United Nations Development Programme

Government of Kazakhstan

Ministry of Energy (MoE)

Terminal Evaluation of UNDP-GEF Project: De-Risking Renewable Energy Investment (DREI Project)

(GEF ID number 9192, UNDP PIMS ID: 5490)

Draft Report

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August 2024

ACKNOWLEDGEMENTS

The Evaluators wish to acknowledge with gratitude the time and effort expended by all project participants and stakeholders during the course of the DREI Project Terminal Evaluation. In particular, gratitude is extended to the DREI Project PMU Team and the Chief Executive Officer at MoE, both based in Astana, as well as all the stakeholders interviewed or visited during the Evaluation mission. A special thanks to all stakeholders in Shymkent, Almaty and Petropavlovsk for providing detailed information on their operations. The Evaluators sincerely appreciate the interactions with all of you, and sincerely hope that this report contributes towards a carbon-neutral Kazakhstan.

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ABBREVIATIONS

Acronym	Meaning
ADB	Asian Development Bank
AIFC	Astana International Finance Center
APR	Annual Project Report
AWP	Annual Work Plan
CDR	Combined Delivery Reports
CEO	(GEF) Chief Executive Officer
CER	Certified emission reduction
CIS	Commonwealth of Independent States
CHP	Combined Heat and Power
CO	UNDP Country Office
CO_2	Carbon dioxide
COP	Conference of Parties
CP	Country Programme
CPD	UNDP Country Programme Document
CSO	Civil Society Organization
CTA	Chief Technical Adviser
DAMU	Entrepreneurship Development Fund
DREI	Derisking Renewable Energy Investment
EADB	Eurasian Development Bank
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EIA	Environmental Impact Assessment
EoP	End of Project
EPC	Energy Performance Contract
ESCO	Energy Service Company
ETS	Emission Trading Scheme
FSM	Financial Support Mechanism
GCF	Green Climate Fund
GCoM	Global Covenant of Mayors
GDP	Gross Domestic Product
GEB	Global environmental benefit
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Technical Assistance)
GoK	Government of Kazakhstan
HACT	Harmonized Cash Transfers
HQ	UNDP Headquarters
IEA	International Energy Agency
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contribution
INV	Investment
IW	Inception Workshop
JSC	Joint Stock Company
KazSEFF	Kazakhstan Sustainable Energy Financial Facility
KZT	Kazakh Tenge
LED	Light emitting diode
MDG	UN Millennium Development Goals

Acronym	Meaning
M&E	Monitoring and Evaluation
MoE	Ministry of Energy
MRV	Monitoring, Reporting and Verification
MTE	Mid-Term Evaluation
NAMA	National Appropriate Mitigation Actions
NDC	Nationally Determined Contributions
NGO	Non-government organization
NPD	National Project Director
PB	Project Board
PDF	Project Development Form
PIF	Project Identification Form
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit
PPG	Project Preparation Grant
PPP	Public-private partnership
PRF	Project Results Framework
ProDoc	UNDP Project Document
RE	Renewable energy
RES	Renewable energy sources
SEA	Strategic Environmental Assessment
SESP	UNDP Social and Environmental Screening Procedure
SGP	GEF Small Grants Programme
SME	Small to medium enterprise
TA	Technical Assistance
TE	Terminal Evaluation
ToC	Theory of Change
ToR	Terms of Reference
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

E-1. This Termination Evaluation (TE) report assesses the design and formulation, implementation, results (at goal, objective, outcome, outputs levels), targets (against the indicators in the February 2018 Project Result Framework, hereinafter referred to as the PRF), GEF additionality, catalytic effect, and progress to impact of the "De-Risking Renewable Energy Investment in Kazakhstan" (hereinafter referred to as the DREI Project). It also evaluates the Project's relevance, effectiveness, efficiency, sustainability, country ownership, gender equality, and cross cutting issues.

E-2. The Project received the ProDoc signature from the Government of Kazakhstan (GoK) on 19 February 2018. The Project inception workshop was held on 6 April 2018. The Project applied for 2 extensions which were made in 2022 and 2023. The extension periods were ranging from 6 to 16 months which were granted in total of 48 months by UNDP. The end date of the Project was extended to 19 August 2024.

E-3. The TE assesses Project activity from 19 February 2018 to 30 June 2024, while also providing estimations on the emission reduction results by the End of the Project (EoP). The TE and this report follow the *Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects*, copyrighted by UNDP in 2020.

Project Information Table

Project Details		Project Milestones	
Project Title	*De-Risking Renewable Energy Investment in Kazakhstan in Kazakhstan (DREI Project)*	PIF Approval Date:	22 October 2015
UNDP Project ID (PIMS #):	5490	CEO Endorsement Date (FSP) / Approval date (MSP):	18 September 2018
GEF Project ID:	9192	ProDoc Signature Date (Project start date):	19 February 2018
UNDP Atlas Business Unit, Award ID, Project ID:	Business Unit: UNDP-KAZ Award ID: 00097249 Project ID: 00101058	Date Project Manager hired:	19 February 2018
Country/Countries:	Kazakhstan	Inception Workshop Date:	6 April 2018
Region:	CIS	MTE Review Completion Date:	September 2020
Focal Area:	Climate Change	Terminal Evaluation Completion date:	31 July 2024
GEF Operational Programme or Strategic Priorities/Objectives	GEF-6: CC 3: CC 1: Promote Innovation, Technology Transfer, and Supportive Policies and Strategies, Program 2: Develop and demonstrate innovative policy packages and market initiatives to foster a new range of mitigation actions	Planned Operational Closure Date:	19 August 2024
Trust Fund:	GEF		
Implementing Partner (GEF Executing Entity):	Ministry of Energy (MoE)		
NGOs/CSOs involvement:	QazaqGreen Association		
Private sector involvement:	Several entities		
Geospatial coordinates of project sites:	Latitude: 51.1655° N Longitude: 71.4272° E		

Financial Information		
PDF/PPG	**At approval (US$ million)**	**At PPG/PDF completion (US$ million)**
GEF PDF/PPG grants for project preparation	**0.150**	**0.150**
Co-financing for project preparation	-	-
Project	**At CEO Endorsement (US$ million)**	**At TE (US$ million)**
[1] UNDP contribution:	**0.100**	**0.095**
[2] Government:	**3.250**	**503.304**
[3] Other multi-/bi-laterals:	**30.000**	-
[4] Private Sector:	**17.060**	**811.020**
[5] NGOs:	**0.600**	-
[6] Total co-financing [1 + 2 + 3 + 4 + 5]:	**51.010**	**1,314.719**
[7] Total GEF funding:	**4.510**	**3.690**
[8] Total Project Funding [6 + 7]	**55.520**	**1,318.409**

Project Description

E-4. The DREI Project was Kazakhstan's first effort to adopt a de-risking approach to large-scale renewable energy development in an effort to reduce GHG emissions, reflecting GoK priorities to promote sustainable development and the commitment to mitigate GHG emissions under the UNFCCC. Despite progress in the creation of government programmes to improve renewable energy infrastructure and power generation services to the public and reduce the carbon intensity of power generation in 2017, significant barriers existed (Para 28):

- power market barrier consisting of the lack of or uncertainties regarding the GoK's renewable energy strategy and targets; the competitive landscape and price outlook for renewable energy; limitations in design of standard PPAs and PPA tendering procedures; and energy prices distorted by high fossil fuel subsidies;
- permits barrier consisting of labour-intensive, complex processes and long timeframes for obtaining licences and permits for renewable energy projects;
- social acceptance barrier due to the lack of awareness of renewable energy among key stakeholders;
- developer barrier due to lack of information leading to inaccuracies in early-stage assessment of renewable energy resource that leads to uncertainties related to securing land; sub-optimal plant design; lack of local firms offering construction, maintenance services; and lack of skilled and experienced local staff;
- grid transmission barrier due to lack of standards for the integration of intermittent renewable energy sources into the grid, and inadequate or antiquated grid infrastructure, including lack of transmission lines from the renewable energy source to load centres;
- financial sector barrier arising from the lack of information and track record on financial aspects of renewable energy, and general scarcity of investor capital in Kazakhstan;
- political barrier arising from country specific governance and legal characteristics;

- macro-economic barrier due to uncertainties raised by volatile local currency valuations and unfavourable currency exchange rate movements, giving rise to uncertainties around inflation, interest rate outlook.

E-5. The objective of the DREI Project was to "*promote private-sector investment in renewable energy in Kazakhstan in order to achieve Kazakhstan's 2030 target for renewable energy*". The Project did this through the introduction of an innovative, quantitative framework to assist policymakers in developing countries to cost-effectively promote and scale-up private sector investment in renewable energy. The framework systematically identifies the barriers and associated risks which can hold back private sector investment in renewable energy. It then assists policymakers to put in place packages of targeted public interventions to address these risks. Each public intervention acts in one of three ways: either reducing, transferring or compensating for risk. The overall aim was to cost-effectively achieve a risk-return profile that catalyses private sector investment at scale with the end result being reliable, clean and affordable energy solutions in Kazakhstan. The Project was designed to do this by generating the following outcomes:

- Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target;
- Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables; and
- Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions.

E-6. Actual outcomes of the DREI Project are summarized on Table A in comparison with intended outcomes.

Table A: Comparison of Intended Project Outcomes from the ProDoc to Actual Outcomes

Intended Objective and Outcomes in Project Results Framework of April 2015 (see Appendix F)	Actual Outcomes as of 30 June 2024
Objective: Promote private-sector investment in renewable energy in Kazakhstan in order to achieve Kazakhstan's 2030 target for renewable energy	**Actual achievement toward objective**: The Project has provided strong support to the GoK to promote private-sector investment in renewable energy in Kazakhstan to achieve Kazakhstan's 2030 target for renewable energy. This has resulted in a strong commitment by the GoK to continue with RE technology demonstrations and financing, notably with the issuance of green bonds to finance scaled-up RE investments programmes.
Intended Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target	**Actual Outcome 1**: Policies, programmes and regulations have been put in place to reduce investors' risks that assist in the scale-up RE investments and significantly works towards the achievement of 2030 RES target.
Intended Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables.	**Actual Outcome 2**: Policies, programmes and capacities have been put in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables.
Intended Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions.	**Actual Outcome 3:** Sustainable business models and financial mechanisms are in place to support implementation of investments in small-scale RES solutions for SMEs.

Findings and Conclusions

E-7. The DREI Project has managed to achieve 1,041,174 tCO_{2eq} of direct lifetime emission reductions exceeding the target by a factor of 2.3 (Para 72 and Table 8). The Project achieved measures to de-risk renewable energy investments by piloting site-specific auctions for starting RE project investments and green bond issuances for financing small and large-scale RE projects, preparing a comprehensive wind and solar atlas for Kazakhstan, increasing capacities of testing laboratories personnel for RE devices, supporting the GoK on amendments to the Law on Support of RES that introduces the concept of "small-scale renewable energy facilities" and “net consumers”, building capacities of relevant stakeholders to conduct Project-developed M&V methodologies, and contributing to greater involvement and participation of women in RES sector (Para 135).

E-8. There is still much work to be done to reach 10% of renewable energy by 2030 and 40% by 2050, starting with Kazakhstan needing to ramp up its capacities to manage and implement RE projects in a timely manner to meet its voluntary commitments to reduce GHG emissions by 25% by 2030 in line with the April 2023 “Updated NDC” of Kazakhstan to the UNFCCC. The strong support of GoK to develop and implement large and small-scale RE projects with SMEs, and GoK’s willingness to cautiously raise the electricity and heating tariffs by 10-15% annually starting in 2024, demonstrates strong commitment by the GoK to continue with support for RE technology investments and replicating site-specific auctions and green bond financing which was adopted by a variety of other actors: IFIs, local financial institutions and large national corporations. These public derisking measures to promote renewable energy have resulted in significant economic savings and lowering generation costs (Paras 136-138).

Table B: Evaluation Ratings[1]

1. Monitoring and Evaluation	*Rating*	2. IA & EA Execution	*Rating*
M&E design at entry	5	Quality of Implementation Agency - UNDP	6
M&E Plan Implementation	5	Quality of Execution - Executing Entity (MNRE)	6
Overall quality of M&E	5	Overall quality of Implementation / Execution	6
3. Assessment of Outcomes	**Rating**	**4. Sustainability[2]**	**Rating**
Relevance[3]	2	Financial resources	4
Effectiveness	6	Socio-political	4
Efficiency	6	Institutional framework and governance	4
Overall Project Outcome Rating	6	Environmental	4
		Overall likelihood of sustainability	4

[1] Evaluation rating indices (except sustainability – see Footnote 2, and relevance – see Footnote 3): 6=*Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives; 5=*Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives; 4=*Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives; 3=*Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives; 2=*Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives; 1=*Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

[2] Sustainability Dimension Indices: *4 = Likely (L):* negligible risks to sustainability; *3 = Moderately Likely (ML):* moderate risks to sustainability; *2 = Moderately Unlikely (MU):* significant risks to sustainability; and *1 = Unlikely (U):* severe risks to sustainability. *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

[3] Relevance is evaluated as follows: 2 = Relevant (R); 1 = Not relevant (NR)

Recommendations

Rec #	Recommendation	Entity Responsible	Time Frame
A	**Recommendation 1:**		
E-9.	*Setup a "guarantee fund" for SMEs under DAMU to further de-risk RE investments*. The guarantee funds will initially be capitalized from annual contributions from the Government and participating second-tier banks and MFIs to serve as a guarantee funds to encourage more SMEs to invest in renewable energy (see Para 141).	MoE, DAMU and UNDP	Immediate
B	**Recommendation 2**		
E-10.	*Continue with further derisking measures for renewable energy investments for unaddressed policy and financial*. Measures may include: • continual updating of long-term national renewable energy strategies; • improvements on the one-stop shop that supports streamlined process for RE permits, and recourse mechanisms for contract enforcement and compliance; • continued awareness raising campaigns to mitigate social acceptance risk of renewable energy projects; • continuing R&D on new RE technologies that have the potential to add efficiencies to RE power generation capacities. This may include solar thermal collectors and off-grid solar PV systems with storage for remote dwellings and touristic facilities; • addressing "imported components logistical risk" that became reality after the war in Ukraine started. This involves some imported components becoming inaccessible or disproportionately expensive due to sanctions or logistics disruptions, often components produced in Russia by companies under sanctions, EU-origin components imported via Russia, and some components imported from China (see Para 142).	MoE	Immediate
C	**Recommendation 3**		
E-11.	*Allow a period of 2 to 4 years to build capacities to implement an MRV system with the certification of GHG auditors and building a market towards the award of Certificates of Emission Reduction (CERs).* The value of carbon credits can add value to RE developments (such as solar PV that offsets fossil-fuel power generation and biomass heating systems) that improves the RoI on these investments. However, initiating this market will take years. Firstly, there must be acceptance of the 5 MRV protocols (developed by the Project in 2023) by all SMEs, Akimats and	MoE, MENR and UNDP	Medium term

Rec #	Recommendation	Entity Responsible	Time Frame
	interested parties for renewable energy (including small-scale devices, street lighting, solar farms and biomass heating applications). Secondly, rules and procedures for certification of emission reduction credits from the NAMA project should facilitate a number of projects where emission reductions are quantified under the auspices of MENR (see Para 143).		
D	**Recommendation 4**		
E-12.	*Provide technical assistance and implement within the next few years battery energy storage systems (BESS) to balance power generation from solar PV systems.* When solar PV power generation stops at night, the Kazakhstani grid relies on Russian power to make up for the shortfall. There are ongoing studies on BESS to mitigate or even eliminate this shortfall requirement (see Para 144).	MIC and UNDP	Medium term

Lessons Learned

E-13. *Lesson #1: Changes were necessary in the FSM from partial loan principal subsidies of 25% to 35%. (Para 145).*

E-14. *Lesson #2: Workshops, seminars, webinars, and use of video clips of various UNDP DREI Project activities were beneficial notably to regional networks of banks, to raising awareness of the DREI's FSM and other Project activities (Para 146).*

E-15. Lesson #3: Boilers for heating systems with wood chips provide more heat but are more expensive whereas boilers for heating systems with straw do not heat as well but are cheaper (Para 147).

1. INTRODUCTION

1. The Terminal Evaluation (TE) for the Project entitled "*Derisking Renewable Energy Investment in Kazakhstan*" (otherwise referred to as "DREI Project" or "the Project") was conducted for UNDP-GEF as an impartial assessment of DREI Project activities, mainly comprised of capacity building activities and investments. The Project objective is to "promote private-sector investment in renewable energy (RE) in Kazakhstan in order to achieve Kazakhstan's 2030 target for renewable energy".

