related coordination: Ministry of Energy and Water (MEW) Review of existing standards and drafting new ones, if needed: Afghan National Standards Authority (ANSA) Provision of inputs/feedback on energy efficiency policies from gender mainstreaming and civil organization viewpoints: Afghanistan Women Chamber of Commerce and Industry (AWCCI) or Equity for Peace and Democracy (EPD)	Providing basic political and administrative support: NEPA Realignment of energy efficiency policies, labeling, and related legal framework: Ministry of Energy and Water (MEW) Inter-ministerial coordination, reviews of related documents and drafts by consolidating various views/feedback from a wide range of stakeholders: Inter-Ministerial Commission for Energy (ICE) Providing inputs and alignment with other energy efficiency related activities: GIZ

1.2 Energy efficiency standards and labeling implemented	National Execution: NEPA Energy efficiency labeling to be rolled out nationally through the municipal government offices as well as Chamber of Commerce: MEW Establishment, publication, and disseminating of new energy efficiency related standards:ANSA Awareness raising of energy efficiency labeling particularly among consumers and female end users: AWCCI or EPD	Providing basic political and administrative support: NEPA Providing nation-wide reach out and enforcement of energy efficiency labeling: MEW Inter-ministerial coordination including customs office for imported appliances, reviews of related documents and drafts:ICE Data collection for AEEP indicators: Central Statistics Organization (CSO) Providing inputs and alignment with other energy efficiency related activities: GIZ
2.1SMEs along the cold value chains trained for energy efficiency and safe handling of flammable refrigerant charged equipment	National Execution and coordination to provide technical training on energy efficiency and safe handling of flammable refrigerants: NEPA Energy efficiency solutions provided: MEW Awareness raising and coordination among stakeholders along the identified cold value chains: Afghanistan Chamber of Commerce and Industries (ACCI) and AWCCI	Providing basic political and administrative support: NEPA Providing training resources on energy efficiency: MEW Providing technical advice and training: GIZ Adopting energy efficiency and safe handling of flammable refrigerants into its curriculum: Afghan-Korean Institute
2.2 Partnership established with financial institutes providing green financing opportunities for cold value chains.	National Execution and coordination with financial institutes and stakeholders including the Ministry of Finance: NEPA Awareness raising and coordination among stakeholders along the identified cold value chains: Chamber of Commerce and AWCCI	Providing basic political and administrative support: NEPA Providing existing cases and coordination with financial institutes and stakeholders including the Ministry of Finance: MEW Promoting and attracting investments in energy efficiency sector: Ministry of Industry and Commerce (MoIC) Providing technicaland financial advice and coordination with other activities: GIZ
2.3 Match making facilitated between investors and SME beneficiaries.	National Execution and coordination with financial institutes and stakeholders including the Ministry of Finance: NEPA Financial assessment and identification of bankable projects: International and local financing institutes Providing match making platforms and coordination among stakeholders along the identified cold value chains: ACCI and AWCCI	Providing basic political and administrative support: NEPA Providing existing cases and coordination with financial institutes and stakeholders including the Ministry of Finance: MEW Promoting and attracting investments in energy efficiency sector: Ministry of Industry and Commerce (MoIC) Providing technicaland financial advice and coordination with other activities: GIZ
2.4 Agreements reached for installment of energy	National Execution and coordination with financial institutes and stakeholders including	Providing basic political and

efficient equipment along cold value chains for SMEs.	the Ministry of Finance: NEPA Coordination among stakeholders along the identified cold value chains: ACCI and AWCCI	administrative support: NEPA Providing existing cases and coordination with financial institutes and stakeholders including the Ministry of Finance: MEW Promoting and attracting investments in energy efficiency sector: Ministry of Industry and Commerce (MoIC) Providing technicaland financial advice and coordination with other activities: GIZ
3.1 Baseline set and communication strategy mainstreamed.	National Execution: NEPA	Providing basic political and administrative support: NEPA
3.2 Project monitored.	National Execution: NEPA	Providing basic political and administrative support: NEPA
3.3 Project evaluated.	National Execution: NEPA	Providing basic political and administrative support: NEPA

Several non-governmental organisations and civil organisations will be invited to the project steering committee, as well as the energy efficiency labeling technical committee. The Chamber of Commerce of Afghanistan will represent the private sector in the technical discussion, while it provides contact points to identify the possible beneficiary and partner of the project. Afghan Korean Institute is a vocational institute which provides some credits for students who choose its refrigeration maintenance course. The teaching staff of AKI provides technical knowledge in the area of energy efficient and safe cold chain infrastucture. Afghanistan Women Chamber of Commerce and Industry (AWCCI) and Equality for Peace and Democracy (EPD) are NGOs active in the related social issues, as well as women's empowerment. AWCCI and EPD provide not only female view points that are critical to ensure the gender mainstreaming of the project, but also represent key consumers of home appliances.

3. Gender Equality and Women's Empowerment. Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis). Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? yes ☒ /no ☐ / tbd ☐ ; If possible, indicate in which results area(s) the project is expected to contribute to gender equality:
☐ closing gender gaps in access to and control over natural resources;
☒ improving women's participation and decision-making; and/or
☒ generating socio-economic benefits or services for women.
Will the project's results framework or logical framework include gender-sensitive indicators? yes☒ /no ☐ / tbd ☐

Since the fall of the Taliban in 2001, Afghanistan's law has made progress in trying to protect the rights of women. Contrary to what happened during the Taliban regime, women are now able to go to school, work, vote and partially participate in the political scene. However, the level of concern for this matter is still high among the most important NGOs and institutions focusing on human rights. According to the UNDP's 2016 Human Development Report on Afghanistan, the Gender Development Index (GDI) of the country is 0.609, placing the country into group 5 (i.e. countries with very low equality in HDI achievements between women and men). As for the Gender Inequality Index (GII), Afghanistan has a value of 0.667, ranking it 154 out of 159 countries on the 2015 index. In the country, 27.4% of parliamentary seats are held by women and 8.8%

of adult women have reached at least a secondary level of education compared to 35.4% of the male population. Female participation in the labor market is 18.1% compared to 83.6% for men. In 2015, for every 100,000 live births, 396 women die from pregnancy related causes and the adolescent birth rate is 74 births per 1,000 women aged 15-19. These statistics give a snapshot of the domestic situation regarding challenges facing this project's gender mainstreaming strategy.

To meet these challenges, however, the project aims to cooperate with certain key civil society organizations that bring female perspectives front and centre. One such organization is the Afghanistan Women Chamber of Commerce and Industry (AWCCI). AWCCI was started by a group of active women entrepreneurs who unified to establish a common voice. Together they advocate for achieving the economic stability of women and ensuring their economic participation is valued and recognized. Some of their recent achievments include establishing a Women Bazaar in the Balkh province with over 40 commercial booth, along with facilitating a three-month training course for members involved in the jewlery manufacturing sector. These tangible outputs reveal not only the potential momentum of collaboration, but also the unique extertise that can be capitalized upon to achieve vital socio-economic benefits for women in Afghanistan. Specifically, this project aims to issue a training contract in partnership with the AWCCI and suitable female entrepreneurs who rely on refrigeration technology as part of their commercial supply-chain. Through hands-on training like the one proposed, female entrepreneurs and consumers will become well-versed in the importance of energy efficincy of both home appliances and commercial refrigerent equipment. In turn, this initiative aims to empower women as both economically active entrepreneurs as well as important consumers in the cold storage and appliance market. Through such efforts, the project would contribute to broader efforts such as improving Afghanistan's GII and GDI indicator score.

