United Nations Development Programme

Project Document

Project title: Energy Efficient Standards, Certification, and Labelling for Appliances and Equipment in Kazakhstan		
Country: Kazakhstan	**Implementing Partner:** Ministry of Investments and Development of the Republic of Kazakhstan	**Management Arrangements:** National Implementation Modality (NIM)
UNDAF/Country Programme Outcome: *Outcome 2: Environmental Sustainability. Communities, national, and local authorities use more effective mechanisms and partnerships that promote environmental sustainability and enable them to prepare, respond, and recover from natural and man-made disasters.*		
UNDP Strategic Plan Output: *Output 1.5: Inclusive and sustainable solutions adopted to achieve increased energy efficiency*		
UNDP Social and Environmental Screening Category: Low Risk		**UNDP Gender Marker:** GEN2
Atlas Project ID/Award ID number: 00097247		**Atlas Output ID/Project ID number:** 00101056
UNDP-GEF PIMS ID number: 5703		**GEF ID number:** 9332
Planned start date: May 2017		**Planned end date:** April 2022
LPAC date: 23 June 2017		

Brief project description: Electricity consumption in Kazakhstan has been rising steadily since the late 1990s. This consumption leads directly to high emissions of CO_2 from the country's predominantly coal-fired generation sector, with annual totals approaching 70 million tonnes in 2014. There is significant technical potential to reduce emissions by increasing the efficiency of common electricity-intensive appliances and equipment – most notably, refrigerators, distribution transformers, and motors – but to date, this challenge has gone unaddressed because of the absence of regulations and the weakness of market signals about energy-related performance and value.

The project addresses the development challenge through integrated activities directed at these barriers. The core focus will be the implementation of minimum energy performance standards (MEPS), which have a growing track record of achieving large-scale savings throughout the world. The project will also support the introduction of voluntary high-efficiency performance standards (HEPS) in conjunction with product labelling and government procurement rules. Enforcement of both MEPS and HEPS will be carried out by accredited certification laboratories, which the project will support with methodological guidance and needed equipment. The project will also conduct supporting market research, informational outreach and technical support to residential and industrial consumers.

FINANCING PLAN	
GEF Trust Fund	USD 3,500,000
(1) Total Budget administered by UNDP	**USD 3,500,000**
PARALLEL CO-FINANCING (*all other co-financing that is not cash co-financing administered by UNDP)*	
UNDP	USD 300,000
Government	USD 10,510,511
Private sector	USD 1,432,132
(2) Total co-financing	**USD 12,242,643**
(3) Grand-Total Project Financing (1) + (2)	**USD 15,742,643**

SIGNATURES

Signature: _____ Ministry of Investments and Development of the Republic of Kazakhstan	**Agreed by Implementing Partner**	**Date/Month/Year:** 30.06.17
Signature: _____ Deputy Resident Representative United Nations Development Programme	**Agreed by UNDP**	**Date/Month/Year:** 20.06.17

I. TABLE OF CONTENTS

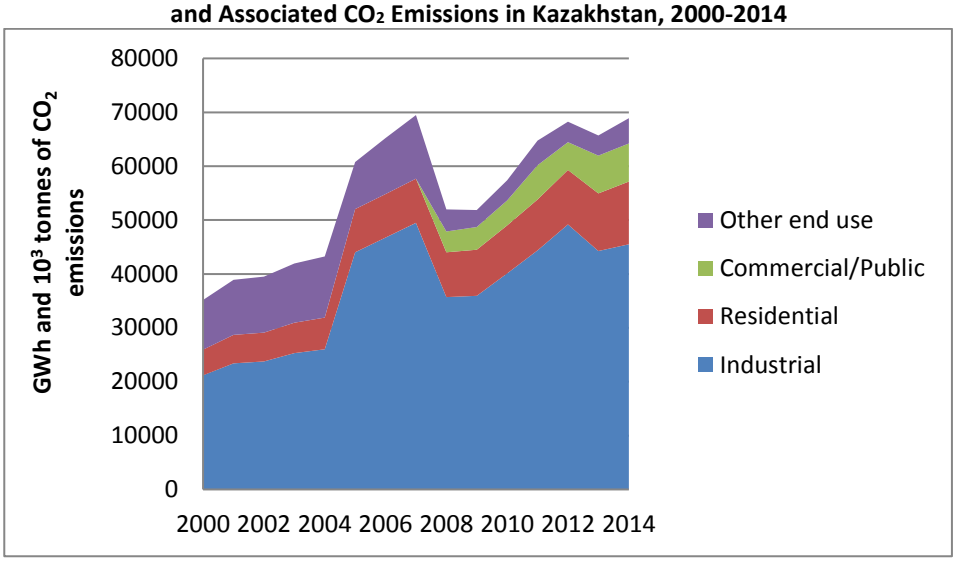
I. Table of Contents 3
II. Development Challenge 4
III. Strategy 6
IV. Results and Partnerships 9
V. Feasibility 18
VI. Project Results Framework 23
VII. Monitoring and Evaluation (M&E) Plan 28
VIII. Governance and Management Arrangements 33
IX. Financial Planning and Management 35
X. Total Budget and Work Plan 38
XI. Legal Context 46
XII. Annexes 47

II. DEVELOPMENT CHALLENGE

Since the end of the economic recession in the late 1990s, electricity consumption in Kazakhstan has been steadily rising. Total electricity consumption has doubled between 2000 and 2014, up to a total of about 70 TWh in 2014 alone, and is projected to grow further at 2-3 percent annually. This growth has occurred across all sectors, especially industry and households, as well as commercial and public buildings. Electricity use per capita is now almost twice as high as the world average.

Greenhouse gas (GHG) emissions from Kazakhstan's electricity production and consumption have grown accordingly. Kazakhstan has one of the world's highest grid emission factors – about 1.00 tonnes of CO_2 emitted per MWh of electricity consumed up to 2014[1] – because of its heavy reliance on coal, which accounts for about 87 percent of national domestic electricity production. By 2014, CO_2 emissions from Kazakhstan's electricity consumption had risen to about 69 million tonnes. See Figure 1 below.

Figure 1. Annual Sectoral Electricity Consumption and Associated CO_2 Emissions in Kazakhstan, 2000-2014



Source: http://www.iea.org/statistics/statisticssearch/report/?product=Indicators&country=KAZAKHSTAN

Appliances, equipment, and the potential for energy efficiency

As incomes in Kazakhstan have risen, household appliances have become an essential part of the lives of practically all of Kazakhstan's citizens – women and men, across all age categories, regions, and income levels. At the same time, appliances have also become an increasingly important contributor to electricity consumption and associated GHG emissions in Kazakhstan. Refrigerators have an especially large impact because of their ubiquity (about 103 operating refrigerators per 100 households in the country) and their high year-round energy consumption (an estimated 450 kWh per year, on average). New refrigerator purchases are rising, not only replacing old refrigerators but also adding to the stock every year. Nearly 400,000 new refrigerators were sold in Kazakhstan in 2015 as compared to about 300,000 in 2010; furthermore, the nation's stock of operating refrigerators is projected to grow from 4.5 million in 2015 to 7.7 million in 2030.[2] Other appliances and equipment common in both residential and public buildings, most notably room air conditioners, also have a smaller but growing presence in Kazakhstan.

Outside of the home, electrical equipment deployed on a wide scale also has an inordinately high impact. According to UN Environment, there are at least 50,000 distribution transformers deployed on the electric grid around the country, operating around the clock, mostly reflecting outdated technology with electricity losses

[1] European Bank for Reconstruction and Development (EBRD), November 2012. *Development of the Electricity Carbon Emission Factors for Kazakhstan: Final Report.* For more detail on the electricity emissions factor for Kazakhstan, please see Annex E.

[2] http://united4efficiency.org/countries/country-assessments/ The full Country Assessment and methodology for Kazakhstan are presented in Annexes I and J. For more on United for Efficiency, see Section IV, Results and Partnerships, subsection ii on partnerships.

of up to 20 percent. Industrial motors have impact of similar scale because of their high loads, long hours of operation, and sheer abundance, with tens of thousands of units imported into the country annually.[3]

Taken together, **refrigerators, motors, and distribution transformer losses in Kazakhstan accounted for about 40 TWh of electricity consumption in 2015** – more than half of the nation's total. Without interventions to save energy, **electricity consumption from just these three equipment types would grow to about 87 TWh by 2030,** causing at least 80 million tonnes of CO_2 emissions in that year alone. [4]

The development challenge: achieving the energy savings potential of appliances and equipment

Most of the existing stock and even new sales of appliances and equipment in Kazakhstan reflect outdated technology with energy performance far below that of cost-effective options already available in developed countries, and increasingly available in Kazakhstan. The table below shows estimates for the potential energy savings and avoided emissions from adoption of minimum energy performance standards for four key types of appliances and equipment.

Table 1. Potential energy savings and avoided emissions in Kazakhstan in 2030 from minimum energy performance standards consistent with current world best practice ("best MEPS")[5]

Equipment/Appliance Type	**Energy savings** (GWh/yr)	**Avoided CO_2 emissions** (thousand tonnes/yr)	**Cumulative CO_2 emissions reductions, 2020-2030** (million tonnes)
Refrigerators	1138	1045	6.1
Distribution transformers	931	856	5.0
Industrial electric motors	936	861	4.5
TOTAL	**3005**	**2762**	**15.6**

Sources: United for Efficiency Country Assessment 2016[6] and EBRD 2012 (See Annexes I and E, respectively).

The development challenge, then, is to achieve this energy efficiency potential and curtail consumption of coal-fired electricity and associated global environmental impact from appliances and equipment in Kazakhstan.

Meeting this challenge requires attention to several immediate, underlying, and root causes. One key immediate cause is a lack of regulations on energy efficiency for appliances and equipment, which in turn stems from an underlying lack of policy precedent and lack of exposure to well-tested international best practices. A second immediate cause is the weakness of market signals to consumers about the value of energy efficiency, which arises from the pervasive underlying problem of inaccessible, incomplete, and inconsistent information for consumers, leaving them unable to easily assess and distinguish products in terms of energy performance. Ultimately, both the lack of regulations and the informational market barriers regarding energy efficiency in appliances and equipment arise from two key root causes: 1) a simple lack of information and priority about the issue among both consumers and policymakers; and 2) the insufficiency of institutional capacity to develop and implement needed policies and programs.

The project will address the development challenge through integrated activities targeting these causes and barriers, as articulated in the following section on project strategy.

This project is directly aligned with UN Sustainable Development Goal 13, Climate Action, and its targets of integrating climate change measures into national policies, strategies and planning, and of improving education, awareness-raising and human and institutional capacity on climate change mitigation.

[3] Ibid.
[4] Ibid.
[5] This table broadly illustrates the technical potential for energy efficiency from the three given appliance/equipment types. The project's actual targets for energy savings and emissions reductions are defined more precisely in Section V, Feasibility, and Section VI, the Project Results Framework, and are explained entirely in Annex E.
[6] http://united4efficiency.org/countries/country-assessments/.

III. STRATEGY

Energy efficiency standards and labelling (EESL) for appliances and equipment have a long and growing track record worldwide as one of the most effective instruments for increasing energy efficiency and reducing GHG emissions on a large scale. Implemented in over 80 countries, they represent a key element of national implementation of climate change mitigation targets, with accompanying benefits for consumers and industry. In these countries, EESL have resulted in energy efficiency increases three times higher than the underlying rate of technology improvement, with benefits outweighing costs by about 3 to 1.[7]

Recognizing the value of EESL, as well as the need to accelerate implementation more broadly worldwide, in 2014 UN Environment and a wide array of partners created a new global initiative called United for Efficiency (U4E), to support developing countries in moving their markets toward EE appliances and equipment. Building upon UN Environment's highly successful global en.lighten program for lighting, U4E compiles global best practices in policy guides and offers tailored assistance to governments via expert task forces for the development and implementation of EESL.

This project is one of several "child projects" of a global U4E program, funded by the GEF, entitled *Leapfrogging Markets to High Efficiency Products (Appliances, Including Lighting, and Electrical Equipment)*. The project taps U4E's core strengths – its global network of experts, private-sector collaborators, and compiled best practices – in policy and program development as well as quantitative assessment. At the same time, implementation of the project will be carried out primarily under UNDP program support, building upon the foundation of UNDP's competitive advantages in Kazakhstan – its familiarity and broadly excellent working relations with government and the private sector, arising from its long-term presence on the ground in the country.

Especially notable are the broad successes of the nearly-completed full-sized project, also supported by UNDP and funded by GEF, entitled *Promotion of Energy Efficient Lighting in Kazakhstan.* This project achieved major progress in areas highly analogous to those involved in this project on appliances and equipment – regulations (including a mandatory phase-out of incandescent lamps), labelling, linkages with the Eurasian Customs Union, laboratory testing and certification, consumer outreach, e-waste disposal, and so on. The new project will also tap its strong linkages with projects in Russia also supported by UNDP and funded by GEF, now also nearing completion, on EESL of lighting and appliances, respectively.

In Kazakhstan, the enabling conditions are in place to address the barriers to energy efficiency in the appliance and equipment sector, take full advantage of the technical guidance offered by U4E, and achieve real market transformation and global environmental benefits. The country has a strong government with genuine motivation and an increasingly mature regulatory system.[8] Already formal mandates for appliance regulations and standards are in place at the level of the Eurasian Customs Union, though nothing has been adopted so far. In sum, if it receives timely technical assistance, Kazakhstan is indeed poised to "leapfrog" past incremental steps and, on an accelerated timetable, effectively implement world best practices with S&L for appliances and equipment.

Theory of change

Figure 2 summarizes the theory of change of the project, showing the development challenge and its immediate, underlying and root causes, as well as a hierarchy of expected results of the project, from outputs to outcomes to overall impact.

The project will seek to fill both regulatory and informational gaps by supporting the government of the Republic of Kazakhstan in developing and implementing minimum energy performance standards (MEPS) and high energy performance standards (HEPS)[9], as well as an EE labelling system. MEPS and HEPS will transform

[7] International Energy Agency, 2015. *Achievements of Appliance Standards and Labelling Programs: A Global Assessment.* https://www.iea.org/publications/freepublications/publication/4E_S_L_Report_180915.pdf. Retrieved August 2016.

[8] See Annex F for a full elaboration of the legislative, regulatory, programmatic, and market context for energy efficiency and EESL in Kazakhstan.

[9] Both technical regulations (most importantly, requirements on the energy performance of appliances and equipment) and methodological standards (procedures and criteria for laboratory testing and certification) will be important elements of the project. In English, it is most common to refer to both energy performance requirements and methodological standards as "standards," but in Russian and other languages, "standards" tends to mean methodology only. Therefore,

the market in concert, as MEPS define a new floor, pushing the entire market upward, while HEPS and labels define a new ceiling, pulling the market toward accelerated innovation.

The project will pursue regulations and labelling for the three categories of appliances and equipment with the highest electricity consumption and impact – refrigerators, industrial motors, and distribution transformers. Motors and transformers offer an opportunity for innovation in Kazakhstan, insofar as regulations in general, not just on EE, are largely absent for these technologies. Other technologies such as room air conditioners will be added if the expected benefits justify the allocation of remaining time and resources.

The project has been designed to address specific underlying and root causes of the development challenge, as articulated in the theory of change, while reflecting both proven international practice and established institutions in Kazakhstan.

To address the underlying problem of lack of policy precedent, as well as the root problem of lack of prior attention to the issue, the project will:

- Organize a working group on development of EESL
- Deliver direct technical assistance and take the lead in drafting EESL policies and precedent, including MEPS and HEPS
- Deliver information on international best practice (in conjunction with U4E) and lessons learned from analogous UNDP-supported GEF-funded projects on lighting in Kazakhstan and on EESL for lighting and appliances in Russia.

To address the root problem of insufficient institutional enforcement capacity, the project will:

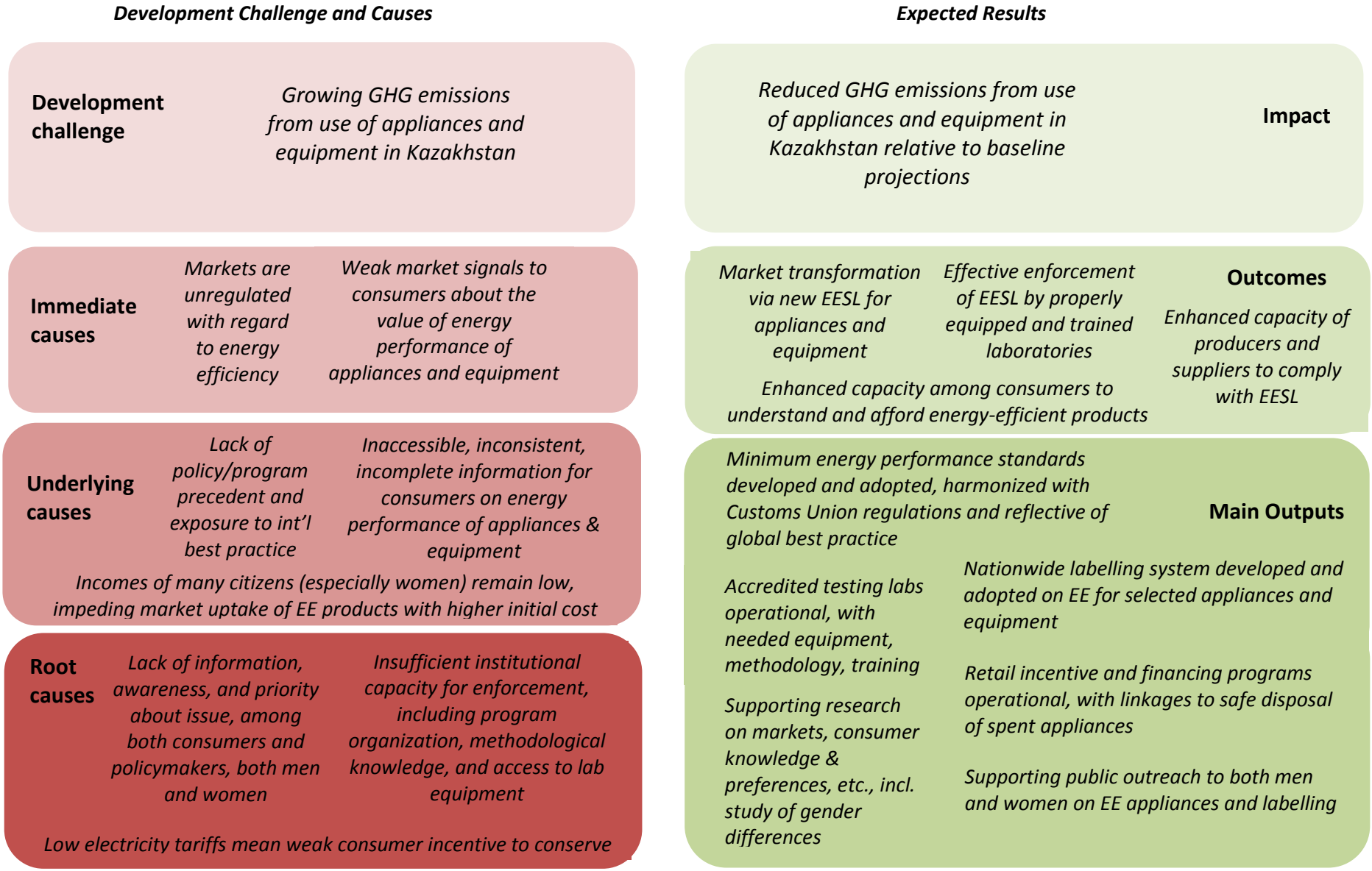
- Deliver methodological guidance to certification laboratories and enforcement officials
- Organize laboratory accreditation
- Contribute a share of the cost of needed equipment for up to six testing and certification laboratories that already handle lighting but not yet appliances and equipment.

To address the underlying problem of insufficient information about the appliance and equipment market, the project will:

- Conduct and disseminate market research on the energy performance of appliances and equipment in Kazakhstan, and also on consumer awareness and preferences.

henceforth this document refers to “technical regulations,” “MEPS” (minimum energy performance standards), and “HEPS” (high energy performance standards) when discussing requirements for energy efficiency of appliances and equipment. The terms “standards” or “methodological standards” are used when referring to laboratory testing. At the same time, the shorthand term “EESL” is also used in discussion of the broad thematic direction of the whole project and of U4E.

Figure 2. Theory of Change: Development Challenge, Causes, and Expected Results



To address the root problem of lack of consumer awareness of energy performance of appliances, the project will:

- Conduct public-relations outreach to consumers about energy performance of appliances.

To address the immediate issue of first-cost bias and weak market signals about the long-term value of EE appliances, as well as underlying income barriers among some citizens, the project will:

- Create and distribute consumer incentives (rebates and coupons) for qualifying equipment.

To address the root problem of lack of information and expertise on energy performance in industry, the project will:

- Support industrial enterprises in assessing energy-saving potential from EE motors, and in preparing bankable proposals for financing of motor upgrades.

Another barrier to consumer priority on energy efficiency in Kazakhstan is low electricity prices. The project team has assessed the possibility of adding an activity on tariff reform, but has ultimately opted not to do so, for several reasons: 1) tariff reform is already occurring, with prices having risen about 28 percent since 2013; 2) other internationally-supported projects, including a UNDP-supported, GEF-funded municipal energy supply project that concluded in 2013, have already been working on this issue; 3) tariff reform is still a politically sensitive issue, especially regarding its implications for the social welfare of low-income citizens; 4) its inclusion would muddy the focus of the project on appliances and equipment themselves; and 5) this issue is outside the mandate and core strengths of U4E. This risk associated with the barrier is identified in the Risk Log (Table 2).

For full information on the activities, expected outputs, and outcomes, please see the discussion of expected results in section IV below.

IV. RESULTS AND PARTNERSHIPS

i. Expected Results:

The objective of the project is to transform Kazakhstan's markets to energy efficient appliances and equipment, thereby reducing electricity consumption and GHG emissions. The project seeks to achieve four main outcomes:

- Transformation of the market for appliances and equipment in Kazakhstan, via creation and implementation of standards, labeling, regulations, and associated capacity building.
- A new, effectively operating regime of testing, certification, and information disclosure in support of implementation of EESL, carried out by properly equipped, trained, and certified laboratories.
- Enhanced capacity among citizens and industry in Kazakhstan to understand, afford, and procure EE appliances and equipment.
- Creation of new capacity among manufacturers and other supply-chain participants for appliances and equipment for compliance with new EESL.

These outcomes will yield market transformation toward greater energy efficiency across entire sectors of appliances and equipment, leading to an ultimate impact that directly meets the development challenge – reduction of GHG emissions from appliances and equipment in Kazakhstan, relative to baseline.

The project consists of integrated activities placed under the following four components:

1. Development and adoption of EESL
2. Monitoring, verification, and enforcement
3. Boosting demand for energy efficient appliances and equipment
4. Ensuring supply of products compliant with EESL.

In addition, the project will conduct dedicated monitoring and evaluation (M&E) activities under all four components and the project overall.

Component 1. Development and adoption of EE standards and labels (EESL)

Outcome 1: The outcome of the project's first component is the transformation of the market for appliances and equipment in Kazakhstan, via creation and implementation of standards, labeling, regulations, and associated capacity building. To achieve this outcome, the project will conduct activities leading to the following specific outputs.

Output 1.1. **National MEPS for refrigerators, distribution transformers, and industrial motors developed, adopted, and implemented**

The project will organize and lead the development of new national minimum energy performance standards (MEPS) for refrigerators, industrial motors, and distribution transformers. This work will begin with formation of a multiagency working group co-chaired by UNDP and two agencies of the Ministry of Investments and Development – the Kazakhstan Institute for Standardization and Certification (which will be responsible for overall coordination, as it is for all technical standards and regulations in the country) and the Department on Energy Conservation and Energy Efficiency (responsible for technical aspects of the regulations). This working group, with the assistance of UNDP staff and specialists, as well as the U4E Centre of Excellence, will study possible approaches including those based on international best practice, define targets and baselines, and draft the regulations. Then the MEPS will be formally reviewed, approved, and entered into force.

MEPS for other technologies besides refrigerators, motors, and transformers may be developed with the participation of UNDP and U4E if given priority by relevant authorities, subject to availability of time and project resources.

Kazakhstan is a member of the Eurasian Customs Union, which came into existence on January 1, 2010. The purpose of this union is to promote economic integration among its members, which include Kazakhstan, the Russian Federation, Belarus, Armenia, and the Kyrgyz Republic, via removal of customs tariffs and other economic barriers. Technical regulations (технические регламенты) adopted by the Customs Union are binding and carry the force of treaties among the countries. There are three Technical Regulations, at various stages of development, with potential relevance to the project:

- EE of electricity-consuming appliances (under development since 2011 but not yet adopted)
- Consumer information (also under development but not yet adopted – may eventually be merged with the technical regulation on EE of electricity-consuming appliances)
- Safety of low-voltage electric equipment (adopted – applicable largely to consumer products).

The drafts of the technical regulations have been developed with the goals of efficiency, environmental protection and resource conservation, and consumer protection. Notably, the technical regulations under development are based directly upon EU Directive No. 2010/30/EU on EE Labelling.

Given the current unresolved state of Customs Union regulations for appliances, KazInst and other knowledgeable national partners assert that the project should devote its efforts to national-level MEPS, while considering existing drafts and ongoing discussions at the Customs Union. This activity will ensure coordination of regulatory work at the national and Customs Union levels, via regular communication, participation in meetings, scheduling of reviews of drafts, and so on. Harmonization at these early stages will help ensure that future Customs Union progress will secure regulatory advances made first at the national level, instead of weakening them.

Output 1.2. **National labelling system for energy performance of refrigerators developed and implemented**

Many but not all appliances sold in Kazakhstan carry labels that are mandatory in Russia and the EU. Customers and salespeople in Kazakhstan understand these labels rather well already, but there is a lack of uniform application. This activity will develop standard requirements for when and how Russian and EU labels should be displayed on imported products, with provisions to address language incompatibility or other issues that would create confusion.

National partners have also expressed interest in an additional voluntary endorsement label or simple rating label specific to Kazakhstan – much like the ENERGY STAR label universally recognized in the United States. This activity will also therefore include the development and implementation of a voluntary label in Kazakhstan, with a possible time horizon for eventual mandatory application, for refrigerators and possibly other products depending on testing capacity and other issues. This label should be simple but should ideally also be comparative (that is, it should have a rating scale and/or basic quantitative performance information). It

should reflect performance standards that are stricter than MEPS, defining the top range of performance instead of the floor, but also helping to pull the whole market up to a level such that the HEPS of the voluntary label could eventually become MEPS for all.

Implementation of the labelling system will include multiple steps, including:

1) assignment or formation of an agency to manage the system
2) establishment of the normative base of certification (the HEPS themselves, plus required procedures) for the labelling system
3) official approval of the normative base
4) definition of what items would be subject to certification and labelling
5) identification of certification agencies/laboratories
6) provision of needed material infrastructure and equipment for the laboratories (see further discussion of laboratory equipment below)
7) design of the EE label, including its rating system, if any
8) operation of the system, including record-keeping.