1.1 Evaluation Purpose

2. This TE for the DREI Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements.* The TE is to serve as an agent of change and play a critical role in supporting accountability. As such, the TE will serve to:

   - measure to what extent the Project has contributed to solve the needs identified in the design phase;
   - measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised;
   - measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), Kazakhstan's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, the Kazakhstan Energy Policy, the 8th National Communication and the 5th Biennial Report of the Republic of Kazakhstan to the UNFCCC, along with relevant SDGs;
   - assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors, weakness in design, management, and resource allocation;
   - assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project;
   - generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components promote accountability and transparency, and to assess and disclose levels of project accomplishments.

3. Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining current efforts by UNDP, the GoK, their donor partners, and the private sector, to sustain the momentum built by the Project to continue with renewable energy development and with the goal of reducing GHG emissions.

1.2 Scope

4. The scope of this TE was to evaluate all activities funded by GEF and activities that are parallel financed. The Terms of Reference (ToR) for this TE is contained in Appendix A. Key issues addressed on this TE include:

   - the issues related to delays in the DREI Project between March 2020 and late 2022;

- the measures used to overcome delays due to COVID-19 and civil uprisings in 2022;
- Project achievements post June 2023 and whether or not all targets and outcomes have been achieved;
- how can DREI activities be sustained after the EOP date of 19 August 2024.

1.3 Approach and Methodology

5. The evaluation approach adopted was non-experimental evaluation[4] where questions needed to be answered concerning policy and market for government stakeholders and Project developers, and the benefits and impacts of RE investments for Project beneficiaries. Interviews with government stakeholders were to bring up key issues with respect to the process of prioritizing DREI measures and enhancing market diffusion of DREI technologies; this was to strengthen learning within the DREI Project team and its stakeholders to support better decision-making to attain the Project objective. Project developers and beneficiary stakeholders were interviewed using a participatory approach on their experiences interacting with other stakeholders, notably the financial stakeholders of the Project. These approaches contributed to an impartial assessment of the DREI Project.

6. The Evaluation methodology consisted of:

- setting up the TE report in the context of evaluation criteria of relevance, effectiveness, efficiency, sustainability, and impact, defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects (August 2020)" [5];
- document review of Project findings in the context of progress, effectiveness and pace of awareness raising, sustained engagement of national implementation teams (including training of these teams), level of implementation, and Project management (including M&E performance);
- interviews conducted with selected stakeholders (i.e. government stakeholders, Project developers, and Project beneficiaries) to gauge the effectiveness and efficiency of capacity building efforts and investments of the Project. This was important as these evaluation criteria were likely undocumented. The interview process was conducted in a participatory manner and in a spirit of collaboration with DREI Project PMU personnel with the intention of providing constructive inputs that can inform activities of a potential subsequent phase of the DREI Project;
- triangulation of the various data sources that ensured optimum validity and quality of the information and data sources (i.e. interviews, focused group discussions and documents);
- compile and evaluate the progress and quality of implementation against the indicators of each objective and outcome in the PRF as provided Appendix F;
- formulation of TE conclusions and recommendations that focus on the current setup of the DREI Project and its completion by 19 August 2024.

7. The evaluation of the Project is based on evaluability analysis consisting of formal (clear outputs, indicators, baselines, data) and substantive (identification of problem addressed, theory of change, results framework) inputs. Considering the information provided into this evaluation (which is mainly whether or not the technical assistance of the Project was effective to the Government of Kazakhstan and its stakeholders), the implication of this methodology is that it should be effective in the

[4] From the UNEG Compendium of Evaluation Methods: http://www.unevaluation.org/document/detail/2939
[5] http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf

evaluation process and should inform stakeholders and the DREI Project team as it possibly transitions into a subsequent phase.

1.4 Data collection and analysis

8. Data and information for this TE was sourced from:

- a review of Project documentation as listed in Appendix C notably the final country reports from the UNDP Kazakhstan office. This was important in establishing information pertaining to the country's efforts in implementing the Project. This was done primarily at the home bases of the International and National Evaluators;
- the combination of in-depth interviews, field visits and focused groups discussions (full list of persons interviewed in Appendix B) which were semi-structured interviews with key stakeholders within an interview schedule. These discussions were based on questions designed for different stakeholders based on evaluation questions around relevance, coherence, effectiveness, efficiency, and sustainability. Interviews were conducted with:
  - *PMU personnel*, the purpose of which was to deal with implementation and execution issues;
  - *Implementing partners*, notably Ministry of Energy (MoE), Ministry of Industry and Construction (MIC), the Damu Entrepreneurship Development Fund (DAMU), Kazakhstan Electricity Grid Operating Company (KEGOC) and Invest in Kazakhstan to gauge the effectiveness of training and institutional strengthening as well as other execution issues;
  - international financial institutions that would include USAID, IFC, EBRD, ADB, Eurasian Development Bank (EDB) and the IDB;
  - *Project partners* involving entities which worked in close collaboration with the executing partners, including other government agencies, Project consultants, project developers, financial institutions and banks, contractors, and suppliers. Exhaustive information was obtained from these stakeholders on how DREI RE projects were financed and the details of procuring and installing equipment. A complete listing of partners is found in Annex A;
  - *Beneficiaries* that include households, and renewable energy generation cooperatives. Discussions also revolved around the INDCs and the setup of financing mechanisms to provide credits to project developers who have equity in the projects they have developed.

9. There were several small-to-medium enterprises (SMEs) who have benefited from the DREI Project. Field visits and surveys of DREI projects done in Shymkent, Almaty and Petropavlovsk were done in a manner that was smart and cost-effective to generate representative results. The Evaluators conducted interviews and field visits in a participatory and consultative approach to ensure close engagement with the Project team, implementing partners and male and female direct beneficiaries. Questions posed for these stakeholders are included in Appendix G and I.

10. All interviews with the Evaluation team with various stakeholders were conducted in-person or on Zoom or Teams platforms with facilitation support provided by the Project Management Unit (PMU) or the UNDP Country Office (CO). The time difference between Kazakhstan and Canada placed some limitations on the timing of the meetings with various stakeholders who generally are available throughout daytime. The International Evaluator made every effort to be flexible and available for scheduling interviews with stakeholders.

1.5 Structure of the Evaluation

11. This evaluation report was presented as follows:

- An overview of Project activities from commencement of operations in February 2018 to the present activities of the DREI Project;
- A review of all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Social and Environmental Screening Procedure/SESP), the Project Document, Project progress reports, and any other materials that the team considers useful for this evidence-based evaluation;
- Interview information from a participatory and consultative approach that ensured close engagement with stakeholders who have Project responsibilities including the PMU, government counterparts, implementing partners, the UNDP Country Office (CO), the Regional Technical Advisors, and other stakeholders. The Evaluation team conducted face-to-face and virtual interviews with the Project's stakeholders;
- An assessment of results based on Project objectives and outcomes through relevance, effectiveness and efficiency criteria;
- Assessment of sustainability of Project outcomes;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected Project outcomes and sustainability; and
- Conclusions, recommendations and lessons learned.

12. This evaluation report was designed to meet GEF's "Guidelines for Conducting Terminal Evaluations of UNDP-Supported, GEF Financed Projects" of 2020[6] as well as UNDP guidelines "Evaluation during COVID-19" (updated to June 2021)[7].

1.6 Ethics

13. This Terminal Evaluation has been undertaken as an independent, impartial and rigorous process, with personal and professional integrity and is conducted in accordance with the principles outlined in the UNEG Ethical Guidelines for Evaluations, and the UNDP GEF M&E policies, specifically the August 2020 UNDP "Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects".

1.7 Limitations

14. The only limitations to this TE process were the limited time available to interview all stakeholders and to visit all the DREI RE projects implemented. This was mitigated somewhat by visiting "representative" DREI RE projects and interviewing stakeholders who played important roles on the Project.

[6] Available at: http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf
[7] Available at: http://web.undp.org/evaluation/guideline/documents/covid19/update/June2021/UNDP%20DE%20Guidance%20Planning%20and%20Implementation%20during%20COVID19%203%20June%202021.pdf

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1 Project Start and Duration

15. The DREI Project commenced as of 19 February 2018. The Project is being implemented up to the time of writing of this report (as of July 2024). The Project is scheduled to close as of 19 August 2024.

2.2 Development Context

16. Kazakhstan is by far the largest GHG emitter in Central Asia with annual emissions peaking at 299 Mt CO_{2e} in 2018, decreasing to 294 Mt CO2e in 2020[8]. Kazakhstan has one of the world's highest GHG emissions per capita of 15.55 tCO_2 in 2015[9] increasing to 17.33 tCO_2 in 2022[10]. The energy intensity of the country's economy increased from 0.32 toe per 1000 dollar of GDP in 2015 to 0.34 in 2022. This is several times that of Western Europe (0.11 in France in 2015 and 0.074 in Germany in 2017[11]). While Kazakhstan has implemented substantial energy and other resource efficiency improvements, the sectors have not been experiencing significant reductions in GHG emissions since the early 2000s, when the emissions bottomed out at around 146 million tCO_{2e}, or 41% of the 1990 peak level of 358 million tCO_{2e}. Exacerbating this scenario, Kazakhstan's economy is heavily dependent on fossil fuel revenues and is affected considerably by fluctuations in oil prices. According to the Concept of Transition to Green Economy, Kazakhstan's peak oil production will be reached in 2030-2040 followed by a steady decrease in oil exports.

17. The total installed power capacity in Kazakhstan in 2015 was 20,600 MW including 18,000 MW of CHP, 2,500 MW of hydro power and 252 MW of renewables, of which wind contributes 70 MW, hydro 125 MW and solar 57 MW. The share of energy sources is coal at 73%, oil and gas at 18%, hydropower at 8% and renewable energy at 0.8%. In addition, many of the generating stations in Kazakhstan are aging and in need of renewal; 57% of the power grid was deteriorated in 2013 and the number of deteriorating plants is expected to grow. The investments required to boost the economy and sustain the development of the power sector after 2040 are estimated at US$100 billion, with half of the investments needing to target the development of the renewable energy sector.

18. In Kazakhstan, 40% of heat production comes from centralized district heating systems run on combined heat and power plants. The remaining heat is produced by heat-only boilers, which often have low efficiencies. The industry consumes 69% of produced electricity and buildings consume 20% of produced electricity[12].

19. Electricity tariffs in Kazakhstan for individual users have been growing due to the high degree of wear of the existing generating assets. On average, the residential tariffs have risen by 4% since 2015, with some regions of Kazakhstan experiencing rises of up to 40%. The tariffs for companies are on average 30% higher than tariffs for individual end-users.

[8] https://www.macrotrends.net/countries/KAZ/kazakhstan/ghg-greenhouse-gas-emissions#:~:text=Kazakhstan%20greenhouse%20gas%20(ghg)%20emissions%20for%202020%20was%20294%2C805.95%2C,a%200.03%25%20increase%20from%202017.

[9] https://iea.blob.core.windows.net/assets/2264b835-3acb-4816-adb7-893d7b6d3696/Energy_Policies_of_IEA_Countries_France_2016_Review.pdf

[10] GHG emissions of all world countries - JRC/IEA 2023 Report, pg 143, accessible on: https://edgar.jrc.ec.europa.eu/report_2023

[11] https://www.theglobaleconomy.com/Germany/Energy_per_GDP/

[12] Ministry of Investment and Development of Kazakhstan, 2016

20. Kazakhstan does possess enormous renewable energy potential, particularly from solar and wind. It is estimated that the country has the potential to generate 10 times as much power as it currently needs from wind energy alone. Increased renewable energy deployment could increase the reliability of electricity supply and decrease GHG emissions and carbon intensity. A more reliable and efficient energy supply will benefit Kazakhstan's energy customers, economy and the environment. One of the issues, concerning all Kazakhstan regions, is the unreliable supply of energy to remote rural consumers, due to obsolete infrastructure and remoteness of farms, some of which are not connected to the national grid at all. Kazakhstan's large scale and low population density in rural areas necessitates the development of costly transmission lines, the maintenance of which increases the energy cost. Small-scale off-grid renewables could provide an economically feasible option for consumers in remote areas of Kazakhstan.

21. The Kazakh "Concept for Transition to a Green Economy" (Government decree N79, May 30, 2013) sets targets for renewables as outlined in Para 34, which includes:

- 10% share of renewable energy in generation by 2030;
- 40% share of renewable energy in generation by 2050.

22. As of 2015, the GoK has demonstrated support to develop renewable energy and has adopted a few important initiatives, which has boosted investor interest in renewable energy projects including 34 wind projects (1,787 MW) and 28 solar energy projects (713.5 MW) for development up to 2020. The only RE projects undertaken as of 2016 were:

- the 2 MW Kapshagay Solar Plant (Almaty Region);
- the 50 MW Burnoye Solar Plant (Zhambul Region);
- the 50 MW Ereymentau Wind Farm developed by Samruk Energy JSC using a loan from the EBRD and the CTF; and
- the 21 MW Kordai Wind Farm developed by Vista International using measurements and feasibility studies completed by the UNDP 'Kazakhstan – Wind Power Market Development Initiative' Project.

Analysis of these and other RE projects were undertaken by the DREI Project.

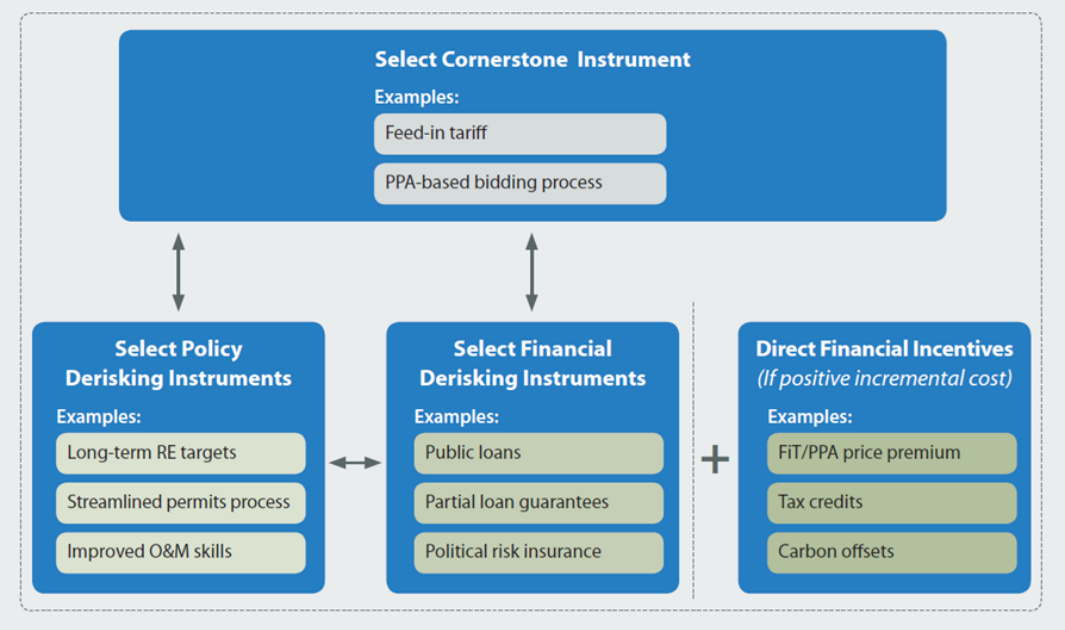
23. A primary barrier to RE investments is the risk on return on investment. In 2013, UNDP issued the Derisking Renewable Energy Investment report (the "DREI report") (Waissbein et al., 2013) that introduced an innovative methodology (the "DREI methodology"), with an accompanying financial tool in Microsoft Excel, to quantitatively compare the cost-effectiveness of different public instruments in promoting utility-scale renewable energy investments. The DREI methodology is designed to be tailored to a specific renewable energy technology and national context.

24. A key focus of the DREI methodology is on financing costs for renewable energy. While technology costs for renewable energy have fallen dramatically in recent years, private sector investors in renewable energy in developing countries still face high financing costs (both for equity and debt). These high financing costs reflect a range of technical, regulatory, financial and informational barriers and their associated investment risks. Investors in early-stage renewable energy markets, such as those of many developing countries, require a high rate of return to compensate for these risks.

25. In seeking to create an enabled environment for private sector renewable energy investment, policy-makers typically implement a package of public instruments. From a financial perspective, the public instrument package aims to achieve a risk-return profile for renewable energy that can cost-

effectively attract private sector capital. Figure 1 below, from the original DREI report, identifies the four key components of a public instrument package that can address this risk-return profile.