4. Private sector engagement. Will there be private sector engagement in the project? (yes ☒ /no ☐). Please briefly explain the rationale behind your answer.

For UNIDO, SDG 9 – Industry, Innovation and Infrastructure - remains the primary focus. SDG 9 underpins many of the other SDGs and as such, UNIDO has the potential to significantly impact development areas outside of its immediate focus.

The involvement of the private sector is key to the successful scale up of this project under Outcome 2. Recent estimates indicate that the SDGs will require around US$5-7 trillion of annual public and private investment in order to bring in the required innovation, expertise and additional resources.

As a part of the overall initiative to set up financing mechanisms to scale-up the impact towards the achievement of SDGs, UNIDO has leveraged both private financiers and conscious donors to close this financing gap and scale up SME development. This has been achieved through the development of a investment schemes that assesse market conditions and SMEs investments, their committed impact in terms of SDGs and standard business key performance indicators. Suitable SMEs are provided with access to financing resources that will dramatically boost their crucial contribution towards reaching the SDGs.

UNIDO’s mainstream services to strengthen SMEs which contribute to maintaining dynamic and innovative market conditions are essential to the SME's healthy competitive growth. The services include capacity building for SMEs and entrepreneurs to improve their knowledge and understanding of financing instruments available for their needs as well as provide technical assistance for the development of proposals that prioritize circular economy thinking.

To date, UNIDO has developed several investment projects establishing revolving funds and other financial mechanisms and is planning to establish its impact investment assistance mechanism. These projects have been implemented with the aim of scaling up the impact of UNIDO’s technical cooperation (TC) activities and improving operational efficiency within the organisation through leveraging private investment. In particular, UNIDO’s efforts have been concentrating on assisting small-medium enterprises due to their

relevant role in the market and limits in accessing their required resources. This project will apply lessons learned from such precedented financial modalities.

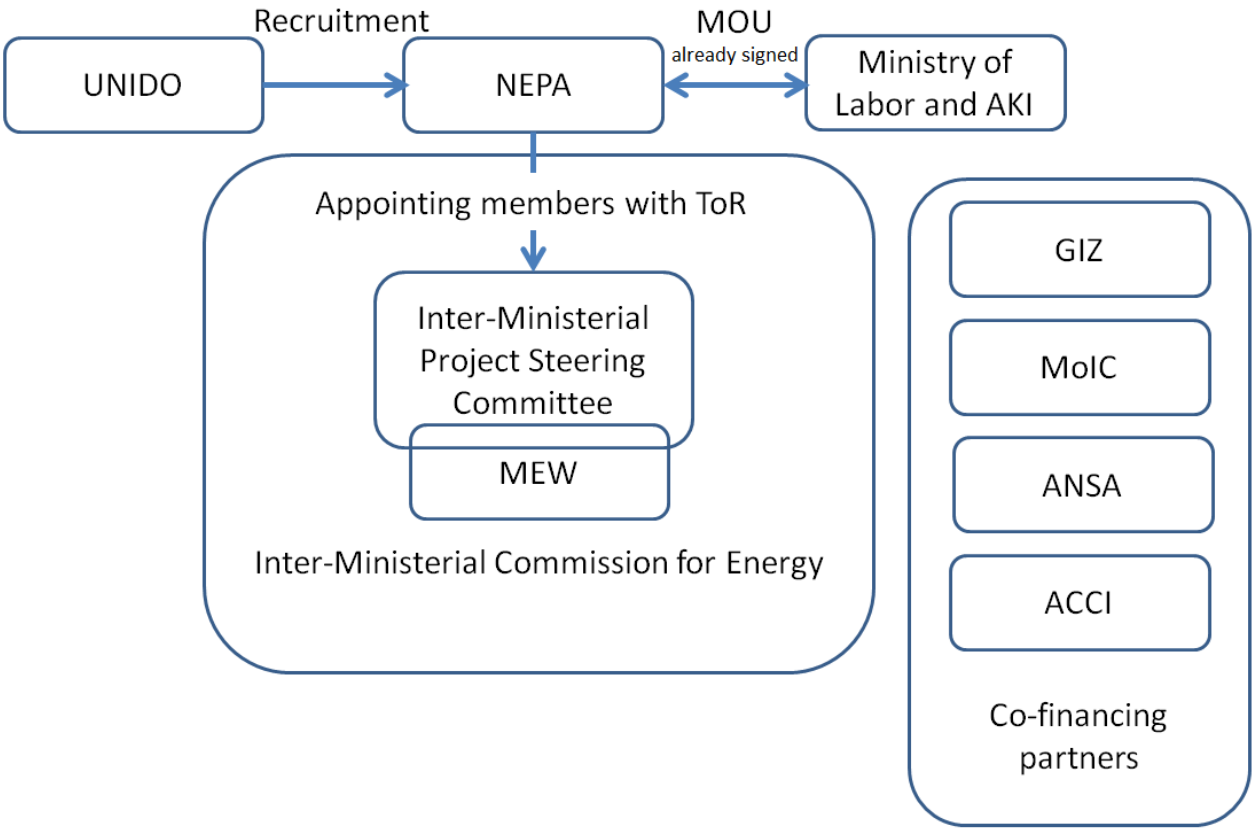
5. Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved or may be resulting from project implementation, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).

Risk	Rating	Mitigation Measures
Manufacturing and import stakeholders might not be willing to collaborate with the project activities.	L	The benefits (environmental, health, social, economic) of this project and its endorsement by the government will be clearly explained to people implicated in its implementation prior to it being launched.
The government's budget and capacities to inspect and enforce the relevant regulations and codes may not be sufficient.	M	The government will seek synergies with on-going baseline activities.
The energy efficiency labeling might not be widely accepted by retail stores and consumers and, therefore the market transformation could be slower than planned.	M	Awareness raising activities will communicate financial benefits of energy efficient equipment, while energy efficiency labels will have user-friendly design including for those who could be illiterate.
The flammable refrigerants which will be promoted in compliance with the Kigali Amendment might cause explosions in the equuipment installed by the project.	M	The project will be carried out in parallel to the MLF-funded HCFC phase out project. In the MLF-UNIDO project, the safety of the refrigerants is being ensured by strengthening capacities in the servicing sector which can best prevent such incidents in an efficient and effective manner.
(Climate Change Risk) The project beneficiaries might be vulnerable to flood and other disaster risks.	L	Project sites will be selected taking into consideration the flood and other climate change risks.

6. Coordination. Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

The project will be executed by UNIDO in close consultation with NEPA. The work plan will be developed during the project preparation phase in close coordination with NEPA and relevant stakeholders including MEW. The national project office to be established in NEPA will be the main local coordination body including monitoring and evaluation in the country. The project steering committee is expected to:

- Provide policy guidelines for proper implementation of the project;
- Review the implementation of the project;
- Monitor project activities;
- Discuss problems and provide guidelines for solutions;
- Share ideas of innovations;
- Enhance inter- ministry / inter-agency coordination;
- Approve annual work plan.



This GEF project will closely collaborate with GIZ. GIZ implements the Afghanistan Energy Efficiency Policy with GIZ's Institutional Development for Energy in Afghanistan (IDEA) as the main operator of the project. GIZ IDEA and the headquarters reviewed the project logframe (Annex G) and provided positive feedback.