Output 1.3. **National HEPS developed for bulk procurement of distribution transformers**

In this activity, the project and relevant agencies of the Ministry of Investments will develop HEPS for products to be purchased in bulk by government agencies. Distribution transformers will be the focus, with other technology to be included given sufficient projected sales volumes and potential energy savings. The development of HEPS will be linked with Activities 1.1 and 1.2 where possible.

Output 1.4. **Capacity of key agencies expanded regarding EESL** of appliances and equipment, including associated issues of waste management, via delivery of training and materials.

This activity will support other activities of Component 1 by delivering information on international best practices to key decision makers and managers via several mechanisms: consultation by staff experts from completed UNDP-supported, GEF-funded projects on appliance EESL in Russia and Turkey; delivery of U4E best practice policy guides and tools, including translation as needed; and organization of a study tour to Europe for representatives of key agencies of the Ministry of Investments and Development, including the Institute for Standardization and Certification, as well as the Department of Energy Conservation and Energy Efficiency.

In addition to the core issues of standards, certification, and labelling for energy performance, this activity will also support national agencies about waste management of spent appliances and equipment. Already the RK Ministry of Energy and the non-profit Center for Cooperation for Sustainable Development[10] have developed a draft national standard entitled *Electronic and electrical equipment waste. Methods of safe management*", which sets out requirements for separate collection, storage and recycling of certain appliances and equipment. But this draft national standard has not yet been approved, and neither individuals nor most public institutions have established means to dispose of spent appliances and equipment, except to include them with regular trash.

Therefore, the project will provide information on international best practices with these specific dimensions of waste management to the RK Ministry of Energy, municipal waste management agencies, and the Center for Cooperation for Sustainable Development via direct consultation and training by U4E and UNDP, as well as delivery of model documents and organizational plans. The activity will also draw upon the successful experience of the UNDP-supported, GEF-funded project on energy-efficient lighting in Kazakhstan, which created a new system for collection and disposal of spent mercury-containing lamps.

Component 2. Monitoring, verification, and enforcement of EESL

Outcome 2: The intended outcome of the project's second component is a new, effectively operating regime of testing, certification, and information disclosure in support of implementation of EESL, carried out by properly equipped, trained, and certified laboratories. This component consists of the following activities and outputs to achieve the targeted outcome.

Output 2.1. **Monitoring and verification regime for standards, certification, and labelling adopted and implemented.**

[10] http://en.csd-center.kz/index.php

This activity will define the administrative framework, process, and physical infrastructure for monitoring and verification of compliance with both mandatory MEPS and HEPS for procurement and labelling systems. This activity will establish basic rules and procedures, including the elaboration of a penalty regime for non-compliance. The activity will especially focus on organization and capacity-building among the six laboratories in Kazakhstan best positioned to provide testing and certification of electrical appliances and equipment.

The six laboratories include[11]:

1. *Physics & Technical University (Almaty)*: This laboratory tests lighting equipment as well as basic safety and electromagnetic compatibility of electrical equipment. The laboratory is yet to be accredited for issuing official certification of products. The laboratory staff is well qualified and certified for accreditation.

2. *Parasat Scientific & Technical Center (Astana)*: The laboratory has technical infrastructure for testing LED lamps. It purchased new equipment in 2015 to expand its capacity, and plans apply for accreditation as a testing laboratory. Its personnel, however, needs further qualifications and training to be certified for accreditation.

3. *Almaty University of Power Industry and Communication*: This testing laboratory already has accreditation from the National Center of Accreditation of the Committee for Technical Regulation and Metrology of the Ministry of Investments and Development of RK. It is fully capable of a range of safety and electric immunity tests for various devices. The laboratory has outdated equipment but has plans to upgrade to new equipment to enlarge the scope of testing for electrical equipment. The laboratory has well qualified and certified personnel.

4. *Seifullin Kazakh Agricultural and Technical University, energy faculty (Astana)*: The laboratory has technical infrastructure for testing lighting equipment and renewable energy sources, and for performing energy audits. Its equipment is outdated and it has no accreditation for testing lighting parameters of technical equipment and appliances. The laboratory has well-qualified, experienced and certified staff. Its testing scope can be enlarged if equipment is upgraded and accreditation received.

5. *KazInMetr (state scientific & metrology center of the Republic of Kazakhstan)*: KazInMetr performs testing of domestically-manufactured and imported goods to ensure safety and quality of products, processes and services in Kazakhstan; maintains and updates reference standards; harmonizes regulations on metrology with international requirements; provides training in metrology. KazInMetr consists of its head office in Astana and five satellite offices in Almaty (south Kazakhstan), Uralsk (west Kazakhstan), Ust Kamenogorsk (east Kazakhstan) and Aktobe.

6. *Energymanagement 2050, Ltd (Astana)*: The laboratory has equipment for testing electric lighting, renewable energy sources, and for performing energy audits. It has both new and outdated equipment and no accreditation for testing lighting parameters. The staff is well-qualified and certified. The scope of testing can be easily enlarged with equipment upgrade and relevant certification.

Support by the project to these laboratories will include definition of testing methodologies and schedules, as well as training and support toward accreditation for testing of appliances and equipment. As these steps will take time, the project will also arrange for short-term use of Russian laboratories (or other accredited international labs) as needed, to allow for timely implementation of MEPS and HEPS in Kazakhstan. Recognition of other countries' test results will be the first step toward a full regime of reciprocal recognition of testing and certification for products that are sold in multiple countries.

Output 2.2. **Needed equipment and training delivered to certification laboratories.**

To ensure that there is sufficient verification capacity for MEPS and HEPS in Kazakhstan, the project will also provide support for the purchase, installation, and operation of needed testing equipment.

The project will begin by working with the labs to compile lists of needed equipment and elaboration of a financing plan, including fee structures for testing. It is expected that the laboratories will cover most of the costs themselves, and recoup their outlays via fees. UNDP will use project funds to cover a share of costs as needed, seeking volume discounts wherever possible for items needed in all laboratories. Then UNDP with the assistance of U4E will provide technical support for the installation and commissioning of equipment, and

[11] UNDP report on operational testing laboratories in Kazakhstan, 2016.

will deliver training on its operation. Finally, this activity will also include organization of a role for Kazakhstan in international round-robin testing to verify correctness of Kazakhstan's lab results.

Output 2.3. **Register and web portal on compliant products created, regularly updated, and handed off to responsible agency**

The UNDP-supported projects funded by GEF on lighting and appliance efficiency in Russia are working together to develop a unified register of products that comply with national MEPS and labelling requirements. This system is to be based on the model of the Equipment Energy Efficiency (E3) program, a cross-jurisdictional program of the Governments of Australia and New Zealand, as well as states and territories. Such a register would create an informational basis for several functions, much as it does in Australia and New Zealand:

- Tracking of products for enforcement of MEPS
- Convenient and constantly updated identification of products that qualify for state procurement in compliance with relevant energy performance requirements
- Delivery of information to consumers, vendors, and suppliers about what products comply with MEPS and HEPS, and which products qualify for the Kazakh label
- Linkages with information for consumers, vendors, and suppliers about MEPS and voluntary labels on the whole, including guidance on who needs to demonstrate compliance, and how.

UNDP and its partners in Kazakhstan have agreed on the value of creating an analogous system in Kazakhstan. It would be natural for the project in Kazakhstan to follow the lead of the Russian system, and indeed possibly to build a unified system across both countries or multiple countries of the Customs Union. The proposed project would create and run the system for the first few years of the project, then hand it off to a responsible agency in the RK Government (most likely, the Department of Energy Conservation and Energy Efficiency), or to an appropriate independent agency.

Output 2.4. **Testing and public reporting on retail purchases carried out, revealing real compliance with standards and product claims**.

To achieve this output, the project will replicate an innovative activity carried out by the UNDP-supported, GEF-funded EE lighting project in Russia, which involved making retail purchases of selected products, testing them in an accredited laboratory, and reporting the results in professional publications and public media. The lighting project in Russia found wide compliance but more than a few cases of egregious mismatches between product claims and reality. The reports, in turn, led to a surge in attention to energy efficiency and regulatory compliance, among consumers, manufacturers and suppliers, and officials.

UNDP and its partners in Kazakhstan agree that similar testing and reporting about retail consumer products should be included as a project activity, with testing and reporting to be conducted at least once and ideally up to once per year, to allow for market coverage and possibly comparison across time. UNDP has already confirmed the preliminary interest of the Adal Society for Protection of Consumers' Rights in collaboration in this area. The society seeks to protect consumers by conducting market research and product testing. Notably, under the auspices of a program called "Your Expert," the society organizes testing by consumers with participation of independent experts and auditors, with results reported in media.[12]

Component 3. Boosting demand for EE appliances and equipment

Outcome 3: The outcome of the project's third component will be enhanced capacity among citizens and industry in Kazakhstan to understand, afford, and procure EE appliances and equipment. This component includes the following activities and outputs intended to lead to this outcome.

Output 3.1. Market studies on stocks, sales, and consumer preferences carried out at the beginning and end of the project.

The national Committee on Statistics compiles information annually on data on existing stock and annual sales volumes for refrigerator/freezers and other appliances and equipment, but does not generate a breakdown by type, size, cooling capacity, or energy consumption. This paucity of information hampers design of policies and complicates the evaluation of results. Therefore, the project will undertake its own studies of existing

[12] http://adalpotrebitel.kz/

stocks and trends in the purchase and operation of appliances, with a breakdown of market sectors in terms of energy performance, age, and other key factors.

This activity will also include a second key element – assessment of consumer priorities, understanding of labels, and awareness of EE – by various methodological approaches, including focus groups and surveys as well as use of data from the new information register (see Activity 2.3). Both statistical and consumer-preference studies will be conducted during the first and last years of the project, with parallel methodologies to allow for baseline and post-intervention comparisons. Both bulk surveys and opinion tracking (following the same small but representative group through the project period) will be applied.

These market studies will serve multiple purposes. They will serve as a basis for evaluating the effectiveness of the project and its respective activities. The initial study will help to shape other activities of the project – most notably, those under Output 3.2 (see below) – by identifying areas of the highest untapped technical potential, market opportunities and barriers for energy efficiency, and non-energy considerations such as social equity and access for low-income consumers.

Output 3.2. **Rebates and credits delivered to residential consumers.**

Financial assistance to consumers for the purchase of qualifying EE products would be warranted for any of several reasons:

- To reduce or eliminate hardship for low-income customers in relation to the onset of MEPS, which might raise the cost of the cheapest available appliances. This issue may apply especially to women, to the extent that women have lower average salaries, higher unemployment, and higher likelihood of widowhood than men.
- To help stimulate interest in super-efficient HEPS-compliant products
- To accelerate the purchase of new appliances to replace old, energy-intensive ones
- To facilitate the gathering of information on consumer motivations and preferences, via questionnaires linked to rebate applications
- To help promote the new voluntary label and the products that comply with them
- To create incentivized linkages between EE appliance purchases and safe disposition of refrigerants and e-waste from spent appliances.

The project will join with retailers, manufacturers, and social-service agencies (including, as appropriate, those that work especially on the welfare of women and pensioners) to create temporary financial incentives for the purchase of qualifying EE products, especially refrigerators.

UNDP has considered various possible mechanisms, including arrangements involving preferred credit, leasing, or tax incentives. The best combination of low transaction costs, immediacy of benefits for consumers, administrative simplicity, and consistency with proven best practices lies with either or both of two much simpler options: 1) rebates to consumers after documented purchases, issued in-store or via a post-purchase registration process; or 2) coupons issued in advance for discounts on qualifying purchases.

The UNDP project on energy efficient lighting in Kazakhstan has implemented a coupon program that will inform this project on appliances. Under the lighting coupon activity, UNDP established collaboration with a third-party company specializing in online coupon marketing. This company offered 50 percent discounts to consumers under terms specified by the UNDP project for LED lamps. After creating an account and paying online, consumers received an e-coupon redeemable for qualifying products in a range of stores, without additional cost. The UNDP project helped with extensive promotional support.

The exact mechanism, incentive amounts, and roster of qualifying products for promotion of EE appliances and equipment will be determined through the initial market study of Output 3.1. Information from the initial study will identify areas of greatest need and opportunity, in terms of potential energy savings, cost-effectiveness, market transformation potential, and support of socioeconomic equity for low-income consumers.

The amount of the incentive is expected to average around US $50-60 per refrigerator, consistent with successful retail incentives in demand-side management programs elsewhere in the world. It will therefore be possible to reach several thousand customers with the incentives. Furthermore, the project will aim to set the rebates at different levels, to make it possible at least informally to assess price elasticity of demand for EE refrigerators. Results from various rounds of incentive offers will be assessed and used to refine offers for

subsequent rounds to increase effectiveness, address areas of continued need, reduce the problem of "free riders" (people receiving rebates who would have purchased the appliance anyway) and so on.

Output 3.3. **Public relations campaigns and training delivered to consumers and state procurement staff.**

The project will use public outreach in stores and in various media to inform the public about EESL and their benefits for the environment. This outreach will encourage replacement of old, energy-wasting appliances and especially the selection of highly-efficient new appliances. Outreach will also explain the EESL system's tools and resources for consumers, including the EE label and rebate programs, and the web portal for compliant products.

Output 3.4. **Consultation delivered to industrial consumers to promote early and expanded uptake of EE equipment.**

Various barriers – including lack of core focus on energy matters, lack of access to capital, and short time thresholds for payback – slow the uptake by industrial consumers of EE equipment. This activity will seek to remove these barriers and accelerate general informational outreach about the new landscape of EESL for motors and other equipment, including direct training, circulation of agency memoranda, and operation of an email help line for the register and web portal. Furthermore, the project will offer on-site equipment audits of facilities, yielding specific recommendations on replacing outdated equipment. As needed, the project will also assist in identifying options for financing, and in preparing technical and financial justification to demonstrate that proposed upgrades are feasible and bankable.

Component 4. Ensuring supply of products compliant with EESL

Outcome 4: The intended outcome of the project's fourth component is the creation of new capacity among manufacturers and other supply-chain participants for appliances and equipment for compliance with new EESL. To achieve this outcome, outputs will be produced and activities will be carried out as follows.

Output 4.1. **Technical support delivered to domestic manufacturers of distribution transformers.**

Slightly less than half of the distribution transformers sold in Kazakhstan are domestically produced, mostly by the Kentau Transformer Manufacturing Plant in the South Kazakhstan oblast. The project will provide technical assistance to Kentau and other major manufacturers with regard to the onset of EESL – explaining what the new requirements are, what design features are necessary for compliance, and how to change manufacturing processes in order to comply with new MEPS, while also containing costs and providing for quality assurance.

Refrigerators and motors are almost entirely imported, and therefore will not initially be a focus of this activity, but as domestic production increases, the project will be ready to provide similar assistance to manufacturers of these products. Furthermore, if other technologies with low but growing levels of domestic production (such as air conditioners, televisions, and elevators) are added as focus areas for MEPS and labelling, the project will likewise provide technical assistance to suppliers.

Output 4.2. **Training and delivery of information for distributors, retailers, installers, and waste haulers.**

To further ensure that every step in the supply chain (including disposal) is prepared for the onset of EESL, the project will provide training and support the delivery of information and procedural instructions – how to display labels, where to attach them, how to talk to consumers about them, how to install compliant equipment, and so on. The project will also ensure that all stakeholders in the supply chain know how to use the web portal to find information about each other and about the EESL system in general.

Monitoring, evaluation, compilation of results, and knowledge-sharing

Across all four components, the project will include monitoring and evaluation (M&E), compilation of results and lessons learned, and knowledge-sharing activities.

Quantitative evaluation of energy savings and GHG emissions reductions achieved by the project. In this activity, UNDP will conduct quantitative evaluation of the energy savings and GHG emissions reductions by MEPS and HEPS for various products, and by the project overall. One of UNDP's primary partners for this activity will be the National Center for Accreditation, which is responsible for verification of GHG emissions reductions under Kazakhstan's UNFCCC obligations. UNDP with the technical assistance of the U4E Centre of Excellence will deliver training and technical support to this center as needed.

Quantitative evaluation of consumer preferences and recognition of energy performance and EESL. The project will analyze and report findings regarding consumer preferences and awareness based on the results of its market surveys of Component 3.1.

Overall project evaluation, compilation of lessons learned, and knowledge-sharing. UNDP will carry out a full slate of monitoring and evaluation of the project including conducting annual reviews, and organizing a midterm review and terminal evaluation. UNDP and the project will also compile lessons learned and share them throughout the project period via electronic dissemination and regional workshops, including one to be organized by the project itself near its close. See Section VII of this Project Document for full details.

U4E, in accordance with the Project Framework Document for the global leapfrogging project, will also provide communications and outreach support, both to and from the project in Kazakhstan, via the extensive U4E network. For more details on M&E, including scheduling and allocation of responsibility and budget amounts for specific tasks, reports, and evaluations, please see Section VII.

ii. Partnerships:

This project in Kazakhstan will be implemented as a full-sized project, implemented by the RK Ministry for Investments and Development with the support of UNDP under the financial support of the GEF. Formed in 2014 after a restructuring of the Government consolidated the former Ministry of Industry and New Technologies with the Ministry of Transport and Communications and other major government institutions, the Ministry of Investments and Development has a specific mandate and a special department to promote energy efficiency. Notably, this Ministry also supervises all development of standards and certification in the country, including those for appliances and equipment.

The project is part of the UN Environment-GEF program entitled *Leapfrogging Markets to High Efficiency Products (Appliances, Including Lighting, and Electrical Equipment)*. The leapfrogging program builds on the UN Environment-GEF global project *Establishing the Foundations of a Partnership to Accelerate the Global Market Transformation for Efficient Appliances and Equipment*, familiarly called the SE4ALL Global Project because of its contribution to the UN Secretary General's Sustainable Energy for All (SE4ALL) initiative's Lighting and Appliance & Equipment Accelerators.

In 2014, under the SE4ALL Global Project, UN Environment joined with UNDP, CLASP, the Natural Resources Defense Council, and the International Copper Association in founding the global partnership called U4E to promote EESL for appliances and lighting worldwide. The U4E partnership includes a very broad array of international development agencies, national agencies on energy efficiency, nongovernmental organizations, and many of the world's leading appliance manufacturers.

U4E proposes policy and strategy options following a proven integrated policy approach. The U4E public-private partnership engaged manufacturers, technical experts and country representatives to develop best practice policy guides for five product types (lighting, air conditioners, refrigerators, electric motors and distribution transformers). These policy guides are based around the U4E integrated policy approach, which has been shown to successfully accelerate the transition to energy efficient products in an affordable and environmentally sound manner. This approach incorporates the needs and priorities of public and private sectors and civil society. The integrated approach has five components:

- **Regulations and Standards:** minimum energy performance standards
- **Supporting Policies**: such as labelling and consumer awareness campaigns.
- **Finance and Affordability:** economic/fiscal instruments and incentives for highly efficient products.
- **Monitoring, Verification, and Enforcement:** well-functioning system of monitoring, control, and testing to ensure enforcement and compliance with Regulations and Standards.
- **Environmental Sustainability:** high global warming potential and hazardous substances in line with best practice restrictions and recycling.

The project in Kazakhstan is one of the first three "child projects" of the global leapfrogging project, along with projects in Sudan and Costa Rica, with others to follow. U4E will provide technical assistance to all "child projects" via the virtual Center for Excellence, and will facilitate knowledge-sharing via its extensive global network of projects. U4E is also taking the lead in quantitative analysis during project development, including

calculations of the baseline and projected benefits for the GEF Request for CEO Endorsement, using a unified methodology across all its child projects.

The project will build directly upon the UNDP project *Promotion of Energy-Efficient Lighting in Kazakhstan,* funded by GEF and due for completion in 2017, which has achieved great successes in exactly the areas of the four proposed components of this new project on appliances and equipment. Furthermore, the project will also have close connections with the two UNDP-supported projects funded by GEF in Russia, one on energy-efficient appliances and one on energy-efficient lighting, both due for completion within the next 18 months, both of which have highly relevant experience with issues of standards and labelling within the framework of the Customs Union, laboratory testing and verification.

iii. Stakeholder engagement:

The project team has met with more than 30 stakeholder groups during project preparation, including representatives of various agencies of the Ministry of Investments and Development; retailers; manufacturers; representatives of city governments; and others. UNDP will continue to engage with these stakeholders throughout the project period. The Project Board will include a diversely representative array of these groups.

The project team has also widely connected on an informal basis during the project period with consumers – the key ultimate beneficiaries of the project. Starting immediately during the inception period, the project will engage groups of consumers via focus groups and surveys (see Activity 3.1), with a special emphasis on understanding and serving the needs of citizens with low incomes or low financial or technical literacy. Outreach and programs for rebates or credit will be designed in direct recognition of input received from these stakeholders.

iv. Mainstreaming gender:

This section summarizes the gender mainstreaming issues and action steps for the project. A full analysis and action plan regarding gender mainstreaming is presented in Annex G. Gender-relevant targets have been set in these areas within the Project Results Framework and in Tables G.1 and G.2 of Annex G.

The development challenge of increasing GHG emissions from appliances and equipment, as well as related issues of energy costs, consumer choice, and assurances of product quality for both enterprises and individual citizens, affects all citizens of Kazakhstan equally. The intended outcomes of the project also create benefits for all citizens. However, as noted by the project's theory of change, various causes that underlie the development challenge have gender-related dimensions. Therefore, the project seeks to be gender-responsive in the design of activities that address these causes. These activities are predominantly in the project's third component.

Information on gender dimensions of consumer preferences and household decision making dynamics. It has been documented that women, especially professionals in the affluent 25-45 age group, tend to play an active or even predominant role in selection and purchase of appliances and large consumer goods.[13] But amid the overall lack of information on ownership and consumer preferences regarding appliances of various levels of energy performance, there is a particular lack of information broken down by gender — both quantitative data about ownership and elasticity of demand, and qualitative information on decision-making authority and processes within households and enterprises. The project will address this issue with market research (Activities 3.1 and 3.2), including both surveys and focus groups structured to allow for breakdowns by gender.

Low income and barriers to purchase of EE items with high initial cost. The theory of change notes that low-income citizens face barriers against the purchase of EE items when these items have higher initial costs. To the extent that women have lower average salaries, greater unemployment, and greater likelihood of widowhood than men, they almost certainly face this barrier more than men do. Related, the role played by women and men in selecting the EE items, and in finding the alternatives when services or items are deficient, is important to also consider, as are the differences from rural and urban perspectives. The project will address

[13] Euromonitor 2006. *Consumer Lifestyles – Kazakhstan*. p. 6

this underlying cause with targeted incentives to be delivered with the assistance of national public organizations for the advancement of the welfare of women and pensioners (Activity 3.2).

Lack of information and awareness. Both women and men lack knowledge and awareness of energy costs, energy performance, and the benefits of energy efficiency of appliances. When introducing new EE items, it is important to consider that women are the frontline users of electricity, gas, and water in the home, and but men are most often responsible for selecting costly appliances and paying for items. Thus, outreach to customers, should be sensitive to differences that result from gender roles. Promotional materials may need to target women and men differently. The project will address these issue with information outreach to both women and men, including outreach particularly directed at women as warranted by market research (Activities 3.1 and 3.3). Based on research findings, professional training and public outreach will be designed with a special eye toward both gender equity and responsiveness to gender-specific issues. Women can be valuable partners in supporting the transition the renewable energy/ sustainable use of energy appliance. The project will engage women, recognizing that their role as stakeholders regarding energy costs, energy performance, consumer information, environmental protection, and so on. The project also recognizes the importance of avoiding perpetuation of gender-role stereotypes regarding household responsibilities. Outreach materials will portray both sexes and indeed also multiple generations as sharing responsibility for managing households, including and especially kitchens, with efficient appliances playing a central role in providing comfort while also limiting costs and environmental impact. Gender is less central to other program activities, but those too are also aligned with gender mainstreaming. As noted above, Kazakhstan is relatively progressive already regarding gender mainstreaming policy and representation in executive and legislative branches of government, albeit with areas where further advances are needed. The project's efforts regarding policy and enforcement (Components 1 and 2) will fit into this national context. As the project will target female workers in this mostly male-dominated sector, careful attention will be paid to consider what measures can be included in this activity to address prevailing attitudes and gender stereotypes about women's employment in these fields (e.g., career counseling, job placement, and mentoring). Activities addressing prevailing attitudes and women's promotion should target both men and women leaders. Women leaders – most notably, Ms. Erkezhan Amirkhanova, Acting General Director of KazInst – are expected to play key roles. Activity 4.1, in providing technical assistance on domestic manufacturing of EESL-compliant products, will benefit hundreds of female workers directly by enhancing their qualifications and job security[14].

In the project preparation phase, consultation has been carried out with all key stakeholder groups, allowing for equal inputs from both men and women. Women have filled key roles in project preparation, including the lead national consultant responsible for research and project scoping; and lead representatives of key agencies working with the project team, including the Acting General Director of KazInst, the Chief Expert of the national Committee on Statistics, an expert on electronic waste management, and others.

Every effort will be made to ensure that qualified women will be proportionally represented on the Project Board. Institutions to be consulted on gender issues at national level will include, but not be limited to, focal points for gender at government ministries, civil society organizations working in the fields of gender and climate change, as well as research institutions and development partners working on gender issues.

Based on this initial assessment of gender issues for the project, no appreciable gender-related risks have been identified.

v. South-South and Triangular Cooperation (SSTrC):

This project will draw directly from the successful experiences of recent UNDP-supported projects funded by GEF on EESL for appliances and lighting in Russia and Turkey. U4E will provide broader contacts and coordination, especially with other child projects of the global leapfrogging project, in sharing experience, best practices, and lessons learned. UNDP will invite representatives of all these projects to attend the closing workshop of the project in Kazakhstan, and to deliver presentations and disseminate their own materials.

V. FEASIBILITY

[14] At the Kentau Transformer Manufacturing plant, 240 of about 1100 employees are women, working mostly on the assembly line and in quality control.

i. Cost efficiency and effectiveness:

Appliance and equipment efficiency standards are well known as being among the very most cost-effective instruments for achieving energy savings, cost savings for consumers, and GHG emissions reduction at scale. Lawrence Berkeley National Laboratory estimated in 2004 that standards implemented at a cost of $2 in federal government spending per household had triggered investment in energy-saving features equaling $1,000 per household, resulting in $2,170 gross savings per household in fuel costs, and an increase of more than $1000 of net present value per household to the U.S. economy during the operating lifetimes of the affected products.[15] A similar analysis in 2003 by the International Energy Agency determined that EESL in OECD countries would lead to cumulative net cost savings of 137 billion euros by 2020.[16]

Standards and labelling offer such remarkable cost-effectiveness because they affect entire market sectors involving annual sales of tens or hundreds of thousands of electricity-intensive products, using policy and an efficient laboratory-based enforcement process, leading ultimately to market transformation that is sustained mostly through consumer demand and competition among producers. (See the Strategy section and the project's theory of change for more details.)