Figure 1: Four key components of a public instrument package address RE risk-return profile



26. In 1995, Kazakhstan ratified the UNFCCC as a non-Annex I party, and in 1999, committed to join industrialized nations in their effort to limit GHG emissions and accept a binding and quantified emission limitation of 100% over the 1992 baseline. In 2010, Kazakhstan launched a voluntary commitment campaign to reduce GHG emissions by 15% by 2020 and 25% by 2050, as compared to 1990 levels, in line with Kazakhstan's 2013 III-VI National Communication to the UNFCCC that identified the "urban sector" consisting of district heating, buildings, waste and transport as the third priority area after power generation and industry sectors for national CCM. Furthermore, during the 2020 Climate Ambition Summit, Kazakhstan pledged to achieve carbon neutrality by 2060. This had a potential to reduce annual GHG emissions by 25 million tonnes CO_2 by 2030, estimated to be 30% of the cumulative GHG abatement potential for Kazakhstan.

27. In 2015, the GoK incorporated recommendations and conclusions of the Kazakhstan's 2013 III-VI National Communication to the UNFCCC with the promotion of renewable energy sources (RES) recognized as a national priority for climate change mitigation in the Intended Nationally Determined Contribution (INDC) submitted by GoK to UNFCCC in 2015. This resulted in Kazakhstan undertaking "Nationally appropriate mitigation actions…in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner", with the DREI Project. This ties in with GoK undertaking voluntary quantitative commitments to reduce GHG emissions by 2020 by 15% over a 1992 baseline (in line with Kazakhstan's 2013 III-VI National Communication to the UNFCCC). The DREI Project had the potential to reduce annual GHG emissions by 460,000 tonnes CO_{2eq} direct emissions plus between 1.8 and 8.0 million tonnes CO_{2eq} consequential emissions avoided cumulative GHG abatement potential for Kazakhstan.

2.3 Problems that the DREI Project sought to address

28. The DREI Project was Kazakhstan's first effort to adopt a de-risking approach to large-scale renewable energy development in an effort to reduce GHG emissions and to use the NAMA framework, reflecting GoK priorities to promote sustainable development and the commitment to mitigate GHG emissions under the UNFCCC. Despite progress in the creation of government programmes to improve renewable energy infrastructure and power generation services to the public and reduce the carbon intensity of power generation in 2017, significant barriers existed:

- power market barrier consisting of the lack of or uncertainties regarding the GoK's renewable energy strategy and targets; the competitive landscape and price outlook for renewable energy; limitations in design of standard PPAs and PPA tendering procedures; and energy prices distorted by high fossil fuel subsidies;
- permits barrier consisting of labour-intensive, complex processes and long timeframes for obtaining licences and permits for renewable energy projects;
- social acceptance barrier due to the lack of awareness of renewable energy among key stakeholders;
- developer barrier due to lack of information leading to inaccuracies in early-stage assessment of renewable energy resource that leads to uncertainties related to securing land; sub-optimal plant design; lack of local firms offering construction, maintenance services; and lack of skilled and experienced local staff;
- grid transmission barrier due to lack of standards for the integration of intermittent renewable energy sources into the grid, and inadequate or antiquated grid infrastructure, including lack of transmission lines from the renewable energy source to load centres;
- financial sector barrier arising from the lack of information and track record on financial aspects of renewable energy, and general scarcity of investor capital in Kazakhstan;
- political barrier arising from country specific governance and legal characteristics;
- macro-economic barrier due to uncertainties raised by volatile local currency valuations and unfavourable currency exchange rate movements, giving rise to uncertainties around inflation, interest rate outlook.

2.4 Objective of DREI Project

29. The objective of the DREI Project is to "*promote private-sector investment in renewable energy in Kazakhstan in order to achieve Kazakhstan's 2030 target for renewable energy*". This is contained in PRF in Appendix F.

2.5 Expected Results

30. With this Project, the GoK requested GEF support to help identify, develop and leverage financing for developing its renewable energy portfolio. The strategy of the Project was to use a combination of investment finance and technical assistance to address the range of barriers currently facing the

development of RES in Kazakhstan[13]. Along with Kazakhstan's baseline scenario, the Project expected the following outcomes as written in 2017:

- Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target;
- Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables; and
- Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions.

2.6 Description of the Project's Theory of Change

31. There was no Theory of Change (ToC) developed for the original Project design. A review of the DREI PRF was conducted, revealing outcomes with SMART indicators that can effectively monitor progress (Para 37). From this analysis, a ToC was developed in Figure 2 on the basis of the PRF that has slightly re-worded outcomes, indicators and targets in red font, as provided in Table 7 and Appendix F.

2.7 Total Resources for DREI Project

32. The total resources allocated to this Project at time of ProDoc signature in February 2018 is provided in Table 1.

Table 1: Total Resources for DREI Project as of February 2018

Component	GEF Resources (US$)	Planned Co-Financing Resources (US$)
Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target	700,000	1,250,000
Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables	1,100,000	2,058,000
Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions:		
TA	600,000	16,200,000
INV	1,900,000	30,000,000
Project Management	210,000	850,000
Total	**4,510,000**	**51,010,000**

2.8 Main Stakeholders and Key Partners

33. The main stakeholders on the DREI Project are listed in Table 2. More details on these stakeholders are provided in Sections 3.1.4. and 3.2.2.

[13] There was a target of reduction in DREI aggregate risk score across 9 DREI risk categories. An interim survey conducted in 2020 showed the Project was on track. A final survey will be finished in 2 weeks.

Figure 2: Theory of Change for DREI Project

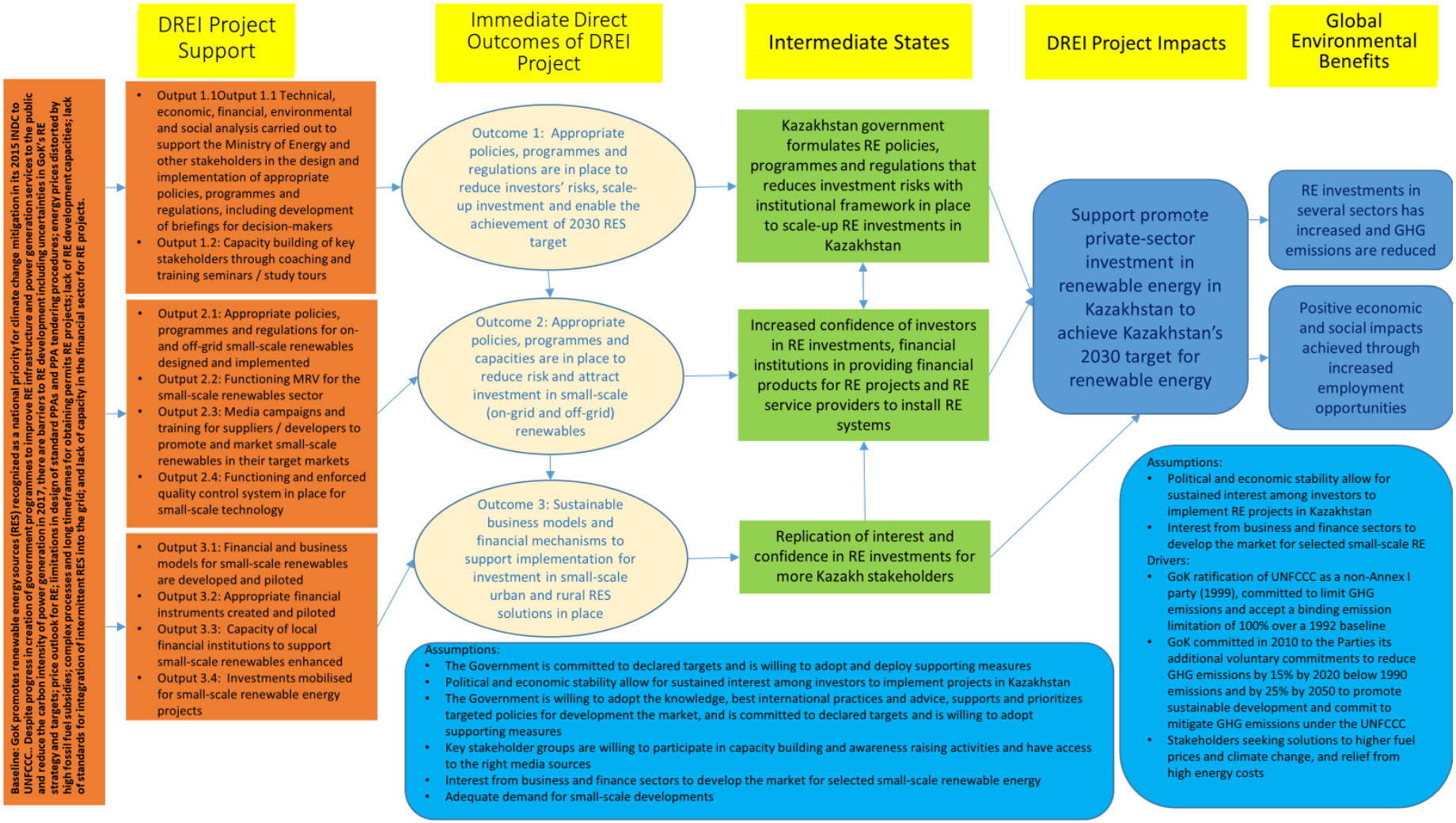


Table 2: Main Stakeholders on DREI Project

Stakeholder	Role
Ministry of Energy (MoE)	On 6 August 2014, the Ministry of Energy was created. MoE is responsible for the state administration of the energy sector. The current system of state support for the development of renewable energy sources has been fixed in the legislation of the Republic of Kazakhstan since 2009 including the Law of the Republic of Kazakhstan on Support for the use of Renewable Energy sources. The support system has been developed taking into account the best international practices. Specific goals for the development of the renewable energy sector were formulated in 2013 and, as a result, the renewable energy market was catalyzed and the potential for reducing greenhouse gases from renewable energy were determined. In the Concept of Kazakhstan's transition to a "green" economy and the "Strategy Kazakhstan-2050", these goals are to increase the share of alternative and renewable energy in the country's energy balance to 50% in 2050.
JSC "Damu Entrepreneurship Development Fund" (DAMU)	DAMU was established in accordance with the resolution of the Government of the Republic of Kazakhstan in April 1997, No. 665 on "the Creation of a Fund for the Development of Small Business". The main function of the Fund is the financial support of Kazakhstan's SMEs. Support is provided through loan guarantees, subsidizing interest payments, providing concessional financing through second-tier banks, working with MFIs and leasing companies, consultation and training. In 2016, the Fund was selected as the Financial Agent for the "Program for the Development of Productive Employment and Mass Entrepreneurship for 2017-2021". The Fund conducts capacity building seminars with the Project team for DAMU's regional personnel and banks[14].
KEGOC	The company performs the functions of the System Operator. It manages and operates the national grid - 45 regional electricity generating companies operate in Kazakhstan. The company also operates the Settlement Centre established to purchase power produced by IPP of RES.
Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies ANMR	The company is responsible for state regulation of activity of natural monopolies and prices of goods (works, services) on regulated markets. ANMR is a regulatory body that sets tariffs.
QazaqGreen Association	Association was established in 2018 as a non-profit organisation, promoting renewable energy in Kazakhstan and uniting investors, developers, equipment manufacturers, international financial institutions and universities, to obtain attractive conditions for investment in renewable energy projects. Renamed as the Qazaq Green Association as of October 2021, the Association was to promote green economy principles and contribute to the achievement of carbon neutrality. Association members receive a number of important benefits: qualified support on the implementation of RES projects in Kazakhstan at all stages, promotion companies' interests, obtaining up-to-date information on Kazakhstan RES legal framework, making proposals to government bodies through the Association in order to update regulatory RES documents, obtaining

[14] This program was amended a few times. After 2017, its 2 main business support instruments were partial loan guarantees and interest rate subsidies. They were constantly adjusted to the changing environment and tailored to specific needs, which most recently included the needs of the green projects.

Stakeholder	Role
	information and analytical support, as well as the opportunity of promoting the company in the Kazakhstan market through the association media channels. The Association is accredited by the Ministry of Energy, the Ministry of Ecology, Geology and Natural Resources, National Chamber of Entrepreneurs 'Atameken' and is considered as one of the key expert centres for renewable energy development in Kazakhstan for both government agencies and the business community.
Development partners and donors: World Bank, Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), German Development Cooperation (GIZ)).	Provision of technical, economic and financial data/information on ongoing and planned RE (power and non-power) projects that are being supported in Kazakhstan including specific data and information on renewable energy and biomass energy technology applications in other regions and countries.
Private sector investors	Provision of private sector capital to fund renewable energy projects. They should be the primary drivers behind RES investments.
ESCOs and service providers	ESCOs and service providers are the entities that plan and design modernization projects involving RE and EE, install the equipment and undertake modernization measures, and provide operation and maintenance services.
JSC Solar	The only domestic manufacturer of solar PV hardware in Kazakhstan (approximately 50 MW/year); The company is subsidiary of NAC Kazatomprom JSC. It is interested in exploring new market opportunities and business models to promote solar PV in public and residential sector.
The Solar Silicon LLP	The company is subsidiary of NAC Kazatomprom JSC and was established in 2011 to launch commercial production of PV plates using local silicon resources. Most of the company's production is supplied to Astana Solar, which is the only local manufacturer of solar panels in Kazakhstan.
Ecoenergomash LLP	The company produces wind and combined solar and wind installations ranging from 1 to 10 kWt, including inter alia Bolotov wind rotor turbines (WRTB) and B«Wind-SunB». The company also offers project developments works on power supply of the objects using IES WRTB; installation and testing works; remote monitoring of IES VRTB work in real time; consulting and service and complete technical support of the objects that use renewables.
Toshiba	The company has developed a 42 MW wind project Fort-Shevchenko on Mangistau region, Western Kazakhstan.
SOWITEC	The company has developed a 50-200 MW project in Shayan-Zhusymdyk.
Globec	The company has developed a 10 MW wind project in Kyzylorda oblast
Samal Eco energy	The company has developed a 50 MW wind park near the city of Yereimentau, Akmola region, which will include 25 turbines
Arman Engineering	The company has developed a 15MW solar project in Badamsha settlement Aktubinskaya oblast and 28MW project in Zhuldys settlement in South Kazakhstan

Stakeholder	Role
SWP	The company has developed a 19.5 MW and 42MW wind project in Mangistau oblast.
Ltd Solar Kurylys	The company has developed a 35 MW solar park in Atyrau oblast.
Fonroche Energies Renouvelables (France)	The company has developed a 20-24 MW solar park in Taras city.
LTD PVES	The company has developed a 45 MW wind park in Erementau city.
LTD Nomad Solar	The company has developed a 30 MW solar park in Kesylorda oblast.
ТОО "БЕСТ-Групп"	The company has developed a 5 MW solar project in Aktau city.
Eurofinsa Group (Madrid, Spain)	The company has developed two 100 MW wind parks in Aktubinsk oblast and Baidibekskyi districti of South Kazakhstan.

3. FINDINGS

3.1 Project Design and Formulation

34. GoK adopted RE targets in 2013 under the *Concept on Transition to a Green Economy* "*to promote private-sector investment in renewable energy in Kazakhstan to achieve Kazakhstan's 2030 and 2050 targets for renewable energy*" [15]. Coincidentally, UNDP developed a framework on "de-risking renewable energy investments (DREI)" in 2013, a framework that sought to assist policymakers in developing countries to cost-effectively promote and scale-up private sector investment in renewable energy. The DREI Project in Kazakhstan was one of the first of several UNDP-supported projects worldwide to deploy the DREI framework.

35. Through agreements with the Ministry of Energy as the National Implementing Partner in 2017, the core of the Project strategy used the DREI framework in Kazakhstan. During project preparation, UNDP commissioned a DREI analysis specifically for Kazakhstan including matrices of identified risks and corresponding country-specific interventions for both large-scale and small-scale RE. All DREI Project components and activities were designed directly on the basis of the DREI framework and analysis.

36. The DREI analysis comprehensively identified key risks that impede investment in both large-scale and small-scale RE including risks involving power markets (uncertainty about the firmness of state targets, the competitive landscape and prices), the permitting process, grid connection, social acceptance, technical hardware issues, labor markets and availability of expertise, and the high cost of equity and debt financing. MoE played an active leadership role on the Project during its development ensuring that the Project remains country-driven and aligned with national goals, policies, and programs.

3.1.1 Analysis of Project Results Framework for the DREI Project

37. The Project in the ProDoc was designed based on a PRF with indicators, all of which meet SMART criteria[16]. These indicators and their targets as listed in the PRF contained in Appendix F where slight changes from the original PRF have been highlighted in red font.