UNIDO jointly with UN Enivironment is implementing projects funded by the Multilateral Fund for the Implementation of the Montreal Protocol. Two UNIDO projects, AFG/PHA/77/INV/20 and AFG/PHA/79/INV/22, will support this GEF project particularly with the technical expertise on how to keep the refrigerators and air-conditioners energy efficient and maintain them safely. This GEF project will not fund the activities planned under the MLF projects.

The United Nations Food and Agricultural Organisation (FAO) is planning to start its GEF project, "Community-based sustainable land and forest management in Afghanistan" (GEF ID: 9285). The project aims to support integrated, community-based approaches to sustainable land and forest management in Afghanistan for promoting biodiversity conservation, climate change mitigation and rangeland productivity. UNIDO is currently housed in the FAO's premise in Kabul. FAO supports UNIDO's actions such as issuing UN flight tickets. The UNIDO delegation explored possible co-financing activities of these GEF projects with the FAO. The FAO project target to improve rangeland productivity. Cold chains are key to bringing dairy products to urban areas. Possible collaborations will be further discussed during the project preparation phase.

As the GEF Implementing Agency, UNIDO will lead the process of project preparation and development with the participation of key stakeholders from the Government and the Private Sector. The project execution will be undertaken through multiple contractual arrangements between UNIDO and national governmental entities, and industry associations. On request of the Government UNIDO will also provide targeted

technical assistance and administrative execution support, which will be further discussed with national stakeholders during the PPG phase and elaborated in detail in the CEO Endorsement document.

Full or partial title and ownership of equipment purchased under the project may be transferred to national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the UNIDO Project Manager in consultation with project stakeholders..

7. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessements under relevant conventions? (yes ☒ /no ☐). If yes, which ones and how:
- National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC
- National Action Program (NAP) under UNCCD
- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury
- Minamata Initial Assessment (MIA) under Minamata Convention
- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD
- National Communications (NC) under UNFCCC
- Technology Needs Assessment (TNA) under UNFCCC
- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD
- National Implementation Plan (NIP) under POPs
- Poverty Reduction Strategy Paper (PRSP)
- National Portfolio Formulation Exercise (NPFE) under GEFSEC
- Biennial Update Report (BUR) under UNFCCC
- Others

With regard to energy efficiency, there are two key national documents; the Intended Nationally Determined Contribution (INDC) in 2015 and the Afghanistan Energy Efficiency Policy (AEEP) in 2016. Both documents have energy efficiency as their top national priorities of the government in order to achieve the sustainable development of Afghanistan.

There was a meeting held at NEPA with high-level government officials during this PIF draft stage which directed this project to focus on the energy efficiency labeling. This project is highly relevant in meeting the national priorites towards sustainable development and its 2030 goals.

The National Priority Program (NPP) outlines energy efficiency as a priority area, emphasizing the need to raise awareness and promote energy efficiency related policy actions. Low emission development strategies (LEDS) follow the overall framework provided by NPP, as well as the Afghanistan National Development Strategy. It is designed to promote economic development while keeping GHG emissions lower than what would have happened in the business-as-usual scenario. NPP clearly aims at enabling the economic growth on a low emissions trajectory.

The National Export Strategy (NES 2018-2022) continues to encourage national efforts to increase trade competitiveness. It aims at bringing policy convergence, institutional alignment and strategic private sector support. This GEF project will align its activities with the stakeholders of NES. At present, Afghan exports of fruits and vegetables are concentrated in a few regional markets, namely India and Pakistan. This leaves the sector with many opportunities to expand its export reach in both the East and the West. Countries such as; Korea and Iran, alongside more regions in India and Pakistan could be targeted. However, this can only be accomplished with a concerted effort to develop a premium brand and address quality-control and food safety issues. A weak national cold chain infrastructure and lack of refrigerated trucks have been identified as bottle necks in the strategic objectives 2 and 3 of NES, "Reclaim prominent global reputation through

improved packaging and sound market insertion strategies" and "Reduce post-harvest losses across the value chain by addressing technical and non-technical issues" respectively. The investment in cold chain infrastructure is highly encouraged. This project has the potential to address these issues.

8. Knowledge Management. Outline the "Knowledge Management Approach" for the project and how it will contribute to the project's overall impact, including plans to learn from relevant projects, initiatives and evaluations.

The project will set up different levels of knowledge management mechanisms.

The most important knowledge management mechanism to be set up is in the NEPA and the inter-ministerial coordination mechanism. The project will provide technical information and financial settings of the project following the capacity building and knowledge depository policy of the NEPA and the Government of Afghanistan where relevant. It is believed output-driven results communicatin and knowledge sharing keeps the project's communication focused and relevant for the target audiences. The project will set up a knowledge depository in the NEPA to maintain the institutional memory critical for sustaining the energy efficiency labeling implementation scheme in particular.

At the national level, those who will be involved in the project's financing component will learn from UNIDO's other on-going cold chain projects as well as energy efficiency and trade-quality enhancement projects. The training materials, expertise, and lessons learnt from the MLF-funded projects will be applied to this GEF project where relevant. The incremental cost guidelines on upgrading products and processes to be developed for domestic, commercial and retail refrigeration equipment with the funding of the Kigali Cooling Efficiency Program will be shared through UNIDO. This project will also share cross-cutting aspects along the cold value chain such as post-harvest quality assurance, food-processing, standards for trade quality, and energy efficiency and refrigerant safety in the retail sector.

Regionally, knowledge sharing and management cannot be necessarily handled in a centralized manner. Rather it should be driven by economic opportunites and business investment transactions in addition to traditional management mechanisms such as training and awareness raising by experts and publications on public domains and websites. The match-making and investment agreement will be followed up by a local partner for developing success business stories.

Considering the cultural background and acceptable practices in local communities, there should be knowledge management approach tailored to women and female stakeholders. AWCCI will be approached as a possible partner to advise how the above knowledge management mechanism could encourage female views and design an additional women specific knowledge management mechanism.

The project results will be also shared with co-financing partners and stakeholders at project steering committees and other occasions. The results will be be disseminated through the partners' communication channels in addition to the UNIDO's Open Project Platform, open.unido.org.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this SGP OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
His Excellency Mr. Schah Zaman Maiwandi	Member of the Council of Ministers Advisor to the President on the Environment	**NATIONAL ENVIRONMENTAL PROTECTION AGENCY**	**10/22/2018**

Annex A

PROGRAM/PROJECT MAP AND GEOGRAPHIC COORDINATES

The geographical coordinates of Kabul: 34.5553° N, 69.2075° E and Herat: 34.3529° N, 62.2040° E.