This project seeks similar cost-effectiveness at scale. The project has a target of 4.3 million tonnes of direct avoided CO_2 emissions during the project period, or about 80 cents of GEF expenditure per tonne. (The U4E Country Assessment for Kazakhstan (2016) estimates a potential cumulative savings in 2020-2030 of about 17 TWh and 15.6 million tonnes of CO_2 emissions from adoption of MEPS in Kazakhstan, including post-project energy savings and avoided emissions out to 2030. If the project achieves this result, then the GEF expenditure would be under US $0.22 per tonne of avoided CO_2 emissions.)[17]

The project has taken steps during project preparation to ensure cost-effectiveness, including gathering of comparable cost data for laboratory equipment from the analogous UNDP-supported, GEF-funded project on EESL for appliances in Russia, as well as from U4E. Other project activities, including the creation of the product register and web portal (Component 2.3) and the market snapshot studies (Component 2.4) have also been designed based on the success and cost-effectiveness of analogous activities in the appliance project in Russia. Finally, rebates, coupons, and other incentives will be applied with various amounts, terms, and conditions, with frequent evaluation and adjustments of subsequent incentive offerings to ensure maximal environmental and social benefits, and minimal "free ridership."

ii. Risk Management:

The design of the project's activities reflects a thorough assessment of both barriers and risks affecting the potential success of EESL in Kazakhstan. Activities have been designed specifically to lift the barriers – development/harmonization of EE standards and enforcement support for regulatory barriers, material and methodological support to address barriers regarding laboratory testing capacity, labelling and PR for informational barriers, technical support for technical barriers on the supply side, and targeted discounts for financial barriers.

The risks shown in the table below reflect remaining factors that lie outside the direct activities of the project, or along its periphery. As per standard UNDP requirements, the Project Manager will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probablity are high (i.e. when impact is rated as 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks will also be reported to the GEF in the annual PIR.

[15] Meyers, S, J. McMahon, and M. McNeil. 2004. *Realized and Prospective Impacts of U.S. Energy Efficiency Standards for Residential Appliances: 2004 Update*. Berkeley, CA, Lawrence Berkeley National Laboratory, LBNL-56417

[16] IEA (International Energy Agency). 2003. *Cool Appliances: Policy Strategies for Energy-Efficient Homes*, OECD/IEA, Paris, France.

[17] As explained in the Request for CEO Endorsement submitted by UN Environment to GEF for the global leapfrogging project, energy savings and avoided emissions are to be allocated between the global project, child projects (including this one) and UN Environment's prior work on securing political commitment, according to a previously-agreed proportional breakdown. The figures presented here and in the Project Results Framework represent full savings and avoided emissions before allocation. The UNDP child project will be responsible for securing and documenting these full savings, with the allocation to be applied separately later as agreed.

Table 2. Project risks, including impact and probability, and mitigation measures

Description	Type	Impact & Probability	Mitigation Measures	Responsible Parties
Unanticipated stakeholder opposition or other barriers within Kazakhstan or the Eurasian Economic Union delay or prevent the adoption of MEPS and HEPS	*Political and institutional*	Impact = 3 Probability = 1	It is strongly expected that the development of new appliance and equipment efficiency standards will be widely supported and indeed expected in Kazakhstan. The political enabling environment is especially conducive because of momentum in drafting related technical regulations at the level of the Eurasian Economic Union (Customs Union). On the other hand, this linkage with the Customs Union does mean that disagreements at that level could stall adoption of MEPS and HEPS in Kazakhstan. To mitigate this risk, the project includes an activity intended to harmonize Kazakhstan's standards with Customs Union regulations. As for potential opposition at the national level in Kazakhstan, the project includes activities on both the demand side (Component 3) and the supply side (Component 4) to increase support and reduce barriers to effective adoption.	National Implementing Partner (Ministry of Investments and Development of the Republic of Kazakhstan), regarding standards and the Customs Union; project staff, regarding stakeholder outreach and support
Success in increasing uptake of EE refrigerators yields increase in releases of HFCs from spent refrigerators, thus dampening or reversing climate-change mitigation effects	*Technical and environmental*	Impact = 2 Probability = 1	The project does have an activity on e-waste, but it is relatively modest because of extensive existing activity and established lines of authority regarding e-waste and HFC management, including Kazakhstan's participation in Montreal Protocol discussions that recently led to agreement on the global phase-out of HFCs. See description of Activity 1.6 above. If existing national activity outside the project is shown to be insufficient in managing this risk, or if national agencies express a need, the Project Board may opt to expand Activity 1.6 to include not only delivery of information on best practices, but also actual policy drafting and program development on collection and disposition of HFCs and e-waste.	Project Board and staff in collaboration with Center for Cooperation for Sustainable Development and national agencies
Dumping, incorrect documentation, and other illegal practices in importation of appliances and equipment complicate enforcement of EESL	Regulatory	Impact = 2 Probability = 1	Direct activity regarding customs control of imported goods lies beyond the scope of the project, but to a significant extent, the project's existing EESL enforcement activities in Component 2 (testing, market snapshot and publicity, register of products) will help catch noncompliant products that might enter the country. Such cases that are indeed revealed through project activity will be reported to responsible customs	Project staff

Description	Type	Impact & Probability	Mitigation Measures	Responsible Parties
			authorities and to the mass media.	
Political opposition to EESL among consumers and manufacturers either within Kazakhstan or in other countries of the Customs Union weakens standards and slows adoption	Political and regulatory	Impact = 2 Probability = 1	There is a strong consensus and existing political momentum for EESL in Kazakhstan and the Customs Union. Broad inclusiveness of stakeholders in development, review, and comment regarding new EESL, as well as explicit efforts to achieve harmony with the Customs Union, will help to retain this consensus. PR and financial support within Component 3 will help to reduce confusion, social burdens, and political opposition on the consumer side. Among domestic manufacturers, technical support for compliance delivered within Component 4 will also help reduce resistance to new EESL.	Project staff and national partners
Electricity tariffs remain artificially low because of state regulation, thus dampening the financial incentive for consumers to choose highly energy-efficient products	Political and financial	Impact = 2 Probability = 1	Electricity tariffs have already been rising steadily in Kazakhstan because of state reforms, with an increase in tariff caps every year from 2009 through 2015. Further freeing of tariffs is expected. (See Annex F for a full description of current electricity tariffs and associated policies.) Even if artificially low electricity price signals continue to exist at some level, the adoption of MEPS and state procurement rules would assure minimal levels of energy performance and emissions reductions.	Project staff and collaborators; Government of Kazakhstan
For Activity 2.4, purchase of appliances in Kazakhstan would be expensive, with a corresponding need to limit the number of items per round of testing. There are also complexities about who would own the appliances and how they would be used after the testing.	Operational and financial	Impact = 1 Probability = 1	The current preferred approach would be for UNDP to contract the work out, as UNDP did in its GEF-funded lighting project Russia, leaving the question of equipment disposition to the contractor. The tested devices could also be given to the laboratories, to be used as reference samples against which comparisons could be drawn during future testing. Finally, where applicable, devices to be tested could be taken from state procurement orders, and returned for state use after testing is complete.	Project staff and collaborators

iii. Social and environmental safeguards:

As indicated in the completed Social and Environmental Safeguards Report (Annex X), the project poses no appreciable social or environmental risks. The overall SESP risk rating is low. Please see the completed report, submitted as an Annex to this Project Document, for more details.

There is some risk that promotion of the purchase of new appliances and equipment will accelerate the rate of disposal of spent electric equipment, creating new issues with handling and storage of waste. But it should be noted that this risk involves acceleration of the creation of waste, but not the generation of new waste, as all existing electronic equipment is eventually destined for decommissioning and disposition. Because of ongoing policy and program efforts of the Government, with added support from the project, it is anticipated that even

with a short-term expansion in the volume of spent appliances, the project will lead to a reduction, not an expansion, of risk from waste, pollution, and hazardous substances.

Any environmental and social grievances that do emerge will be reported to UNDP and the GEF in the annual Project Implementation Review, with proposed actions to address them.

iv. Sustainability and Scaling Up:

As demonstrated in numerous countries around the world, standards and labelling for appliances and equipment are inherently conducive to scaling up, as they apply across entire chosen technology sectors, nationwide, encompassing tens or hundreds of thousands of units of appliances and equipment per year. Furthermore, standards and labelling lead to permanent market transformation by prompting changes in manufacturers' product lines, shifts in consumers' preferences and knowledge, and new competitive dynamics in the market regarding energy performance as a measure of value and quality for consumers.

It is expected that by the end of the project period, appliance and equipment S&L will become established national policy with strong state support. Laboratories will be equipped, trained, and authorized to conduct enforcement even after the project closes, with financial operations based on a sustainable fee-based structure developed by the project. Similarly, the web portal and register of products will be handed over to a responsible state agency or authorized third party after the project ends, to be operated at relatively modest expense and agency time burdens.

For further elaboration of how the project will achieve sustainability and scaling up, see the theory of change elaborated in Section III, Strategy.

v. Economic and/or financial analysis:

Not applicable for this project.

VI. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s): *Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all (Target 7.3: By 2030, double the global rate of improvement in energy efficiency). Goal 13: Take urgent action to combat climate change and its impacts (Target 13.2: Integrate climate change measures into national policies, strategies and planning; and Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation)*
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: *Outcome 2: Environmental Sustainability. Communities, national, and local authorities use more effective mechanisms and partnerships that promote environmental sustainability and enable them to prepare, respond, and recover from natural and man-made disasters.*
This project will be linked to the following output of the UNDP Strategic Plan: *Output 1.5: Inclusive and sustainable solutions adopted to achieve increased energy efficiency*

Project Objective / Component / Outcomes	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Project Objective: ***To transform Kazakhstan's markets to energy efficient appliances and equipment, thereby reducing electricity consumption and GHG emissions***	Reduction in electricity consumption by refrigerators, distribution transformers, and electric motors	40 TWh of electricity per year consumed by refrigerators, motors, and distribution transformers (transformer losses), projected to grow to 87 TWh per year by 2030 under business as usual	No quantitative midterm target for achieved energy savings (end of project only), but see midterm target for Component 1	4.7 TWh of electricity savings from implementation of EESL and other measures during the project period	Baseline electricity consumption is estimated based on partial information and UN Environment prognoses about market size and technical specifications of appliance and equipment stock and sales. See Annex describing UN Environment methodology and assumptions.
	Reduction in GHG emissions from electricity consumption by refrigerators, distribution transformers, and electric motors	37 million tonnes of CO_2 emissions per year from electricity consumption by refrigerators, motors, and distribution transformers, projected to grow to 80 million tonnes of CO_2 emissions per year by 2030 under business as usual	No quantitative midterm target for avoided GHG emissions (end of project only), but see midterm target for Component 1	4.336 million tonnes of direct CO_2 emissions reductions achieved from implementation of EESL and other measures during the project period	GHG baseline and target based on UN Environment Country Assessment. See Annex E, which describes methodology and assumptions. As explained in the Request for CEO Endorsement submitted by UN Environment to GEF for the global leapfrogging project, energy savings and avoided emissions are to be allocated between the global project, child projects (including this one), and UN Environment's prior work on securing political commitment, according to a previously-agreed proportional breakdown. The targets presented here represent full savings

Project Objective / Component / Outcomes	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
					and avoided emissions before allocation. The UNDP child project will be responsible for securing and documenting these full savings, with the allocation to be applied separately later as agreed.
	Average energy performance levels of new refrigerators, distribution transformers, and electric motors relative to baseline	450 kWh per year for refrigerators (UN Environment Country Assessment, 2016) IE1 level of the IEC 60034-30-1 standard for motors, as developed by the International Electrotechnical Commission Data on baseline performance of distribution transformers unavailable during project preparation. Baseline to be determined during the first project year.	End-of-project target energy performance levels are reflected in adopted mandatory MEPS for refrigerators, distribution transformers, and electric motors	212 kWh per year for refrigerators, verified by sales and certification data IE3 ("premium") level of the IEC 60034-30-1 standard for motors, as developed by the International Electrotechnical Commission, verified by sales and certification data Tier 3 for distribution transformers, as defined by the Super-efficient Equipment and Appliance Deployment (SEAD) Initiatives, verified by sales and certification data.	No baseline data available for energy efficiency (average losses) from distribution transformers in various categories. Data to be collected during first six months of the project.
	Number of households that purchase refrigerators certified to comply with the new MEPS	No households have purchased certified refrigerators as the MEPS are not yet adopted or in force	No households have purchased certified refrigerators as the MEPS are not yet adopted or in force	1.3 million households purchase refrigerators certified to comply with new MEPS	Based on UN Environment's stock growth projections and refrigerator operating lifetimes, that estimates 2.5 million refrigerators to be sold between 2017 and 2022.
Component 1: Development and adoption of EE standards and labels Outcome: Transformation of the	Status and required performance levels of minimum energy performance standards (MEPS) for refrigerators, distribution transformers, and electric motors	No MEPS adopted or in force, neither at the national level nor at the level of the Eurasian Economic Union (Customs Union)	National MEPS are adopted for refrigerators, distribution transformers, and industrial electric motors equivalent to the "Best MEPS" criteria of the UN Environment Country	National MEPS are adopted and in force for refrigerators, distribution transformers, and industrial electric motors equivalent to the "Best MEPS" criteria of the UN Environment Country Assessment, harmonized with relevant technical regulations of the	It is extremely unlikely that national MEPS will be adopted without this project. But it is possible that MEPS could be adopted at the level of the Customs Union before the start of the project. If so, then this target should still be retained with regard to national MEPS, and also should be expanded to include equipment types

Project Objective / Component / Outcomes	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
market for appliances and equipment in Kazakhstan, via creation and implementation of standards, labeling, regulations, and associated capacity building			Assessment, harmonized with relevant technical regulations of the Customs Union	Customs Union	not covered by the Customs Union.
	Status and threshold levels of a national voluntary energy-performance label for refrigerators and at least one other consumer product in Kazakhstan	No national voluntary label on energy performance for any product, but irregular application of EU and Russian labels	National voluntary label defined and approved	Voluntary label operational, with full implementation and enforcement support, earned by at least three products	
Component 2: Monitoring, verification, and enforcement Outcome: A new, effectively operating regime of testing, certification, and information disclosure in support of implementation of EESL, carried out by properly equipped, trained, and certified laboratories	Operational status of testing and certification laboratories in support of energy performance standards and labelling for refrigerators, distribution transformers, and industrial electric motors	No testing and certification laboratories in Kazakhstan for energy performance of refrigerators, distribution transformers, and industrial electric motors	At least two testing and certification laboratories for refrigerators, distribution transformers, and industrial electric motors are equipped, trained, and operational	At least four testing and certification laboratories for refrigerators, distribution transformers, and industrial electric motors are operational at the full annual volume of testing needed for implementation of minimum energy performance standards and energy performance labelling, with a backlog of no less than three months for products seeking certification	This outcome will apply to at least two and possibly as many as six laboratories in Kazakhstan. The exact number and identity of the laboratories will be determined based on detailed analysis during the first project year of laboratory capacity, equipment costs, administrative issues, geographic coverage, and expected volumes of equipment to be tested. The indicator is to be assessed based not on number of laboratories, but rather capacity to fully handle all national certification needs.
	Availability of updated information on products and their compliance with standards and labels, via register and web portal	No register or web portal on energy performance of appliances or equipment in Kazakhstan No data regularly collected on energy performance of appliances and equipment	Register and web portal are operational with energy performance data collected and analyzed annually for refrigerators, distribution transformers, industrial electric motors	Register and web portal are operational, with complete and regularly updated data collection on energy performance of refrigerators, distribution transformers, and industrial electric motors established as a permanent practice of a responsible institution, supported by stable funding	

Project Objective / Component / Outcomes	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
	Dissemination volume of completed market snapshot studies, comparing actual performance of off-the-shelf appliances to stated specifications	No market snapshot studies have been conducted and disseminated	Market snapshot study completed for at least four of the most popular refrigerator models in the country, with dissemination via mass media to at least 300,000 citizens (to be measured by publication circulation numbers or viewership statistics)	At least two market snapshot studies completed covering a total of at least eight of the most popular refrigerator models in the country, with dissemination via mass media to at least 400,000 citizens (to be measured by known publication circulation numbers or viewership statistics).	
Component 3: Boosting demand for EE appliances and equipment Outcome: Enhanced capacity among citizens and industry in Kazakhstan to understand, afford, and procure EE appliances and equipment	Consumer awareness of energy efficiency, energy performance standards, and labels for refrigerators., as reflected in share of affirmative survey responses and broken out by gender	No energy performance standards; various labels applied inconsistently and minimally recognized by consumers. Quantitative baseline to be established in first year of project.	15 percent increase in affirmative response rates from consumers (both men and women) that they read, understand, and consider EE information when purchasing refrigerators	50 percent increase in affirmative response rates from consumers (both men and women) that they read, understand, and consider EE information (and specifically, official labels) when purchasing refrigerators	Consumer awareness data to be collected in surveys and focus groups at beginning, midterm, and final year of project. Both bulk surveys and tracking surveys will be administered.
	Number of consumers participating in rebate or coupon programs	No rebate or coupon programs for consumers with regard to EE refrigerators	At least 4,000 customers (including at least 2,000 women) participate in rebate or coupon programs, with an 80 percent completion rate of required surveys	At least 7,5000 customers (including at least 4,000 women) participate in rebate or coupon programs, with an 80 percent completion rate of required surveys	Surveys will contain data on both the gender of the respondent and the number and gender of the affected members of the household.
	Share of industrial electric motors in operation compliant with new IE3 standard (the MEPS target)	Annual sales of about 18,000 electric motors in Kazakhstan in 2015. No data on numbers and energy performance of existing stock, but it is likely that only a tiny fraction are compliant with the IE3 standard	Five percent of all existing industrial electric motor stock complies with the IE3 standard	Twenty percent of all existing industrial electric motor stock complies with the IE3 standard	Baseline data on stock and energy performance will be collected during the first project year, with the same numbers revisited at midterm and in year 5.

Project Objective / Component / Outcomes	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Component 4: Ensuring supply of products compliant with EESL Outcome: Creation of new capacity among manufacturers and other supply-chain participants for appliances and equipment for compliance with new EESL.	Share of domestically-produced distribution transformers compliant with new MEPS	Performance data not available. Anecdotal statement from an expert of the Kentau plant that its distribution transformers have losses of about 20 percent, which would be far from levels compliant with target MEPS. Actual numbers and performance levels of domestically-produced distribution transformers to be determined in first project year.	No quantitative midterm target for share of MEPS-compliant transformers because compliance will be achieved after adoption of MEPS and after training, in the second half of the project period. But by midterm, training will have been delivered and financial plans developed for retooling the Kentau Transformer Manufacturing Plant (and/or other similar enterprises with similar total output, encompassing 75 percent of domestic production in Kazakhstan) to comply with new MEPS	Kentau plant (and/or other enterprises with similar total output) retooled and producing entirely MEPS-compliant products, covering 75 percent of total domestic production	Indicators for other types of equipment could be added at midterm if increased domestic production rates warrant expanded activity in this component.
	Number of other supply-chain stakeholders, including waste handlers, trained in new requirements of MEPS, HEPS, labelling programs, and associated regulations	No training for supply-chain stakeholders	Representatives of at least ten companies trained, covering at least two major cities of Kazakhstan and two levels of the supply chain	Representatives of at least 20 companies trained, covering at least four major cities of Kazakhstan, plus rural areas, and three levels of the supply chain	Some training could be directly offered by the project, while other training could be offered internally by companies to their own employees, with the project's support.

Monitoring and evaluation are also a key part of the project but are not named as a numbered component because the project was already approved with four components at the Project Framework Document (pre-PPG) stage. M&E does not have any indicators or targets of its own in this framework, but the framework itself represents the project's M&E tasks throughout. Please see the following section of this Project Document for more details.

VII. MONITORING AND EVALUATION (M&E) PLAN

The project results as outlined in the Project Results Framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. While these UNDP requirements are not outlined in this Project Document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the GEF M&E policy and other relevant GEF policies.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Tracking Tools for all GEF-financed projects in the country, including projects supported by other GEF Agencies.

M&E oversight and monitoring responsibilities:

Project Manager: The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

The Project Manager will develop Annual Work Plans based on the multi-year work plan included in Annex A, including a month-by-month projection of activities, as well as annual output targets. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. gender strategy, KM strategy etc.) occur on a regular basis.

Project Board: The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response. Results of this review, as well as findings outlined in the project terminal evaluation report and the management response, will be presented at a closing workshop open to a broad variety of stakeholders from Kazakhstan and from UNDP projects elsewhere in the region.

Project Implementing Partner: The Implementing Partner is responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes, and is aligned with national systems so that the data used by and generated by the project supports national systems.

UNDP Country Office: The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key

GEF M&E activities including the annual GEF PIR, the *independent mid-term review* and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.

The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

Audit: The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.[18]

Additional GEF monitoring and reporting requirements:
Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:
a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation;
b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
c) Review the results framework and finalize the indicators, means of verification and monitoring plan;
d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;
e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the knowledge management strategy, and other relevant strategies;
f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
g) Plan and schedule Project Board meetings and finalize the first year annual work plan.

The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.

GEF Project Implementation Report (PIR): The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

[18] See guidance here: https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx

Lessons learned and knowledge generation: Results and lessons learned from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally. Special focus will be given to regular communication with other UNDP projects in the region, and also throughout the entire global U4E network.

GEF Focal Area Tracking Tools: The GEF Climate Change Mitigation Tracking Tool will be used to monitor global environmental benefit results. The baseline/CEO Endorsement GEF Focal Area Tracking Tool – submitted as Annex N to this project document – will be updated by the Project Manager/Team and shared with the mid-term review consultants and terminal evaluation consultants (not the evaluation consultants hired to undertake the MTR or the TE) before the required review/evaluation missions take place. The updated GEF Tracking Tool will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

Independent Mid-term Review (MTR): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center. As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publicly available in English on the UNDP ERC.

The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP ERC. Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

Final Report: The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be

discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Mandatory GEF M&E Requirements and M&E Budget[19]:

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[20] (US$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	USD 3,000		Within two months of project document signature
Inception Report	Project Manager and International Consultant	USD 14,000	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Monitoring of indicators in project results framework	Project Manager and national consultants	USD 9,000		Annually
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	Per year: USD 5,000 (Total 25,000)		Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation	Project Manager and international consultant (not including specific knowledge generation within components)	USD 6,000		Annually, with increased effort in final year
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	None		On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office BPPS as needed	None for time of project manager, and UNDP CO		
Project Board meetings	Project Board UNDP Country Office Project Manager	Per year: USD 1600 (Total USD 8000; participation of members will be donated in-kind)		At minimum annually
Supervision missions	UNDP Country Office	None[21]		Annually

[19] In the Total Budget and Workplan (Section X), the budget for M&E is not presented separately as it is here, but rather is contained within the individual components, for consistency with the original format of the budget in the approved Project Framework Document.

[20] Excluding project team staff time and UNDP staff time and travel expenses.

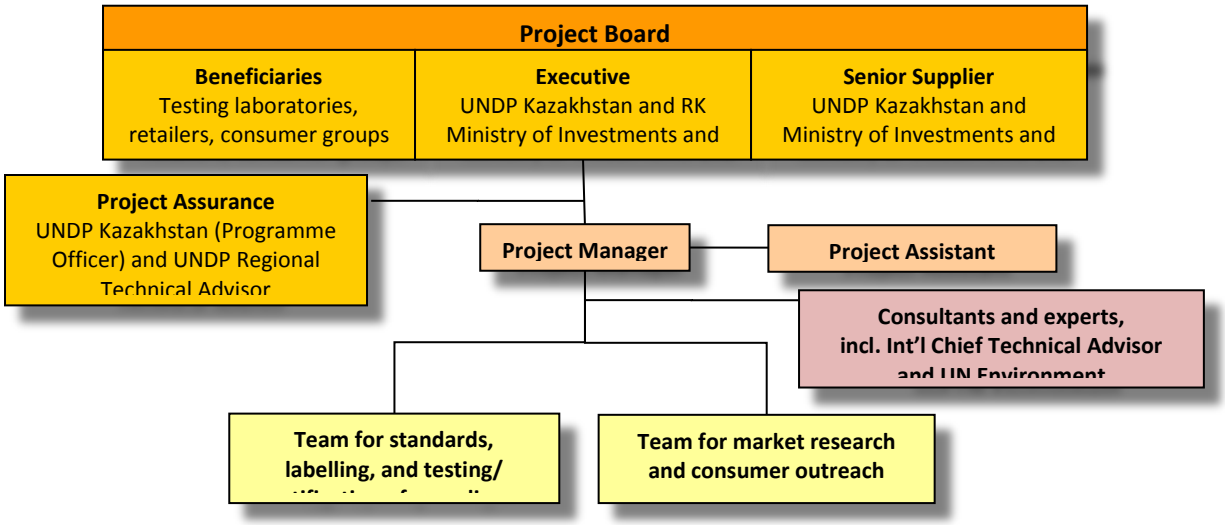
[21] The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[20] (US$)		Time frame
		GEF grant	Co-financing	
Oversight missions	UNDP-GEF team	None[21]		Troubleshooting as needed
Knowledge management	Project Manager	Approximately USD $28,000 for outside services, workshops, events, materials, etc.)		On-going
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None		To be determined.
Mid-term GEF Tracking Tool	Project Manager and national consultant	USD 1,500 (see also monitoring of indicators, above)		Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 28,000		Between 2nd and 3rd PIR.
Terminal GEF Tracking Tool	Project Manager and national consultant, with participation by international consultant	USD 1,500 (see also monitoring of indicators, above)		Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 36,000		At least three months before operational closure
Translation of MTR and TE reports into English	UNDP Country Office	USD 3,000		
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		*USD 163,000*		

VIII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Roles and responsibilities of the project's governance mechanism: The project will be implemented following UNDP's national implementation modality, according to the Standard Basic Assistance Agreement between UNDP and the Government of the Republic of Kazakhstan, and the Country Programme.

The project organisation structure is as follows:



The **Implementing Partner** for this project is the **Ministry of Investments and Development of the Republic of Kazakhstan**. The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. A senior representative of the Ministry of Investments and Development will be named as the National Project Director on behalf of the Implementing Partner and the government of the Republic of Kazakhstan.

The **Project Board** (also called Project Steering Committee) is responsible for making consensus management decisions when guidance is required by the Project Manager, including recommendation for approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. The Project Board will also closely oversee and take account of results from monitoring and evaluation efforts. The Terms of Reference for the Project Board are contained in Annex.