3.1.2 Assumptions and Risks

38. Assumptions made under the DREI PRF include:

- the Government is committed to declared targets and is willing to adopt and deploy supporting measures, and political and economic stability allow for sustained interest among investors to implement projects in Kazakhstan, all under the Project Objective;
- the Government is willing to adopt the knowledge, best international practices and advice, and the Government supports and prioritizes targeted policies for development the market, all under Outcome 1;
- the Government is committed to declared targets and is willing to adopt supporting measures, and key stakeholder groups are willing to participate in capacity building and awareness raising activities and have access to the right media sources, all under Outcome 2; and

[15] Government decree N79, May 30, 2013. The cited targets include a 10 percent share of renewable energy in total domestic power generation by 2030, and 40 percent by 2050.
[16] Specific, measurable, achievable, relevant and time-bound

- interest from business and finance sectors to develop the market for selected small-scale renewable energy, Government policies and regulations (developed under outcome 2) remove barriers to investments sufficiently to make them attractive, and adequate demand for small-scale developments, all under Outcome 3.

These assumptions appear to be reasonable.

39. There were 9 risks listed in the DREI risk log in the ProDoc comprising of:

- loss of political support;
- ongoing low international oil prices;
- private investors do not find RES investments sufficiently attractive;
- domestic supply chain and capacities for RES in Kazakhstan are very limited causing inadequate implementation of RES projects leading to sub-optimal performance and mal-functioning;
- co-financing for pilot projects does not materialize due to lack of private sector interest and government commitment;
- local financial institutions fail to launch financial products to support small-scale RE developments;
- climate change poses two categories of risks for the deployment of RES in Kazakhstan: First, intensified frequency and scale of natural disasters pose risks to any infrastructure, including to RES projects, second, availability of some RE resources might be affected as a result of climate change such as hydropower;
- small-scale urban and rural RES developers do not use developed financial products;
- developed business and financial models for small-scale RES are not replicated through out Kazakhstan.

3.1.3 Lessons from Other Relevant Projects Incorporated into DREI Project Design

40. As mentioned in Paras 34-36, the DREI Project was based on UNDP's DREI framework and analysis. Other donor-funded projects that have contributed to the DREI Project design include:

- USAID's Kazakhstan Small Business Development Project that aims to: a) increase the GoK's knowledge of international best practices and lessons learned in implementing SME support programs; b) transfer capacity to the GoK and indigenous institutions, both public and private sector, to manage and evaluate entrepreneurship development programs; and c) promote a sound development of a network of small business service providers to foster growth of SMEs;
- IFC's Clean Energy Infrastructure Program in Central Asia and South Caucasus that aims to improve the overall performance (quality of service, efficiency, carbon intensity) of the energy sectors in Central Asia and South Caucasus including Kazakhstan. Currently, all these countries are suffering from a supply gap with, on the one hand, inflated energy demand due to high efficiency losses in transmission and distribution systems and, on the other hand, a constrained energy supply due to limited investment in new and existing energy generation assets. This project sought to address these challenges by attracting private investments to grid strengthening, efficiency and loss reduction projects in existing power and heat systems, as well as to clean energy generation projects; and

- The Kazakhstan Center for Housing and Utilities (KazCenter ZhKKh), now under MIC, completed the modernization of an entire apartment building with 95 apartment units and 11 commercial spaces that started in 2012. KazCenter ZhKKh managed to get residences to pay into roof, basement, heating and hot water supply, sewage system improvements. A housing management company sourced the service provider to implement the works with tenants paying back government money spent on the modernization.

3.1.4 Planned Stakeholder Participation

41. The DREI ProDoc details in very specific terms, the stakeholders to be involved on the Project (in the ProDoc on page 28) including their roles. The stakeholders identified for engagement had already been consulted during the PPG stages of the Project. Further stakeholder engagement during Project implementation was to be organized through extensive consultation processes through all stakeholders who will serve as information providers in their roles of raising public awareness of the DREI Project.

3.1.5 Linkages between the DREI Project and other interventions in the sector

42. The DREI Project was linked with other interventions intending to assist in the setup of DREI investments:

- EBRD is providing technical assistance to the GoK with implementing the Green Economy Strategy through projects in energy, renewables, agriculture, water, waste management, transport and other sectors. Currently, the EBRD is supporting renewable energy in terms of policy dialogue and project financing with EBRD's Small Business Support programme providing consulting support to many private enterprises and, with donor funds from the Kazakh government, is now present in several regions of Kazakhstan financing up to €200 million to finance wind and solar developments, small hydro plants and biogas projects with a total generating capacity of 300 MW within until 2023 in Kazakhstan;
- the USAID Kazakhstan Climate Change Mitigation Program (KCCMP) implemented between 2013 and 2020, aims at helping Kazakhstan to achieve long-term sustained reductions in GHG emissions intensity. The KCCMP supports the Kazakh government and business community in implementing policies to reduce GHGs at the national and corporate levels. The Program's objectives were to:
    - enhance the government's capacity to administer and enforce policies and measures to reduce GHG emissions through the development of procedures and tools that help implement the national Greenhouse Gas Emissions Trading System and the Law on Energy Savings, and to facilitate dialogue between regulators and regulated entities;
    - build the business community's capacity to reduce GHG emissions by improving corporate-level GHG and energy data measurement, reporting and verification, enhancing corporate capacity to assess, develop and implement GHG and energy saving measures, and strengthening the capacity of the audit and verifier community; and
    - strengthen professional education programs in the energy efficiency and climate change areas through training, support for professional accreditation, and developing training centers of excellence.

3.1.6 Gender responsiveness of Project design

43. Gender was discussed in detail in the ProDoc (pgs 28-29) with gender issues integrated into the Project design and reflected in specific activities based on a comprehensive gender analysis provided in Annex Q of the ProDoc. This annex also includes a Gender Action Plan, which elaborates on the gender-disaggregated targets of the PRF and also sets forth additional targets, including that at least 50% of beneficiaries for training and capacity building will be women or women-headed organizations such as the SMEs and farming communities.

44. A gender-related risk of discrimination against women in access to financing and capacity-building is identified in the Social and Environmental Screening. This risk is deemed low, and is mitigated by the inclusion of indicators for numbers of women beneficiaries at objective, outcome, and activity levels, as well as specific selection criteria that proactively help support women's participation.

3.1.7 Social and Environmental Safeguards

45. Annex F of the ProDoc contains the Social and Environmental Screening, which reviews the social and environmental risks created by the Project. The SES notes that the direct activity of the project in eliminating policy, financial, market and technical barriers, and creating an enabling environment for investments in renewable energy, in itself poses minimal risk of adverse social or environmental impacts. The screening notes further, however, that actual renewable energy projects may cause impacts related to siting and construction works. Further, there may be issues such as generation of waste, noise and visual pollution, potential discrimination of women to access financing, that are limited in scale and temporary.

46. The Project Document does not contain a completed Environmental and Social Management Plan (ESMP); the Project, however, completed an ESMP in August 2019. This plan is based directly on the social and environmental risks noted in the aforementioned Annex F, but adds a table with proposed remedial measures, developed in the context of national laws, regulations, and standards.

3.2 Project Implementation

47. The following is a compilation of significant events during implementation of the DREI Project in chronological order:

- PIF Approved under GEF on 22 October 2015;
- CEO Endorsement on 18 September 2017;
- start-up date of the Project on 19 February 2018;
- renewable energy auction conducted in October 2018 for the 50 MW solar PV plant at Shaulder;
- Mid-Term Review (MTR) of DREI Project was conducted during the April-September 2020 period;
- Financial Support Mechanism (FSM) for Project-sponsored renewable energy subsidies underwent an independent review from September 2020 to May 2022;
- first 25% loan principal subsidy was disbursed in March 2023;
- first 35% loan principal subsidy was disbursed in August 2023 after a first revised FSM that raised support levels from 25% to 35% to attract more FSM applicants;
- Law on "Support of RES" was signed by the Head of State of Kazakhstan on 19 June 2024 which defined the concept of "small-scale renewable energy facilities" (see Para 86);

- 23 RE investments using the FSM were made during the March 2023-June 2024 period, reaching the targets for GHG emission reductions and installed capacity[17].

48. Project is overseen and strategically guided by the Project Board (PB), which is chaired a National Project Director (NPD) who is the Director of the Department for Renewable Energy Sources of the MoE and composed of key Project stakeholders: MoE, Ministry of National Economy, Ministry of Ecology and Natural Resources, Kazakhstan Electric Grid Operating Company (KEGOC), DAMU, Settlement and Financial Center for renewable energy support JSC, QazaqGreen Assocation, Kazakhstan Association of Oil and Gas and Energy Complex Organizations (KAZENERGY)and UNDP. Other stakeholders include Kazakhstan Stock Exchange, financial institutions, private sector investors, ESCOs, service providers, and private investors as listed on Table 2 and further discussed in Paras 52-54. The PB has met on annual basis, sometimes twice per year, since September 2018 to review and approve annual work plans and budgets, review annual progress, provide strategic oversight of the Project, ensure coordination with key baseline initiatives and national investment programs, and provide guidance on the effectiveness of Project interventions and results.

49. The NPD has been responsible for the overall achievement of Project objectives through institutional coordination with the key stakeholder members of the PB and overall alignment of the Project with the DREI Project. The NPD has also been responsible for timely Project reporting, including the submission of Annual Work Plans (AWP), Annual Project Reports (APRs), Project Implementation Reviews (PIRs), and financial reports. The NPD has taken full ownership of the Project by leading and implementing the Project with keen interest and providing facilitation, management and oversight support during implementation of the Project. The DREI Project organization structure is shown on Figure 2.

50. The DREI Project Manager (PM) is tasked with the day-to-day management of Project activities, preparation of AWPs, financial reports and administration. The current PM's tenure with the Project has been with the Project since August 2023. The PM prepares the AWPs for submission to the PB for approval and is supported by a Project Assistant, Communications Analyst and Financial Analyst.

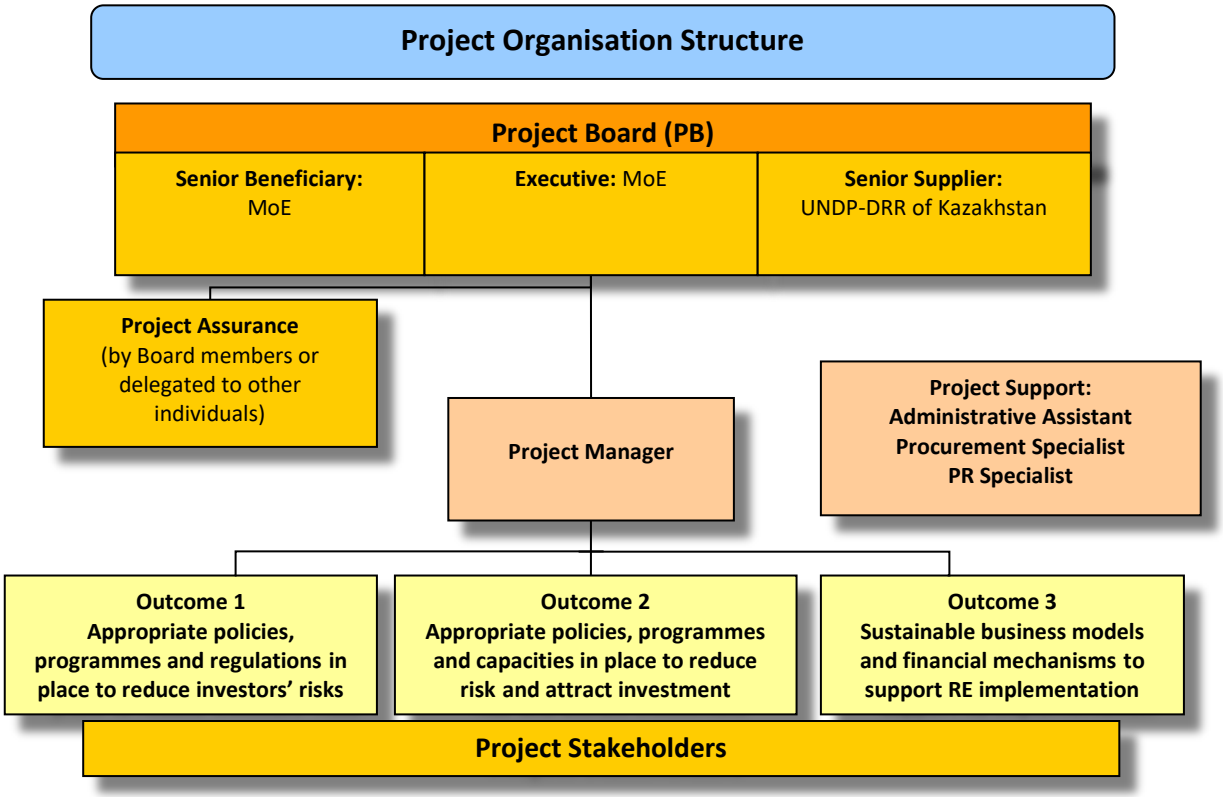
3.2.1 Adaptive Management

51. Adaptive management is discussed in UNDP evaluations to gauge performance of Project personnel to adapt to changing regulatory and environmental conditions and unexpected situations encountered during the course of implementation, both common occurrences that afflict the majority of UNDP projects. Without adaptive management, donor investments into UNDP projects would not be effective in achieving their intended outcomes, outputs and targets. Much of the adaptive management by the DREI Project's PMU was a result of the need to:

- RE auctions as a means of catalyzing RE projects. The Project played a central role in creation of the auction mechanism in 2019 (Para 82);
- respond to GoK and financial institutional interest in green bonds in 2020 (Para 102);
- ending the interest rate subsidy in favor of a partial loan subsidy of 25% and its subsequent raising to 35% (Para 101);

[17] When it became clear the FSM was going to be approved and launched in October 2022, the DREI Project started a series of seminars and webinars to attract applications in August 2022 to accelerate the new pipeline of DREI RE investments with a disclaimer "provided the funds are available". Only 2 applications came after finishing the FSM re-design in October 2022.

Figure 2: DREI Project organization structure



- in 2020, the intermediate DREI risk scoring survey detected increase of Resource & Technology Risk, namely, the risk caused by the increased share of low quality or counterfeited devices in the market. The Project reacted with the series of activities to reinforce quality control, namely, courses and research in the area of standards and practical support to RE devices quality control laboratories;
- early in 2022, Project research of the RE application in agriculture identified large volumes of unused biomass. The Project reacted by active search of such projects and also provided data and support to launch a spin-off project in utilizing biomass waste that was successfully launched and completed in 2023;
- the FSM review team recommended reinforcement of the civil society control over green support programs. The Project reacted with organizing in-depth training in M&E for the representatives of civil society, a shared activity with the NAMA Project in early 2024.

For these reasons, adaptive management was able to move the Project forward and is rated as ***highly satisfactory.***

3.2.2 Actual Stakeholder Participation Partnership Arrangements

52. Under the NIM execution modality of the DREI Project, the key to successful stakeholder participation arrangements has been the close involvement and consultations between the PMU and relevant government ministries, SMEs, private sector entities and NGOs to collect information on

their baseline activities and engaging them to become involved with Project activities. The most important stakeholder relationship was with DAMU for the creation of an enabling conditions and the FSM for implementing RE projects with various SMEs and other private sector entities, and NGOs during the Project. These stakeholders were contacted for their willingness to be involved on the Project.