Herat
Kabul
AFGHANISTAN
100km

Annex B

GEF 7 Core Indicator Worksheet

Core Indicator 1	**Terrestrial protected areas created or under improved management for conservation and sustainable use**						***(Hectares)***
			Hectares (1.1+1.2)				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
Indicator 1.1	Terrestrial protected areas newly created						
Name of Protected Area	WDPA ID	IUCN category	Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
		(select)					
		(select)					
		Sum					
Indicator 1.2	Terrestrial protected areas under improved management effectiveness						
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score			
				Baseline		Achieved	
				Endorsement	MTR	TE	
		(select)					
		(select)					
		Sum					
Core Indicator 2	**Marine protected areas created or under improved management for conservation and sustainable use**						***(Hectares)***
			Hectares (2.1+2.2)				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	*TE*	
Indicator 2.1	Marine protected areas newly created						
Name of Protected Area	WDPA ID	IUCN category	Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
		(select)					
		(select)					
		Sum					
Indicator 2.2	Marine protected areas under improved management effectiveness						
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score (Scale 1-3)			
				Baseline		Achieved	
				PIF stage	Endorsement	MTR	TE
		(select)					
		(select)					
		Sum					
Core Indicator 3	**Area of land restored**						***(Hectares)***
			Hectares (3.1+3.2+3.3+3.4)				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
Indicator 3.1	Area of degraded agricultural land restored						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
Indicator 3.2	Area of forest and forest land restored						
			Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	

Indicator 3.3	Area of natural grass and shrublands restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.4	Area of wetlands (including estuaries, mangroves) restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 4	**Area of landscapes under improved practices (hectares; excluding protected areas)**					***(Hectares)***
			Hectares (4.1+4.2+4.3+4.4)			
			Expected		Expected	
			PIF stage	Endorsement	MTR	TE
Indicator 4.1	Area of landscapes under improved management to benefit biodiversity					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.2	Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.3	Area of landscapes under sustainable land management in production systems					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.4	Area of High Conservation Value Forest (HCVF) loss avoided					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 5	**Area of marine habitat under improved practices to benefit biodiversity**					***(Hectares)***
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 6	**Greenhouse gas emission mitigated**					***(Tons)***
			Tons (6.1+6.2)			

			Entered		Entered	
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector					
			Tons			
			Entered		Entered	
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
	Anticipated Year					
Indicator 6.2	Emissions avoided					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)		*0.38*			
	Expected CO2e (indirect)		*0.89*			
	Anticipated Year		*2033*			
Indicator 6.3	Energy saved					
			MJ			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 6.4	Increase in installed renewable energy capacity per technology					
		Technology	Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		(select)				
		(select)				
Core Indicator 7	**Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**					***(Number)***
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products					
		Shared water ecosystem	Rating (scale 1-4)			
			Rating		Rating	
			PIF stage	Endorsement	MTR	TE
Core Indicator 8	**Globally over-exploited fisheries Moved to more sustainable levels**					***(Tons)***
			Metric Tons			
			PIF stage	Endorsement	MTR	TE
Core	**Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals**					***(Tons)***

Indicator 9	**of global concern and their waste in the environment and in processes, materials and products**					
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) and POPs containing materials and products removed or disposed					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
(select)	(select)	(select)				
(select)	(select)	(select)				
(select)	(select)	(select)				
Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.3	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.4	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 10	**Reduction, avoidance of emissions of POPs to air from point and non-point sources**					***(Grams)***
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 10.3	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					***(Number)***
					Number Achieved	
					MTR	TE
				Female	*4*	
				Male	*16*	
				Total	*20*	

Assumption for energy efficiency gains from the labeled refrigerators
Numer of refrigerators: 12,000 per year
Number of air conditioners: 14,000 per year
Expected life year: 10 years
Power demand of typical refrigerators: 180W
Power demand of typical air conditioner: 2400W
Energy efficiency gain due to the labeling: 10%
Grid loss: 32%
Energy mix: 22.7% Domestic Prodution, 77.7% Imported
Domestic Production: Hydro 94%, Diesel 2%, Coal 2..95%, Oil 0.083%, and Gas 1.1%
Import Production: See Attached Excel Sheet for breakdown of Uzbekistan, Tajikistan, Iran, and Turkmenistan
Estimated number of operation days: 200 days
CO2 emission factor of hydropower: 0
CO2 emission factor of diesel: 0.0741 tCO2/GJ
CO2 emission factor of coal: 0.0983 tCO2/GJ
CO2 emission factor of oil: 0.0774 tCO2/GJ
CO2 emission factor of gas: 0.0561 tCO2/GJ

Energy efficiency gains from the cold chain through investment : to be further estimated during the PPG.

Annex C

GEF 7 TAXONOMY

Level 1	Level 2	Level 3	Level 4
☒**Influencing models**			
	☐**Transform policy and regulatory environments**		
	☐**Strengthen institutional capacity and decision-making**		
	☐**Convene multi-stakeholder alliances**		
	☐**Demonstrate innovative approaches**		
	☒**Deploy innovative financial instruments**		
☒**Stakeholders**			
	☐**Indigenous Peoples**		
	☒**Private Sector**		
		☐Capital providers	
		☒Financial intermediaries and market facilitators	
		☐Large corporations	
		☒SMEs	
		☐Individuals/Entrepreneurs	
		☐Non-Grant Pilot	
		☐Project Reflow	
	☐**Beneficiaries**		
	☐**Local Communities**		
	☐**Civil Society**		
		☐Community Based Organization	
		☐Non-Governmental Organization	
		☐Academia	
		☐Trade Unions and Workers Unions	
	☐**Type of Engagement**		
		☐Information Dissemination	
		☐Partnership	
		☐Consultation	
		☐Participation	
	☐**Communications**		
		☐Awareness Raising	
		☐Education	
		☐Public Campaigns	
		☐Behavior Change	
☒**Capacity, Knowledge and Research**			
	☐**Enabling Activities**		
	☐**Capacity Development**		
	☒**Knowledge Generation and Exchange**		
	☐**Targeted Research**		
	☐**Learning**		
		☐Theory of Change	
		☐Adaptive Management	
		☐Indicators to Measure Change	
	☐**Innovation**		
	☐**Knowledge and Learning**		
		☐Knowledge Management	
		☐Innovation	
		☐Capacity Development	
		☐Learning	
	☐**Stakeholder Engagement Plan**		
☒**Gender Equality**			

	☒**Gender Mainstreaming**		
		☐Beneficiaries	
		☐Women groups	
		☒Sex-disaggregated indicators	
		☒Gender-sensitive indicators	
	☐**Gender results areas**		
		☐Access and control over natural resources	
		☐Participation and leadership	
		☐Access to benefits and services	
		☐Capacity development	
		☐Awareness raising	
		☐Knowledge generation	
☐**Focal Areas/Theme**			
	☐**Integrated Programs**		
		☐Commodity Supply Chains ([1]Good Growth Partnership)	
			☐Sustainable Commodities Production
			☐Deforestation-free Sourcing
			☐Financial Screening Tools
			☐High Conservation Value Forests
			☐High Carbon Stocks Forests
			☐Soybean Supply Chain
			☐Oil Palm Supply Chain
			☐Beef Supply Chain
			☐Smallholder Farmers
			☐Adaptive Management
		☐Food Security in Sub-Sahara Africa	
			☐Resilience (climate and shocks)
			☐Sustainable Production Systems
			☐Agroecosystems
			☐Land and Soil Health
			☐Diversified Farming
			☐Integrated Land and Water Management
			☐Smallholder Farming
			☐Small and Medium Enterprises
			☐Crop Genetic Diversity
			☐Food Value Chains
			☐Gender Dimensions
			☐Multi-stakeholder Platforms
		☐Food Systems, Land Use and Restoration	
			☐Sustainable Food Systems
			☐Landscape Restoration
			☐Sustainable Commodity Production
			☐Comprehensive Land Use Planning
			☐Integrated Landscapes
			☐Food Value Chains
			☐Deforestation-free Sourcing
			☐Smallholder Farmers
		☐Sustainable Cities	
			☐Integrated urban planning
			☐Urban sustainability framework