The Project Board will be chaired by a senior representative of UNDP. The Project Board will include at least two senior officials of the Ministry of Investments and Development, specifically the Department of Energy Conservation and Energy Efficiency and the Institute for Standardization and Certification (KazInst), including the National Project Director. The Project Board will also include representatives of other Ministries such as the Ministry of Energy, the Ministry of the National Economy (including its Committee on Statistics), as well as the Committee on Consumer Protection, the national Association of Entrepreneurs, and other stakeholder groups to be determined.

The **Project Manager** will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager function will end when the final project terminal evaluation report, and other documentation required by the GEF and UNDP, has been completed and submitted to UNDP (including operational closure of the project). A full-time **Project Assistant** will provide support to the Project Manager in all tasks of the project, including administration, management of information and contacts, logistics, representing the project when the Project Manager is unavailable, and so

on. For Project Assistant, the amount payable will only be charged to Project Management, since the incumbent will not perform any technical role in the project.

The Project Manager will supervise two **implementation teams** – one on standards, labelling, testing, and certification of compliance, and one on market research and consumer outreach. These teams will operate full-time in fulfilling the research, policy development, communications and outreach, and implementation embodied in all the components. The exact contractual modalities for members of these teams will be determined on a case-by-case basis based on the match of tasks and qualifications (most likely, year-to-year service contracts or individual contracts with lump-sum payments for specific outputs). Members of these teams may be stationed within or outside the project office. **Evaluation specialists** will likewise be engaged as needed for short-term or long-term assignments, reporting either to implementation team leaders or directly to the Project Manager, depending on the scope of the evaluation assignment.

UNDP will engage international consultants as needed to provide training on laboratory testing and certification, manufacturing of products compliant with S&L, and/or other areas. Unless the Project Manager has very strong specific experience, the project will seek to hire an **International Chief Technical Advisor** with expertise in appliance S&L, ideally within the Eurasian Customs Union.

In addition, U4E will provide technical support via practical guides, reference documents, tools and training packages for the use of policy makers, finance experts, and technical experts. This support will reflect both U4E's overall integrated policy approach and specific issues related to national policy development, funding mechanisms and sources, technical matters, use of specific tools and resources, and data collection and assessment. U4E may also involve this project in a regional workshop and Regional Status Report for the standards harmonization process. U4E's participation in this project in Kazakhstan will be covered by UN Environment's own separate grant funding under the Program "Leapfrogging Markets to High Efficiency Products (Appliances, including Lighting, and Electrical Equipment)". Throughout all of these interactions, UNDP will coordinate with UN Environment to help ensure consistency and synergy among the project in Kazakhstan, other child projects, and the UN Environment global project.

Beyond the project cycle management services provided by UNDP, UNDP will provide higher-level services to the project in financial management and procurement, with quality control consistent with the agency's overall safeguards and best practices. An agreement on Direct Project Costs (DPCs) between UNDP and the Implementing Partner has been determined based on the level of services to be delivered (refer to the Letter of Agreement in Annex N).

The project will build **partnerships** with a variety of stakeholders whose participation is needed for successful implementation, including manufacturers, retailers, and private testing and certification laboratories. In order to prevent commercial conflicts of interest, they will not be eligible to serve on the Project Board, nor will they play a direct role in project governance. But the Project Board may invite them as appropriate to board meetings and discussions of project plans and evaluation.

The **project assurance** role will be provided by the UNDP Country Office, specifically the Programme Officer for the Sustainable Urbanization and Energy & Environment Portfolio, as well as the UNDP/GEF Regional Technical Advisor, working out of the Istanbul Regional Hub.

Governance role for project target groups: The project will seek regular input and participation in specific project activities by the two major consumer groups in Kazakhstan. The **National League of Consumers**, a NGO which unites leading experts in the field of consumers' rights protection, will be invited to join working-group discussions of standards and labelling (Components 1.1 and 1.3). The **Adal Society for Protection of Consumers' Rights**, which conducts market research and product testing for the protection of consumers, will join the project in testing and publicity on performance of appliances purchased in retail stores (Component 2.4). Both organizations will also help to design the rebate and coupon activities of the project. The specific roles of all these groups will be determined during the project period.

UNDP Direct Project Services as requested by Government: The UNDP, as GEF Agency for this project, will provide project management cycle services for the project as defined by the GEF Council. In addition the Government of Kazakhstan may request UNDP direct services for specific projects, according to its policies and convenience. The UNDP and Government of Kazakhstan acknowledge and agree that those services are not mandatory, and will be provided only upon Government request. If requested the services would follow the UNDP policies on the recovery of direct costs. These services (and their costs) are specified in the Letter of

Agreement (Annex N). As is determined by the GEF Council requirements, these service costs will be assigned as Project Management Cost, duly identified in the project budget as Direct Project Costs. Eligible Direct Project Costs should not be charged as a flat percentage. They should be calculated on the basis of estimated actual or transaction based costs and should be charged to the direct project costs account codes: "64398-Direct Project Costs – Staff" and "74598-Direct Project Costs – General Operating Expenses (GOE)".

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information**:** In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy[22] and the GEF policy on public involvement[23].

Project Management: The project office will be in Astana, in the headquarters of the United Nations in Kazakhstan, under an arrangement essentially identical to that of the existing UNDP project, funded by GEF, on energy-efficient lighting. It is expected that the project office will be staffed full-time by the Project Manager, Project Assistant, and two team leaders as described above. There will be no other project office, but project staff will travel regularly to maintain a regular presence in other cities, especially Almaty. Consultants and national partners will also help to maintain the project's presence outside of Astana.

Project operations will be supported, as also noted above, by financial, logistical, and procurement-related support staff employed by the UNDP Country Office. These support services will be shared by this project and other UNDP projects.

IX. FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD 15.7 million, financed through a GEF grant of USD 3.5 million and USD 12.2 million in parallel co-financing. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources and the cash co-financing transferred to UNDP bank account only.

Parallel co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. The planned parallel co-financing will be used as noted in the following table. Co-financing letters are listed in Annex H and are provided as a separate document.

Note that the project also expects at least USD 6 million in equity co-financing from consumers participating in rebate and coupon programs. As these individuals are diffuse and not yet specifically identified, there is no co-financing letter for this amount.

Table 3. List of co-financing sources, amounts and planned activities

Co-financing source	Co-financing type	Co-financing amount* (US$)	Planned Activities/ Outputs	Risks	Risk Mitigation Measures
Ministry of Investments and Development of the Republic of Kazakhstan	Cash	10,510,511	All components and activities, with the most direct role of Ministry staff in Component 1	Changes in state budget allocations. This risk is low because of national strategic mandates for climate change mitigation and sustainable development.	Exercising of National Project Coordinator role by Ministry to assure consistency between national policy directions and project activities

[22] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

[23] See https://www.thegef.org/gef/policies_guidelines

Co-financing source	Co-financing type	Co-financing amount* (US$)	Planned Activities/ Outputs	Risks	Risk Mitigation Measures
UNDP	In-kind	300,000	All components and activities	Negligible risk.	
Kentau Transformer Manufacturing Plant	Cash	255,255	Component 4, with some participation also in Component 1	Low risk of delays in release of co-financing due to unexpected technical barriers to implementation of new production of MEPS-compliant devices	Communication among technical consultants and Kentau plant specialists on design and costing of retooling measures
	In-kind	750,751			
Almaty University of Power Engineering and Telecommuni-cations	Cash	120,120	Component 2	Low risk of delays in release of co-financing due to administrative or technical barriers to implementing appliance/equipment certification regime at existing testing lab	Reliance on past successful practices in procurement of equipment and certification of new laboratory procedures
	In-kind	75,075			
Seifullin Kazakh Agricultural and Technical University	Both cash and in-kind. No specific committed amounts stated in support letter.		Component 2	Low risk of delays in release of co-financing due to administrative or technical barriers to implementing appliance/equipment certification regime at existing testing lab	Reliance on past successful practices in procurement of equipment and certification of new laboratory procedures
Energy Management 2050	Cash	72,072	Component 2	Low risk of delays in release of co-financing due to administrative or technical barriers to implementing appliance/equipment certification regime at existing testing lab	Reliance on past successful practices in procurement of equipment and certification of new laboratory procedures
Physics and Technical University (Almaty)	Cash	34,535	Component 2	Low risk of delays in release of co-financing due to administrative or technical barriers to implementing appliance/equipment certification regime at existing testing lab	Reliance on past successful practices in procurement of equipment and certification of new laboratory procedures
	In-kind	124,324			

* Amounts pledged in Kazakh tenge are converted here to dollars at the prevailing January 2017 rate of 333 tenge per US$.

Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF:

a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more;

b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

Refund to Donor: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. On an exceptional basis only, a no-cost extension beyond the initial duration of the project will be sought from in-country UNDP colleagues and then the UNDP-GEF Executive Coordinator.

Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Financial completion: The project will be financially closed when the following conditions have been met:
a) The project is operationally completed or has been cancelled;
b) The Implementing Partner has reported all financial transactions to UNDP;
c) UNDP has closed the accounts for the project;
d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

X. TOTAL BUDGET AND WORK PLAN

Atlas Proposal or Award ID:	00097247	Atlas Primary Output Project ID:	00101056
Atlas Proposal or Award Title:	Energy efficient standards, certification, and labelling for appliances and equipment in Kazakhstan		
Atlas Business Unit	KAZ10		
Atlas Primary Output Project Title	[to be confirmed)		
UNDP-GEF PIMS No.	5703		
Implementing Partner	Ministry of Investments and Development of the Republic of Kazakhstan		

GEF Component/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
COMPONENT 1: Development and adoption of EE standards and labels (EESL)	Ministry of Investments and Development	**62000**	**GEF**	71200	International consultants	3,500	21,000	27,125	21,000	7,875	80,500	1
				71300	National consultants	4,000	4,500	6,625	4,500	7,625	27,250	2
				71400	Contractual services - individual	38,160	40,780	41,340	35,540	36,160	191,980	3
				71600	Travel	8,000	17,000	8,000	8,000	6,000	47,000	4
				72100	Contractual services (companies)	20,000	10,500	15,000	10,000	15,000	70,500	5
				74200	Communications and publishing	7,500	15,000	15,000	15,000	10,000	62,500	6
				74500	Miscellaneous (fees, etc.)	2,250	2,250	2,250	2,250	2,250	11,250	

GEF Component/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
				75700	Workshops and meetings	8,680	6,400	6,400	6,400	6,400	34,280	
					sub-total GEF	**92,090**	**117,430**	**121,740**	**102,690**	**91,310**	**525,260**	
					Total Component 1	**92,090**	**117,430**	**121,740**	**102,690**	**91,310**	**525,260**	
COMPONENT 2: **Monitoring, verification, and enforcement of EESL**	Ministry of Investments and Development	**62000**	**GEF**	71200	International consultants	0	28,000	28,000	28,000	0	84,000	1
				71300	National consultants	8,810	14,120	24,440	27,120	8,030	82,520	2
				71400	Contractual services – individual	34,810	37,480	38,180	38,920	34,490	183,880	3
				71600	Travel	3,000	6,000	6,000	3,000	3,000	21,000	14
				72100	Contractual services (companies)	11,000	0	13,620	0	15,380	40,000	5
				72200	Equipment	0	300,000	205,000	150,000	0	655,000	7
				74200	Communications and publishing	6,600	9,900	9,900	9,900	6,600	42,900	6
				74500	Miscellaneous (fees, etc.)	2,250	2,250	2,250	2,250	2,250	11,250	
				75700	Workshops and meetings	6,620	7,120	6,420	6,620	7,420	34,200	
					sub-total GEF	**73,090**	**404,870**	**333,810**	**265,810**	**77,170**	**1,154,750**	
					Total Component 2	**73,090**	**404,870**	**333,810**	**265,810**	**77,170**	**1,154,750**	

GEF Component/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
COMPONENT 3: Boosting demand for EE appliances and equipment	Ministry of Investments and Development/UNDP	**62000**	**GEF**	71300	National consultants	2,000	27,500	29,630	26,700	31,830	117,660	2
				71400	Contractual services – individual	48,000	47,900	50,300	50,900	56,300	253,400	3
				71600	Travel	1,100	1,100	1,100	1,100	1,100	5,500	14
				72100	Contractual services (companies)	11,000	10,000	16,130	7,500	7,880	52,510	5
				72100	Contractual services (companies)	0	250,000	220,000	180,000	0	650,000	8
				74200	Communications and publishing	6,000	8,000	8,000	8,000	10,000	40,000	6
				74500	Miscellaneous (fees, etc.)	2,250	2,250	2,250	2,250	2,250	11,250	
				75700	Workshops and meetings	6,900	6,400	6,650	6,900	12,900	39,750	
					sub-total GEF	**77,250**	**353,150**	**334,060**	**283,350**	**122,260**	**1,170,070**	
					Total Component 3	**77,250**	**353,150**	**334,060**	**283,350**	**122,260**	**1,170,070**	

GEF Component/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
COMPONENT 4: Ensuring supply of products compliant with EESL	Ministry of Investments and Development	**62000**	**GEF**	71200	International consultants	31,500	56,000	56,000	56,000	31,500	231,000	1
				71300	National consultants	8,500	9,000	11,125	9,000	12,125	49,750	2
				71400	Contractual services – individual	21,400	22,080	22,780	23,520	24,290	114,070	3
				71600	Travel	1,200	12,900	3,900	3,900	1,200	23,100	4
				72100	Contractual services (companies)	3,500	10,500	6,125	0	7,875	28,000	5
				74200	Communications and publishing	600	600	600	600	600	3,000	
				74500	Miscellaneous (fees, etc.)	2,250	2,250	2,250	2,250	2,250	11,250	
				75700	Workshops and meetings	4,900	4,400	4,650	4,900	5,900	24,750	
					sub-total GEF	**73,850**	**117,730**	**107,430**	**100,170**	**85,740**	**484,920**	
					Total Component 4	**73,850**	**117,730**	**107,430**	**100,170**	**85,740**	**484,920**	
PROJECT MANAGEMENT	Ministry of Investments and Development / UNDP	**62000**	**GEF**	71400	Contractual services – individual	5,360	5,630	5,910	6,210	6,520	29,630	3
				72100	Contractual Services-Companies	5,000	5,000	5,000	5,000	5,000	25,000	9
				72200	Office equipment	7,270	0	0	0	0	7,270	10

GEF Component/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
				72400	Communications	1,000	1,000	1,000	1,000	1,000	5,000	
				72500	Office supplies	500	500	500	500	500	2,500	
				73100	Office rent	6,620	6,620	6,620	6,620	6,620	33,100	11
				74596	Direct Project Costs	12,500	12,500	12,500	12,500	12,500	62,500	12
					sub-total	**38,250**	**31,250**	**31,530**	**31,830**	**32,140**	**165,000**	
					Total Project Management	**38,250**	**31,250**	**31,530**	**31,830**	**32,140**	**165,000**	
PROJECT TOTAL						354,530	1,024,430	928,570	783,850	408,620	3,500,000	

Budget notes:

1. The project will hire international experts in various technical areas of the project, including oversight of the whole project (all components); EE standards, labelling, and testing (one or two experts for Components 1 and 2); training and capacity-building, including organization and implementation of the study tour (Output 1.4); and manufacturing of energy-efficient distribution transformers (Component 4.1). This line item shows consultants hired by individual contract. Some international experts will be hired instead by contracts with companies (Reimbursable Loan Agreement). See budget note 5 below.
2. The project will hire multiple national experts under individual contracts. In addition to various technical areas, this item also includes translation services throughout the project period and evaluation services especially leading up to the Midterm and Terminal Evaluations.
3. The Project Manager and Project Assistant will be hired full-time under fixed-term contracts according to the approved UNDP pay scale for Kazakhstan (SB4 Peg 3 for the Project Manager, and SB3 Peg 3 for the Project Assistant). The amount payable under these contracts is split here across all four components, plus project management, in proportion to the expected volume of work. For Project Assistant, the amount payable will only be charged to Project Management, since the incumbent will not perform any technical role in the project. Two full-time team leaders (one for work on standards, labelling, testing, and certification in Components 1 and 2, and one for work on market research and consumer outreach mostly in Component 3) and two research analysts will be hired under service contracts with year-long terms and monthly payments.
4. The budgeted cost for travel for Components 1 and 4 in Year 2 is higher than in other years in anticipation of execution of a study tour for a delegation of six or seven participants.
5. This item includes the cost of contracted services from domestic and international companies, including engagement of some international consultants under Reimbursable Loan Agreement.
6. This item includes the cost of production and distribution of printed publications and promotional material, website design and maintenance, and audiovisual productions on all major areas of project activity.
7. The project will share the costs of equipment needed for laboratory testing and certification of refrigerators, motors, distribution transformers, and any other technologies for which energy performance standards and labelling will be introduced in Kazakhstan. Up to six laboratories have been identified as possible recipients. Equipment to be purchased will include climate-controlled chambers that can accommodate multiple refrigerators; temperature sensors; electricity sources, transformers, and meters; rotary shaft encoders for motors; reference equipment; and other items. This budget amount has been determined based on the known costs of comparable equipment in laboratories equipped by UNDP and its partners in the project on EE appliances in Russia. UNDP's procurement guidelines will be strictly followed thereby ensuring best value for money, fairness, integrity, transparency and effective international competition. Consistent with regulation 24.02 and rule 124.06, equipment shall belong to UNDP unless and until such time as ownership or control is transferred, on terms and conditions mutually agreed upon between the programme country and UNDP; ownership of equipment shall be effected by the Resident Representative after consultation with the parties concerned.
8. During its second, third, and fourth years, the project will team with retailers and waste-management agencies to offer promotional rebates and coupons for the purchase of qualifying super-efficient refrigerators. These financial incentives will be made available in connection with various conditions –especially low income of the purchaser and return of an old refrigerator – and will involve a mandatory follow-up process of survey research to assess preferences, price elasticity of demand, and savings from decommissioning of old appliances. The average incentive amount will be about US $50-60, making it possible to reach thousands of consumers. UNDP will contract a company specializing in establishing and managing online coupon marketing and rebate programmes. Based on terms established and monitored through this project, this company will implement and report back regularly to UNDP on the coupon and rebate programmes.
9. This line includes the cost of the mandatory annual financial audit. This item is included in the M&E table in Section VII of this Project Document. In this budget table, the financial audit line is included under Project Management, not under components, in order to reflect the character of this audit work as a management activity. See Note 13 below.
10. This item includes the cost of three computer workstations and a local area network, office furniture, photocopying equipment, etc. The project may be able to obtain some of this equipment at reduced or zero cost from UNDP, in whose offices the project will be housed.
11. UNDP will offer office space to the project in the UN building in central Astana, as it does to the ongoing GEF-funded project on EE lighting and others. The project will pay a below-market rate per month for rent, relative to buildings of comparable location and quality. This sum will also cover basic communication services such as land-line telephones, but will not cover mobile services.
12. UNDP will provide the services of several of its country office staff members in administration, logistics, and procurement under a Direct Project Cost agreement.
13. The budget for M&E and knowledge-sharing is presented separately in Section VII, but here all M&E and knowledge-sharing activities are contained within the individual components, for consistency with the original format of the budget in the approved Project Framework Document. Financial audit, which is also a required M&E activity, is listed under Project Management (see Note 9 above).
14. The study tours will be conducted under these budget lines for the aim of developing laboratories. In this regard, it will be necessary to visit and learn about best practices to build capacity of the staff who will be engaged in the laboratory development. It's planned to get 10 people trained during 2018.

Summary of Funds*

Source	Type of support	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total
GEF	Cash	354,530	1,024,430	928,570	783,850	408,620	3,500,000
UNDP	In-kind	60,000	60,000	60,000	60,000	60,000	300,000
RK Ministry of Investments and Development	Cash	1,500,000	2,500,000	2,500,000	2,500,000	1,510,511	10,510,511
Kentau Transformer Manufacturing Plant	Cash	50,000	50,000	50,000	50,000	55,255	255,255
	In-kind	150,000	200,000	200,000	150,000	50,751	750,751
Almaty University of Power Engineering and Communications	Cash	10,120	40,000	30,000	20,000	20,000	120,120
	In-kind	5,075	30,000	20,000	10,000	10,000	75,075
Energy Management 2050	Cash	10,000	10,000	10,000	30,000	12,072	72,072
Physics and Technical University of Almaty	Cash	4,535	10,000	10,000	5,000	5,000	34,535
	In-kind	9,324	40,000	30,000	25,000	20,000	124,324
TOTAL		2,153,584	3,964,430	3,838,555	3,633,850	2,152,224	15,742,643

* All amounts are in US dollars. Co-financing amounts pledged in Kazakh tenge are converted here to dollars at the prevailing January 2017 rate of 333 tenge per US dollar.

** Note that the project also expects at least $6 million in equity co-financing from consumers participating in rebate and coupon programs. As these individuals are diffuse and not yet specifically identified, there is no co-financing letter for this amount. Therefore, this amount does not appear in the Summary of Funds table.

XI. LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated herein by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA); as such all provisions of the CPAP apply to this document. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner", as such term is defined and used in the CPAP and this document.

Consistent with the Article III of the SBAA, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document".

Any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

XII. ANNEXES

A. Multiyear Workplan
B. Monitoring Plan
C. Evaluation Plan
D. Terms of Reference of Project Board and Project Manager
E. Calculations of Targeted Energy Savings and Greenhouse Gas Emissions Reductions
F. Baseline conditions on markets, policy, and regulation for electricity, appliances, and equipment in Kazakhstan
G. Gender mainstreaming analysis and action plan

Other annexes submitted as separate files:

H. Co-financing letters
I. UN Environment Country Assessment
J. UN Environment Country Assessment Methodology
K. UNDP Social and Environmental and Social Screening Template (SESP)
   (Environmental and Social Management Plan (ESMP) for moderate and high risk projects is not applicable)
L. GEF Tracking Tool (s) at baseline
M. GEF STAP Calculation Tool for climate-change mitigation projects
N. Standard letter of agreement (LOA) between UNDP and the Ministry for Investments and Development Republic of Kazakhstan for the provision of support services
O. UNDP Project Quality Assurance Report (to be completed after endorsement)
P. UNDP Risk Log

Annex A. Multi-Year Work Plan

Task	Responsible Party	Year 1				Year 2				Year 3				Year 4				Year 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.1	1, 2, 3, 4																				
1.2	1, 2, 3, 4																				
1.3	1, 2, 3, 4																				
1.4	1, 2, 3, 4																				
2.1	1, 2, 3, 4, 6																				
2.2	1, 2, 6																				
2.3	1, 2, 3, 6																				
2.4	1, 3, 6																				
3.1	1, 3, 6																				
3.2	1, 3, 6																				
3.3	1, 6																				
3.4	1, 3																				
4.1	1, 3, 7																				
4.2	1, 3																				
M&E	1, 3, UNDP																				

Responsible parties are:

1. Project Manager.
2. EESL Team.
3. National and international consultants.
4. Ministry of Investments and Development of RK.
5. Laboratories.
6. Marketing and consumer outreach team.
7. Kentau Transformer Manufacturing Plant

The numbered tasks above are associated with the following outputs:

Output 1.1. National MEPS for refrigerators, distribution transformers, and industrial motors developed, adopted, and implemented

Output 1.2. National labelling system for energy performance of refrigerators developed and implemented

Output 1.3. National HEPS developed for bulk procurement of distribution transformers

Output 1.4. Capacity of key agencies expanded with regard to EESL

Output 2.1. Monitoring and verification regime for standards, certification, and labelling adopted and implemented.

Output 2.2. Needed equipment and training delivered to certification laboratories.

Output 2.3. Register and web portal on compliant products created, regularly updated, and handed off to responsible agency

Output 2.4. Testing and public reporting on retail purchases carried out, revealing real compliance with standards and product claims.

Output 3.1. Market studies on stocks, sales, and consumer preferences carried out at the beginning and end of the project.

Output 3.2. Rebates and credits delivered to residential consumers.

Output 3.3. Public relations campaigns and training delivered to consumers and state procurement staff.

Output 3.4. Consultation delivered to industrial consumers to promote early and expanded uptake of EE equipment.

Output 4.1. Technical support delivered to domestic manufacturers of distribution transformers.

Output 4.2. Training and delivery of information for distributors, retailers, installers, and waste haulers.

M&E: Monitoring and evaluation

Annex B. Monitoring Plan

The Project Manager will collect results data according to the following monitoring plan.