53. Stakeholders were engaged throughout the Project:

- the MoE, the Project implementing partner, being in close contact with the RES Department on overall Project implementation and planning including AWP preparation and approvals, CDRs, working on amendments to the legislation on supporting RE to stimulate small scale RE development;
- annual and biennial meetings were held with international institutions such as EBRD, ADB, USAID to seek synergies and avoid duplication of work in the RES sector;
- several meetings were organized with renewable energy associations. This included several round tables and working level discussions with the QazaqGreen Association of RES in Kazakhstan who play a key role in further improvement RE legislation as well as energy market development for RE sector development of the country and with who the Project has maintained very good relationship;
- close contact with DAMU on the launching and relaunching of the FSM, and its active activities reporting implementation in 2022 to 2024. In addition, the Project team involves DAMU and its regional personnel on capacity building seminars;
- close working relationship with the Ecojer NGO on capacity building seminars applying methodologies for testing various small-scale RES including participation in the III International Congress ECOJER – Carbon Neutrality Pathways[18] in June 2023, and active support for Technical Committee 117 (TK 117) on providing inputs on standardization procedures and processes of RE technologies;
- stakeholder outreach at:
    - the Astana International Forum on 8-9 June 2023 with UNDP showcasing to external stakeholders an interactive map of low-carbon and small-scale renewable energy projects implemented in Kazakhstan by SMEs[19];
    - the II Almaty Energy Forum in November 2022 in cooperation with UNECE, UNESCO and Kazakh British Technical University[20]. The Project organized an exhibition of green financing instruments employed to support SMEs to access affordable financing for EE and RE projects
    - the III Almaty Energy Forum held in November 2023 in cooperation with UNECE, ESCAP and Kazakh British Technical University[21] where the Project organized a technical roundtable with key stakeholders on “De-risking financing of renewable energy and energy efficiency projects”. The roundtable was centered on understanding better the persistent barriers and what can be done to overcome them, thus scaling up green financing initiatives throughout the region. Participants shared concrete experiences on derisking investments and setting

[18] https://www.undp.org/ru/kazakhstan/speeches/iii-mezhdunarodnyy-kongress-ecojer-dostizhenie-uglerodnoy-neytralnosti
[19] https://www.undp.org/kazakhstan/news/funding-green-transition-trudge-reach-sdgs-milestones
[20] https://unece.org/sustainable-energy/events/almaty-energy-forum-2023
[21] https://unece.org/sustainable-energy/events/almaty-energy-forum-2023

up investment funds in the region and beyond with recommendations on further development and widespread adoption of green technologies;

- III International QazaqGreenFest "Accepting the Challenges of the Present – Together Towards a Sustainable Future" in May 2024;
- capacity building sessions with Damu's regional personnel and banks

54. Overall efforts by the DREI Project team to forge effective partnership arrangements with various stakeholders have been ***highly satisfactory***.

3.2.3 Project Finance

55. The total GEF budget for the DREI Project was US$4.61 million that was to be disbursed over a 60-month period, managed by a UNDP-PMU under the direction of a Project Board. Table 3 depicts disbursement levels up to 30 June 2024, 1.5 months prior to the terminal date of the DREI Project of 19 August 2024, revealing the following:

- The Project had small deviations in expenditures:
  - Outcome 1 underspent by 6.6% and Outcome 2 overspent by 11.5%;
  - Outcome 3 is to be spent according to the original budget of US$2.5 million; and
  - Project management costs were 21.5% below the original budget of US$310,000;
  - The Project having a surplus of US$147,000.
- The majority of funds were expended on Contractual Services – Companies/National (71200a), followed by Contractual Services - Individuals (71400), Local Consultants (71300), International Consultants (71200), and Travel (71600). These are revealed in Table 4;

56. The Project has also demonstrated that appropriate financial controls are in place, notably through:

- Combined Delivery Reports (CDRs) and Project Budget Balance Report which shows the expenditure and commitments in the current year up to date (both as generated by Atlas/Quantum);
- manual monitoring of Project expenditures against budget lines to attain an in-depth understanding of the financial progress and the pending commitments.

57. Project co-financing was estimated to be more than US$1,315 million, well above the expected co-financing of US$51.01 million. Co-financing summary and details can be found on Tables 5 and 6 respectively. The TE team observes the following details of Project co-financing:

- The majority of co-financing came from the Astana International Financial Center (AIFC) Green Finance Center who provided US$808 million and the DAMU fund which provided over US$416 million, both of whom provided co-financing support to SMEs on green projects during the Project duration[22] [23];

[22] Damu co-financing for green investments came as an Excel file: https://damu.kz/ru/reports/reports/green/green_quarter/. Co-financed green investments are in first tab totaling KZT 319,550 million, which converted by KZT 450 to the US dollar, is around US$ 713 million. These green investments of Damu supported private funding (including loans and own investments of the private sector) by loan interest rate subsidies. The second and third tabs in Excel file are not counted since loan guarantees are typically given to the same projects, supported by subsidies. The fourth tab is for green bonds supported by DREI.

[23] This Damu co-financing can also be attributed to the DREI project since both the NAMA and DREI projects developed identical FSMs with the same partner, Damu Fund, in developing a green financing program.

Table 3: GEF Project Budget and Expenditures for DREI Project (in US$ as of 30 June 2024)

Outcomes	Budget (from Inception Report)	2018	2019	2020	2021	2022	2023	2024	Total Disbursed	Total to be expended in 2024	Total remaining
Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target	700,000	107,423	247,218	61,125	46,139	63,226	15,442	102,228	642,800	104,150	-46,950
Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables	1,100,000	30,242	170,910	273,528	88,104	153,270	77,612	77,622	871,288	102,375	126,337
Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions	2,500,000	21,261	93,858	84,883	162,320	252,525	221,201	1,138,762	1,974,811	525,189	0
Project Management	310,000	15,766	45,686	33,243	18,383	24,544	28,766	34,636	201,024	41,362	67,614
Total (Actual)	**4,610,000**	**174,692**	**557,672**	**452,779**	**314,946**	**493,566**	**343,020**	**1,353,248**	**3,689,923**	**773,076**	**147,001**
Total (Cumulative Actual)		174,692	732,364	452,779	767,725	1,225,930	1,568,950	2,906,822			
Annual Planned Disbursement (from ProDoc)	4,610,000	226,188	719,186	1,166,062	1,146,726	1,198,826	153,012				
% Expended of Planned Disbursement		**77%**	**78%**	**39%**	**27%**	**41%**	**224%**				

Table 4: Expenditures by ATLAS Code

ATLAS Code	Expenditure Description	Spent as of 30 June 2024 (US$)	To be spent by before the EOP (US$)
71200	International Consultants	322,723	73,880
71300	Local Consultants	355,939	28,219
71400	Contractual Services - Individuals	367,726	29,961
71500	UN Volunteers	712	
71600	Travel	125,844	9,380
71800	Contractual Services-Individual Impl.Partner		
72200	Equipment and Furniture	1,066	
72300	Materials & Goods		
72400	Communications and Audio Visual Equipment	9,479	177
72600	Micro Capital Grants - Credit		
73200	Permises Alterations		
73400	Rental and maintenance of other office equipment		
74200	Audio Visual & Print Prod Costs	55,997	912
74500	Miscellaneous Expenses	3,067	1,400
74700	Contingency		
76100	Realized loss	-12,403	5,210
75700	Training, Workshops and Conference	102,381	15,000
72100a	Contractual Services - Companies / Nat	2,234,459	658,355
72100b	Contractual Services - Companies / Int		
72800	Information Technology Equipment	6,698	
64397	Services to projects -CO staff		
74596	Services to projects	51,900	
72500	Supplies	3,277	0
73100	Rental & Maintenance-Premises	60,263	1,272
74100	Professional Services		
74100b	Professional Services - International		
74400	Provisions & Write-offs	4	
77600	Dep Exp Owned	790	
	Total	**$3,689,923**	**$823,767**

- substantial in-kind co-financing was provided from MOE, the private sector and CSOs;
- co-financing did not materialize from EDB and private sector firms for equity investments.

58. Overall, the cost effectiveness of the DREI Project has been **highly satisfactory** in consideration of the funds being well spent towards building demonstration RE projects in various SMEs, SME capacities to manage demonstration projects, implementing FSMs that achieve implementation of DREI RE projects that meet GHG emission reduction targets, and the funds made available for loans by DAMU and the AIFC Green Finance Center for small-RES projects as well as energy efficiency.

Table 5: Co-Financing for DREI Project (as of 30 June 2024)

Co-financing (type/source)	UNDP own financing (million USD)		Government (million USD)		Partner Agency (million USD)		Private Sector (million USD)		Total (million USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	0.100	0.095			30.600				30.700	0.095
Loans/Concessions				416.304				808.000	0.000	1,224.304
• In-kind support			3.250	87.000		1.020		2.300	3.250	90.320
• Other (equity investment)							17.060		17.060	0.000
Totals	**0.100**	**0.095**	**3.250**	**503.304**	**30.600**	**1.020**	**17.060**	**810.300**	**51.010**	**1,314.719**

Table 6: DREI Co-Financing Details

Classification	Name of Co-financier (source)	Type	Financing Committed (US$)	Actual committed (US$)
Partner agency	UNDP	In-kind	0	
Partner agency	UNDP	Cash	100,000	94,891
Government	MoE	In-kind	3,250,000	87,000,000[24]
Government	Damu	Loans		416,304,347[25]
Financing Institution	EDB	Equity investment	30,000,000	
Private Sector	Ergonomica, Ltd	In-kind	1,500,000	1,500,000[26]
Private Sector	JSC "ProEco"	In-kind	800,000	800,000
Private Sector	JSC Astana Solar	Equity investment	13,960,000	[27]
Private Sector	Enkom ST LLP	Equity investment	800,000	
Private Sector	AIFC Green Finance Center	Loans		808,000,000[28]
Civil Society Organization	Nazarbaev University	In-kind	300,000	720,178[29]
Civil Society Organization	KazGBC	In-kind	300,000	300,000[30]
		Total Co-financing:	**51,010,000**	**1,314,719,416**

3.2.4 M&E Design at Entry and Implementation

59. The ProDoc does provide for an M&E design on pages 38-42 in the ProDoc which was presented in a fairly generic manner, similar to other M&E designs from other GEF projects, and with preparations for a detailed M&E plan left to the implementation phase of the Project. There was a budget of US$173,000 for M&E activities, broken down on pages 41-42 of the ProDoc for a PRF that had no issues with SMART indicators and targets as elaborated in Para 37. As such, the M&E design is rated as ***satisfactory***.

60. In terms of M&E plan implementation, the Evaluator had access to PIRs from 2019 to 2024 on the DREI Project, which were informative on progress made on various studies, actions taken by the Project, revised indicators against Project targets and extra activities in collaboration with other donors. In addition, there was an MTR report completed in September 2020 that provided some

[24] https://undp-my.sharepoint.com/:w:/r/personal/dosbol_tursumuratov_undp_org/Documents/Desktop/UNDP/Working%20docs/Programs%20%26%20Projects/DREI/TE%20DREI/Desk%20Review%20DREI/Co-finance%20letters/%D1%81%D0%BE%D1%84%D0%B8%D0%BD%D0%B0%D0%BD%D1%81%D0%B8%D1%80%D0%BE%D0%B2%D0%B0%D0%BD%D0%B8%D0%B5%20%D0%9C%D0%AD%202021.docx?d=w22e413286e324aefb8cf2c95baa88b3a&csf=1&web=1&e=DnbNeX

[25] Damu Co-finance letter.pdf

[26] Letter Ergonomika.jpeg

[27] Company was liquidated

[28] UNDP (AIFC GFC) co-finance Letter.pdf

[29] https://undp-my.sharepoint.com/:b:/r/personal/dosbol_tursumuratov_undp_org/Documents/Desktop/UNDP/Working%20docs/Programs%20%26%20Projects/DREI/TE%20DREI/Desk%20Review%20DREI/Co-finance%20letters/Letter%20DREI%20-%20Kuntech%202024.pdf?csf=1&web=1&e=eOAUa1

[30] Letter_KazGBC_UNDP_(DREI)_S.pdf

detail of the occurrences of the Project pre-2020. As such, monitoring of all Project activities is rated as ***satisfactory***.

61. As such, *M&E plan implementation is rated as* ***satisfactory***. Ratings according to the GEF Monitoring and Evaluation system[31] are as follows:

- *M&E design at entry – 5;*
- *M&E plan implementation – 5;*
- *Overall quality of M&E – 5.*

3.2.5 Performance of Implementing and Executing Agencies

62. The close relationship between MoE, DAMU and UNDP has been excellent. MoE has always taken the position that its cooperation with donor agencies such as UNDP, is to resolve problems and issues with a particular sector. In the case of the DREI Project, MoE implemented the Project instead of just enforcing policies and regulations and found the Project to be very useful in being able to experience the issues and barriers that prevent the GoK from developing and implementing small and large-scale RES projects. The DREI Project was making contributions to achieve voluntary national GHG emission reduction targets as committed during the 2011 COP-17. The DREI Project has always had the backing of MoE leadership through frequent and constructive communications with UNDP. The role that MoE served on the Project has been to:

- develop and enforce national policies and regulations on RE projects with the assistance of the Project;
- working closely with the PMU, financial institutes and DAMU to identify barriers to DREI RE investments;
- raise awareness of DREI RE investments amongst all stakeholders;
- assist in building capacity to engage technical personnel of MoE, DAMU, the private sector, CSOs, NGOs and SME beneficiaries in the development of RE designs and investments; and
- strengthening the performance of DREI Project development and implementation.

63. MoE, in efforts to simplify and accelerate approval of small-scale RE projects that were supported by DREI Project under Output 3.4, delegated its responsibilities to DAMU make delivery of the FSM scheme more efficient. DAMU took responsibility for approval of the small-scale RE projects for the first time in late 2023 (for the NAMA Project, project support decisions were taken by their Project Board). For DREI, the initial decision to support applications were taken by DAMU's Credit Committee. This new role of DAMU was an important new step to make small-scale RE project support sustainable.

64. ESCOs, private sector developers and equipment supply companies, and sub-contractors have all mentioned that they have been able to participate in, and contribute meaningfully, to Project

[31] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory
U/A = Unable to assess
N/A = Not applicable.

implementation due in large part to Project management by the PMU and MoE and DAMU cooperation, coordination, and facilitation. MoE has had to deal with an acute shortage of qualified personnel in Kazakhstan to undertake monitoring tasks as well as advancing business plans and financial schemes. For this reason, there has been reliance on outsourced assistance from the Project to monitor energy savings and GHG emission reductions. The performance of MoE, however, can be rated as ***highly satisfactory***.

65. For UNDP, there was the positive collaboration with MoE and DAMU that led to the very successful completion of several DREI demonstration investments, leveraging more RE investment, and technical assistance to personnel of MoE, DAMU, the financial sector, the private sector, CSOs, NGOs and beneficiaries. The performance of UNDP, however, can be rated as ***highly satisfactory***.

66. The performance of implementing and executing entities can be summarized as follows:

- *Implementing Partner (MoE)* – 6;
- *Implementing Entity (UNDP)* – 6;
- *Overall quality of implementation/execution (UNDP/MoE)* – 6.

3.2.6 Risk Management

67. Starting in March 2020 to mid-2021, more risks were identified related to the COVID-19 pandemic:

- there were financial risks including:
  - there was an economic slowdown in the country due to the impact of the COVID-19 pandemic and an associated drop in oil prices. The only mitigative response was for investors to select higher impact and cheaper technologies, whenever possible;
  - FSM's interest rate subsidy scheme did not work in 2021 for the sister "NAMA project" since the scheme became unattractive to potential clients. In addition, the scheme was difficult to manage as loan interest rate subsidies were spread over years and involved forecasting, which was not reliable due to exchange rate fluctuations (with NAMA project budget in US dollars, and subsidies in Kazakhstani Tenge, and early repayments of the loans in many cases), and the monitoring element of the FSM needed improvement (with payment of interest rate subsidies starting before the actual implementation of supported projects, which presented a risk). This triggered a review of the old FSM where a loan guarantee mechanism was thought to be a more effective option and more attractive to banks. This led to a recommendation in May 2022 that the FSM should be a partial loan subsidy (since UNDP cannot do loan guarantees). This led to a 25% partial lump-sum loan principal subsidy in May 2023 which was then raised to 35% in October 2023 that attracted more applicants;
  - the new FSM was based on an improved system to monitor its progress, results and impacts exchange risk for DREI Project was eliminated at the FSM re-design stage. The amount of subsidy was reserved (put aside specifically for the supported project) at the moment of pre-approval of the project and paid after its completion is verified with payment limited to the reserved amount in US Dollars. This was a clause in the subsidizing agreement with exchange rate risk being transferred to the applicant; if the local currency appreciates, the applicant gets less local currency
- there were organization risks:

  - long-term coordination risks of FSM with the GoK due to the frequent change of government personnel. Mitigation response has been to provide Project experts for technical support to investors for preparation of the documents for "green subsidy" in close collaboration with the Damu Fund;
  - insufficient capacity of local experts to monitor demonstration RES project investments. Mitigation response was the use of a local consultant as a technical expert to monitor and verify RES installations of the DREI Project;

- strategic risk of a lack of bankable low-carbon projects. The lower cost of energy in 2020 and the large investment needs in the worn-out infrastructure of cities led to a large number of non-bankable low-carbon urban projects. Mitigation response was consultation between the PMU and the Damu Fund with special attention paid to the construction of economic models to ensure the payback period of the implemented technologies (with proper subsidy support from the Project) with a training module on preparation urban low-carbon projects developed for investors, commercial banks and Akimats. The first national training workshop on this module was conducted for 47 participants;
- operational risk involving the disruption of several activities (i.e. meetings, discussions, trainings) during the COVID-19 pandemic where government limited travel, closed external borders, banned any gatherings, all designed to limit the spread of infection. Mitigation response was the increased use of virtual communication.