1

			☐Transport and Mobility
			☐Buildings
			☐Municipal waste management
			☐Green space
			☐Urban Biodiversity
			☐Urban Food Systems
			☐Energy efficiency
			☐Municipal Financing
			☐Global Platform for Sustainable Cities
			☐Urban Resilience
	☐**Biodiversity**		
		☐Protected Areas and Landscapes	
			☐Terrestrial Protected Areas
			☐Coastal and Marine Protected Areas
			☐Productive Landscapes
			☐Productive Seascapes
			☐Community Based Natural Resource Management
		☐Mainstreaming	
			☐Extractive Industries (oil, gas, mining)
			☐Forestry (Including HCVF and REDD+)
			☐Tourism
			☐Agriculture & agrobiodiversity
			☐Fisheries
			☐Infrastructure
			☐Certification (National Standards)
			☐Certification (International Standards)
		☐Species	
			☐Illegal Wildlife Trade
			☐Threatened Species
			☐Wildlife for Sustainable Development
			☐Crop Wild Relatives
			☐Plant Genetic Resources
			☐Animal Genetic Resources
			☐Livestock Wild Relatives
			☐Invasive Alien Species (IAS)
		☐Biomes	
			☐Mangroves
			☐Coral Reefs
			☐Sea Grasses
			☐Wetlands
			☐Rivers
			☐Lakes
			☐Tropical Rain Forests
			☐Tropical Dry Forests
			☐Temperate Forests
			☐Grasslands
			☐Paramo
			☐Desert
		☐Financial and Accounting	
			☐Payment for Ecosystem Services
			☐Natural Capital Assessment and Accounting
			☐Conservation Trust Funds
			☐Conservation Finance

		☐Supplementary Protocol to the CBD	
			☐Biosafety
			☐Access to Genetic Resources Benefit Sharing
	☐**Forests**		
		☐Forest and Landscape Restoration	
			☐REDD/REDD+
		☐Forest	
			☐Amazon
			☐Congo
			☐Drylands
	☐**Land Degradation**		
		☐Sustainable Land Management	
			☐Restoration and Rehabilitation of Degraded Lands
			☐Ecosystem Approach
			☐Integrated and Cross-sectoral approach
			☐Community-Based NRM
			☐Sustainable Livelihoods
			☐Income Generating Activities
			☐Sustainable Agriculture
			☐Sustainable Pasture Management
			☐Sustainable Forest/Woodland Management
			☐Improved Soil and Water Management Techniques
			☐Sustainable Fire Management
			☐Drought Mitigation/Early Warning
		☐Land Degradation Neutrality	
			☐Land Productivity
			☐Land Cover and Land cover change
			☐Carbon stocks above or below ground
		☐Food Security	
	☐**International Waters**		
		☐Ship	
		☐Coastal	
		☐Freshwater	
			☐Aquifer
			☐River Basin
			☐Lake Basin
		☐Learning	
		☐Fisheries	
		☐Persistent toxic substances	
		☐SIDS : Small Island Dev States	
		☐Targeted Research	
		☐Pollution	
			☐Persistent toxic substances
			☐Plastics
			☐Nutrient pollution from all sectors except wastewater
			☐Nutrient pollution from Wastewater
		☐Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		☐Strategic Action Plan Implementation	
		☐Areas Beyond National Jurisdiction	

		☐Large Marine Ecosystems	
		☐Private Sector	
		☐Aquaculture	
		☐Marine Protected Area	
		☐Biomes	
			☐Mangrove
			☐Coral Reefs
			☐Seagrasses
			☐Polar Ecosystems
			☐Constructed Wetlands
	☐**Chemicals and Waste**		
		☐Mercury	
		☐Artisanal and Scale Gold Mining	
		☐Coal Fired Power Plants	
		☐Coal Fired Industrial Boilers	
		☐Cement	
		☐Non-Ferrous Metals Production	
		☐Ozone	
		☐Persistent Organic Pollutants	
		☐Unintentional Persistent Organic Pollutants	
		☐Sound Management of chemicals and Waste	
		☐Waste Management	
			☐Hazardous Waste Management
			☐Industrial Waste
			☐e-Waste
		☐Emissions	
		☐Disposal	
		☐New Persistent Organic Pollutants	
		☐Polychlorinated Biphenyls	
		☐Plastics	
		☐Eco-Efficiency	
		☐Pesticides	
		☐DDT - Vector Management	
		☐DDT - Other	
		☐Industrial Emissions	
		☐Open Burning	
		☐Best Available Technology / Best Environmental Practices	
		☐Green Chemistry	
	☒**Climate Change**		
		☐**Climate Change Adaptation**	
			☐Climate Finance
			☐Least Developed Countries
			☐Small Island Developing States
			☐Disaster Risk Management
			☐Sea-level rise
			☐Climate Resilience
			☐Climate information
			☐Ecosystem-based Adaptation
			☐Adaptation Tech Transfer
			☐National Adaptation Programme of Action
			☐National Adaptation Plan
			☐Mainstreaming Adaptation
			☐Private Sector
			☐Innovation
			☐Complementarity
			☐Community-based Adaptation
			☐Livelihoods

		☒**Climate Change Mitigation**	
			☐Agriculture, Forestry, and other Land Use
			☒Energy Efficiency
			☒Sustainable Urban Systems and Transport
			☐Technology Transfer
			☐Renewable Energy
			☐Financing
			☐Enabling Activities
		☐**Technology Transfer**	
			☐Poznan Strategic Programme on Technology Transfer
			☐Climate Technology Centre & Network (CTCN)
			☐Endogenous technology
			☐Technology Needs Assessment
			☐Adaptation Tech Transfer
		☐**United Nations Framework on Climate Change**	
			☐Nationally Determined Contribution
			☐Paris Agreement
			☐Sustainable Development Goals
		☐**Climate Finance (Rio Markers)**	
			☐Climate Change Mitigation 1
			☐Climate Change Mitigation 2
			☐Climate Change Adaptation 1
			☐Climate Change Adaptation 2

Annex D

Afghanistan Energy Efficiency Policy (2016)

The AEEP will be implemented in two terms, TERM1 and TERM 2, to achieve its strategic and policy goals.

TERM 1 (2017 – 2020) will work to create enabling environment for the establishment of an energy efficiency industry in Afghanistan. This will be achieved by creating institutions, systems and processes, and establishing partnerships and collaborations across a range of government and private industry stakeholders to effectively implement the AEEP. The energy efficiency industry in TERM 1 will be government led.

TERM 2 (2021-2032) will be working to enable transition of the energy efficiency industry from a government led activity to a private investment led marketplace. This will be achieved by gradually removing barriers by creating strong legislative framework, skill base, standards, information and fungible marketplace for private investors.

4.1 Greening of building sector

Buildings account for about 93% of all electrical energy in Afghanistan and a significant share of greenhouse gas emissions. The building sector covers a varied set of end use activities, which have different energy use effects. As the country develops, energy demand from the building sector will continue to increase. Thus, energy efficiency in building sector is especially significant owing to rapid new construction with opportunities to utilize efficient materials and best practices.

The policy proposes to set performance targets on new and old public & private buildings. The goals are set on a TERM 1 timeframe, and will require creation of legal and institutional framework to deliver on these changes. The specific actions are as follows:

• Enforce Afghanistan Energy Efficiency Codes for Building (AEEC) in all new buildings: Building Code sets requirements for the energy performance of buildings. New buildings designed and constructed on recommended measures of AEEC will save significant amounts of money over a building's life.
Afghanistan energy efficiency codes for buildings (AEEC) must be aggressively enforced for the new constructions to follow best practices. The policy sets a target of;
 100% of all new construction above 2000m2 of Net Lettable Area (NLA) , both for private and public sector, will be required to be rated under AEEC.