Monitoring	Indicators	Description	Data source/Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
Project objective from the results framework: **To transform Kazakhstan's markets to energy efficient appliances and equipment, thereby reducing electricity consumption and GHG emissions**	Reduction in electricity consumption by new refrigerators, distribution transformers, and electric motors	Key overall indicator for energy savings impact, in MWh/year	Sales statistics collected from retailers and Committee on Statistics; performance criteria adopted in official standards, certified by laboratories, and published in national register. Emissions factor to be verified by Ministry of Environmental Protection	Annually Reported in DO tab of the GEF PIR	Project Manager, EESL Team, consultants, plus certifying laboratories	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
	Reduction in GHG emissions from electricity consumption by refrigerators, distribution transformers, and electric motors	Key overall indicator for climate change mitigation impact, in tonnes of avoided CO_2 emissions per year	See above indicator. Energy consumption and savings can be converted to CO_2 emissions using verified emissions factors	Annually Reported in DO tab of the GEF PIR	Project Manager, EESL Team, consultants, plus certifying laboratories	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
	Average energy performance levels of new refrigerators, distribution transformers, and electric motors relative to baseline	Key indicators for market impact to be created by new minimum energy performance standards	Sales statistics collected from retailers and Committee on Statistics; performance criteria adopted in official standards, certified by laboratories, and published in national register.	Annually Reported in DO tab of the GEF PIR	Project Manager, EESL Team, certifying laboratories	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table

Monitoring	Indicators	Description	Data source/Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
Component 1: Development and adoption of EE standards and labels Outcome: Transformation of the market for appliances and equipment in Kazakhstan, via creation and implementation of standards, labeling, regulations, and associated capacity building	Status and required performance levels of minimum energy performance standards (MEPS) for refrigerators, distribution transformers, and electric motors	Indicator of key policy outcome	Official documents reflecting approval and publication of standards by Ministry of Investments and Development	Annually Reported in DO tab of the GEF PIR	PM, EESL Team	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
	Status and threshold levels of a national voluntary energy-performance label for refrigerators and at least one other consumer product in Kazakhstan	Indicator of key market outcome	Official documents reflecting approval and operation of labelling program	Annually Reported in DO tab of the GEF PIR	PM, EESL Team	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
Component 2: Monitoring, verification, and enforcement Outcome: A new, effectively operating regime of testing, certification, and information	Operational status of testing and certification laboratories in support of energy performance standards and labelling for refrigerators, distribution transformers, and industrial electric motors	Indicator of key outcome necessary for successful achievements of outcomes of Component 1	Inspection of laboratories; statistics from laboratories about type and volume of equipment tested and certified	Annually Reported in DO tab of the GEF PIR	PM, EESL Team	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table

Monitoring	Indicators	Description	Data source/Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
disclosure in support of implementation of EESL, carried out by properly equipped, trained, and certified laboratories.	Availability of updated information on products and their compliance with standards and labels, via register and web portal	Outcome supports successful market and policy outcomes of Component 1	Inspection of register and web portal	Annually Reported in DO tab of the GEF PIR	Project Manager, EESL Team, Marketing and Consumer Outreach Team	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
	Dissemination volume of completed market snapshot studies, comparing actual performance of off-the-shelf appliances to stated specifications	Indicator for successful completion of output providing support to market outcomes and overall market objectives	Published documents on market snapshot studies; circulation and viewership data from media outlets	Annually Reported in DO tab of the GEF PIR (Results expected only at end of years 1, 3, and 5)	PM, Marketing and Consumer Outreach Team	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
Component 3: Boosting demand for EE appliances and equipment Outcome: Enhanced capacity among citizens and industry in Kazakhstan to understand, afford, and procure EE appliances and	Consumer awareness of energy efficiency, energy performance standards, and labels for refrigerators, as reflected in share of affirmative survey responses and broken out by gender	Key indicator of market transformation in residential consumer sector, with implications for evaluation of market outcomes and broader social benefits	Market surveys, including both bulk surveys and opinion tracking (following the same group of representative consumers throughout the project period), with and without linkages with rebate/coupon programs	Annually Reported in DO tab of the GEF PIR	PM, Marketing and Consumer Outreach Team	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
	Number of consumers	Key indicator of output	Internal tracking of rebates issued, collection	Annually Reported in	PM, Marketing and Consumer Outreach	Review by PM, International Chief	See assumptions in Project Results

Monitoring	Indicators	Description	Data source/Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
equipment	participating in rebate or coupon programs	supporting targeted market outcomes, as well as broader social benefits	of participant survey data, verification by site visits to retailers	DO tab of the GEF PIR	Team	Technical Advisor, UNDP, and Project Board	Framework and risks in risk table
	Share of industrial electric motors in operation compliant with new IE3 standard (the MEPS target)	Key indicator of market transformation in industrial sector, on consumption side	Statistics collected from industrial enterprises, verified by site visits	Annually Reported in DO tab of the GEF PIR	PM, Marketing and Consumer Outreach Team, consultants	Review by PM, International Chief Technical Advisor, UNDP, and Project Board	See assumptions in Project Results Framework and risks in risk table
Component 4: Ensuring supply of products compliant with EESL	Share of domestically-produced distribution transformers compliant with new MEPS	Key indicator of market transformation in industrial sector, on production side	Production statistics from manufacturers, verified by site visits and by laboratory certification	Annually Reported in DO tab of the GEF PIR	PM, Kentau Transformer Manufacturing Plant, certifying laboratories	Review by PM, International Chief Technical Advisor,	See assumptions in Project Results Framework and risks in risk table
Outcome: Creation of new capacity among manufacturers and other supply-chain participants for appliances and equipment for compliance with new EESL.	Number of other supply-chain stakeholders, including waste handlers, trained in new requirements of MEPS, HEPS, labelling programs, and associated regulations	Indicator of successful execution of output needed to support all key market outcomes	Participation lists from training events	Annually Reported in DO tab of the GEF PIR (Results expected only after adoption of MEPS, HEPS, and labelling programs)	PM, EESL Team, Marketing and Consumer Outreach Team	Review by PM, International Chief Technical Advisor,	See assumptions in Project Results Framework and risks in risk table

Annex C. Evaluation Plan

Evaluation Title	**Planned start date** **Month/year**	**Planned end date** **Month/year**	**Included in the Country Office Evaluation Plan**	**Budget for consultants**	**Other budget (i.e. travel, site visits etc…)**	**Budget for translation**
Midterm Review	July 2019	December 2019	Yes	$28,000	$2,000	$1,500
Terminal Evaluation	July 2022	December 2022	Yes	$36,000	$2,000	$1,500
			Total evaluation budget	USD 71,000		

Annex D. Terms of Reference for the Project Board and the Project Manager

Terms of Reference

Project Board

1. General Conditions

1.1. The Project Board is to be formed on the basis of the project document signed by the Ministry of Investments and Development of the Republic of Kazakhstan (RK) and the United Nations Development Programme (UNDP), dated [xx.xx.xxxx], for the project entitled "Energy Efficient Standards, Certification, and Labelling for Appliances and Equipment in Kazakhstan" (hereinafter referred to as "the Project.")

1.2. This document establishes the fundamental tasks, structure, organizational process, and meeting schedule of the Project Board, as well as the functions and rights of the Project Board and National Project Director.

1.3. This document applies to the activity of all members of the Project Board.

1.4. The Project Board is a group providing management and oversight, coordination functions, and political support to the Project.

1.5. The Project Board operates on the basis of the Constitution of the Republic of Kazakhstan, legislative acts of the Republic of Kazakhstan, decrees and orders of the Government of the Republic of Kazakhstan, as well as this document.

1.6. The activity of the Project Board is based on the principles of free discussion and openness.

2. Fundamental Tasks of the Project Board

2.1. Oversight and coordination of the activities of the Project.

2.2. Creation of conditions for collaborative participation of local authorities with project staff and consultants, making possible the successful realization of project activity.

2.3. Review, assessment, and elaboration of recommendations, as well as consultative and expert delivery of suggestions on strategy, contents, volume, and timetables for concrete steps of the work of the Project.

2.4. Delivery of assistance in the realization of the work plans of the Project.

3. Fundamental Functions of the Project Board

3.1. Overall direction of the realization of the project;

3.2. Definition of high-level directions of project;

3.3. Facilitation of collaboration with other complementary projects;

3.4. Facilitation of collaboration among government agencies, organizations, and other institutes for the successful realization of the project;

3.5. Provision of full access by the project to all documents and information in various government departments necessary for monitoring and realization of the project;

3.6. Delivery of methodological and practical assistance to the project on questions of realization of project activities;

3.7. Review and confirmation of Annual Work Plans, budget revisions, and staged financing;

3.8. Review and confirmation of annual reports on project activity;

3.9. Execution of the function of main coordinating body for promotion of the interests of the Project with regard to political, regulatory, legal, and financial support from the RK Government;

3.10. Continued effort to raise additional co-financing to support results and activities of the project after the conclusion of funding from the Global Environmental Facility.

4. Composition of the Project Board

4.1. The Project Board includes representatives of the following organizations:

1) RK Ministry of Investments and Development (National Implementing Agency and co-chair of the Project Board),

2) UNDP (co-chair of the Project Board)

3) RK Committee for Consumer Protection

4) certified laboratories responsible for testing and certification of appliances and equipment

5) Kazakhstan's leading retailers of appliances

In order to prevent commercial conflicts of interest, manufacturers will not be eligible to serve on the Project Board.

4.2. The general direction and operation of the Project Board will be determined by its co-chairs.

4.3. For resolution of specific issues at Project Board meetings, various entities may be invited to attend, including representatives of scientific-technical institutes and academies, manufacturers, consultants, experts, and others.

4.4. The roster of the Project Board may be changed and/or supplemented by agreement of Project Board members, subject to approval by the co-chairs.

5. Role and Responsibilities of the National Project Director

5.1. The National Project Director (NPD) bears the responsibility for coordination of project realization, in the name of the national implementing agency.

5.2. The NPD represents the RK Government as the assigned person responsible for promotion of energy-efficient lighting in Kazakhstan, from the side of the Government.

5.3. The NPD will direct the project over its entire duration, in order to provide for the realization of project action steps in accordance with the project document.

5.4. The NPD may delegate all needed authority to the Project Manager, for the successful implementation of the project.

5.5. The NPD provides for delivery of financial information to relevant authorized entities in accordance with operating principles for national activity.

5.6. The NPD provides for coordination among project action steps and corresponding steps made in the framework of government programs and relevant incentives.

5.7. The NPD presents various forms of support for the successful execution of the project and corresponding steps after completion of the project, including the long-term persistence of project results, as well as dissemination of lessons learned.

5.8. The NPD confirms Annual Work Plans and project budgets.

5.9. The NPD confirms financial and substantive reports on project realization.

5.10. The NPD provides for collaboration with partners and coordination with departments of the National Implementing Agency.

6. Organization of activity and scheduling of meetings of the Project Board

6.1. The Project Board conducts its work at meetings convened at least twice annually, or more often as needed.

6.2. Decisions may be made by the Project Board with a quorum of two-thirds of its members in attendance.

6.3. Costs of facilities for Project Board meetings are to be covered by the Project. RK agencies may instead offer to cover costs of Project Board meetings. The costs of the work of Project Board members shall be considered as the Government's or other project partners' voluntary in-kind contribution to the project and

shall not be paid separately by the project. Members of the Board are also not eligible to receive any monetary compensation from their work as experts or advisers to the project.

6.4. The Project Board makes decisions by votes at meetings. Project Board members attending meetings must devote every effort to achieving consensus.

6.5. Decisions of Project Board meetings are formulated as protocols and are distributed to all members, then signed by the Chairperson.

6.6. Decisions made at Project Board meetings are binding for project staff and for organizations represented on the Project Board.

6.7. Project staff will carry out the following activities in support of Project Board meetings:

- analysis of information provided by organizations, preparation of an agenda, and provision of necessary materials;

- advance submittal of the draft agenda and accompanying materials with a cover letter for the review and approval of the co-chairs or their appointed delegates;

- announcement of the time and location of the meeting and distribution of approved materials to Project Board members no less than ten days before the meeting.

7. Rights and Responsibilities

7.1. For realization of the functions assigned to the Project Board, its members are granted certain rights and responsibilities. They bear responsibility in accordance with adopted legislation of the Republic of Kazakhstan, other legal and regulatory acts, and this document.

7.2. Members of the Project Board have the right:

7.2.1. To participate in all meetings of the Project Board;

7.2.2. To receive any information about Project Board activity; and

7.2.3. To present relevant initiatives to be considered as Project Board resolutions;

7.2.4. Rights of Project Board members are not necessarily limited to those listed above.

7.3. The co-chairs of the Project Board:

7.3.1. Define the internal processes of Project Board work;

7.3.2. Chair Project Board meetings;

7.3.3. Call ad-hoc Project Board meetings;

7.3.4. Support the constant connection between the Project Board and the Project Manager;

7.3.5. Provide informational connections among members of the Project Board;

7.3.6. Determine the date of Project Board meetings, in conjunction with the Project Manager;

7.3.7. Review and confirm the agenda of Project Board meetings;

7.3.8. Coordinate the activity of the Project Board in delivery of needed support to project staff for the successful realization of the project;

7.3.9. Represent the Project Board in its relations with other organizations.

8.Oversight

8.1. The Project Board is to be guided by this document with regard to its own activity.

8.2. The activity of the Project Board is assessed at the following meeting, after presentation and discussion of annual reports.

Terms of Reference

Project Manager

Location: Astana

Status and duration: Full-time (40 working hours per week), for full duration of project period (2017-2022) subject to annual performance reviews

Compensation: Commensurate with experience and qualifications

Summary of responsibilities:

The Project Manager will be the lead full-time staff person responsible for day-to-day oversight of all program activity and fulfillment of outputs and outcomes elaborated in the Project Document.

Specific duties and responsibilities:

Operational project management in accordance with the Project Document and the UNDP guidelines and procedures for direct implemented projects, including:

- Management and supervision of project implementation and evaluation across all components. Assurance of successful completion of the project in accordance with the stated outcomes and performance indicators summarized in the Project Results Framework.
- Regular communication and coordination with the National Implementing Partner, members of the Project Board, and all other partners and interested stakeholders, with regard to all project activity. Organization of Project Board meetings at least once, or ideally twice, per year, subject to availability of members.
- Regular communication with senior UNDP management with regard to all project activity. Assurance of coordination with other UNDP projects and broad strategic initiatives.
- Preparation of Annual Work Plans, including monthly targets and deliverables as well as annual spending targets in accordance with the Project Document. Tracking of work outputs throughout the year in light of these Annual Work Plans.
- Tracking and managing of project spending in accordance with the project budget, as well as UNDP rules and procedures, to ensure transparency, responsibility, and timely fulfillment of both program targets and budget targets.
- Preparation and submittal of annual Project Implementation Reviews and other required progress reports to the Project Board, UNDP, and GEF in accordance with applicable requirements, in all required languages (English, Russian, and/or Kazakh, using outside translation as needed).
- Supervision of the experts working for the project, including both Project Specialists as well as international and national consultants.
- Supervision of regular data collection and analysis, as well as reporting and public outreach via the mass media, events, and other means, to disseminate the results of the project and to promote energy-efficient appliances and equipment in Kazakhstan.
- Oversight of the overall administration of the project office.
- Regular travel within Kazakhstan to organize and monitor project activity; possible travel outside the country for participation in directly relevant international meetings.

- Support of independent Midterm and Terminal Evaluations of the project.

Expected Qualifications:

- University degree in management, engineering, marketing, or another field with direct relevance to the project
- At least 10 years of experience in managing large-scale projects on climate change mitigation, energy efficiency, and/or certification and labelling of products in Kazakhstan
- Close familiarity with the roles, activities, and priorities of the Government of Kazakhstan, and particularly the Ministry of Investments and Development and other national partners, with regard to energy efficiency, standards and labelling for appliances and equipment
- Basic technical understanding of design, production, operation, and energy performance of relevant appliances and equipment
- Demonstrated ability to work effectively with a broad range of stakeholders
- Demonstrated ability to work effectively under close supervision, as well as under minimal supervision
- Superior skills in organization and management, including past experience with planning, tracking, evaluation, and supervision of consultants and/or employees
- Strong skills in financial tracking and budget management
- Close familiarity with the operations and rules of UNDP is not a requirement but will be viewed with favor
- Fluency in Russian and English, in reading, writing, and speaking.

Required application materials:

Candidates should submit a full curriculum vitae, a brief statement of interest and qualifications, and a financial proposal.

Annex E. Calculations of Targeted Energy Savings and Greenhouse Gas Emissions Reductions

United for Efficiency initiative (U4E) completed a Country Assessment for Kazakhstan in the summer of 2016. This assessment sets forth baseline conditions and potential for energy savings, avoided energy costs, and avoided GHG emissions from adoption of minimum energy performance standards (MEPS) for refrigerators, room air conditioners, distribution transformers, industrial electric motors, and lighting.

This UNDP project uses the U4E assessment as the primary basis for defining its GHG emissions reductions targets for refrigerators, transformers, and motors.[24] The target scenario involves adoption in 2020 of "best MEPS" equivalent to standards that embody world best practice – European Union standards for refrigerators; the IE3 ("premium") level of the IEC 60034-30-1 standard for motors, as developed by the International Electrotechnical Commission; and Tier 3 for distribution transformers, as defined by the Super-efficient Equipment and Appliance Deployment (SEAD) Initiatives.[25] Baseline conditions for Kazakhstan are defined based on available statistical data and regional market conditions. The baseline assumes growth in the stock of appliances, based on expected rising affluence, as well as slow increases in energy efficiency even without policy intervention.

The UN Environment Country Assessment for Kazakhstan and the full U4E Country Assessment Methodology are presented in Annexes I and J.

UNDP has also conducted a separate analysis of potential energy savings and avoided GHG emissions using the methodology and spreadsheet tool developed by the GEF Scientific and Technical Advisory Panel (STAP) for energy efficiency projects. Using the same input data as the U4E assessment for project and post-project time frames (2017-2022 for the project, out to the U4E Country Assessment's end year of 2030), energy savings, stock and sales, plus GEF STAP defaults where data were otherwise absent, the GEF STAP tool arrived at estimated energy savings and avoided GHG emissions essentially the same as the U4E Country Assessment.

Potential energy savings from "best MEPS"

Table E.1 below shows the estimates of potential energy savings and avoided emissions from MEPS between 2020 and 2030, based on the estimates of potential savings and emissions reductions from the U4E Country Assessment.

Table E.1. Potential electricity savings per year from "Best MEPS" (GWh)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Refrigerators	0	126	254	381	505	624	738	847	949	1,046	1,138	6,606
Transformers	79	159	241	323	407	492	578	665	753	842	931	5,469
Motors	0	78	159	243	331	422	517	616	719	825	936	4,848
TOTAL	**79**	**363**	**653**	**947**	**1,243**	**1,538**	**1,834**	**2,127**	**2,420**	**2,713**	**3,005**	**16,923**

Electricity emissions factor

We determine the avoided emissions of CO_2 per MWh of saved electricity based on the most comprehensive recent assessment for Kazakhstan, conducted for the European Bank for Reconstruction and Development (EBRD) in 2012. The assessment takes account of official data from the Kazakhstan Electricity Grid Operating Company (KEGOC) and the Ministry of Industry and New Technologies of the Republic of Kazakhstan via the Ministry of Environmental Protection of the Republic of Kazakhstan. Then the EBRD assessment uses these

[24] Lighting efficiency is the central focus of an existing UNDP project, funded by GEF, and therefore will not addressed by this new project. Potential energy savings and avoided emissions from efficiency standards for room air conditioners are about six to seven times less than for refrigerators, motors, and transformers. Therefore room air conditioners will not be an initial targeted focus area for the project. If market conditions change, or if the project has available time and resources after fulfilling its other targets, then air conditioners could be added as an area of activity.

[25] SEAD is an international initiative under the Clean Energy Ministerial (CEM) and the International Partnership for Energy Efficiency Cooperation (IPEEC).

data in calculations made according to the UNFCCC Tool to Calculate the Emission Factor of an Electricity System (version 2.2.1, EB 63, Annex 19).

Using official data from past years and firm projections for the few years after the study's publication date, EBRD calculated that the electricity emissions factor in Kazakhstan would hold steady at around 1.00 tonne of CO2 emissions per MWh of end-use consumption between 2010 and 2017. Then, taking account of official investment plans for capacity expansion, including low-carbon renewable and nuclear generation, EBRD projected a decline in the emissions factor to **0.92 tCO2/MWh** starting in 2018.

Table E.2. Demand-side electricity emissions factors for Kazakhstan
(tCO_2/MWh, from the 2012 EBRD Assessment[26])

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Emissions factor, tCO_2/MWh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.918	0.921	0.919

The decline in emissions factor between 2010-2017 and 2018-2020 in the EBRD study is attributable specifically to the forecasted entry into operation of about 540 MW in non-hydro renewable energy and 600 MW in nuclear power stations starting in 2018. This was a reasonable assumption when the EBRD study was completed in 2012. But it is now clear that the renewables component will not be implemented by 2018 at nearly the anticipated scale, with current installed non-hydro renewable capacity at less than 10 MW nationwide. Furthermore, the sites of the nuclear power plants have not yet even been selected, and now entry into operation is expected no sooner than 2025. It is therefore quite plausible that the emissions factor for Kazakhstan will stay at 1.00 tCO2/MWh well past 2020.

Nevertheless, we recognize countervailing uncertainty, including the possibility that Kazakhstan's ambitions to expand renewables could be realized quickly in the early 2020s. Considering this uncertainty, as well as the need to be conservative about claims of potential GHG emissions reductions, we contend that the emissions factor of 0.919 tCO2/MWh for the year 2020 remains the best one to use to calculate emissions reduction potential for the project.

Potential avoided emissions from "best MEPS"

Table E.3 below shows avoided CO_2 emissions associated with the potential electricity savings presented in Table E.1 and the EBRD emissions factor for 2020, as explained above.

Table E.3. Potential avoided CO_2 emissions per year from "Best MEPS" (thousand tonnes)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Refrigerators	0	116	233	350	464	574	679	778	872	961	1,045	6,071
Transformers	73	146	221	297	374	452	531	611	692	773	856	5,026
Motors	0	72	146	224	304	388	475	566	660	759	861	4,455
TOTAL	**73**	**334**	**601**	**871**	**1,142**	**1,414**	**1,685**	**1,955**	**2,224**	**2,493**	**2,762**	**15,552**

Direct and consequential GHG emissions savings and energy savings

Using the same input data as the UN Environment Country Assessment where possible, the GEF STAP tool generates similar estimates of the potential electricity savings and avoided emissions (17 TWh and 15.5 million tonnes of avoided CO_2 emissions by 2030), assuming a compliance rate of 100 percent.

Beyond these consistent overall numbers, the GEF STAP tool also provides a breakdown of direct savings achieved during the project period: about 5.619 million tonnes of avoided CO_2 emissions from the operating lifetimes of MEPS-compliant devices sold during 2017-2022.

[26] European Bank for Reconstruction and Development. November 2012. *Development of the Electricity Carbon Emission Factors for Kazakhstan. Baseline Factors for Kazakhstan. Final Report.* Prepared by Lahmeyer International.

The project's target for direct emissions reductions includes only for devices sold during the project period of 2017-2022 ("direct GHG emissions reductions", what the GEF defines as the result of equipment sold during the project implementation period, for the lifetime of those appliances.). To avoid overstating what a realistic goal would be for the project, we adjusted the assumed compliance rate down to 80 percent. And so, the target for GHG emissions reduction from the sale during the project period of goods compliant with new "best MEPS" is **4.336 million tonnes of avoided CO_2 emissions.** This figure is entered in the Project Results Framework and Tracking Tool.

As explained in the Request for CEO Endorsement submitted by UN Environment to GEF for the global leapfrogging project, energy savings and avoided emissions are to be allocated to child projects (including this one), the global UN Environment project, and UN Environment's prior work on securing political commitment, according to a previously-agreed proportional breakdown – 33 percent, 17 percent and 50 percent, respectively. The figures presented here and in the Project Results Framework represent full savings and avoided emissions before allocation. The UNDP child project will be responsible for securing and documenting these full savings, with the allocation to be applied separately later as agreed. According to the allocation, once achieved and allocated, the avoided emissions to be attributed specifically to the child project will be about 1.45 million tonnes of avoided CO_2 emissions during the project period.

The project will also calculate and report consequential GHG emissions reductions and energy savings (as per the latest directives on GHG emission methodologies (GEF/C.48/Inf.09 of May/June 2015) that) that now uses the term "consequential" emission reductions for what was previously called "indirect"). Consequential emissions reductions were estimated during the during the period of influence (after the end of the project) about 9.938 million tonnes of avoided CO_2 emissions from devices sold during 2023-2030. Using the same compliance rate of 80% the **estimated consequential GHG emissions reductions is 7.342 million tonnes**. This figure is entered in the Tracking Tool.

Additional energy savings and avoided emissions

The adoption of "best MEPS" would create energy savings by raising the minimum required efficiency of new appliances and equipment, thus increasing the efficiency of new items faster than would occur under unregulated market forces alone.

The project could achieve further energy savings by a second mechanism – acceleration of the transition, by both consumers and industry, from inefficient existing appliances and equipment to more efficient new appliances and equipment. Here the energy savings come not from making new products more efficient, but rather from replacing old with new faster than would occur without intervention, thus preventing months or years of inefficient operation and wasted energy.

The project will trigger this second mechanism by a combination of informational outreach to potential refrigerator buyers, rebates and coupons for these buyers, and technical and financial guidance to industrial enterprises on replacement of motors.

Quantifying energy savings achieved via the second mechanism requires robust data on the age and energy performance of existing stock; a breakdown showing what fraction of new sales replace old stock and what fraction constitutes new, expanded stock; the average age of equipment when it is replaced; and ideally, formal assessment of various factors, especially price elasticity of demand, that might tip the decisions of consumers and industry whether or not to install new equipment.

Regrettably, such detailed data are unavailable. It is therefore impractical to develop in advance a robust estimate of potential savings from this second mechanism. But it should be possible to assess results *during actual implementation of the project*, by administering surveys to consumers who respond to advertising or receive rebates, or to representatives of industrial enterprises that receive technical assistance. Such surveys could ask the respondents questions needed to quantify the effect of the intervention – how much the advertising, rebate, or technical guidance accelerated the purchase and installation of new equipment, and the features, age, and operating conditions of the equipment being replaced.

Given all this, the project will define specific targets for its volume of outreach (how many rebates issued, how many enterprises reached with technical assistance), but not for energy savings and avoided emissions from this second mechanism. The project will, however, use surveys and other follow-up evaluation to quantify these results during implementation. Then the project will report these additional results in its annual performance reviews and on the GEF Tracking Tool at midterm and project termination.

Finally, the project will also achieve some energy savings and avoided emissions from implementation of HEPS for refrigerators, transformers, motors, and/or other types of appliances and equipment. Here too it is impractical to quantitatively forecast results in terms of energy savings and avoided emissions, because of data gaps and high uncertainty about future and even current product mixes and consumer preferences. Therefore the project will define targets regarding adoption and implementation, but not energy savings and avoided emissions from them. Again, the project team will attempt to quantify the energy-saving and avoided-emissions effects of HEPS during the project period, using data newly obtained in Component 3.1 and related activities.

Annex F: Baseline conditions on markets, policy, and regulation for electricity, appliances, and equipment in Kazakhstan

Markets

Electricity

There are 19 regional electricity companies (RECs) in Kazakhstan, which carry out distribution and supply services. Some are in private hands and others are state controlled. The sellers in the wholesale market are the generators, most of whom are in private ownership. In addition to the RECs, some large industrial enterprises also buy electricity from the wholesale market. There is no competition in the transmission and distribution market.

The wholesale market for electricity generation operates on the basis of bilateral contracts and a centralized spot market operated by the Kazakhstan Wholesale Electric Power Market (JSC KOREM). There is also a balancing market which currently operates in simulation mode, with no transactions taking place.

Generation prices are subject to market forces, but since 2009 have also been subject to a price cap. The maximum price is set for each of 13 groups of generators classified by type, installed capacity, type of fuel and distance from fuel deposits. The generation company independently sets the sales price but not higher than the maximum tariff set for the given group. If the investment requirements of a generation company cannot be met within the cap, the generator may be granted an individual tariff to cover the cost of the investment.

The cap value was baselined in 2009 and has escalated in each succeeding year until 2015. The intention was to remove caps at the end of 2015. Yet the cap policy is still in force as of 2016. In the near future, the government plans to improve the tariff methodology with the introduction of incentive-based tariffs based on internal benchmarking between the 19 distribution companies.

At present, residential consumers may choose from any of three tariffs from their regional electricity company, provided that the correct type of meter is available in the given household:

Standard - the same price for each kWh consumed

Block tariff - low price for the first tranche of energy consumed, increasing at different levels of consumption

Double rate - Day and night tariff designed to incentivize reduction of peak use

Table F.1 below summarizes recent electricity tariff increases for consumers. For the average consumer, the utility bill already makes up a large proportion of his or her monthly expenses (average monthly salary of 157,655 KZT in Dec 2015, which after the devaluing of tenge is about 460 US$, whereas an average utility bill is about 10 percent, with electricity and heat costs being the largest).