68. Since 2022, there have been substantial reductions in risk to the DREI Project mainly due to the COVID-19 being under control. The only key risk to the Project in 2022 was the low delivery rate, mainly due to the COVID-19 pandemic, and related state of emergency and restrictions in 2020-2022. This limited the number of applications for RES projects. The delivery rate of the DREI Project improved with the PMU able to develop a project pipeline using the redesigned FSM with a 35% partial loan principal subsidy, rule adjustments, enhancements to additionality assessment in the selection of beneficiary projects, strengthening the screening and management of environmental and social risks, and enhanced supervision from UNDP senior technical levels. This resulted in the resumption of implementation of the FSM through new rounds of calls for proposals and selection of beneficiary projects in August 2023. A mitigation response to the low delivery rate has been the granting of one more Project extension, one from February 2023 to August 2024.

69. Other measures undertaken to mitigate other risks included:

- several meetings with commercial banks to determine the main challenges of financing RES projects;
- weekly monitoring of RES projects organized jointly with DAMU; and
- development of a training module to teach companies the basics of developing RES projects through financing from commercial banks.

3.3 Project Results and Impacts

70. This section provides an overview of the overall results of the DREI Project and an assessment of relevance, effectiveness and efficiency, country ownership, mainstreaming, sustainability, and impact of the Project. This analysis of Project results and impacts, however, uses the changes made to the PRF outcomes, indicators and targets shown in Appendix F and Table 7 (with changes in red font). For Table 7, the "status of target achieved" is color-coded according to the following scheme:

Green: Completed, indicator shows successful achievements	Yellow: Indicator shows expected completion by the EOP	Red: Indicator shows poor achievement – unlikely to be completed by Project closure

3.3.1 Progress towards objective

71. With the overall objective of this Project being to support the GoK in achieving voluntary national GHG emission reduction targets, a summary of achievements of the DREI Project at the objective level is provided with evaluation ratings on Table 7. The GEF Tracking Tool for the DREI Project is contained in Appendix E.

72. With respect to the target of "*460,000 tCO_{2eq} direct emissions and between 1.8 and 8.0 million tCO2eq consequential emissions avoided*", this target was exceeded with 1,041,174 tCO_{2eq} direct lifetime emission reductions achieved. Details of the achievement of this target are provided on Table 8 with a listing of 24 small-scale RE projects (as part of its FSM implementation under Outcome 3) that were verified and confirmed by an independent evaluator. The only exception to this was the large-scale 50 MW solar power plant implemented in 2019 under a site-specific auction and subsequently commissioned in 2022 by a local subsidiary of Eni in Shaulder village in the Turkestan region. The DREI Project financially supported documentation of the site-specific auction with further details provided in Paras 82-84 and 102.

73. The Project's actual consequential emissions avoidance includes:

- projects implemented through site-specific auctions after the introduction of the mechanism by the Project. Two 20 MW solar PV plants and two wind projects with total capacity of 150 MW were implemented under site-specific auction mechanism with indicative calculated lifetime consequential emissions avoided totaling 5.803 million tCO_{2eq};
- projects supported by green bond issues, and the instrument of subsidizing coupon rate for the green bonds supported by the DREI Project, has been included into the state programme through DAMU[32]. In 2020, the DREI Project facilitated pilot issuance of green bonds, and in 2021, DAMU approved new financial support rules that included financial instrument of subsidizing the coupon rate of the green bonds based on the Ministerial decree of Ministry of National Economy[33]. This allowed DAMU to support more than 51 RES projects with total installed capacity of more than 1 GW with current valuation of green bonds at US$366 million bonds and sustainable bonds at US$266 million in circulation in Kazakhstan (this volume is based on initial removal of uncertainty regarding the issuances of such bonds by DREI Project)[34]. Indicative lifetime consequential emissions reductions are estimated to 52 million tCO_{2eq};

The total lifetime consequential GHG emissions avoided is more than 57 million tCO_{2eq}.

74. With respect to the target of "*9.5 MW (direct, small-scale sector only)*" and "*500 GWh of lifetime RE production*", total installed capacity of all small-scale RE projects on the DREI Project was 14.1 MW, exceeding the target of 9.5 MW (and excluding the 50 MW solar farm at Shaulder). The total lifetime energy production of these projects was 1,783 GWh, also exceeding the target of 500 GWh.

[32] The Project facilitated inclusion of amendments into the state programme for the promotion of SMEs "Business Road Map-2025" (currently the programme was renamed "Unified complex program").
[33] https://adilet.zan.kz/rus/docs/V2200028578
[34] The report containing this information was published by AIFC on page 28, found at: https://aifc.kz/wp-content/uploads/2024/07/ustojchivoe-finansirovanie-v-czentralnoj-azii.pdf

Table 7: Project-level achievements against DREI Project Objectives (edits to the PRF are made in red font)

Project Strategy	Performance Indicator	Baseline	Target	Status of Target Achieved	Evaluation Comments	Rating[35]
Project objective: *Promote private-sector investment in renewable energy in Kazakhstan in order to achieve Kazakhstan's 2030 target for renewable energy*	Total lifetime direct and consequential GHG emissions avoided (Tons CO_{2eq}) (GEF indicator 1)	0	460,000 tCO_{2eq} direct emissions Between 1.8 and 8.0 million $tCO_{2e}q$ consequential emissions avoided	1,041,174 tCO_{2eq} direct lifetime >57 million tCO_{2eq} consequential emissions	See Paras 72-73	6
	Increase in installed capacity from wind and solar power (MW) and lifetime RE production (MWh) (GEF indicator 3)	0	9.5 MW (direct, small-scale sector only) = approximately 500 GWh lifetime production	14.1 MW 1,783 GWh	See Para 74	6
	Number of direct project beneficiaries (UNDP mandatory indicator 3)	0	28,500 people, 50% women	4.75 million, 50.5% women	See Para 75	6
Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target	Capacity of the Government to design and implement policy initiatives enabling development of renewable energy markets	0	25 policymakers trained	28+ policymakers trained	See Para 78	5
	Reduction in DREI aggregate risk score across 9 DREI risk categories	0	Aggregate DREI risk score 25 out of 45 (56%)	22.5 out of 45	See Paras 79	5
Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables	Degree of support for small-scale renewable energy development in policy, planning and regulations	0	Level 8 - Strong policy and regulatory frameworks designed with financial / market / incentive based mechanisms	Level 8	See Paras 82-89	6
	Knowledge of small-scale applications in rural and urban areas	0	At least 25% of women and 25% of men in target stakeholder groups understand the benefits and risks of renewables and support their development	31.2% of all respondents definitely support and 43.5% mainly support the idea that humanity must reach 100% energy coming from renewable sources; 29.5%/45.1% definitely/mainly support more active use of renewables among population today	See Paras 91-96	5

[35] Ibid 16

Project Strategy	Performance Indicator	Baseline	Target	Status of Target Achieved	Evaluation Comments	Rating[35]
Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions	Developed financial and business models for small-scale RES in urban and rural sectors	0	Standard contracts / agreements prepared to facilitate scale-up	Standard contracts and agreements were prepared to facilitate scale-up.	See Paras 99-100	
	Appropriate financial instruments created for pilot investments in small-scale rural and urban renewables		Financial derisking instruments for small-scale on- and off-grid projects are designed and deployed	Financial derisking instruments for small-scale on- and off-grid projects are designed and deployed, mainly from a 35% partial subsidy of the loan principal	See Paras 101-103	
	Investment mobilized to support small-scale projects	None	Small-scale projects of total installed capacity of 9.5 MW addressing various technologies and sectors are implemented with support from the project	14.1 MW of small-scale RE projects implemented with support of the DREI Project	See Para 103, Boxes 1 to 3	

Table 8: DREI Project GHG Emission reductions from 2018 to 2024

#	Project Name/Applicant	Region	Type of Renewable Energy	Date of Approval	Installed Capacity (kW)	Energy generated (MWh)	Direct Lifetime CO_2 reduction (tCO2)	Total co-financing cost (US$)
1	Solar power plant funded via the green bonds scheme	Turkestan	**Solar**	Apr-22	2,000.00	72,778	38,292	500,000
2	BAQ Agro LLP	Turkestan	**Solar**	17-Apr-23	102.30	2,497	1,672	129,876
3	BatysTrade LLP	Aktau	**Solar**	15-Sep-23	150.70	5,230	3,523	133,333
4	SolarWay LLP	Almaty	**Solar**	20-Oct-23	20.90	713	356	22,596
5	IP Dzhanisbayeva	Shymkent	**Solar**	09-Oct-23	60.00	2,110	1,207	54,098
6	Dikanshy Firm LLP	Petropavlovsk	**Biomass pellets**	19-Feb-24	300.00	12,131	2,065	118,062
7	Akmarzhan LLP	Aktobe	**Solar**	19-Mar-24	936.70	28,636	23,087	449,561
8	Balmuzdak LLP	Turkestan	**Solar**	10-Mar-24	350.00	12,134	3,063	149,914
9	Agrofirma Mamlyutskaya LLP	North Kazakhstan	**Biomass boiler**	02-Apr-24	3,000.00	83,333	17,642	448,132
10	IP Dzhanisbayeva	Shymkent	**Solar**	26-Mar-24	200.00	6,882	4,348	176,425
11	ESIK LLP	Aktobe	**Solar**	29-Apr-24	105.60	3,128	2,600	54,285
12	ICE LLP	Aktobe	**Solar**	17-Mar-24	298.10	8,834	4,348	157,156
13	Zhandos I Ko LLP	Aktobe	**Solar**	13-Mar-24	848.00	25,128	18,377	414,952
14	SolarWay LLP	Shymkent	**Solar**	11-Apr-24	15.95	601	227	21,425
15	Agrosever LLP	North Kazakhstan	**Biomass boiler**	15-May-24	3,000.00	83,333	15,290	444,840
16	Mendi LLP	Aktau	**Solar**	18-Apr-24	150.00	4,874	3,253	94,085
17	Keruen Plus LLP	Almaty	**Solar**	17-May-24	495.50	16,538	8,497	171,961
18	SmartexDF LLP	Shymkent	**Solar**	16-May-24	100.00	3,128	2,076	56,263
19	Local subsidiary of Eni in Shaulder village,	Turkestan	**Solar**	Sep-23	50,000.00	1,350,140	832,548	50,000,000
20	OZHDH LLP	East Kazakhstan region, Ust-Kamenogorsk	**Solar**	17-Jun-24	100.00	4,199	3,920	78,254
21	New Project LLP	Karaganda	**Heat pumps**	04-Jun-24	368.00	1,878	11,885	351,996
22	Nurkuat Energy LLP	Karaganda	**Solar**	19-Jul-24	300.00	8,857	8,266	178,867
23	Akbarys Aktobe LLP	Aktobe	**Solar**	19-Jul-24	100.00	2,991	2,507	44,717
24	Mars LLP	Shymkent	**Solar**	15-Jul-24	100.00	3,660	2,125	56,363
25	Ecoinvest S A LLP	Turkestan	**Solar**	19-Jul-24	1,000.00	39,168	30,000	706,189
				Total:	**64,101.75**	**1,782,899**	**1,041,174**	**55,013,348**

75. With respect to the target of "*28,500 people, 50% women as direct project beneficiaries*", total number of beneficiaries is counted as over 4.75 million for 18 commissioned and verified projects and the first RE project under the site-specific auction mechanism, out of which 2.4 million are women (50.5%). This number of beneficiaries was estimated and verified by the Project's technical experts. Information on beneficiaries was included in their reports[48]. This included the 50 MW site-specific auction green bond financed scheme, and the 2 MW solar power plant both in Shaulder village, Turkestan region that are operational and feeding into the regional grid. The number of beneficiaries for these projects is derived from data provided by the National Bureau of Statistics, which reflects the population of the Turkestan region. There was also the independently confirmed 5,000 beneficiaries on the 102.3 kW solar PV project by BAQ Agro LLP in Shubar, Turkestan that included 2,000 women, 1,750 men and 1,250 children with power supply reliability and improved living conditions

76. Overall, the work by the Project to support the GoK in the development and implementation of DREI in renewable energy to achieve GHG emission reduction targets, is rated as **satisfactory**.

3.3.1 Progress towards Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target

77. To achieve Outcome 1, GEF incremental activities were to delivered through 2 outputs:

- *Output 1.1: Technical, economic, financial, environmental and social analysis carried out to support the Ministry of Energy and other stakeholders in the design and implementation of appropriate policies, programmes and regulations, including development of briefings for decision-makers*;
- *Output 1.2: Capacity building of key stakeholders through coaching and training seminars / study tours*.

78. With regards to the target of "*25 policymakers trained towards building the capacity of the Government to design and implement policy initiatives enabling development of renewable energy markets*", the target was achieved with the delivery of Output 1.2 and the training of 27 policymakers with activities that included:

- 7 regional workshops organized in 2018 to raise awareness and clarify the procedures of RE auctions in six regions of Kazakhstan. This was designed to fill the knowledge gaps identified at an early stage of site-specific auctions preparation and to improve the competitive environment. Over 70 potential investors and representatives of municipal authorities participated in the workshops with the MoE, RE financial settlement center, UNDP and USAID;
- 7 workshops and 2 webinars for three regions of Kazakhstan organized in 2019 to provide an opportunity for more than 200 potential investors, and representatives of state bodies to discuss and clarify rules for renewable energy "zonal auction mechanism" auctions in conjunction with USAID;
- 3 study tours organized to Netherlands, Finland and Denmark in 2019 on best practices in renewable energy policy. Participants in these tours included MoE representatives, the Ministry of the National Economy, the national Parliament, regional administrations, and DAMU;

[48] FSM consolidated table (20.06).xlsx (sharepoint.com)

- 2 RES summits in 2019: a seminar at Financial Settlement Center of Renewable Energy LLP, and participation in Power Expo Kazakhstan;
- 6 workshops organized online for policymakers and over 300 potential investors (45% of them women), and state institutions representatives to clarify important issues such as changes related to COVID-19. This was done to support the 2020 autumn round of auctions and the need for awareness raising, and clarifications of the new procedures and legal amendments to potential investors;
- several meetings with the Financial Settlement Centre representatives to build capacity for the preparation of more site specific RE auctions. This included 2 videos that were handed over to the Center produced in June 2020 that promote site specific renewable energy auctions;
- work was completed by an expert hired by the Project[49] and under MoE in early 2021 for expert advice on international best practices for site-specific auction schemes, a critical examination of the RE auctions in Kazakhstan, and recommendations to refine methodology for conducting renewable energy auctions in Kazakhstan with possibilities of direct contracts with investors in Kazakhstan. This included an evaluation of the completed RES auctions and methodology, and fine-tuning for RES auctions in Kazakhstan (such as methodology for correcting inadequate price limits, preventing incidents and adding features to make the bidding more secure, comfortable and simple;
- report on recommendations developed to create conditions for the development of bilateral contracts for the purchase of electric energy from RES;
- a workshop held in October 2023, based on the report “Study of gender balance in energy companies and other industry organizations in the field of renewable energy sources of the Republic of Kazakhstan for 2019-2021”, completed by the Project in 2022. This workshop was for representatives of energy sector organizations aimed at empowering women in the RES sector where an analytical report on the gender balance in the renewable energy sector in Kazakhstan, and an action plan to create favorable conditions for the active participation of women in the renewable energy sector. This provided an opportunity for women to advocate gender-oriented goals in clean energy including conducting research to analyze employment problems in the renewable energy sector at the household level; providing special scholarships for women studying technical specialties in the field of renewable energy; creating partnerships between educational institutions and industry representatives to support women; and strengthening public policy with a gender perspective;
- legislative support provided for the RES development in late 2023 including the development of legislative provisions of bilateral agreements and multilateral agreements. As requested by MoE, legislative discussions were being conducted between MoE, QazaqGreen Association, and Kazakhstan Electric Power Association;
- a comprehensive study on energy storage market has been launched in early 2024. Kazakhstan ironically is not energy independent with the Kazakhstani grid not balanced in terms of RE and fossil-fuel-based power generation. Currently, up to 1.5 GW of Russian Federation electricity is still used every day to balance the system, necessitating a need to explore the application of energy storage systems in Kazakhstan. This work is to be finalized in July 2024.