• Introduce green building rating systems: Green rating system provides a scale to measure the sustainability standard of building's design, construction and operation. Through each criteria and sub-criteria, rating system evaluates the performances of the building and award rating. Buyers favor energy efficient buildings which guarantee reduced life cycle costs.
 Introduce an operational building rating system suitable for all classes of buildings within Afghanistan.
 100% of all buildings in use above 1000m2 of NLA, both for private and public sector, will be required to be rated under green building rating system.

• Energy efficient lighting in public and private buildings: All public buildings can realize significant cost savings and reduced energy use by choosing energy efficient lighting. Making the switch to energy efficient lighting is a good way to get started on becoming more energy-efficient, since it typically has such a short payback period. The policy has put a target of;
 100% of incandescent, halogen and old generation fluorescent based lighting to be phased out and replaced with LEDs or other best available technology in homes and other buildings.

• Retrofitting of old buildings: Since many households, private offices, factories and public building have been constructed in earlier times and typically contain inefficient appliances, building envelop as well as technologies, it is beneficial for the owners of these buildings to retrofit them with newer and more efficient appliances and technologies, and where feasible, building envelop and insulation. While government owned buildings tend to be easier and more practical to enforce to undertake a retrofit project, it is suggested that commercial, residential and industrial building owners shall also be encouraged to undertake energy efficiency improvements in their buildings by way of financial incentives. Policy proposes a target for retrofit buildings as follows:

 30% of NLA of government buildings, including factories built on or before 2016 must have had energy efficiency upgrades.

 30% of NLA of private buildings, including factories built on or before 2016 must have voluntarily undergone energy efficiency upgrades.

4.3 Appliances & equipment

Energy consumed by residential appliances and industrial and commercial equipment is a major source of greenhouse gas emissions globally. The Strategy includes a range of measures aimed at increasing the energy efficiency of appliances used in the residential, commercial and industrial sectors. Following action items have been proposed under this strategy:

• Energy performance standards are the most widely used measures globally to reduce energy use and greenhouse gas emissions from appliances and equipment. Minimum Energy Performance Standards (MEPS) provide consumer protection in a higher energy price context by ensuring that inefficient appliances are not available in the market. The policy sets the following target:

 100% of all new appliances and equipment manufactured or imported in Afghanistan to meet minimum energy performance and quality standards.

• Energy efficiency labelling assists consumers by providing information, allowing them to make coherent choices having regard to likely life cycle costs. It acts as an incentive for manufacturers to set apart from their competitors and promote introduction of new and efficient versions. The following target has been set:

 100% of all new appliances and equipment manufactured or imported in Afghanistan to meet energy efficiency labelling.

4.8 Consumer awareness

Empowering consumers with information and knowledge on various aspects of energy efficiency practices including tools, procedures, and benefits is likely to have a long term impact on them accepting and supporting an energy efficiency campaign. Resulting changes in behavior of end user of energy in form of energy conservation, lifestyle, awareness, low-cost actions, and small investments can lead to 5% to 10% in energy savings at a household or workplace level. Following measures will be used to educate public on the subject and choices of energy efficiency:

 Information campaigns at places of national and international importance including religious institutions can be implemented with an objective of demonstrating integration of energy efficiency and its related benefits to create awareness of energy efficiency practices & technologies and also to implement energy efficiency at such locations.

 Regional information centre located at non-government organizations and consumer/ industry associations can serve as focal points for disseminating information on energy efficiency, as well as renewable energy to various target groups - from the general public to small and medium-sized enterprises and policy makers.

 Guidance documents providing information and guidance to help consumers identify energy efficiency opportunities in their processes & equipment and also provide relevant details to implement basic energy efficiency measures can be disseminated among general public, SMEs, Government & commercial institutions.

 Public campaign through television programs and newspaper advertisements to reach out to home owners, the public sector and commercial enterprises propagating energy efficiency benefits and encouraging energy saving behavior. The objectives are to induce a change in the users' behavior by creating awareness of energy use and interest in its reduction.

 Energy Efficiency Information Website can be established and maintained through office of energy efficiency (OEE) which will have comprehensive information on incentives and policies that support energy efficiency in Afghanistan, case studies of successful implementation, information on manufacturer of energy efficient equipment and guidance documents on energy efficient technologies & practices.

 Publicize the results of implemented EE projects through mass media like television, newspaper to create awareness among general public. This can be achieved by integrating communication plan within the project planning stage, where the project proponent will be lead for creating awareness about their own project.

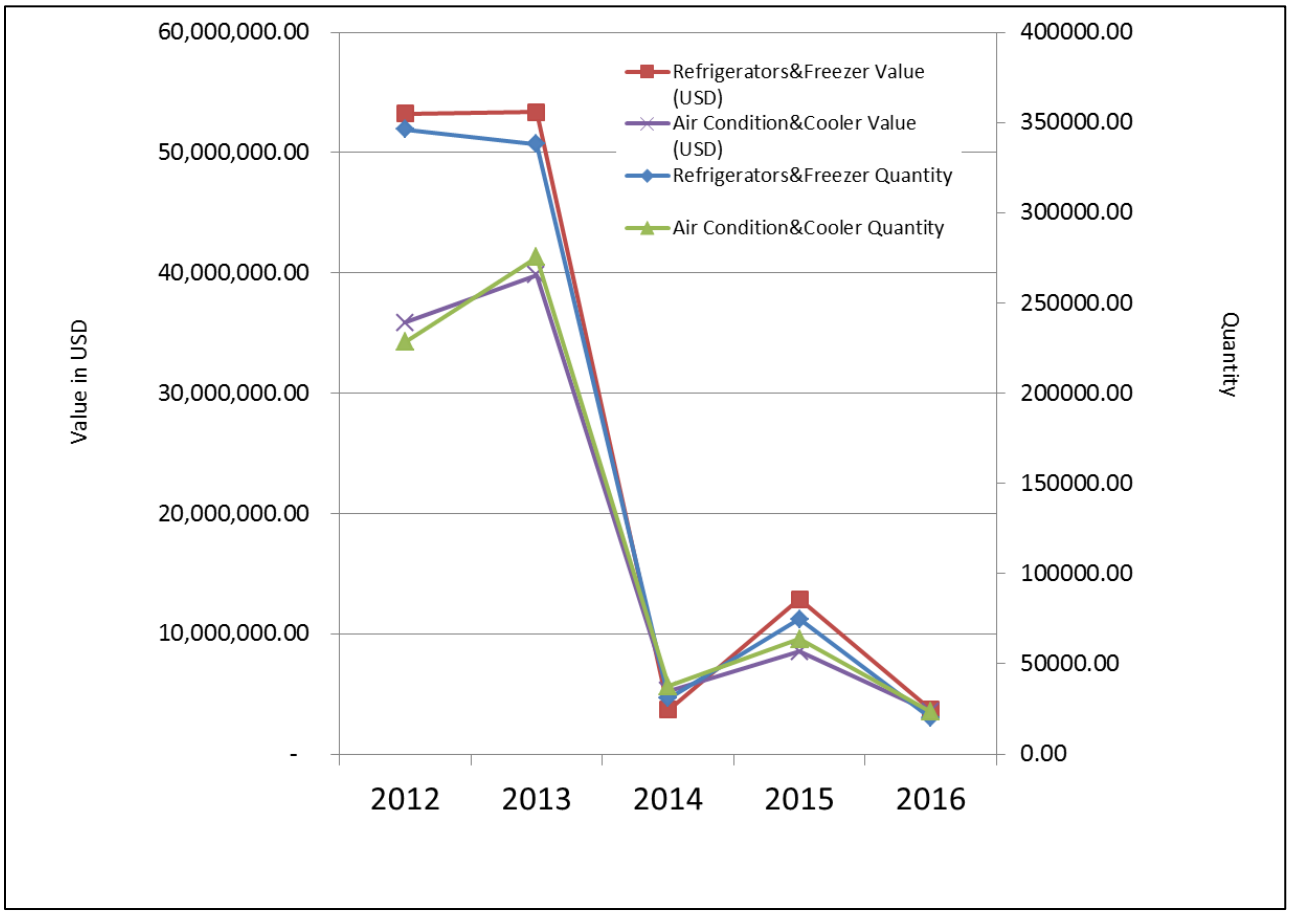
 Introduce total cost of ownership (TCO) as evaluation criteria in government procurement processes, and encourage private sector to adopt it as well. The TCO factors in operational costs as well as capital costs when investing in assets – the longer term energy savings may be worth a slightly higher upfront cost.