Table F.1. Electricity end-user tariffs in Kazakhstan, Almaty example (including VAT)[27]

Customer class	Kazakh tenge (KZT) per kWh	US cents per kWh	% increase since 2013
First level tariffs			
For consumers without electric stoves (up to 90 kWh/capita/month)	16.02	4.7	28%
For consumers with electric stoves (up to 115 kWh/capita/month	16.02	4.7	28%

[27] Source: The Committee on Regulation of Natural Monopolies (CRNM) of the Ministry of National Economy. http://www.kremzk.gov.kz/rus/menu2/stat_info/po_sem/ceny/terr/

Customer class	Kazakh tenge (KZT) per kWh	US cents per kWh	% increase since 2013
Second level tariffs			
For consumers without electric stoves (90-160 kWh/capita/month)	21.64	6.36	32%
For consumers with electric stoves (115-190 kWh/capita/month)	21.64	6.36	32%
Third level tariffs			
For consumers without electric stoves (>160 kWh/capita/month)	27.05	8.0	-
For consumers with electric stoves (>190 kWh/capita/month)	27.05	8.0	-
Time-of-day tariffs for households			
Day (7.00 to 23.00)	23.12	7.0	32%
Night (23.00 to 07.00)	5.08	1.5	33%
For legal non-household entities			
Day (07.00 to 19.00)	18.03	5.3	32%
Peak (19.00 to 23.00)	37.72	11	33%
Night (23.0 to 07.00)	5.08	1.5	33%

Additional, regularly updated information on the electricity market in Kazakhstan is available at http://www.kegoc.kz/en/power-industry/kazakhstan-electric-power-industry-key-factors.

Household appliances

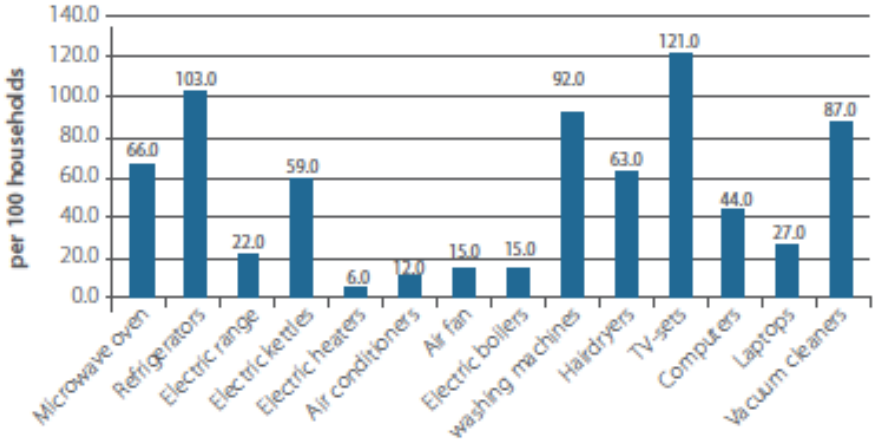
The market for household appliances in Kazakhstan is large and growing, but quantitative documentation of supply and demand is extremely spotty. The national Committee on Statistics of the RK Ministry of the National Economy does compile data on annual imports and exports for refrigerator/freezers and other appliances and equipment, but not total sales and stock, nor a breakdown by type, size, or cooling capacity. Statistical data on energy efficiency of both existing stock and new sales are absent.

The best estimates of existing stocks of key equipment types, energy consumption for each, and expected sales and stock increases through 2030 are embodied the UN Environment Country Assessment. This assessment is presented in full in Annex I, and the methodology for the assessment in Annex J.

Ownership of the most common household electrical appliances

Figure F.1 shows ownership rates for the most common types of household appliances in Kazakhstan, based on official data of the Committee for Statistics of the Ministry of the National Economy of the Republic of Kazakhstan. Kazakhstan has high ownership rates for all common types of household electric appliances (HEA)—with highest rates for television sets, refrigerators, washing machines and vacuum cleaners (121, 103, 92 and 87 per 100 households, respectively.)

Figure F.1 Ownership rates for the most common types of household appliances in Kazakhstan



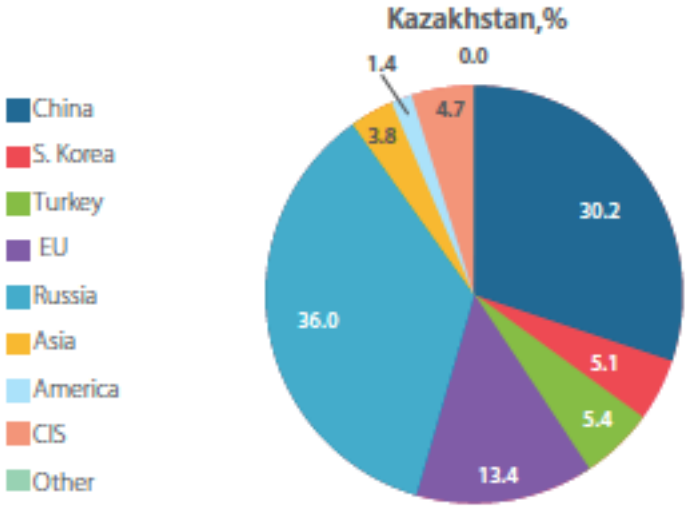
Source: Statistics Committee of the Ministry of National Economy of RK

Imports and exports

Despite the paucity and inconsistency of data, it is nonetheless clear that imports make up the strong majority of the market for key appliances and electric equipment in Kazakhstan. The markets for refrigerators and motors are especially dominated by imports.

The largest share of household equipment imports to Kazakhstan comes from Russia, followed closely by the share from China. Imports from these countries predominate because prices, customs fees, and transportation costs are all relatively low. Kazakhstan's accession to the WTO in November 2015 could further reduce barriers to entry of imports into Kazakhstan's markets.

Figure F.2. Household electrical appliances imports by country of origin



Source: UN Environment and CAREC. 2015. Energy efficiency assessment of household electrical appliances in Central Asia and policies for energy performance standards and labeling

Domestic production of household electrical appliances in Kazakhstan cover about 10 to 20 percent of the country's internal demand for target equipment. Manufacturing of appliances in Kazakhstan consists mostly of licensed assembly of household appliances of Russian, Korean, European, and Chinese brands.

Distribution transformers are the only major type of electricity-consuming equipment with a significant volume of domestic production in Kazakhstan. The Kentau Transformer Manufacturing Plant in Kentau in the

South Kazakhstan Oblast accounts for more than three-fourths of the nation's domestic output of distribution transformers. This company has recently opened a second factory in Uralsk in the far western portion of the country, in order to serve demand from Russia. Official sales statistics from this company are not available, but representatives of the company say that it exports about 2500 distribution transformers up to 650 kVA and more than 600 larger distribution transformers per year, but that about 60 percent of its output is for the domestic market. Thus we can roughly estimate that about 4700 distribution transformers made by Kentau, mostly small ones, are sold in Kazakhstan per year. Comparing this figure to official import statistics, we estimate that this domestic output accounts for slightly less than half of total sales.

Energy consumption by appliances

Table F.2 below summarizes basic operating characteristics of HEAs, their typical operating patterns, and estimated annual power use in "on" and "standby" modes.

Table F.2.

Operating characteristics of the most common types of household electrical appliances in Kazakhstan[28]

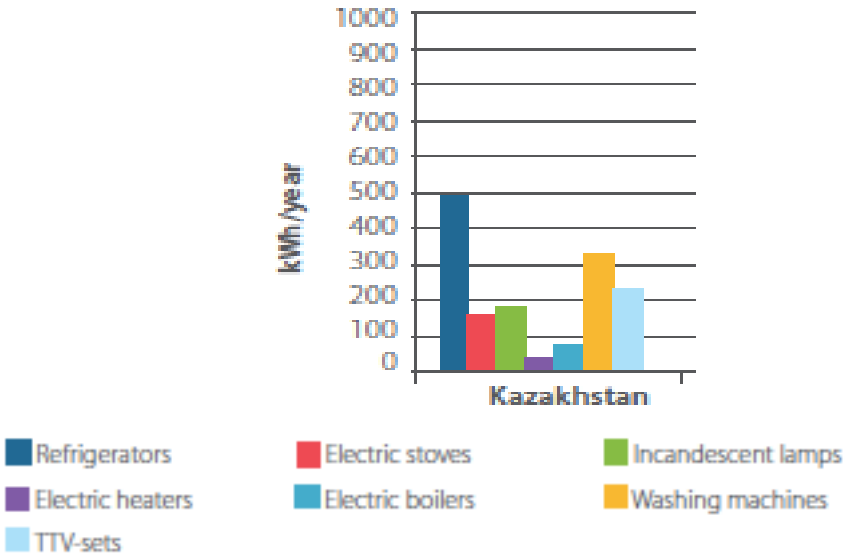
Electric Appliance	Average capacity, W		Annual use, hours/year			Electricity consumption per appliance, KWh/year		
	On	Stand-by	On	Stand-by	Off	On	Stand-by	Total
Electric heater	1000	8.5	725	1283	6753	725	11	736
Electric stove	2250	6	300	8440	20	675	51	726
Refrigerator	120	3	3800	4960	0	456	15	471
Air-conditioner	2100	1	300	8460	0	630	8	638
Electric boiler	1750	10	300	430	8030	525	4	529
Computer	200	0.5	2298	0	6765	460	0	460
Stereo system	1500	0.1	271	94	8395	407	0	407
Washer	2250	5	156	1596	7008	351	8	359
Analog TV-set	201	5	913	7227	621	183	36	220
LCD TV-set	180	5	913	1444	6404	164	7	171
Electric kettle	1600	5.5	75	289	8396	120	2	122
Hair-dryer	750	3.9	142	0	8644	107	0	107
Laptop	55	0.4	1868	1053	5840	103	0	103
Microwave oven	1050	4	60	8406	294	63	34	97
Press iron	2200	0	30	8730	0	66	0	66
Vacuum cleaner	1750	4	12	0	7462	21	0	21

These figures for operating characteristics and data on appliance ownership rates in Figure F.1 make it possible to rank the most common household appliances with the highest levels of electricity consumption, as presented in Figure F.3 below.

[28] Based on expert estimates and calculations

Figure F.3.

Household appliances devices with the highest estimated energy consumption
(per household in KWh/year)



Refrigerators are not only the most electricity-intensive of these appliances in most households, they are also the second-most-commonly owned, after television sets. UN Environment estimates that the operating stock of refrigerators in Kazakhstan was about 4.6 million units in 2015. Therefore refrigerators play the most important role in overall residential electricity consumption – about 50 percent more than washing machines, which account for the second-highest electricity consumption per household, and twice as much as television sets. The most electricity-intensive technologies – stoves and space heaters – have a much lower overall share of total electricity consumption because they are relatively rare in households in Kazakhstan.

Financing for consumer appliance purchases

Consumer credit is widely available at major retail outlets. In addition to choosing appliances, consumers may also commonly choose from among two or three banks, whose representatives are often stationed right there in the store. A simple income check and a security check can yield credit approval within 30 minutes. Consumer loans with and without down payments are both widely available. Sometimes, on a promotional basis, zero-interest loans are available.

Confirmed income is ostensibly the limiting factor in determining the approval and amount of consumer credit, but for practical purposes, these limits are often negligible. Banks are very eager to lend, approving monthly payments even as high as 50 percent of income.

Observations on the consumer decision process for appliance selection

Retail sales staff at four major retailers (Technodom, Sulpak, Electronics Planet, and Mechta) note that while consumer decision processes vary widely, ultimately the selection of a new appliance for purchase depends on a mix of several factors: specifications (including size, layout, and features), price, appearance, and energy consumption. Energy consumption is the last aspect that most consumers consider, if they consider it at all, for two possible reasons: 1) consumers do not know or care what their energy costs are; and 2) even when consumers do have some sense of the differences in energy costs among appliances, these differences are quite low compared to the purchase price.

It is impossible to completely isolate the relationship between energy performance and the price of appliances, as price is a complex combination of brand, size, superficial features, performance, country of manufacture, and other factors. But a first-order analysis supports the notion that indeed energy cost differences are very small compared to differences across the range of prices. A review of various refrigerator models available at these stores in September 2016 showed a maximum difference in annual energy costs is $12-13 per year for models of comparable size. Most differences in operating costs are much smaller.

This difference strongly suggests that the financial motivation associated with energy savings is not sufficient in itself to tip the consumer's decision toward the most energy-efficient models instead of less efficient ones. It is more likely that energy efficiency would be made attractive to consumers via emphasis on positive associations with cutting-edge technology, quality, and possibly environmental protection and social responsibility. And for low-income consumers for whom finances are a dominant concern, rebates and coupons would be needed to help increase the initial price-competitiveness of the most efficient appliances.

Finally, it is notable in itself that our modest retail survey did not turn up refrigerator models rated below B on the Russian and European rating scales. This suggests that ultimately, the greatest energy savings could well lie between one or another type of new refrigerator -- but rather between new refrigerators of any type and old refrigerators of any type. Therefore it is expedient not only to adopt policies to raise both minimum and maximum efficiency of new refrigerators, but also to promote the accelerated purchase of new refrigerators to replace inefficient old ones.

Industrial electric equipment: distribution transformers and motors

A fully detailed breakdown of equipment numbers and energy consumption in the industrial sector is not possible given the absence of inventories and performance data on various types of equipment. But analysis of the limited data combined with reasonable assumptions supports the conclusion of the UN Environment Country Assessment that distribution transformers and motors offer opportunities for electricity savings comparable to the opportunities associated with refrigerators.

Table F.3 presents figures for imports of various types of distribution transformers and motors from 2010 through 2015 in Kazakhstan.

Table F.3

Imports of distribution transformers and electric motors into Kazakhstan, 2010-2015

	2010	2011	2012	2013	2014	2015*
Distribution transformers						
Liquid dielectric filled, up to 650 kVA	2,899	1,430	3,193	3,993	4,385	7,916
Liquid dielectric filled, 650-1600 kVA	289	107	174	1,988	603	574
Liquid dielectric filled, 1,600-10,000 kVA	74	68	211	98	1,215	265
Liquid dielectric filled, over 10,000 kVA			23	321	213	1,137
Total	3,262	1,605	3,578	6,079	6,203	8,755

	2010	2011	2012	2013	2014	2015*
Electric motors						
Multi-phase up to 750 Watts	2,797	4,383	4,168	8,217	78,783	6,414
Multi-phase ranging from 750 W to 7.5 kW	9,704	12,164	12,050	13,442	14,562	11,716
Multi-phase ranging from 37 kW to 75 kW	313	453	9,297	532	550	271
Total	12,814	17,000	25,515	22,191	93,895	18,401

**2015 data are from the full calendar year, but figures are preliminary pending further data collection and analysis.*

Kazakhstan uses standard liquid dielectric-filled distribution transformers of various sizes throughout its expansive networks for transmission and distribution of electricity. Its state-owned and private industrial enterprises use electric motors of all sizes for an extremely broad range of purposes, including pumps, fans, and machines. Transformers operate year-round, around the clock. Operating hours of motors vary widely are not documented on an industry-wide basis, but it is common for motors to operate constantly when factories are open, usually about 6000 to more than 8500 hours per year.

Policy, law, and regulations

Over the last few years, energy efficiency and energy saving have been high on Kazakhstan's agenda. A regulatory framework is currently in place and the country's government authorities are making good progress in creating a fully operational energy efficiency system, including efforts to modernize various sectors of the national economy, introduce technical regulation and energy accounting systems for businesses, improve management quality and upgrade operating personnel skills, raise energy efficiency awareness among local communities, and increase the appeal of investing in energy efficiency projects.

Laws on energy efficiency and relevant bylaws on product regulations

The **Law on Energy Saving and Energy Efficiency**, which was adopted in January 2012 and came into force on 26 June 2012 (with latest amendments from 17 November 2015) was the major milestone in the development of national policy in this area. Notably, this law sets out a legal and institutional framework for EE standards and labeling of electrical appliances and equipment.

Chapter 2, Article 6, paragraph 3 of the Law describes responsibilities of a designated government authority in the area of technical regulations, i.e. the Ministry of Investments and Development (MID). In particular, MID — through its Committees of Industrial Development & Safety and of Technical Regulation & Metrology along with respective oblast-level offices —is responsible for *state control over assigning EE performance classes and specifying energy performance characteristics* in technical documentation and labels of electrical equipment and appliances, in accordance with the Technical Regulation of the Eurasian Customs Union on energy efficiency of electricity-consuming appliances (see below).

The EE Law includes a chapter (Chapter 3) on general requirements for energy saving and increasing energy efficiency. Article 12 of Chapter 3 specifically focuses on electrical appliances and equipment. This article (1) mandates the inclusion of information on EE performance class and EE characteristics for electrical appliances and equipment manufactures or imported to Kazakhstan for selling; (2) refers to the Technical Regulation of the Customs Union for a list of electric appliances and equipment subject to mandatory labeling (paragraph 1 of this Article); (3) indicates that EE performance classes and characteristics should be determined in accordance with the Technical Regulation of the Customs Union by a manufacturer (importer); (4) mandates manufacturers (importers) apply EE labeling and include energy performance characteristics of electrical appliances and equipment in accordance with the Technical Regulation of the Eurasian Customs Union. Article 13 sets restrictions on "selling and (or) use of electrical appliances and equipment without EE labeling and energy performance characteristics as required by the Technical Regulation of the Customs Union".

The **Law on Amendments to Certain Legislative Acts of the Republic of Kazakhstan Related to Energy Saving and Energy Efficiency** introduced changes and amendments to: (i) the Code of the Republic of Kazakhstan on administrative violations; (ii) the Budget Code of the Republic of Kazakhstan; (iii) the Code of the Republic of Kazakhstan "On taxes and other obligatory payments to the budget" (Tax Code); (iv) the Law of the Republic of Kazakhstan "On Transport"; (v) the Law of the Republic of Kazakhstan "On natural monopolies and regulated markets"; (vi) the law "On local public administration and self-administration in the Republic of Kazakhstan"; (vii) the law "On architectural, urban planning, and construction activities in the Republic of Kazakhstan"; (viii) the law "On the power industry"; (ix) the law "On State control and supervision"; (x) the law "On housing relations"; (xi) the law "On Subsoil and Subsoil Use".

After adoption of the law "On Energy Saving and Energy Efficiency" in 2012, a number of bylaws regulating the mechanisms and relationships in the field of energy saving and increasing energy efficiency were enacted (22 in total). They particularly stipulated: (1) phased banning of incandescent light bulbs; (2) introduction of energy consumption standards for all types of manufactured goods and services with a mandatory requirement for all industrial enterprises to adhere to these standards; (3) introduction of mandatory energy efficiency requirements for all types of transport, electric motors, buildings, facilities, structures, and their design documentation; (4) introduction of energy efficiency classes for buildings, facilities, and structures, as well as classification and reclassification rules; (5) adoption of rules for energy audits in industrial enterprises and buildings; (6) introduction of requirements for implementation of energy management systems for enterprises consuming more than 1,500 tons of coal equivalent (tce) (1,050 toe) per year; (7) approval of a standard voluntary agreement for energy saving and energy efficiency to be concluded trilaterally between a competent authority for energy saving and energy efficiency, a regional akimat (government), and a major industrial consumer of energy resources; (7) design of monitoring tools and indicators to evaluate the performance of local executive agencies with regard to energy saving and energy efficiency; (8) approval of

rules for training centers engaged in refresher and advanced training of individuals and legal entities responsible for energy audits and/or energy saving analysis, as well as creation, implementation, and organization of energy management systems.

The provisions of the law regarding energy consumption standards for appliances and equipment have created a broad mandate, but to date, neither the Law on Energy Saving and Energy Efficiency nor related bylaws and technical regulations of Kazakhstan contain direct requirements for energy efficiency labeling of household electrical appliances. Development of appliance regulations are proceeding, albeit slowly, at the level of the Eurasian Economic Union (see following section).

There do exist modest requirements in Kazakhstan on energy efficiency for electric motors—proceeding from Article 4, paragraph 11 of the Law on Energy Saving and Energy Efficiency-- approved by the Government of RK in 2012[29] that introduced normative performance indicators for three-phase cage asynchronous (induction) electric motors of general usage with the following parameters: (1) power ranging 0.75-375 kW; (2) 2,4 and 6 poles; (3) current frequency of 50 Hz and voltage up to 1000 W; (4) continuous and intermittent regime of nominal repeated duration of 80% and higher. These requirements correspond to class IE1 of the international standard IEC 60034-30. (This level constitutes as the baseline condition for motors in the Project Results Framework, as well as the UN Environment Country Assessment.

In 2015 the Ministry of Investments and Development approved requirements for energy efficiency of technological processes and equipment, including electrical equipment[30]. These requirements cover the following MEPS for lamps: (1) luminaire efficiency and color rendering index for LED and fluorescent lamps; (2) power factor for lamps with built-in ballasts or control devices. These requirements mandate that actual lamp replacement time corresponds to the lifetime durability claimed by the manufacturer as specified in a test sheet of a testing laboratory.

In general, following the analysis of the RK laws in the area of energy saving and energy efficiency, it may be noted that prohibitory and controlling mechanisms prevail considerably whereas investments or incentives are virtually non-existent. Incentives are necessary, first of all, because of a relatively low cost of energy resources in Kazakhstan, which affects the investment appeal of energy saving and energy efficiency projects.

Technical regulations of the Eurasian Economic Union (Customs Union)

Kazakhstan is a member of the Eurasian Economic Union (EEU), which came into existence on January 1, 2010. The EEU is a trade and economic framework that integrates Belarus, Kazakhstan, Russia, Armenia, and Kyrgyzstan. The EEU arose in 2015 from the Eurasian Customs Union, a name by which it is still commonly referred in matters of product regulation. The Union forms a single customs territory, in which no customs duties and/or economic restrictions, except special protection, anti-dumping, and compensation measures, can be applied for mutual trade in goods. The EEU member-states use unified customs tariffs and other trade regulation measures in relation to third countries.

Three EEU Technical Regulations of relevance to the project are currently at various stages of development:

- On Energy Efficiency Requirements for Household and Other Energy-Consuming Devices (under development; officially released for comments on March 11, 2014; not yet adopted)
- On Informing Consumers on Power Efficiency of Electric Power Consuming Devices (the draft passed the interstate review; at some point considered to be merged with the technical regulation on EE requirements for electricity-consuming appliances but declined; expected to be adopted as a separate document)
- On Safety of low-voltage electric equipment TP TC 004/2011(adopted on 16 August 2011, Decision #768 of the Customs Union Commission)

The technical regulations under development are based directly upon EU *Directive No. 2010/30/EU on EE Labelling*.

[29] Resolution of the Government RK #1040 dd 10 August 2012 on Requirements for energy efficiency of electric motors.

[30] Approved by the Ordinance of the Minister of Investments and Development #407 dd 31 March 2015

The draft technical regulation **"On Energy Efficiency Requirements for Household and Other Energy-Consuming Devices"**[31] includes performance requirements and standards for compliance testing (rules and methodology), as welll as a defined certification process.

Methods for testing and measurement of electricity-consuming devices is established in accordance with technical annexes attached to each regulation for each device, and/or with relevant official standards (see section below on testing standards). Such annexes and standards include rules for what constitutes permissible samples to be submitted for testing.

Similarly, in accordance with the draft technical regulation, an electricity-consuming device produced within the territory of the Customs Union must undergo assessment (confirmation) of compliance with requirements of the technical regulation, by the following process:

- state oversight review;
- mandatory certification;
- receipt of a declaration of compliance.

The current draft regulation targets the following electrical appliances:

- Refrigerators and freezers
- Asynchronous (induction) three-phase electric motors
- Televisions and TV set top-boxes
- Household and office electric equipment
- Household washing and combined washing-drying household electric machines (250W, 50Hz)
- Household dishwashing machines (250W, 50Hz)
- Vacuum cleaners
- Computers and servers
- External supply sources
- Electric lamps for household and analogous use
- Pumps
- Ventilators powered by electric motors
- Fluorescent lamps, high-intensity gas discharge lamps, ballasts, and fixtures for these lamps
- Room air conditioners

The draft regulation includes base requirements for energy efficiency, but also a requirement for labelling of the above-listed equipment, with a proposed ban on market entry for unlabelled products, in accordance with the separate draft regulation on consumer information on power efficiency of electricity-consuming devices.

On May 26, 2016, a new round of negotiations has been held by heads (or deputies) of designated authorities of member-states to agree on the draft technical regulation to be sent out for interstate review. A protocol (minutes) of the subject meeting has been sent to designated authorities of member-states for signature with the draft being shared for interstate review on June 20, 2016. The draft regulation currently awaits interstate approval.

The **technical regulation "On Safety of low-voltage electric equipment TP TC 004/2011"**[32] is largely applicable to consumer products and includes standards for voluntary compliance and for compliance testing & certification. The regulation is being implemented by member-states according to the approved implementation plan (Decision #895 of the Customs Union Commission dd 09 December 2011).

A drafted technical regulation **"On Informing Consumers on Power Efficiency of Electric Power Consuming Devices"** has undergone the interstate review. It specifies EE performance classes and characteristics for

[31] http://www.eurasiancommission.org/ru/act/texnreg/deptexreg/tr/Pages/projectsVnutrigos.aspx

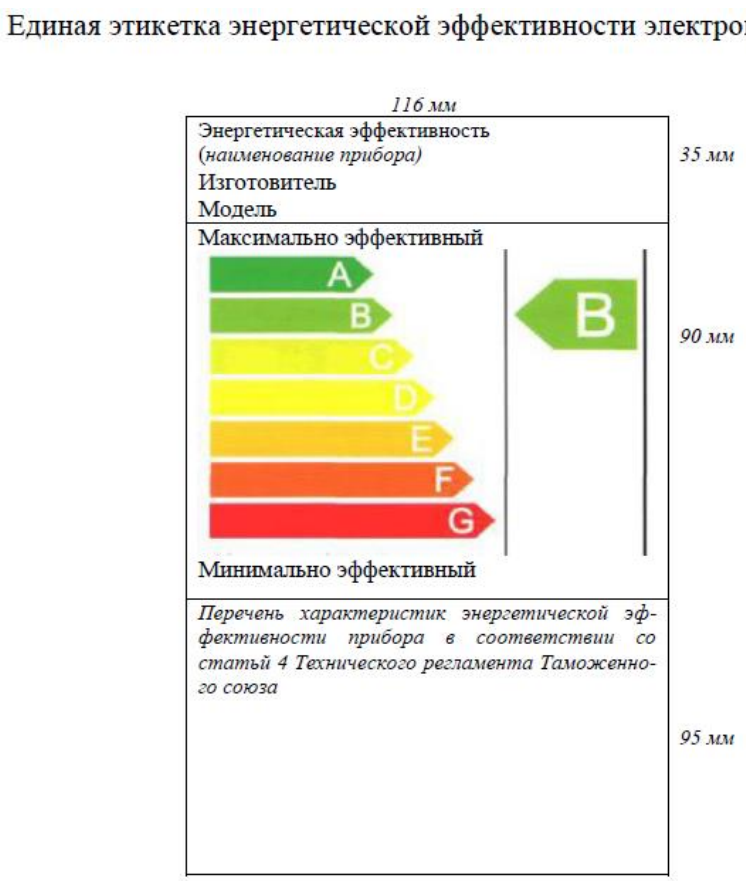
[32] http://www.eurasiancommission.org/ru/act/texnreg/deptexreg/tr/Pages/Down_Volt.aspx

target electrical appliances specified in Annex A of the draft regulation; mandates EE labeling for manufactured or imported goods on the territory of member-states of the Customs Union and bans the use of target electrical appliances without required labeling. This regulation applies for the following long-term use goods:

- household refrigerators of 10-1,500 liters
- electric cooling devices used in the service sector;
- washing and combined washing-drying household electric machines
- (250W, 50Hz);
- household dishwashing machines (250W, 50Hz);
- electric cabinet ovens (i.e., household electric ovens);
- household air conditioners;
- household electric lamps;
- TV sets and monitors

Method and processes for enforcement of labelling requirements are much the same as for the proposed technical regulation on energy efficiency requirements themselves, with required testing, certification, and receipt of a declaration required.