[49] Dr. Joël Ruet

79. With regards to the target of "*reduction and aggregate DREI risk score 25 out of 45 across 9 DREI risk categories*", EOP target was reached with a new 2024 survey resulting in 22.5 for the compatible list of 9 risks. The Project delivered over 3 dozen different trainings for 25 GoK employees and overshot the risk scoring reduction by 10%[50]. Important achievements and tools made available to stakeholders that backs up these scores includes:

- RES site-specific auctions under KEGOC, launched with Project support in 2019, became sustainable, with no more assistance required from UNDP. The subsequent auctions and the PPAs provided certainty to auction winners regarding their future business prospects and revenue streams. This has led to banks and IFIs actively working with auctions winners to fund large-scale RE projects. This is a clear case of de-risking renewable energy investments (Paras 82-84);
- working under ESG frameworks for banks[51];
- in 2020, an analysis of wind and solar sites in Kazakhstan for potential investors to reduce risks and due diligence costs was developed. This included a web-based map and information library on RES sites, an audit of the information security management system of RES auctions posted on a web platform, and an expert survey for the needs in the new standards for RE devices covering the most common RE devices. This ensured delivery of Output 1.1;
- a roadmap and system for organizing advanced training and retraining of personnel in the RES sector was completed in 2022 including improvement of professional opportunities for women;
- the Project organizing expert seminars and workshops in 2023 on increasing the competence of employees of testing laboratories for RE devices as a part of institutional development in Kazakhstan to reduce the "hardware risk" of RES investments. This involved organizing and conducting technical trainings with testing laboratories, studies of the test methods, discussing procedures for testing renewable energy technologies and developing an information case on compliance with technical characteristics and their impact on work efficiency components of renewable energy technologies, and webinars covering the technical risks reduction for the stakeholders;

[50] The objective of the DREI Risk Survey was to compare the perception of the risks of investing in RES in Kazakhstan. The Survey was conducted 3 times: in 2016, 2020 and 2024 to see how it changed in the last 7-8 years. The risk scoring was consistent with the baseline surveys of 2016 and 2020. A set of interviews was conducted to assess the perceptions of stakeholders of the risks of investing in RES in Kazakhstan. Conclusions were drawn regarding changes in the risk environment of Kazakhstan from 2016 to 2024, as relevant to investments in RES, and efficiency of mitigation measures. Risk scoring covers potential private investment projects in Kazakhstan considering on-grid, utility scale renewable energy facilities (10-100 MW); types of technologies being only wind or solar PV; and investments that are conservatively structured (debt and equity) and well performed technically (equipment and works, operation and maintenance). Evaluation of 9 risks was done not by any specific risk, but by groups of risks united by a similar character or related to particular aspects of business environment. The risk groups were rated on a 5-point scale. Mitigation measures and derisking instruments were evaluated with the risks they refer to. Effectiveness of each mitigation measure was rated on a 5-point scale as explained in the DREI Project "Report on Survey Results - Study on investment risk assessment of renewable energy sources in Kazakhstan by Ernst and Young, July 2024.

[51] This involved synergies with another UNDP initiative "Sustainability Disclosure and Management Hubs (SDMH)" Programme, a flagship initiative under the broader UNDP. SDMH is a collaborative endeavor aimed at advancing sustainability reporting and impact management on a national scale, building on the International Financial Reporting Standards (IFRS) Foundation's ongoing initiatives to establish global sustainability reporting standards and on SDG Management Practices, and ultimately aiming to align the new reporting ecosystem with the Sustainable Development Goals (SDGs). This build DREI Project relationships with DAMU and second-tier banks, not only supports the phase-out of the DREI Project but also ensures a smoother transition to the new reporting framework. The trainings are already scheduled on IFRS S1 and S2 standards which will be held in October 2024 as part of Kazakhstan SDMH Programme.

- conducting a workshop in late 2023 on "Gender balance in the sector of renewable energy in Kazakhstan: status, issues and solutions"[52];
- the Project organizing training on "Enhancing the Quality of Legal Expertise Through a Gender Lens: From Theory to Practice" in June 2024, with support from the Ministry of Culture and Information. The training brought together women members of Parliament of state bodies and NGOs to deepen their understanding and skills in applying gender expertise in legislation governing the area of just energy transition and digital transformation. More than 40 participants went through different international practices and case studies of gender mainstreaming in the legislative process.

80. Overall, the work under this outcome was completed with delivery of all 2 outputs. This Outcome is rated as **satisfactory**.

3.3.2 Progress towards Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables

81. To achieve Outcome 2, GEF incremental activities were to be delivered through 4 outputs:

- *Output 2.1: Appropriate policies, programmes and regulations for on- and off-grid small-scale renewables designed and implemented*;
- *Output 2.2: Functioning MRV for the small-scale renewables sector*;
- *Output 2.3: Media campaigns and training for suppliers / developers to promote and market small-scale renewables in their target markets;*
- *Output 2.4: Functioning and enforced quality control system in place for small-scale technology*.

A summary of actual achievements of Outcome 2 with evaluation ratings is provided on Table 7.

82. With regards to the target of "*Level 8 - Strong policy and regulatory frameworks designed with financial/market/incentive-based mechanisms*", the target has been achieved through delivery of Output 2.1. In 2019, policy support was provided by the Project for large-scale RE with a specific focus on the development and implementation of a new "site specific" auction mechanism for large-scale renewable electricity. This mechanism, unlike preceding "zonal" auctions in the country, involved auction organizers specifying a specific suitable RE site, analysis of feasibility and generation potential, issuance of design specifications, and preparation of permits, as well as definition of the terms and conditions of a power purchase agreement for the winning bidder. The site-specific auction mechanism had been previously discussed amongst the major institutions involved in large-scale renewable energy policy and markets in Kazakhstan (including MoE, EBRD, and USAID) with an agreement that the auction mechanisms would be piloted under the DREI Project. Previous work in RE auctions has been done, most notably, by EBRD (with funding from the Green Climate Fund) and to a lesser extent USAID who were very active in supporting large-scale renewable energy policy and finance in Kazakhstan including development of the original "zonal auction" mechanism and delivery of actual financing for numerous renewable energy projects (11 as of the end of 2019) by EBRD.

83. As such, the DREI Project a central role in implementing the site-specific auction mechanism from setting its rules, amending existing regulations, developing technical documentation including a pre-feasibility study, arranging for permits, recruiting bidders (including a remarkable 24 teleconference

[52] Conducted by Mr. Roman Vakulchuk. Report available: https://www.undp.org/kazakhstan/publications/gender-balance-renewable-energy-sector-kazakhstan-current-status-challenges-and-solutions

briefings with energy companies to describe the project scope and auction mechanism), and supporting the Financial Settlements Center of the KEGOC in running the auction.

84. The Project-supported site-specific auction, held in November 2019, attracted 95 bidders with LLP Arm Wind, a subsidiary of the Italian energy giant ENI, declared as the auction winner. The 50 MW solar plant would generate more than 82,000 MWh of electricity in the initial year of operation with the site-specific auction mechanism yielding a historical low power generation price of US$0.03/kWh, lower than prices received during Kazakhstan's first zonal renewable energy auction conducted in October 2018. LLP Arm Wind then proceeded to build the 50 MW Shaulder solar farm via equity and loans, without any financial support from GEF or EBRD. This work of the DREI Project in de-risking the Shaulder transaction was a "win-win" for all parties and should be considered fully incremental beyond the baseline and beyond the existing work of other agencies. EBRD and the Financial Settlements Centre of KEGOC have replicated the site-specific auction mechanism in at least 10 facilities with ready documentation planned until 2027 with a link to the MoE website, where an RES Auction schedule for 2024-2027 has been posted[53]. The GoK also posted the Ministerial decree on "Approval of the Rules for the organization of RES auctions" that describes the revolving mechanism, where the investor is repaying the costs for the site-specific documentation to the Settlement and Financial Center for renewable energy support[54].

85. During 2021-22, the working group with assistance from the Project within the Committee on Ecology of the Parliament supported amendments to the Law of Ecology on green energy taxonomy definitions, green bonds, green projects and green financing, on "net consumers", including raising the threshold for the net consumer and legal entity from 100 to 200 kW and permitting the regulator (MoE to decide on tariff for the net consumers selling energy back to the grid) as well as a large number of technical amendments for different regulatory documents, resolving numerous issues with grid connectivity, tariff transition to the rest of the market to operationalize the "net consumer" sector. While this was done for EE projects under the NAMA project, there was also the policy for small businesses investing in RES under the DREI Project, only using DAMU support for partial loan principal subsidies of 25% in May 2023 which was then raised to 35% in August 2023.

86. By 2024, the target of Level 8 of strong policy and regulatory frameworks designed with financial/ market/incentive-based mechanisms was achieved. The new Law on Support of RES was adopted by the Mazhilis of the Parliament and on 19 June 2024, the Head of State of Kazakhstan signed the Law on amendments to several legislative acts aimed at supporting the development of RES and the power industry. The Law introduces the concept of "small-scale renewable energy facilities" defined as technical installations with a capacity not exceeding 200 kilowatts, which generate electrical and thermal energy using RES. Owners of such small-scale RES installations will continue to have the right to utilize the electricity and/or thermal energy produced for their own needs, as well as to sell surplus electricity to energy supply organizations. In addition, small-scale projects were made exempt from the power transmission fees. As such, surplus electricity will be purchased by energy supply organizations at a maximum price, set without differentiation between consumer groups, established by the Committee on Regulation of Natural Monopolies.

87. To ensure guaranteed purchase of electricity generated by small-scale RES installations and to eliminate bureaucratic barriers to grid access, energy supply organizations are obligated to enter into

[53] https://www.gov.kz/memleket/entities/energo/documents/details/472835?lang=ru
[54] Settlement and Financial Center for renewable energy support.

mandatory electricity purchase agreements. Additionally, energy transmission organizations must ensure unrestricted access to their grids.

88. In efforts to increase the country's hydropower potential, the Law permits small hydropower plants (SHPs), with a total capacity not exceeding 10 MW and commissioned before 1 July 2023, to sell electricity directly to energy supply organizations without an intermediary purchaser. Electricity generated by the SHP will be prioritized for purchase by energy supply organizations at a maximum tariff set by MoE, subject to periodic review every 7 years.

89. The Law also introduces financing mechanisms for the construction, reconstruction, and modernization of regional electricity grids owned by municipal entities, funded by budgetary resources. In that way, the Law aims to foster the development of renewable energy (particularly small-scale installations), enhance regulatory support for hydropower projects, and facilitate investment in regional electricity grid infrastructure. It sets clear guidelines for tariff determination, grid access, and financing mechanisms. Legislation does not include battery energy storage systems (BESS) which have not yet been piloted in Kazakhstan.

90. In 2021-2022, the Project completed delivery of Output 2.2 with a completed analysis of the development of small RES projects, focusing on the development of the MRV system for small RES projects, with 4 online seminars organized and delivered on the review of the regulatory framework and the existing MRV methodology for small-scale renewable energy projects. Though progress on policy and regulatory frameworks was slow up to 2023, the Project actively participated in discussions of the new law on electric power market and small-scale renewable energy projects (administrative reform law) organized by the QazaqGreen Association, and through a Project expert to draft the regulatory changes initiatives and organize discussions with the stakeholders. The focus of this work were the amendments to the Law on the Support of RES (as well as amendments of the Law on the Electric Power Industry, the Entrepreneurial and Tax Codes). This provided regulatory support for the development of small-scale RES projects that involves discussions with MoE, relevant committees in the Parliament, RES associations, the electric power industry and other stakeholder communities.

91. With regards to the EOP target of "*at least 25% of women and 25% of men in target stakeholder groups understand the benefits and risks of renewables and support their development*", the EOP target was achieved through delivery of Output 2.3. A "sociological survey of the awareness of the population regarding the renewable energy sources" by Talap Applied Research Centre that was completed in the 2nd half of 2022. The survey covered all regions of Kazakhstan, and interviewed 2,546 people balanced by age, gender, education, place of living and social status. The survey measured the outcome of the Project's efforts to promoting RES in Kazakhstan through media campaigns, communication strategies tailored to gender perspectives and audience needs, and extensive training initiatives. The survey showed 31.2% of all respondents definitely support and 43.5% mainly support the idea that humanity must reach 100% energy coming from renewable sources; 29.5%/45.1% definitely support more active use of renewables among population today.

92. During the COVID-19 pandemic, on-line seminars for representatives of financial organizations, SME businesses were conducted to raise awareness the need for using RES for their own needs, as well as existing support mechanisms within the framework of the Project. The Project undertook online seminars on regulatory frameworks, MRV methodologies, and specific consultations aimed at SMEs and farmers. Notably, efforts were made to empower women in the energy sector through dedicated seminars. The Project also developed informational materials such as step-by-step investor guides and hosted seminars on standards and regulations for RE quality testing laboratories. Materials were prepared in Kazakh, English and Russian languages with a specific format of presentation consisting

of an article, posts, a story with a hero, illustrations, infographics, short notes. Shortly after the pandemic, seminars were conducted in late 2021:

- off-line seminar for DAMU (42 regional representatives, 50% women) in monitoring of the RE projects in July 2021;
- an online seminar on small-scale RE investments for KazProperty Association with 15 participants (8 women) in September 2021;
- a hybrid seminar from Turkestan office of DAMU for the regional offices of DAMU in RES projects monitoring peculiarities in September 2021; and
- seminars in Oskemen (December 13), Taraz (December 21) and Kyzylorda (December 24) for DAMU and partner banks to discuss details of the FSM and investments in RES.

93. Throughout 2022, the Project conducted 16 regional trainings across Kazakhstan, engaged over 700 participants, with 46% of them being women. The trainings focused on building capacity among representatives from second-tier banks, small and medium-sized businesses to implement small-scale renewable energy projects. The 16 regional trainings were held in Turkestan (May 14), Petropavlovsk (May 26), Uralsk in West Kazakhstan Region (June 16), Aktobe (June 28), Karagandy (July 7), Pavlodar (July 22), Kokshetau in the Akmola Region (August 5), Taraz in the Almaty Region (August 16), Taldykorgan in the Almaty Region (August 23), Oskemen in East Kazakhstan Region (September 12), Kostanay (September 23), Atyrau – Aktau in the Mangistau and Atyrau Regions (October 26-27), Kyzyl-Orda (October 28), Shymkent (November 10), Zhezkazgan/Satpayev (December 5-6) and Almaty (December 7).

94. The survey by Talap Applied Research Centre detailed the understanding of risks, advantages and barriers for the wider use of the RE covering all regions of Kazakhstan. With the survey balanced by age, gender, education, place of living and social status, it surveyed 2,546 people with 31% of all respondents definitely supporting and 43% mainly supporting the idea that humanity must reach 100% energy coming from renewable sources; 30% and 45% definitely and mainly support more active use of renewables among population today respectively. These percentages were the same for both women and men.

95. Subsequent awareness raising work was carried out in 2023 to increase awareness of target audiences about renewable energy technologies, reduce investment risks, as well as inform about existing financial support mechanisms. Printed versions of the infographic were developed on programs of financial support for SMEs, and concessional financing and distributed at events such as the Astana International Forum, the 3rd Almaty Energy Forum, the Energy Week of Central Asia and Mongolia 2023, as well as meetings with representatives of the banking sector and SMEs. Efforts to raise awareness continued during late 2023 and early 2024 with field and online seminars, round tables to meet with SMEs, bank representatives, MFIs, DAMU, and other interested parties. More than 14 offline and online seminars, 3 panel sessions and roundtables and high-level events were held with second-tier banks and business associations.

96. In late 2023 and early 2024, the delivery of Output 2.4 was completed. Technical training was conducted with testing laboratories in cooperation with the Technical Committee for Standardization No. 117 "Renewable Energy Sources and Alternative Energy", for specialists from testing laboratories and representatives of companies in the field of renewable energy. Training was delivered on testing:

- solar photovoltaic panels (without limitation on the unit power of one panel);

- wind turbines, including turbine components (up to 1 MW);
- solar collectors for hot water supply;
- boilers on solid biomass, bales of pressed straw, with a unit capacity of up to 1 MW.

97. Overall, the work by the Project to raise awareness of RES and to ensure appropriate policies and programmes are in place is rated as **satisfactory**.

3.3.3 Progress towards Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions

98. To achieve Outcome 3, GEF incremental activities were to delivered through 4 outputs:

- *Output 3.1: Financial and business models for small-scale renewables are developed and piloted*;
- *Output 3.2: Appropriate financial instruments created and piloted*;
- *Output 3.3: Capacity of local financial institutions to support small-scale renewables enhanced*;
- *Output 3.4: Investments mobilised for small-scale renewable energy projects.*

A summary of actual achievements of Outcome 3 with evaluation ratings is provided on Table 7.