Annex E

Import data of refrigerators and air-conditioners provided by the General Directorate of Customs of the Afghanistan Ministry of Finance

Table: Quantity and values in USD of imported refrigerators and air-conditioners (2012-2016)

	Refrigerators&Freezer		Air Condition&Cooler	
	Quantity	Value (USD)	Quantity	Value (USD)
2012	346276.00	53,253,762.00	228447.00	35,869,431.00
2013	338157.00	53,356,171.00	275465.00	39,822,340.00
2014	31011.00	3,694,664.00	37596.00	5,237,651.00
2015	74874.00	12,878,069.00	63829.00	8,503,327.00
2016	19946.00	3,675,487.00	23447.00	3,499,898.00



Annex F

UNIDO Mission Report Aug 2017

Herat commercial refrigerators producers										
Row	Company name	Rate of production per month	Product information	No. of employees	Refrigerants to be used	Evacuation and charging	Quality test	Insulation	Contact information	Additional information
1	Jammi Sarma	8	Commercial and Cold storage	5	R134a	Single stage vacuum pump – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr.Jammi 0799082726	There was 1 RTI recovery unit but it seems has not been used since years.
2	Pamir Sarma	7	Commercial and Cold storage for dead body	7	R134a, R404a, R407c	Compressor – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr. Iliya 0789734144	Like other companies, in reality they are kind of service workshop.
3	Momtaz Sarma	10	Commercial and Cold storage	12	R134a, R404a, R407c	Compressor – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr. Hamidolah 0785730038	Basically they are service workshop with limited production.
4	Jahan Sarmayesh	30	Commercial and Cold storage	15	R134a, R404a, R407c	Single stage vacuum pump – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr. Mirzayi 0789347569	They have also a trading companiy to import some fridges parts and refrigerants from Iran. They are constructing a cold storage with120T capacity for fruits.
5	Herat Sarmayesh	0	–	3	NA	NA	NA	NA	Mr. BasirAhmad 0799129385	They are importing fridges parts and refrigerants gases from Dubai and Iran.
6	Afghan Sarma	20	Commercial and Cold storage	9	R134a, R404a, R407c	Single stage vacuum pump – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr. Rasouli 0799456660	Company owner have had Ghasr Yakh company which has been bankrupted.
7	Herat Sarma	10	Commercial and Cold storage	10	R134a	Compressor – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr. Habibi 0790994434	All parts have been imported from Iran and they cover their cost by service jobs.
8	Danfos Sarma	16	Commercial and Cold storage for dead body	15	R134a, R22	Single stage vacuum pump – Gage and scale	No sniffing test No Electrical test No performance	5 cm Polystyrene with PU glue	Mr. Aslani 0799820615	They do service for domestic fridges with R600a.

Annex G

Logframe for 170167: Investing in energy efficiency to strengthen small and medium enterprises' cold value chain and distribution channels

Interventions	Objectively Verifiable Indicators	Targets		Means of Verification	Assumptions	Mitigation Measures
		Mid-term	End of project			
Project Objective: The project objective is to establish energy efficiency labelling for refrigeration and air-conditioning and encourage private financing to invest in energy efficiency of cold value chain and distribution channels operated by small and medium enterprises.						
Outcome 1: Energy demand is reduced compared to the business as usual baseline with energy efficient domestic and commercial equipment promoted with energy efficiency labeling	# of energy efficient domestic and commercial equipment with energy efficiency labeling put on market for sale	12,000 per year	60,000	Copies of regulations, standards, and labeling newly adopted or updated by the government	The regulations and standards on energy efficiency labeling are adopted in time	The Project Steering Committee will keep the stakeholders informed and build cooperative atmosphere among them for smooth implementation
	Before – After the project total national energy demand survey OR	2% per year	10%	National statistics from NEPA	Adequate methodologies for energy efficiency and demand assessment available and known to be used	A high level political support of the government is to be engaged by UNIDO
	Before – After the project energy demand assessment on sample of manufacturing companies	TBD	TBD	Selected companies' electricity bills	Companies 'availability in disclose relevant data	
	# of gender mainstreamed environment policies,	TBD	TBD			

	strategies, laws, regulation approved/enacted (ENV 10) Tons of CO2 equivalent GHG emission avoided (ENV 4) Greenhouse Gas Reductions due to Products Sold (MPD)	 TBD TBD	 TBD TBD			
Output 1.1: Energy efficiency standards and labeling for refrigerators and air-conditioners adopted by governmental institutes in line with Afghanistan Energy Efficiency Policy	# of standards and regulations updated and adopted for the energy efficiency labels # of training and certificates with a sex segregated participant list # of employees involved in the labeling system in a sex segregated manner	2 2 for Kabul and each for 7 major provinces, TBD TBD	2 2 for Kabul and one for each province, TBD TBD	Copies of regulations, standards, and labeling newly adopted or updated by the government Training workshop reports with a sex segregated participant lists Employee profile of governmental institutions involved in the labeling system	The regulations and standards on energy efficiency labeling are adopted in time Government officials are committed to ensuring the labeling systems will be adopted, and used throughout the supply chain by allocating relevant human resources and governmental budgets Ministries release their officers for training events	The high level authorities are informed about energy labelling systems. Adequate human resources are trained to coordinate throughout the supply chain.
Output 1.2: Energy efficiency standards and labeling implemented	# of equipment imported or manufactured complying with energy efficiency standards # of equipment imported or manufactured with energy efficiency labels	2 TBD	5 TBD	Copies of energy efficiency standards Copies of energy efficiency labeling applications by manufacturing companies Photos of equipment sold	Importers and manufacturers comply with standards and labeling SME representatives, government officials, national experts, technology suppliers understand the importance of energy efficiency standards	Awareness campaigns on energy efficiency standards and labeling will be organized for key stakeholders including SMEs Adequate human resources will trained to