Figure F.4. A unified energy efficiency rating label for electrical appliances, being considered under proposed Customs Union technical regulation



A sample label includes the name of product, model and manufacturer in the upper box, energy efficiency scale from A (highest possible) to G (lowest possible) in the middle box, and energy efficiency characteristics of the product according to Article 4 of this Technical Regulation of the Customs Union in the box at the bottom.

Process and responsible parties for development of technical regulations

The Customs Union Commission sets up relevant working groups for developing these technical regulations. Each working group includes representatives of the Customs Union Commission, working level representatives of designates authorities of member states (in case of Kazakhstan, this authority is the Ministry of Investments and Development (Committees on industry development & safety and on technical regulation & metrology; and the institute for power industry development and energy saving (Kazakhenergoexpertiza), state institutes on standardization and certification, associations of domestic and European manufacturers and representatives of individual manufactures, related research institutes, representatives of oil companies (e.g. LukOil, Surgutneftgaz, Technoneftegaz), testing & certification laboratories. Once the acceptable draft is available, the Commission posts its copy on the website for public review and comments (usually 20 days). The Commission collects all incoming comments and proposals, reviews them, decides on whether accept or decline (in consultation with members of a working group) by compiling a response matrix, which is publicly available once completed. Then the draft regulations are being updated to include accepted comments and the revised draft is discussed at the following working group meeting. The revision may require several rounds of negotiations depending on the complexity of issues discussed and presence of strong country lobbies. The revised and acceptable draft is then forwarded to member-states for interstate review. Once approved, the Commission issues a decision and relevant documentation for approval and submits a set of documentation for approval by the Board of EEU.

National policy on energy conservation

Energy intensity indicators are the basis for the quantitative objectives related to energy efficiency and conservation that are set by the government of Kazakhstan. The government Program on "Energy Saving 2020" has the objective to lower GDP energy intensity by 30% by 2015 and by 40% by 2020 from the 2008 level.

To date, energy consumption per one unit of Kazakhstan's GDP exceeds many countries' indicators: Russia's by 1.2 times, China's by 1.5, the USA's by 2.5 times, Germany's by 3.2 times, Japan's by 3.3 times. The reason is a large share of commodity production in Kazakhstan's industry, but also high electricity transmission losses and the inefficient use of electric power and heat. Reduction of energy consumption through changing the GDP structure towards services as it happened in many countries will hardly occur in Kazakhstan, given that energy-intensive manufacturing is projected to grow faster than GDP. The *reduction of the energy intensity of GDP* is thus only possible through *energy conservation and the diversification of manufacturing* towards less energy-intensive branches[33].

The Energy Saving Program-2020 (Program 2020) which aims to mobilize US$ 6,570 million for energy savings consisting of US$ 0.8 million from the Republican Budget, US$ 27 million from local budgets and US$ 6,500 million from private sources. The program aims at reducing energy intensity of the Gross Domestic Product in the Republic of Kazakhstan and increasing energy efficiency through the reduced energy use and inefficient use of fuel and energy resources. Of relevance to the project, the Program 2020 targets (i) large-scale public awareness on energy efficiency issues, (ii) development and use of economic and non-economic mechanisms to motivate energy saving and energy efficiency.

The Program largely targets the industrial, transport and public sectors. In the public sector, the Program sets a target of reduced energy use by 25%. Efficiency in lighting is to be achieved through (i) reduced utility costs for electricity by 60%[34] and (ii) 100% use of energy saving lamps. Also, the Program envisages the creation of 20 training centers for continuing education in energy conservation and efficiency.

Following the adoption of the Program, the Ministry of Industry and New Technologies (MINT) of RK (reorganized into the Ministry of Investments and Development in 2014) developed and approved a Republican comprehensive plan (комплексный план) for energy saving and increasing energy efficiency for 2012-2015. The plan required oblast administrations (oblast akimats) develop individual plans for each oblast and two cities of republican importance (Almaty and Astana) using indicators and targets of the republican program and plan. With reorganization in the government in 2014, MIR (the MINT's successor) took over as

[33] H. Holzhacker. Energy Saving in Kazakhstan. March 2013. https://www.researchgate.net/publication/264524124

[34] Although the logic is commonly stated the other way round (i.e. cost savings are achieved through efficiency), this is the way it is stated in the Program. It appears to be assumed that energy saving measures will reduce costs.

administrator of the Program and the Plan. In particular, the Department on energy saving and increasing energy efficiency of the Committee of Industrial Development & Safety of MIR is responsible to monitor implementation of the Program and report to the government on progress and targets achievement. In 2015, a decision has been made not to develop a comprehensive plan for the second phase of the Program, for 2016-2020. Rather, MIR currently develops a strategic plan of the Ministry, which will include sections of the comprehensive plan. As for regional authorities, oblast akimats continued the practice of phase 1 by developing and adopting regional comprehensive plans for 2016-2020. These plans are already being implemented.

Broader national policy and strategy on green economic development

In December 2012, the Government outlined its decision to transition to a green economy in the Kazakhstan 2050 Strategy. The following spring on 30 May 2013, the President approved the Green Economy Concept. The corresponding action plan was approved in August 2013.

Kazakhstan's Transition to Green Economy Concept[35] and Action Plan are landmark steps by the Government to change the course of the country's development to integrate environmental and social considerations into the planning and development process along with the already dominant economic ones. The overarching objective of this initiative is to transition the country from its existing resource dependent growth model to an environmentally sustainable development model that significantly reduces environmental risks and ecological scarcities. Energy efficiency was set as a key aspect in the gradual transition to a green economy.

The Concept identifies four priority goals for Kazakhstan's transition to Green Economy:

i. Increased resource productivity, including water, land, biological resources, and resource management efficiency;
ii. Modernization of existing and development of new infrastructure;
iii. Increased population well-being and quality of the environment, achieved though profitable measures reducing environmental footprint; and
iv. Increased national security, including water supply.

To achieve these goals the Concept identifies seven key areas in which to undertake sustainable-development initiatives: water resource management, sustainable agriculture, energy efficiency, power sector development, waste management, air pollution reduction, and ecosystem management.

In addition to outlining key areas for intervention, the Concept also calls for human resource development with regard to the population's "ecological culture". The Concept proposes a range of actions from the introduction of green topics into elementary and preschool curricula to training for technical and management personnel on environmental protection and resource productivity. Part of the strategy will be broad communication and education programmes to raise awareness of the country's environmental issues. The overall goal here is to integrate environmental considerations into the fabric of society and foster a culture of environmental stewardship.

In order to facilitate the implementation of the Concept and Action Plan, the Office of the President has created a Council for Transition to Green Economy. This group is designed to ensure the cross-sector implementation of the strategy and to follow up on implementation progress. The Council is tasked with presenting a "National Report on transition towards Green Economy" every three years. The former Ministry of Environment and Water Resources (now the Ministry of Energy) and the former Ministry of Economy and Budget Planning (now the Ministry of National Economy) were charged with the implementation of the Concept for transition to green economy.

The Government understands that a transformation of this magnitude requires time, and for this reason it has identified three different stages of implementation for the Green Economy Concept:

> **2013-2020** - During this period, the main priority of the state will be to optimize resource use and increase the efficiency of the environment protection activities, as well as to establish green infrastructure;

[35] The term 'concept' refers to 'strategy' here. At the time of development and approval of the Concept, the government was reviewing the effectiveness of existing government strategies and put a temporary a ban on issuing new strategies. Thus, the document was approved a concept yet being a significant strategic document of the country.

2020-2030 – Based on the established green infrastructure, transformation of the national economy will start, oriented at rational water use, motivation and stimulation of development and broad implementation of renewable energy technologies, as well as construction of facilities based on high energy efficiency standards; and

2030-2050 – Transition of the national economy to principles of Third Industrial Revolution, which require the use of natural resources on the condition of renewability and sustainability.

Safety and compatibility standards and associated testing of appliances and equipment

A national system for technical regulation in Kazakhstan consists of the Committee for Technical Regulation and Metrology of the Ministry of Investments and Development, metrology services, conformity assessment institutions and testing laboratories. Products are subject to a compliance declaration as defined by various technical regulations. Respective normative documents and GOST standards (see Table F.4 for details) determine certification rules and procedures. The certification of the compliance of products by authorized certification agencies, however, is mandatory only for requirements such as safety or electromagnetic compatibility of electrical appliances and equipment. For other product characteristics, a declaration of compliance may be issued by the manufacturer.

Table F.4. Normative documents and GOST standards for energy efficiency testing and labeling of electrical appliances and equipment in Kazakhstan

Standard No.	Title	Details
TP TC 020/2011	Technical regulation of the Customs Union "On electromagnetic compatibility"	Approved by the Commission of the Customs Union; Decision #879 dd 09 December 2011
TP TC 004/2011	Technical regulation of the Customs Union "On Safety of low-voltage electric equipment"	Approved by the Commission of the Customs Union, Decision #895 dd 09 December 2011
GOST 30787-2001	Electromagnetic compatibility of technical appliances. Electric cash-registers. Technical requirements and methods of measurement.	Approved by Russian Gosstandard, Resolution #164 dd 25 December 2001
GOST 30804.3.2-2013	Electromagnetic compatibility of technical appliances. Harmonic current emissions (equipment input current ≤ 16 A per phase). Norms and testing methods	Approved by the Interstate Board of Standards, Metrology and Certification. Protocol #43-2013 dd 07 June 2013
GOST 30804.4.2-2013	Electromagnetic compatibility of technical appliances. Electrostatic discharge immunity. Requirements and testing methods.	Approved by the Interstate Board of Standards, Metrology and Certification. Protocol #55-П dd 25 March 2013
GOST 30804.4.4-2013	Electromagnetic compatibility of technical appliances. Nanosecond disturbance immunity. Requirements and testing methods.	Approved by the Interstate Board of Standards, Metrology and Certification. Protocol #55-П dd 25 March 2013
GOST 30804.4.5-2002	Electromagnetic compatibility of technical appliances. Microsecond disturbance immunity. Technical requirements and testing methods.	Approved by the Interstate Board of Standards, Metrology and Certification. Protocol#32-П dd 01 November 2013
GOST 30804.4.11-2013	Electromagnetic compatibility of technical appliances. Voltage dips, short interruptions and voltage variations immunity.	Approved by the Interstate Board of Standards, Metrology and Certification. Protocol #55-П dd 25 March 2013

Standard No.	Title	Details
	Requirements and testing methods	
GOST 30805.14.2-2013	Electromagnetic compatibility of technical appliances. Household electrical appliances, electrical instruments and similar apparatus. Requirements and testing methods.	Approved by the Interstate Board of Standards, Metrology and Certification. Protocol #55-П dd 25 March 2013
GOST P 51317.6.1-2006	Electromagnetic compatibility of technical appliances. Electromagnetic disturbance immunity of low-voltage household, business and industrial technical appliances. Requirements and testing methods.	Approved by the Federal Agency for technical regulation and metrology, Ordinance #471- ст dd 27 December 2006
GOST P 50628-2000	Electromagnetic compatibility of technical appliances. Electromagnetic disturbance immunity of personal computers. Requirements and testing methods.	
GOST P 51317.4.5-99	Electromagnetic compatibility of technical appliances. Microsecond disturbance immunity. Technical requirements and testing methods.	Approved by the Russian Gosstandard. Resolution #721-ст dd 28 December 1999
GOST P 52459.1-2009	Electromagnetic compatibility of technical appliances. Chapter 1. General technical requirements and testing methods.	Approved by the Federal Agency for technical regulation and metrology. Ordinance # 332-ст dd 14 September 2009.
GOST P 50009-2000	Electromagnetic compatibility of technical appliances. Security alarm systems. Requirements and testing methods.	Approved the Russian Gosstandard. Resolution #415-ст dd 26 December 2000
GOST P 51699-2000	Electromagnetic compatibility of technical appliances. Electromagnetic disturbance immunity of security alarm systems. Requirements and testing methods.	Approved the Russian Gosstandard. Resolution #418-ст dd 26 December 2000
GOST P 50839-2000	Electromagnetic compatibility of technical appliances. Electromagnetic disturbance immunity of computers and data processing equipment. Requirements and testing methods.	Approved the Russian Gosstandard. Resolution #416-ст dd 26 December 2000
GOST P 51318.14.2-2006	Electromagnetic compatibility of technical appliances. Electromagnetic disturbance immunity of household electrical appliances, electrical instruments and similar	Approved by the Federal agency for technical regulation and metrology. Ordinance #466-ст dd 27 December 2009

Standard No.	Title	Details
	apparatus. Requirements and testing methods.	
GOST P 51317.4.6-99	Electromagnetic compatibility of technical appliances. Immunity to conducted disturbances, induced by radio-frequency fields. Limits and methods of measurement.	Approved by the Russian Gosstandard. Resolution #790-ст dd 28 December 1999
GOST P 51318.20-2012	Electromagnetic compatibility of technical appliances. Radio and TV broadcast equipment. Characteristics of disturbance immunity. Norms and methods of measurement.	Approved by the Federal Agency for technical regulation and metrology. Ordinance #861-ст dd 15 November 2012
СТВ ЕН 55020-2005 (Standard of Belorussia)	Electromagnetic compatibility. Broadcast receivers, TV sets and related equipment. Characteristics of disturbance immunity. Norms and methods of measurement.	Approved by the State Standards Committee of the Republic of Belarus on 28 April 2005
СТВ IEC[36] 61000-4-5-2006	Electromagnetic compatibility of technical appliances. Surge immunity. Technical requirements and methods of measurement.	Approved by the State Standards Committee of the Republic of Belarus on 08 December 2006
СТВ IEC 610004-6-2011	Electromagnetic compatibility of technical appliances. Immunity to conducted disturbances, induced by radio-frequency fields. Requirements and methods of measurement.	Approved by the State Standards Committee of the Republic of Belarus on 25 November 2011
СТВ IEC 610004-11-2006	Electromagnetic compatibility of technical appliances. Voltage dips, short interruptions and voltage variations immunity. Requirements and methods of measurement.	Approved by the State Standards Committee of the Republic of Belarus on 08 December 2006
СТ РК GOST P 51317.4.5-2008	Electromagnetic compatibility of technical appliances. Surge immunity. Technical requirements and methods of measurement.	Approved by the Committee for technical regulation and metrology of the Ministry of Industry and Trade of the Republic of Kazakhstan. Ordinance #383-од dd 11 August 2008

Facilities for laboratory testing and certification of electric appliances and equipment

To date, only six (6) laboratories in Kazakhstan have technical and human capacities to perform energy efficiency testing of electrical appliances and equipment relevant to this project. The six laboratories include[37]:

1. *Testing laboratory of the Physics & Technical University (Almaty)*: This laboratory registered as a limited partnership is well positioned to largely perform testing of lighting equipment as well as basic safety and

[36] IEC stands for International Electromagnetic Commission.

[37] UNDP report on operational testing laboratories in Kazakhstan, 2016.

electromagnetic compatibility testing of electrical equipment. The laboratory is yet to be accredited for issuing official certification of products. The laboratory staff is well qualified and certified for accreditation.

2. *Testing laboratory "Parasat" of the JSC "Scientific & technical center "Parasat"(Astana)*: The laboratory has technical infrastructure for testing LED lamps. It purchased new equipment in 2015 to expand its testing capacities which yet to be accredited. The laboratory plans to submit documents for accreditation as a testing laboratory. Its personnel, however, fails to have adequate qualification and trainings to be certified for accreditation.

3. *Testing laboratory of the Almaty University of Power Industry and Communication (Almaty)*: This testing laboratory already has accreditation of the National center of accreditation of the Committee for technical regulation and metrology of the Ministry of Investments and Development of RK and is fully capable for testing electrostatic, micro and nanosecond discharge immunity, immunity to conducted disturbances, induced by radio-frequency fields, voltage dips, short interruptions and voltage variations immunity. The laboratory has an outdated equipment but has plans for upgrading it and acquiring new equipment to enlarge the scope of testing for electrical equipment. The laboratory has a well qualified and certified personnel.

4. *Testing laboratory of the Kazakh Agricultural and Technical University named after S. Seifullin, Energy faculty (Astana)*: The laboratory has technical infrastructure for testing lighting equipment, renewable energy sources, and for performing energy audits. Its equipment is outdated and it has no accreditation for testing lighting parameters of technical equipment and appliances. The laboratory has a well-qualified, experienced and certified staff. Its testing scope can be enlarged if equipment is upgraded and accreditation received.

5. *Republican State Enterprise "KazInMetr" Astana, State scientific & metrology center in the Republic of Kazakhstan*: KazInMetr performs testing of manufactured and imported products to ensure safety and quality of products, processes and services in Kazakhstan; maintains and updates reference standards; harmonize regulations on metrology with international requirements; provides trainings in metrology. KazInMetr consists of its head office in Astana and five (5) satellite offices in Almaty (South-Kazakhstan), Uralsk (West-Kazakhstan), Ust-Kamenogorsk (East-Kazakhstan) and Aktobe (Aktobe region).

6. *Testing laboratory Energymanagement 2050, Ltd (Astana)*: The laboratory has equipment for testing electric lighting, renewable energy sources, and for performing energy audits. It has both new and outdated equipment and no accreditation for testing lighting parameters. The staff is well-qualified and certified. The scope of testing can be easily enlarged with equipment upgrade and relevant certification.

De jure, Kazakhstan has a system for technical regulation along with relevant instruments such as standards, verification & calibration methods, accreditation rules & procedures, state oversight for ensuring quality and safety of products. De facto, the system suffers from the following inefficiencies[38]: (i) technical regulations and standards are poorly enforced and implemented; (ii) low interest on part of entrepreneurs and manufacturers in development and introduction of national standards; (iii) inadequate coverage and use of information technologies, and ineffective dissemination of latest amendments and changes in relevant legislation; (iv) deficit in qualified personnel in technical regulation, conformity assessment and accreditation; (v) weak cross-sectoral cooperation in the area of technical regulation; (vi) duplication of some state control functions creating inconveniences for entrepreneurs.

Overall, a system of independent testing laboratories in Kazakhstan is just in its fledging state largely resulting from limited demand on part of product manufacturers and importers and inadequate technical capacities of laboratory staff.

Relevant past initiatives

USAID-funded *Central Asian Energy Efficiency Support Program* (CAEESP) implemented by ICF International. Implementation period: September 2011-September 2013. The Program sought to effectively lower the existing barriers to energy efficiency (EE) improvements in Central Asia, particularly Kazakhstan. The overall objective of the CAEESP in Kazakhstan was to assist the country in reducing GHG intensity (and consequently GHG emissions) by stimulating investments in energy efficiency technologies and projects. Specifically, the CAEESP targeted the following aspects:

[38] Based on the analysis of EU-funded project "Development and Implementation of Trade Policies and Regulations", 2012.

- Raising stakeholder awareness of the importance of, and opportunities for, energy efficiency as means of reducing end-user costs while contributing to the achievement of Kazakhstan's GHG emissions reductions targets;
- Building private sector capacity in developing and implementing energy efficiency projects;
- Increasing private sector investment in energy efficiency measures (involving Public-Private Partnership mechanisms); and
- Stimulating interests within the commercial banking sector in developing lending products targeted at energy-efficiency investments.

Of particular relevance to the project, CAEESP produced an analysis and recommendations on potential EE labeling program for Kazakhstan, modeled after elements of the US Environmental Protection Agency (USEPA)'s Energy Star Program.

EU-funded Sustainable Energy Program for Central Asia Renewable Energy Sources - Energy Efficiency (CASEP)[39]. Implementation period: 26/04/2013 - 25/04/2016. Beneficiary countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan. Total budget: 4 million euros. The overall objective is to contribute to the increased security, reliability and efficiency of energy supplies in the Central Asian counties and thereby to improve the preconditions for regional integration of efficient and sustainable energy system and increased cooperation with EU countries. The project conducted an assessment of institutional capacities of the Kazakh companies "Kazakhenergoexpertiza" and "Samruk Green Energy" for EE and RES policies development and implementation resulting in capacity building seminars that addressed identified gaps in the capacities of the two companies. The project held country-wide assessments of EE and RES awareness levels in 2014 and organized study tours on industrial EE issues for project beneficiaries.

Policy and consumer awareness on electronic waste

According the ElectronicsTakeBack Fund's assessment (2012), about 126,000 tons of electronic waste accumulates in Kazakhstan annually. The Government of Kazakhstan has several strategic and policy documents that control and regulate accumulation, utilization and disposal of household waste, including electronic waste. These include: the *Environmental Code of the Republic of Kazakhstan*[40]; *Strategic Plan of the Ministry of Energy for 2014-2018, Strategic course #3: Environment Quality Improvement*[41]; and the *Program On Upgrading a Household Waste Management System for 2014-2050*[42]. No separate regulation on electronic waste management exist at the moment.

The Ministry of Energy of RK with technical support from a non-profit center "Cooperation for Sustainable Development of the Republic of Kazakhstan"[43] developed a draft national standard "Electronic and electrical equipment waste. Methods of safe management". The draft standard sets out requirements for separate e-waste collection, its storage and recycling. The draft national standard hasn't been approved yet.

A rapid assessment of e-waste management conducted by the non-profit center in 2012 revealed that the majority of electronic and electrical supplies retailers in Kazakhstan have agreements with suppliers or specialized waste collection companies for waste recycling and utilization. When an electronic or electrical product reaches its final stage, retailers' shops transfer this type of equipment to specialized waste management companies for utilization and recycling thus disposing 0% of outdated e-equipment to landfills. This fact, however, largely relates to big electronic and electrical retailer shops like Mechta, Technodom, Sulpak, Electronic Planet.

Most retailer shops have return & replace policies for broken or failed electronic or electrical equipment during its guarantee period pursuing the Law of the Republic of Kazakhstan on the Consumers' Rights Protection (#274-IV dd 04 May 2010 with amendments and additions dd 21 April 2016). A consumer can

[39] http://www.inogate.org/projects/75?lang=en

[40] Approved by the Government Resolution № 212-III dd 09 Jan 2007 (with changes and amendments as of 11 April 2014)

[41] Approved by the Ordinance of the Minister of Energy #79 dd 28 October 2014

[42] Approved by the Government Resolution #634 dd 09 June 2014

[43] http://en.csd-center.kz/index.php

return & exchange a failed product directly in a retailer shop. But most large retailers have agreements with service centers for guaranteed maintenance of electronic and electrical equipment. Unfortunately, such service centers have no agreements with either manufacturers of EE-equipment for its utilization and recycling. EE-equipment that cannot be fixed usually remains in the service center that recycle some of its parts while disposing most remnants to containers for household waste. In this case, hazardous parts of e-waste can be found at municipal landfills.

Specialized waste management companies that collect, transport, recycle and utilize e-waste operate with private companies (like retailer shops, offices, etc.) and/or public organizations (schools, institutes, hospitals, clinics, city administrations, ministries, etc.) for written-off equipment on a contractual basis. Public organizations pay no fee for e-waste collection. Some specialized companies accept e-waste from the public (individuals). Government extends no subsidiary support to waste collection companies. Most schools and institutes accumulate large quantities of outdated computers, TV-sets, to a lesser extent, refrigerators. Yet only about 50% of public institutions have agreements with specialized waste companies.

Survey results in Almaty indicate that the majority of city residents either simply dump outdated electrical equipment to a waste container or sell it to others at reduced price (Figure F.5). The center "Cooperation for Sustainable Development of the Republic of Kazakhstan" implemented a project "Analysis of e-waste (electronic and electrical equipment) management system in the Republic of Kazakhstan" in 2012. The project was funded by IPEN, an international network that works for the global elimination of persistent organic pollutants, and supported by the former Ministry of Environmental Protection, Akimat of Almaty City and Balkhash-Alakol Environmental Department of MEP. The center conducted an analysis of the legal framework for waste management in Kazakhstan, existing practices for e-waste handing in Almaty and prepared recommendations for improving the waste management practices for this particular type of waste.

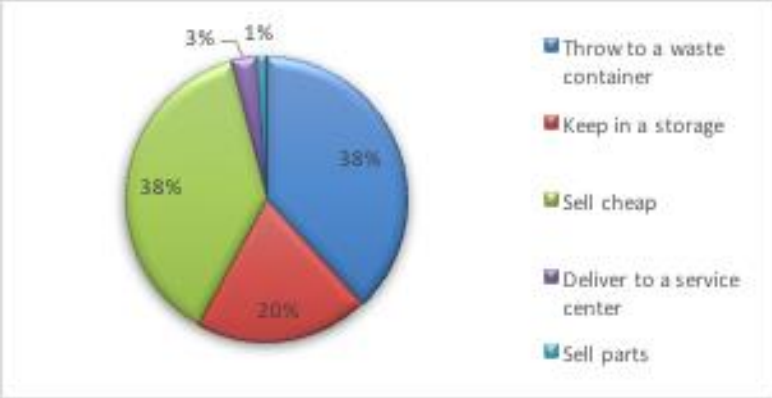


Figure F.5. Questionnaire results: E-waste handling practices in Almaty

About 27% of surveyed residents showed no willingness in separate waste collection and either continue throwing e-waste to a container (19%) or keep at home (8%). Remaining respondents (73%) indicated willingness in delivering e-waste to specialized waste recycling organizations (30%) or pick-up points (26%); or to service centers for further utilization (17%). The analysis suggests the overall readiness and willingness of city residents for separate e-waste handling.

Other relevant laws, governing documents, etc.

The *Environmental Code of the Republic of Kazakhstan* dd 09 Jan 2007 № 212-III (with changes and amendments as of 11 April 2014), sets out institutional aspects of municipal solid waste management (Chapter 41, article 292), in particular describing responsibilities of local governments, and the responsibilities and rights of waste producers (article 283). The Code, together with the Law on Self-Governance determine umbrella competences. The Municipalities (Akimats—oblast, rayon and city (town) levels), for example, are empowered to enact legislation (regulations) and are obliged to monitor companies providing waste collection services. Akimats are actively involved in the planning and strategic decisions concerning landfill operations and waste collection services provided by public companies.