	# of inspections of energy efficiency labels and energy efficiency performance # of trainers / facilitators trained # of gender mainstreamed environment policies, strategies, laws, regulation approved/enacted (ENV 10) % of industry and consumer stakeholders aware of Energy labels including energy star, minimum energy performance standard (MEPS) and quality standard (QS) (taken from AEEP)	TBD TBD TBD 0%	TBD TBD TBD TBD	on the market Copies of inspection documents Government statistics provided by Central Statistics Organization and Afghan National Standard Authority	and labeling, best practices and tools Government officials are committed to carrying out inspections and enforcing energy efficiency regulations and policies AEEP is smoothly implemented funded by the national government as well as international aids	perform inspections and standard controls Government co-financing partners smoothly implement the related activities accordingly.
Outcome 2 Energy efficient & safe cold value chains including distribution channels are enhanced by private finance	Amount of leverage effect of donor funding to enhance private financing by SMEs (ENV 11) # of cold value chains established # of companies adopting best technologies/new technologies (ENV 8) # of green jobs secured/created (ENV 9)	TBD TBD TBD TBD	TBD TBD TBD TBD	Bank certificates, loans Copies of documents confirming that a cold value chain was established as legal and physical entity Newly issued employee contracts	SMEs are equipped with some financial knowledge Local bank sector offers suitable financial options to SMEs (low rate) Technical capacity at local level is sufficient to support development of cold value chains Government advertises available positions and encourages female and male candidates to apply	Government intervenes in promoting financial knowledge Government promotes local financial sector to engage SMEs Keeping beneficiary companies informed of benefits of energy efficient cold value chains Adequate human resources trained to

						fulfill the position requirement UNIDO project effectively de-risk private finance investment
Output 2.1 2.1 SMEs along the cold value chains trained for energy efficiency and safe handling of flammable refrigerant charged equipment	# of manufacturing and processing companies adopting project recommendations to improve energy efficiency # of effectively trained employees of beneficiary companies along the cold value chains to safe handle of flammable refrigerants and low-GWP refrigerant charged equipment	TBD TBD	TBD TBD	Energy bills from manufacturing and processing companies before and after the project intervention Copies of certificates after the training examination Training workshop reports with a sex segregated participant lists	Government promotes adoption energy efficiency labelled equipment Suppliers and users acknowledge the risks and benefits of flammable refrigerants and low-GWP refrigerant charged equipment	Enough resources are allocated to ensure that awareness among SMEs is raised Awareness campaigns on energy efficiency standards and labeling will be organized for key stakeholders including SMEs Enough resources are allocated to ensure that awareness among SMEs is raised
Output 2.2 Partnership established with financial institutes providing green financing opportunities for cold value chains	# of local financial institutions providing various green financing opportunities # of green financing workshops/training provided to cold value chain SMEs by banks	TBD TBD	TBD TBD	Bank products and services brochure Aide memoires and participation attendance of SMEs and local financial intermediaries	Local bank sector offers suitable financial options to SMEs (low rate) Local bank sector offers effective green financing training to cold value SMEs	Government intervenes in promoting financial knowledge Government promotes local financial sector to engage SMEs
Output 2.3 Match making facilitated between investors and SME beneficiaries	# of events offered by local bank to encourage meetings between investors and SMEs # of bankable projects developed by SMEs in consultation with	TBD TBD	TBD TBD	Aide memoires and participation attendance of SMEs and investors Project proposals submitted by SMEs reflecting investors' feedback	Local bank offers specific services/events to enhance match making between investor and SMEs Investors are committed to invest in SMEs	Government intervenes in promoting financial knowledge Government promotes local financial sector to engage SMEs

	investors # of successful match making between investor and SMEs	TBD	TBD	Bank data collection, SMEs' balance sheet	Investors and beneficiaries are effectively matched	
Output 2.4 Agreements reached for installment of energy efficient equipment along cold value chains for SMEs	Amount of leverage effect of donor funding to enhance private financing by SMEs # of installed energy efficient equipment	TBD TBD	TBD TBD	Data collection from national business registers and ozone office database Company survey	SMEs are trained on energy efficient installment SMEs have received the necessary investment component to undertake the new installment of energy efficient equipment	Government intervenes in promoting energy efficiency Government intervenes in promoting financial knowledge Government promotes local financial sector to engage SMEs
Outcome 3: Project monitoring and evaluation	# of project steering committee minutes and sex-segregated participant lists # of progress reports # of project evaluation reports	Once a year Twice a year Mid-term evaluation report	Once a year Twice a year Final evaluation report	Copies of project steering committee minutes and sex-segregated participants lists Copies of project administration documents Project evaluation reports	Project management unit is given a UN compliant, safe and functioning office space New project staff are given relevant training opportunities Evaluators can safely visit project sites	Ensuring good coordination and working relationship exist between UNIDO and counterpart Project staff are motivated and receive incentives for undertaking the training Ensuring good safety and security system put in place
Output 3.1 Baseline set and communication strategy mainstreamed	# of project and institutional indicators measured at onset of the project as baseline # of pre-project survey responses received from stakeholders (ENV 7)	Half of the project indicators TBD	All project indicators TBD	List of reported indicators Copies of responses and results	Stakeholders collect and report indicator related data Stakeholders respond to the survey	Ensuring indicators meeting SMART indicator criteria Ensuring stakeholders acknowledge the importance of the survey

	# of success stories published on conventional and/or online media # of post-project survey responses received from stakeholders (ENV 7)	1 TBD	2 TBD	Copies of published stories	Beneficiaries provide supporting statements	Beneficiaries are well informed of the project progress
Output 3.2: Project monitored	# of project steering committee minutes and sex-segregated participant lists # of progress reports	Once a year Twice a year	Once a year Twice a year	Copies of project steering committee minutes and sex-segregated participants lists Copies of project administration documents	Project management unit is given a UN compliant, safe and functioning office space New project staff are given relevant training opportunities	Ensuring good coordination and working relationship exist between UNIDO and counterpart Project staffs are motivated and receive incentives for undertaking the training
Output 3.3: Project evaluated	# of project evaluation reports	Mid-term evaluation report	Final evaluation report	Project evaluation reports	Evaluators can safely visit project sites	Ensuring good safety and security system put in place

Annex H

Proposed Project Steering Committee (PSC)

Terms of References (ToR)

A Project Steering Committee (PSC) will be formed for better coordination and monitoring of the project. The Director General of NEPA will be the chairman of the committee and the National Project Director of NEPA will act as the member secretary. The members of the steering committee are listed below. Additional members to the steering committee can be appointed as needed. The committee will convene as required, but at least once in a year. Steering Committee will be responsible for overall coordination, policy guidance, strategic directions and suggestions for timely implementation of the project. Apart from this, a Project Implementation and Technical Committee (PIC) headed by DG, NEPA will be formed.

Proposed Project Steering Committee:

1. Executive Director, NEPA	Chairperson
2. Representative, Ministry of Energy and Water	Member
3. Representative, Da Afghanistan Brishna Sherkat (DABS)	Member
4. Representative, Afghanistan Investment Support Agency	Member
5. Representative, Afghanistan Chamber of Commerce & Industrial	Member
6. Representative, selected NGO	Member
7. Representative, Kabul University	Member
8. National Project Director, NEPA	Member-Secretary

The TOR of the Project Steering Committee (PSC) will be as follows:

- Provide policy guidelines for proper implementation of the project;
- Review the implementation of the project;
- Monitoring project activities;
- Discussion on problems and provide guidelines for solutions;
- Sharing ideas of innovations;
- Enhance inter- ministry / inter-agency coordination;
- Approve annual work plan;
- This committee will convene as required, but at least once in a year;
- Miscellaneous