Former Ministry of Environment and Water Resources (MEWR)--now the Ministry of Energy-- approved a *National Program for Solid Waste Management for 2014 – 2050* dd 09 June 2014 № 634. It is an important strategic document that sets a national policy framework for regulating solid waste management issues. The

Program aims to improve effectiveness and reliability, environmental and social acceptability of solid waste management services including collection, transport, recycling and disposal. In particular, the program targets the following aspects of SWM: (i) introduction and expansion of SW recycling; (ii) modernization of collection and transport of SW; (iii) introduction of country-wide separate waste collection; (iv) widespread introduction of separate collection of domestic hazardous waste and improvement of waste handling system for this type of waste; (v) improvement of a waste handling system for other types of domestic waste;(vi) improvement of a system for recycling car tires.

The program mandated development of the National Action Plan and 16 regional action plans to start implementation of the Program.

Relevant major legal acts and regulations at the national level:

- The Environmental Code of the Republic of Kazakhstan dd 09 Jan 2007 № 212-III (with changes and amendments as of 11 April 2014)
- The Code on public health and health system in the Republic of Kazakhstan dated September 18, 2009 № 139-IV, as of 11 April 2014
- National Program for Solid Waster Management for 2014 – 2050 dd 09 June 2014 № 634
- Housing and public utilities modernization program until 2020 dd 30 April 2011 № 473
- Sanitary Rules and Norms 2.1.7.1038-01 "Hygienic requirements for establishment and maintenance of MSW landfills"
- Sanitary norms of the KZ 1.04-15-2002 "MSW landfills"
- The Sanitary and Epidemiologic Rules and Norms "Sanitary and Epidemiologic Requirements for maintenance of populated areas"
- Methodology for calculation of emissions from MSW landfills. The Order of the Minister of Environmental Protection of the Republic of Kazakhstan dated April 18, 2008 No 10-p. Annex 17
- Methodology for the development of draft standards for industrial and consumption waste placement Annex 16 to the Order of the Minister of Environmental Protection of the Republic of Kazakhstan dated April 18, 2008 No 100-p
- The list of waste to be placed in landfills of various types. Order of the acting Minister of Environmental Protection of the Republic of Kazakhstan dated August 2, 1997 No 244-p

Legislation on punishment and responsibility in case of the violations in the field of the SWM include:

- Code of the Republic of Kazakhstan on administrative violations dated January 30, 2001
- Criminal Code of the Republic of Kazakhstan dd 16 July 1997 №167-I
- Civil Code of the Republic of Kazakhstan (general part) dd 27 December 1994

SWM related fees and payments regulations include:

- Code of the Republic of Kazakhstan "On Taxes and other budget fees" (Tax Code) dd 10 December 2008 № 99-IV

There exist some incidences of household waste recycling promoted by non-private actors. For example, a well-know NGO Greensalvation compiled a list of 44 private recycling companies operating in Almaty and posted it on its website[44]. Waste items include household electrical appliances, computers, car batteries, fluorescent lamps, plastic, etc. Similar private recycling companies exist in other large cities of Kazakhstan like Astana, Karaganda, Ust-Kamenogorsk, Aktobe.

[44] http://www.greensalvation.org/index.php?page=ecomapAlmaty

Annex G. Gender Mainstreaming Analysis and Action Plan

Introduction

According to the 2015 Global Gender Gap Report of the World Economic Forum, Kazakhstan is ranked 47th (scored 0.719) in the Gender Gap Index (out of 145 countries). While education attainment is assessed well (28th position), political empowerment of women is rather low (ranked 78th). It is worth noting that the ranking has been gradually improving over the years, for example, the score in 2006 when the ranking was first calculated was 0.693 only.

Kazakhstan's new reform agenda "The 100 steps" can be leveraged to strengthen effective monitoring of gender equality initiatives. "The 100 steps" programme strives to establish a results-oriented state governance system with standardized procedures for monitoring, assessment and control. In addition, it stresses that the efficiency of implementing key initiatives by Ministers and Akims will be thoroughly monitored by the national commission. Moving forward, it will be important to mainstream the gender agenda within the broader governance reform initiatives to ensure that the national gender policy goes beyond declarative statements and translate into concrete action with measurable outcomes. Gender policy in Kazakhstan will need to increase awareness and understanding from line ministries and local executive bodies on the need of adopting a gender approach to policies.

In addition to the two laws governing gender policy ("On State Guarantees of Equal Rights and Equal Opportunities for Men and Women" and "On Prevention of Domestic Violence"), Kazakhstan ratified 12 international instruments in the field of gender equality. The country has acceded to the four fundamental documents of the UN Women's Rights: Declaration on the Elimination of Violence against Women (1993), the Beijing Declaration and Platform for Action (1995), the 2000 Millennium Declaration, the 2030 Agenda for Sustainable Development (2015). The recommendations of the UN Committee on the Elimination of Discrimination against Women were also implemented.

Gender equality: political dimensions

In Kazakhstan, women are still not sufficiently involved in the governmental and political structures. There is a typical gender pyramid of power, where women are present on the lower/secondary levels, but less well represented in high positions (in the decision-making level).

Within the executive branch of government, the most important figure in guiding state policy and activity on gender mainstreaming is Secretary of State of the Republic of Kazakhstan Gulnara Abdykalikova. Having formerly served as a Deputy Prime Minister and in other high-level positions in government and the private sector, she was appointed to this post by the President of the Republic of Kazakhstan. Ms. Abdykalikova serves ex officio as the Head of various national commissions, including "Gender Commission" [the National Commission for Women's Affairs, Family and Demographic Policy], and others. She is a great advocate for reforms, especially in the area of women's political leadership. She is also a strong ally of UNDP in all its activities in the country.

Despite the Act on State Guarantees of Equal Rights and Opportunities for Men and Women, no temporary special measures have been introduced to increase and sustain a high level of women's representation in legislative and executive bodies. According to the Civil Service Agency, women account for just 10% of political civil servants and 15% of political appointments (Corps A); in the Corps A reserve, women account for only 16.4% of the total. However, they comprise 54.9% of Corps B (administrative civil servants). Although the number of women in Parliament has increased overall, the number in the Senate has fallen twice in recent years, currently comprising just 6.4%. In

addition, the legal framework on gender equality contains no comprehensive legal definition of direct or indirect discrimination in public or private spheres.

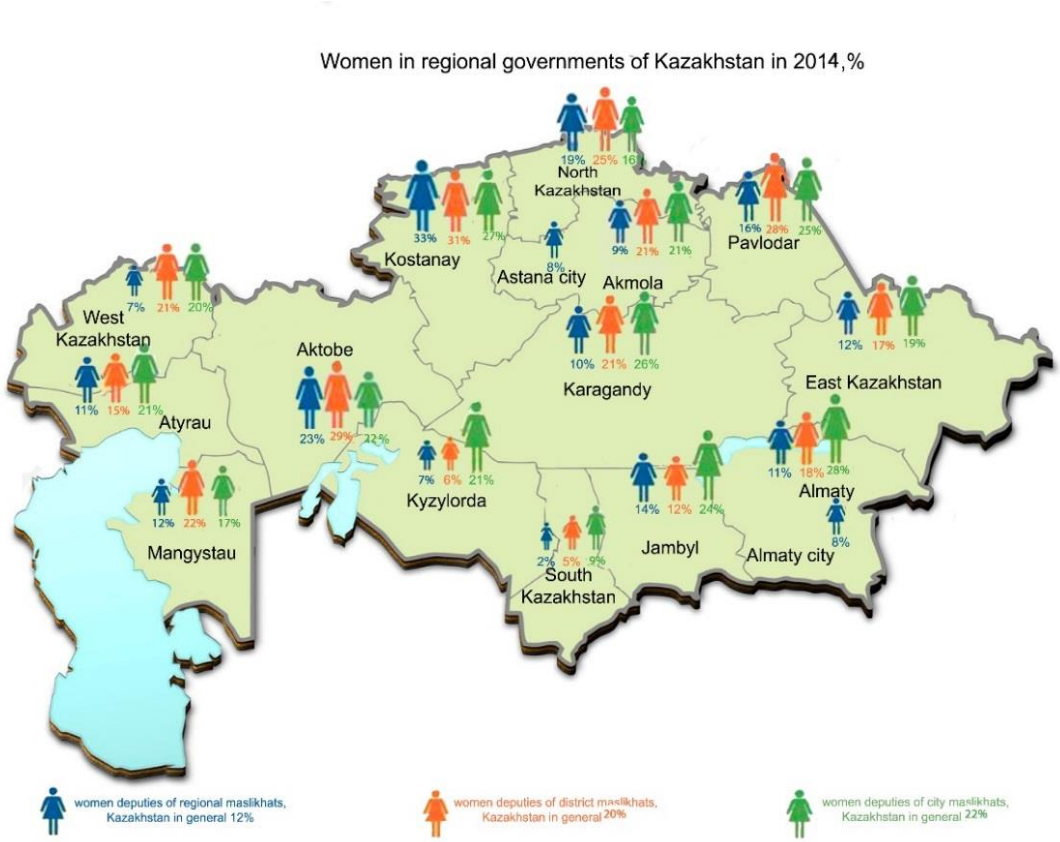
But this situation is evolving, with slow reduction in imbalances even at higher levels, especially within the national legislature, the Majilis. After the elections to the Majilis in 2016 the proportion of seats held by women in parliament has grown and is 27.1%, as a percentage, and in quantitative terms is the highest ever.

Table G.1. Share of women in Parliament of Kazakhstan (Majilis), in %

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
10,4	16,8	17,0	17,8	17,8	17,8	23,8	26,2	26,2	26,2	27,1

Source:
http://www.stat.gov.kz/faces/wcnav_externalId/homeGenderInd2?_afrLoop=32692553901851092#%40%3F_afrLoop%3D32692553901851092%26_adf.ctrl-state%3Doiphfbh21_63

At the local level, the share of women delegates in the country as a whole is 17%. However, it is important to highlight that this number varies throughout the country depending on the region. The number of women at maslikhats (regional legislative bodies) increased (22.2% in 2016 against 16.7% in 2006). The number of women in some of the maslikhats reaches about 30%, like Qostanay (31.6%), Pavlodar (29.6%), and North Kazakhstan (28.1%) and West Kazakhstan (26%) regions. While in some regions the representation of women is almost 30%, in other regions such as South Kazakhstan Oblast the representation of women is less than 4%. However, at the local level there have been significant improvements in the judiciary (51% of the judges in the regional courts are women).



Gender equality: demographic and economic dimensions

Men's life expectancy at birth in Kazakhstan is 64.6 years and women's is 74.1 years; gross national income per capita for men is $26,867 and for women is $15,408. Expected and mean years of schooling for men are 14.7 and 11.5 respectively. For women, they are 15.4 and 11.3. Kazakhstan's population trends are also displayed in the report. It is expected that by 2030, the country's population will reach 18.6 million people. The HDI currently estimates it at 16.6 million (although the official statistics within Kazakhstan already put the number at above 17 million). The annual growth rate has been 1% since 2010. The urban population is 53.3%. The fertility rate is 2.4 births per women. Before 2010, it was 2.0.

In Kazakhstan the labour market shows vertical segregation, meaning that women lack representation in leadership positions across the different sectors of the economy. Recent legal efforts and measures in Kazakhstan are aiming to increase women's representation on boards in private sector. However, women are still underrepresented in top corporate jobs. According to the World Bank, 33.3% of small private enterprises have women managers and only 9.8% of large corporate firms have top women managers. This implies there still remains room for improvement and efforts should be taken to increase women's access to leadership in private sector.

The gender gap is relatively low in Kazakhstan but labour market outcomes portray differences between women and men. The labour market in Kazakhstan is characterized as having high female participation, skilled workers and low unemployment rates. However, women are mainly self-employed meaning that women are less likely to have formal working arrangements lacking decent working conditions and proper social security benefits. Women also represent more than 70% of the total employees in sectors that are traditionally for women such as health care and education. Sectors such as the latter as well as food services, financial services and insurance demonstrate a high proportion of women workers. However, these are all sectors with low paying wages[45] and account for only 2% of Kazakhstan's GDP[46]. In 2009, women made up 59.2% of the informal sector of the rural population and this number continues to be relatively the same representing missed opportunities for inclusive growth. Since 2000, the labour participation rate of the population in Kazakhstan for people 15 years of age and above has been around 72%. This figure remained the same for 2011. In regards to wages, the gender pay gap is below 10%. This figure can be higher in a number of OECD countries. However, despite this the gender pay gap is clearly present.

In April 2016, Secretary of State Abdykalikova announced that the proportion of women in business has increased from 38% to 50% since 2006. In addition, Kazakhstan took the 25th place in the ranking of countries according to the proportion of working women of the WEF's 2015 Global Competitiveness Index. Since 2010 female unemployment rate declined from 6.6% to 5.7% in the country. At the general level of economic activity of the population of Kazakhstan 71.7% in 2015. The level of economic activity of women was lower (66.7%) than men (77.3%), due primarily to more early retirement, and because of the earlier termination of employment. Despite the fact that the unemployment rate of the population over the period from 2008 to 2015 had a downward trend (2008: 6.6%; in 2015 - 5.1%), the level of female unemployment remains high in comparison with the male unemployment. Ratio of wages between men and women is 67.8% in 2015, while in 2010 it was 63.8%.

45 http://www.oecd.org/edu/school/OECD%20School%20Resources%20Review_Kazakhstan_FINAL_CRC_with%20cover.pdf

46 http://www.adb.org/sites/default/files/institutional-document/34051/files/kazakhstan-country-gender-assessment.pdf

According to JSC "Entrepreneurship Development Fund" Damu 1,280 small and medium-sized enterprises (SMEs) headed by women granted loans in 2015, and the amount of credit amounted to just over 19 billion tenge. The total number of active SMEs headed by women amounted to more than 325.4 thousand units, or 41% of the total. Most of them are individual entrepreneurs - 84.6%. The largest number of women entrepreneurs are concentrated in sectors such as wholesale and retail trade; repair of motor vehicles and motorcycles (50.3%), agriculture, forestry and fishing (16.6%), other services (9.4%) and real estate activities (6.6%).

National Commission for Women Affairs, Family and Demographic Policy

The leading institution on gender issues in Kazakhstan is the National Commission for Women Affairs, Family and Demographic Policy under the President, which has become an effective platform for dialogue between the government, civil society and international organizations. The National Commission on Women's Affairs, Family and Demographic Policy is an advisory body to the President of the Republic of Kazakhstan directly subordinate and accountable to him, with its Secretariat located under the Administration of the Presidency. The National Commission for Women's Affairs, Family and Demographic Policy is tasked to provide oversight in ensuring the effective implementation and monitoring the gender policy. The National Commission consists of 23 permanent members appointed by the President. It is chaired by Secretary of State Abdykalikova. Members of the Commission include deputies, representatives of state bodies, national companies, teachers, business women and representatives of civil society. The Commission also has an Expert Council consisting of NGOs and academia. Members are appointed by the Chairperson of the Commission on a permanent basis. While the Commission meets as necessary but at least four times a year, the Council meets only on the instruction of the Chairperson on an irregular basis. Both the Commission and the Expert Council are not funded and work on a voluntary basis. The National Commission is composed of eminent individuals who play important roles in the country's development. While such composition may provide an important soft power to the Commission for influencing the country's agenda, limited institutionalisation of the gender machinery and more specifically, central gender institution, and its dependence on individuals risk mitigating the longevity and sustainable commitment and integration of gender equality efforts across the government.

In addition to the National Commission for Women's Affairs, Family and Demographic Policy, all regions in Kazakhstan as well as the cities of Astana and Almaty have regional commissions placed under the office of the *akim* (head of the local executive branch). Members of the regional commissions are appointed by the akims on the advice of the deputy *akim* who chairs the regional commission. The members of the regional commission meet 4 – 5 time per year. During these meetings, *akimats* (local executive bodies) provide information on the implementation of the 3 year action plans for gender equality. The members of the Commission orally assess the activity of the *akimats* on gender equality, oversee achievements and provide feedback. In parallel to the central gender machinery, the regional commissions are composed of eminent individuals who exercise an important soft power over *akimats.*

Gender equality strategy: 2006-2016 and 2017-2025

The leading document in the gender area is the Strategy for Gender Equality in the Republic of Kazakhstan for 2006-2016 approved by the Decree of the President of the Republic of Kazakhstan dated November 29, 2005 number 1977 is a document of national importance, consolidating a set of interrelated measures and actions aimed at achieving the common goal of plans - the creation of conditions for the realization of equal rights and opportunities for men and women enshrined in the Constitution of the Republic of Kazakhstan and international documents, adopted by Kazakhstan.

It should be noted that this Gender Equality Strategy is the first ever adopted in the history of independent Kazakhstan. At that time point the document was an innovative instrument opening a new stage in the social policy of the state to ensure a stable balance on the level of gender relations of the social sphere in general and provides, inter alia, the introduction of gender knowledge society education and awareness of the system of the necessity of legal and gender equality. Development of the project was the result of the constructive cooperation between the women empowerment CSOs, state bodies and international stakeholders (UN agencies and OSCE).

2016 marks a decade of implementation of the strategy and UNDP in the framework of the gender project provides technical support to conduct its evaluation, a comprehensive assessment of the implementation of the strategy, results, problems and limitations, as well as the determination of the effectiveness of implemented activities compared to envisaged goals and objectives, develop proposals for the improvement of gender policy in Kazakhstan.

UNDP is assisting the Government of Kazakhstan, represented by the National Commission for Women Affairs, Family and Demographic Policy under the President of the Republic of Kazakhstan, to develop a new program of country-level document, based on a comprehensive gender-based campaign with a clear detailing the implementation of its instruments at all levels of government and all actors interact, defining the conditions for the formation of gender policy: the state; civil society; international organizations and the donor community.

The new document will integrate the gender mainstreaming in the policies of central government bodies and regions on gender equality policy format project development level and will consist (but not limited) following focus areas:

- The effect of gender inequality on economic and demographic loss
- Gender-oriented economic policy
- The empowerment of women in social and political life
- A gender approach to planning in the field of social policy
- Gender criteria for the development of culture, science and education
- Gender issues in the health and prospects of their solutions
- Achieving gender equality in the family
- Strengthening the family and the role of the father in the upbringing
- Prevention of gender-based violence
- Gender requirements for information policy
- Women's participation in peace and security

In Kazakhstan, while the state budget does earmark funds for gender related activities, gender responsive budgeting is a fairly untapped tool. Although, in principle, integrating a gender approach in the formulation of budgets is articulated in the Gender Strategy, its application remains lagged. In the implementation of the Gender Strategy, the public budgets are allocated to achieve output indicators rather than focusing on the outcome results. Efforts are needed to refocus the resource allocation process towards greater linkages with expected results. In order to effectively allocate public budgets, Kazakhstan may benefit from setting fewer and more measurable objectives and better targeting output and outcome indicators for gender equality through an evidence-based analysis of policies and programmes which allow for effective evaluation and monitoring.

Gender issues in the project

The development challenge of increasing GHG emissions from appliances and equipment, as well as related issues of energy costs, consumer choice, and assurances of product quality for both enterprises and individual citizens, affects all citizens of Kazakhstan equally, without regard to

gender. The intended outcomes of the project should also therefore create benefits for all citizens with regard to gender.

The project's theory of change notes various causes that underlie the development challenge. Several of these causes have particular gender-related dimensions. In turn, the project seeks to be gender-responsive in the design of activities that address these causes. These activities fall predominantly into the project's third component.

Information on gender dimensions of consumer preferences and household decision-making dynamics. It has been documented that women, especially professionals in the affluent 25-45 age group, tend to play an active or even predominant role in selection and purchase of appliances and large consumer goods.[47] But amid the overall lack of information on ownership and consumer preferences regarding appliances of various levels of energy performance, there is a particular lack of information broken down by gender—both quantitative data about ownership and elasticity of demand, and qualitative information on decisionmaking authority and processes within households and enterprises. The project will address this issue with market research (Component 3), including both surveys and focus groups structured to allow for breakdowns by gender.

Low income and barriers to purchase of EE items with high initial cost. The theory of change notes that low-income citizens face barriers against the purchase of EE items when they have higher initial costs. To the extent that women have lower average salaries, greater unemployment, and greater likelihood of widowhood than men, they almost certainly face this barrier more than men do. The project will address this underlying cause with targeted incentives to be delivered with the assistance of national public organizations for the advancement of the welfare of women and pensioners (Component 3).

Lack of information and awareness. Both women and men lack knowledge and awareness of energy costs, energy performance, and the benefits of energy efficiency of appliances. The project will address this issue with informational outreach to both sexes, including outreach particularly directed at women as warranted by market research (Activities 3.1 and 3.3). Based on its research findings, professional training and public outreach will be designed with a special eye toward both gender equity and responsiveness to gender-specific issues. The project will make sure on the one hand to engage women, recognizing that their role as stakeholders with regard to energy costs, energy performance, consumer information, environmental protection, and so on. The project also recognizes, on the other hand, the importance of avoiding perpetuation of gender-role stereotypes with regard to household responsibilities. Outreach materials will portray both sexes and indeed also multiple generations as sharing responsibility for managing households, including and especially kitchens, with efficient appliances playing a central role in providing comfort while also limiting costs and environmental impact.

Table G.2 below shows indicators and targets for these activities, taken directly from the Project Results Framework, with gender-related conditions highlighted.

[47] Euromonitor 2006. *Consumer Lifestyles – Kazakhstan*. p. 6

Table G.2. Gender-related indicators and targets from the Project Results Framework

Indicator	Baseline	Midterm Target	Final Target	Assumptions
Consumer awareness of energy efficiency, energy performance standards, and labels for refrigerators, as reflected in share of affirmative survey responses and broken out by gender	No energy performance standards; various labels applied inconsistently and minimally recognized by consumers. Quantitative baseline to be established in first year of project	15 percent increase in affirmative response rates from consumers (both men and women) that they read, understand, and consider EE information when purchasing refrigerators	50 percent increase in affirmative response rates from consumers (both men and women) that they read, understand, and consider EE information (and specifically, official labels) when purchasing refrigerators	Consumer awareness data to be collected in surveys and focus groups at beginning, midterm, and final year of project. Both bulk surveys and tracking surveys should be administered.
Number of consumers participating in rebate or coupon programs	No rebate or coupon programs for consumers with regard to EE refrigerators	At least 4,000 customers (including at least 2,000 women) participate in rebate or coupon programs, with an 80 percent completion rate of required surveys	At least 7,500 customers (including at least 4,000 women) participate in rebate or coupon programs, with an 80 percent completion rate of required surveys	Surveys will contain data both on the gender of the respondent and the number and genders of affected members of the household.

Gender is less central to other program activities, but those too are also aligned with gender mainstreaming. As noted above, Kazakhstan is relatively progressive already with regard to gender mainstreaming policy and representation in executive and legislative branches of government, albeit with areas where further advances are needed. The project's efforts with regard to policy and enforcement (Components 1 and 2) will fit into this national context. Women – most notably, Ms. Erkezhan Amirkhanova, Acting General Director of KazInst – are expected to play leading roles. Component 4, in providing technical assistance on domestic manufacturing of EESL-compliant products, will benefit hundreds of female workers directly by enhancing their qualifications and job security. At the Kentau Transformer Manufacturing plant, 240 of about 1100 employees are women, working mostly on the assembly line and in quality control.

Based on this initial assessment of gender issues for the project, no appreciable gender-related risks have been identified.

Consultation and stakeholder involvement

In the project preparation phase, consultation has been carried out with all key stakeholder groups, allowing for equal inputs from both men and women. Women have filled key roles in preparation, including the lead national consultant responsible for research and project scoping; and lead representatives of key agencies working with the project team, including the Acting General Director of KazInst, the Chief Expert of the national Committee on Statistics, an expert on electronic waste management, and others.

Every effort will be made to ensure that qualified women will be proportionally represented on the Project Board. Institutions to be consulted on gender issues at national level will include, but not limited to focal points for gender at government ministries, civil society organizations working in the fields of gender and climate change, as well as research institutions and development partners working on gender issues.

Gender Mainstreaming Action Plan

Activities and outputs related to gender are enumerated below in the project's Gender Action Plan.

Table G.3. Gender Action Plan

Gender-related activity	Indicator	Target	Baseline	Budget (indicative)	Timeline	Responsibility
Outcome: Appliances & equipment comply with new energy performance standards (minimum and high)						
Capacity-building on technical regulations, standards, and labelling (Component 1)	Number of women representing various agencies who receive training and consultation via this activity	20 women representing at least three agencies, including at least three on study tour	No prior or ongoing training	$120,000	Study tour in year 1 or 2; other training in years 1-4	Project Manager and team for EESL and laboratory testing
Technical support for manufac-turers of distribution transform-ers (Component 4)	Number of women working in domestic plants that newly comply with EESL for distribution transformers	240 women employees	No training and no compliance by transform-ers with targeted perform-ance levels	$60,000	Years 2-3	Project Manager and team for EESL and laboratory testing, plus national and international consultants
Outcome: Consumers recognize and consider energy performance in selection of appliances and equipment						
Market studies Component 3)	Number, timing, and participation volume by gender of completed surveys and focus groups	Completion of nationwide market surveys and focus groups by end of first, third, and fifth project years, with 45-55 percent participation by women respondents	No prior or ongoing market studies	$120,000	Years 1, 3, and 5	Project Manager and team for market research and consumer outreach
PR campaigns and training (Component 3)	Consumer awareness of energy efficiency, energy performance standards, and labels for refrigerato	15 percent increase by midterm and 50 percent increase by end of project in affirmative response rates from consumers (both men and women) that they read, understand, and consider EE	No energy performance standards; various labels applied inconsistent-ly and minimally recognized by	$260,000	Years 2-5	Project Manager and team for market research and consumer outreach

Gender-related activity	Indicator	Target	Baseline	Budget (indicative)	Timeline	Responsibility
	rs, as reflected in share of affirmative survey responses and broken out by gender	information (and specifically, official labels) when purchasing refrigerators	consumers. Quantitative baseline to be established in first year of project			
Outcome: EESL-compliant products are affordable and accessible to all						
Rebates and credits for residential consumers (*Component* 3)	Number of participants in rebate and coupon programs	At least 7,500 customers (including at least 4,000 women) participate in rebate or coupon programs, with an 80 percent completion rate of required surveys	No rebate or coupon programs for consumers with regard to EE refrigerators	$400,000	Years 2-4	Project Manager, team for market research and consumer outreach, and contracted companies
Total budget allocation (indicative):					*$960,000*	

Annex H. Co-financing letters

The following co-financing letters are available separately:

1. Ministry of Investments and Development of the Republic of Kazakhstan (English translation and original letter in Russian)

2. UNDP in Kazakhstan

3. JSC “Kentau Transformers Plant” (English translation and original letter in Russian)

4. Almaty University of Engineering Power and Telecommunications (English translation and original letter in Russian)

5. S. Seifullin Kazakh Agro-Technical University (English translation and original letter in Russian)

6. Energy Management 2050, Ltd. (English translation and original letter in Russian)

7. Physics and Technical University, Ltd. (English translation and original letter in Russian)