99. With regards to the target of "*standard contracts / agreements prepared to facilitate scale-up*", standard contracts and agreements were prepared to implement a scale-up of pilot RES projects with partial loan subsidies as a part of the main loan agreement in May 2023 (amended in August 2023). These contracts and agreements were developed for energy efficiency projects (similar to ESCO model) developed by the "sister" NAMA project that includes key conditions that adhere to Project compliance to additionality requirements of the financial mechanism programme, and mitigation and preventive measures of identified social and environmental risks. Events leading up this development included:

- In early 2023, the Project initially providing extensive assistance to businesses, particularly in preparing business plans and conducting financial modelling for small-scale RES projects such as solar PV panels and solar heating. This included classes on the use of simple Excel-based tool for small-scale RES projects that was used for measuring the payback of projects and the impact of subsidies, which was filled by all applicants. The tool was so flexible that it could be used by any form of business (payer and non-payer of VAT), as well as public entities and individuals, and any combination of RE and EE technologies, self-consumption or sales of energy. The tool was reliable with not a single question coming from over 75 applicants that used it;
- development of business and financial models that were tailored and adapted on pilot RES projects in cooperation with DAMU, a key Project achievement. These models involve key market sectors that have been crucial in assessing the viability and scalability of small-scale renewable energy projects. This counts as delivery of Output 3.2;
- the Project successfully updated its business and financial models for renewable energy projects to incorporate a new FSM, which resulted in an adaptive change of the support level partial compensation of loan principals in late 2023 and early 2024. This led to DAMU being able to

"green tag" demo RE projects[55] and approve them without the assistance of the Project. This created the basis for further tailored support for the green investments from all other sources of funding and in a consistent manner (that enables accounting, tracking, planning, adjustment and scaling up). With the adoption of the national Strategy of Carbon Neutrality - 2060 with lots of activities under this umbrella, this tool was very timely and useful. This counts as delivery of Output 3.3;

- a site-specific auction for one large-scale 50 MW RE project at Shaulder was held in 2019 that was financed with green bonds. This auction included Project-supported documentation of project data and information on exact land borders for the investment, grid connection points that are included in the grid connection and feasibility studies. The auction concept was very successful with over 3 GW and 150 RE power plants developed through auctions.

100. To augment integration of renewable energy standard contacts and agreement into the businesses and households, research was also undertaken on:

- "net consumers" which was a 2021 study on small-scale renewable power generators (below 100 kW) and their ability under relevant legislation to consume energy generated and selling excess energy to the grid;
- a 2022 study on the diverse applications renewable energy technologies including heat supply, cooling, hot water supply, and their utilization in agriculture, particularly focusing on biomass. This study was instrumental in understanding geographical resource potentials and optimizing renewable energy potential of different locations, notably in agriculture. The biomass component of the study indicated a huge untapped energy potential of biomass unused waste in agriculture, estimated at 4 million tonnes per year of mainly straw, as well as chips, husks, sawdust. On this basis, UNDP Kazakhstan became a pioneer amongst other development organizations in supporting this segment of renewable energy;
- an early 2022 review of commercial bank practices using RE devices as collateral, addressing funding risks and exploring potential methodologies for government-backed leasing, aiming to stimulate investment in renewable energy infrastructure.

101. The target of "*financial derisking instruments for small-scale on- and off-grid projects are designed and deployed*" was achieved. The Project identified a number of business models and developed 3 types of financial instruments: interest rate subsidies, principal subsidies, and green bonds. All were deployed under an RPA with DAMU. Discussions between MoE and QazaqGreen on subsidies for small-scale RE projects started in 2018:

- with the MoF stating there was insufficient budget for subsidies, the NAMA Project entered the discussion and launched an interest rate subsidy in June 2020. Due to the administrative challenges of managing the paperwork of an interest rate subsidy, the Financial Support Mechanism (FSM) for energy efficiency projects underwent an independent review from September 2020 to May 2022. The result was a 25% partial subsidy of the loan principal reimbursed to fund energy efficiency projects under the NAMA project and RES projects under the DREI Project, which was much easier to administer than interest rate subsidies and more rewarding for project proponents. Re-writing the rules for the FSM took close to 5 months due

[55] DAMU have other funds which makes it necessary to distinguish demo projects that fall under the criteria of DREI projects. For example, gas-fired or coal efficiency projects do not qualify as green project under DREI even though there are some GHG emission reductions.

to delays in getting DAMU's approval to ensure there were no mistakes in the drafting of the FSM[56];

- the FSM was relaunched in October 2022 with many webinars and seminars around Kazakhstan trying to promote the FSM. There was virtually no resulting interest in this version of the FSM with only 2.1 MW from 2 small-scale project applications that included a 2 MW solar farm. Activities, however, were ramped up with DAMU who demonstrated willingness to continue working with this instrument with a few tweaks and MoE started drafting legislation on the FSM (see Para 85);
- a revised FSM in August 2023 was then promoted with support levels raised from 25% to 35% to attract new applicants and increase the Project's pipeline with the FSM. During this time, the Project managed to catch up and achieve its EOP installed capacity and GHG emission reduction targets. An additional 12 MW of installed capacity was installed with 22 small-scale RES projects were all financed using the 35% partial subsidy of the loan principal.

102. Green bonds were also developed by the Project after adoption of green taxonomy[57], which created a basis for green bonds as a funding instrument[58]:

- the bonds were released for sale on the Astana International Exchange of the Astana International Financial Centre in August 2020. UNDP reported that US$500,000 of these bonds sold out almost immediately, catalyzing the Project to work with Damu to link these green bonds to RE and EE funding. One of the RE projects where green bonds was used for financing was the 50 MW solar plant in Shaulder village, Turkestan in 2021[59]. The requirement for the issuance of green bonds is that there needs to be a defined project with completed documentation behind the bond issue[60];
- the Project assisted in re-writing guidelines for green bonds for the Kazakhstan Stock Exchange that take into account new standards adopted by the International Financial Reporting Standard System in 2021. These new disclosure standards are incorporated into the operations of the Stock Exchange which has the overall impact of reducing risk for all investments. The Project has also conceived of a mechanism by which the bond buyer would receive verified GHG emissions reduction credits in lieu of the coupon rate. This would be favorable for foreign investments, but at present only the preparatory work is in progress, because the regulatory base in Kazakhstan

[56] FSM set of documents includes agreements with the beneficiaries, ToRs for validators and verifiers, physical verification methodology, risk screening procedure, modelling to define the subsidy level, and templates for the applicants and other participants.

[57] Initially as an internal policy for DAMU, later taken over by AIFC, and later institutionalized as a national regulation under the supervision of the Ministry of Ecology and Natural Resources in December 2021, and most recently the second edition came in force in March 2024 accessible on https://adilet.zan.kz/rus/docs/P2100000996. The Project helped to lay foundation for the green finance institutionalization in Kazakhstan.

[58] Kazakhstan legislation for green bond taxonomy needed to be harmonized European Union taxonomy that will allow for European investment into Kazakhstan green bonds. Expectations for harmonized legislation is two years. The regulator for the issuance of green bonds in Kazakhstan is The Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market, while the taxonomy of green projects is updated by the Ministry of Ecology and Natural Resources.

[59] ADB requested a meeting to find out why this green bond issuance was so small. The Project explained that the issuance was on a pilot basis. ADB followed up with more purchases of green bonds in Kazakhstan, a market that it now dominates.

[60] Green bonds were to be issued by Damu and sold to investors. DAMU would then use the revenue from bond sales to provide soft financing to commercial banks for lending to qualified RE projects, based on eligibility criteria developed by the Project. The UNDP-managed GEF subsidy would be used to cover the coupon rate of the bonds of 11.75% and the issuance costs (which were at 90% discounted price, discount kindly provided by AIFC as strong support for the issuance of green bonds). Additionally, the Project compensated a tax DAMU paid on gains from eliminated interest on bonds.

is not complete; the Project will only be able to produce recommendations how this base should be shaped;

- using surplus GEF funds left over in April 2024, the Project assisted the Almaty Akimat for the issuance of municipal bonds, the first of its kind case in Central Asia with an expected issuance amount of more than US$1.1 billion. There were 20 strategic green projects in the field of sustainable transport, energy and infrastructure that were selected against the bond issue. Gas-fired and efficient coal use projects were not included in the green bond issue.

103. An important aspect of DREI's financial derisking of green investments is monitoring and verification (M&V). Without M&V, DREI could not have validated the proper use of funds. In 2021, the Project developed related methodologies and transferred them through capacity building activities of Outcome 2, facilitated by the potential DAMU issuance of green bonds and other deployment of financial instruments. Aside from educating intermediaries and direct beneficiaries of the green bond issuance (that included gender perspectives since the project financed by bonds was managed by a woman), the ADB were involved with these awareness raising sessions that were provided 17-18 June 2021 for DAMU, NGO representatives, other governmental agencies and renewable energy and energy efficiency associations; the focus was on project monitoring to improve transparency, effectiveness and credibility and strengthening civil society control over the RES support programs. Early in 2024, the Project, jointly with NAMA Project, organized an in-depth (50 hours) Monitoring and Evaluation course for 30+ representatives of civil society, to enable them to evaluate the support programs based on international evaluation methodologies, so that they could take informed decisions if invited to governance bodies of the support programs This also counts towards delivery of Output 3.3.

104. The target of "*small-scale projects of total installed capacity of 9.5 MW addressing various technologies and sectors are implemented with support from the project*" was achieved. Information of DREI support for small-scale RE projects was disseminated by attendance at workshops, word-of-mouth, banks, and RE vendors around 2019 and 2020. With the FSM suspended from September 2020 to May 2022 pending an independent review, total installed capacity of small-scale RES projects was 2.1 MW by May 2023 with a partial loan principal subsidy rate of 25%. By June 2024, total installed capacity of small-scale RES projects rose to 14.1 MW with 22 additional RES projects supported by a partial loan principal subsidy rate of 35%. This does not include the 50 MW solar plant in Shaulder village that was implemented under Project-supported site-specific auctions and funded by green bonds. Demo project approvals were transferred from UNDP to DAMU in late 2022. The Project provided training for DAMU to enable them to identify, evaluate and pre-approve the RES projects. For the first time in DAMU history, the decision at the stage when funds are reserved for the application were taken by the Credit Committee of DAMU; this is an important step towards making the support scheme sustainable. The final subsidy payment (at a stage when the green project is physically completed) was still contingent on verification by the DREI Project verifier while representative of DAMU was present as an observer, for capacity building purpose. All this counts towards delivery of Output 3.4.

105. Overall, the work by the Project to finance small-scale renewable energy projects as well as large-scale RES projects is rated as **highly satisfactory**. Though the majority of supported projects are solar PV, the Project also supported 3 different types of biomass-based boilers and the installation of one heat pump. There is a need, however, to diversify RE technologies. Research on specific RE technologies and markets (such as biomass-based RE in agriculture, RE in the form of solar thermal collectors for heating) have identified alternative opportunities for RE in Kazakhstan in efforts to diversify the pipeline of projects under a renewed FSM.

Box 1: IP Dzhanisbayeva

IP Dzhanisbayeva is a multi-purpose warehouse located in Shymkent that installed 260 kW of rooftop solar PV to assist in offsetting fossil-fuel electric power to the warehouse. The solar panels were to offset around 30-35% of grid-based energy costs. With insufficient capital and down payment to convert to solar PV, Dzhanisbayeva relied on a DREI subsidy consisting of 35% of the loan principal from the Project to offset that expense.

View of solar array from ground

Aerial view of solar array

Control panels

Box 2: Balmuzdak LLP

Balmuzdak is an ice cream factory located in Pyervomayevka, 30 km southeast of Shymkent that installed 350 kW of solar PV to assist in offsetting fossil-fuel electric power to the factory. The solar panels were installed on the rooves of the factory to offset around 25% of their grid-based energy costs. With insufficient capital and down payment to convert to solar PV, Balmuzdak relied on a repayment of 35% loan of the loan principal from the DREI project to offset that expense.

Solar array across plant roofs

Control panels of solar array

Box 3: "Agrosever" LLP

Agrosever is a company in Dubrovnoe, 60 km west of Petropavlovsk that provides heating fuelled by biomass to offset coal usage. Agroserver owns 2 biomass boilers with an installed capacity of 3.0 MW that are used to supply heat to dry grains as well as individual buildings for amounts substantially less than the tariffs paid to central heating authorities. Straw waste from flax and wood chips are abundant in the Petropavolvsk region, allowing Agrosever to rely on the low cost of transport of biomass to its boilers from its surrounding properties. With insufficient capital and down payment to modernize their original coal-fired boilers and paying coal heating tariffs, Agrosever relied on a repayment of 35% loan of the loan principal from the DREI project to offset that expense. These boilers result in significant energy savings to Agrosever of more than 30% of their energy costs. Regular maintenance is not required as the equipment is designed to be low-maintenance, and simple maintenance procedures are handled by the employees. These procedures are straightforward and can be easily managed by staff without requiring specialized training or external assistance. In the event that repairs or more complex maintenance tasks are needed, the supplier offers comprehensive support services

Biomass heating plant

Boilers

Interior of boiler

3.3.4 Relevance

106. The DREI Project is relevant to the development priorities of Kazakhstan related to a number of national strategies and plans including:

- Law on Energy Saving and Energy Efficiency of June 2012 includes provisions for funding energy saving measures from the state budgets of all levels and establishing the State Energy Register, mandatory energy audit of the companies consuming more than 1,500 toe per year, and the introduction of the responsibility for complying with the Law;
- Law on Renewable Energy Sources (RES Law) of 2009, specifically aimed at promoting the use of RES in cities, and their integration in urban development plans and strategies;
- the Strategic Development Plan of the Republic of Kazakhstan until 2025 defines the task of reducing the energy intensity of Kazakhstan's GDP by at least 25% by 2025. This has since been updated to a “Strategic Development Plan of the Republic of Kazakhstan until 2050”;
- the Ecological Code 2021 requiring local authorities to monitor GHG emissions;
- the “Updated Nationally Determined Contribution of the Republic of Kazakhstan to the global response to climate change” from April 2023 that:
    - commits Kazakhstan to a 25% reduction in emissions by 2030, compared to 1990 levels, conditional on international support;

- set an unconditional emissions reduction target of 15% by 2030, compared to 1990 levels;
- commits Kazakhstan to present updated draft plans for an NDC Roadmap to be implemented between 2023 and 2024 with a focus on long-term low-carbon development.

107. Moreover, the DREI Project is also relevant to the UNDP Country Programme Document (CPD) for the Kazakhstan (2021-2025). In this CPD, UNDP was to support Kazakhstan on climate action that centres on developing and scaling up financing mechanisms for clean technologies and low-carbon business development, via a green finance accelerator. This will build on financing mechanisms for energy efficiency and renewable energy being piloted with the DAMU with a view to expand to other sectors. Low-carbon business development will be promoted through green bonds, renewable energy auctions and carbon trading, among other innovative mechanisms. This was to assist Kazakhstan honour its Paris Agreement commitments by supporting the expansion of the green economy to tap into new opportunities for jobs and businesses by partnering with other UN agencies to provide technical expertise.

108. The designed Project activities also stood by the principle of universal human rights as they contribute to improved quality, safe and comfortable living conditions of the peoples of Kazakhstan. The Project implementing partner, key stakeholders, participating government agencies and project proponents were reportedly accountable in the observance of human rights approach during Project implementation.

109. Thus, it can be concluded that the DREI Project is **relevant** to the development priorities in Kazakhstan, namely the UNDP CPD for Kazakhstan, Kazakhstan's revised Nationally Determined Contribution from 2023 submitted to UNFCCC, the Law on Energy Saving and Energy Efficiency of June 2012, the Environmental Code of the Republic of Kazakhstan (with changes and amendments as of 11 April 2014), and the Ecological Code 2021.

3.3.5 Effectiveness

110. The effectiveness of the DREI Project has been ***highly satisfactory*** in consideration of the awareness raised on the Project, the technical assistance provided to build capacity of government personnel, SMEs, service providers and ESCOs, and the effort to explain the benefits of renewable energy technologies to beneficiary stakeholders. The partnership and collaboration with MoE and DAMU has been effective, notwithstanding the difficulties in implementing the FSM from 2022 to May 2023. There was also the COVID lockdown from March 2020 to mid-2021 followed by civil strife in January 2022 coinciding with proposed fuel price increases which has led to DREI projects being delayed to an extent that no-cost Project extensions were required.

111. With participatory Project management and implementation with all relevant stakeholders that contributed towards achievement of the targets, the Project was able to overcome most implementation issues. The Project did indirectly contribute to the well-being and human rights of vulnerable groups, including disabled, youth and indigenous people, effectively contributing to "leave no one behind agenda" and successfully integrating a human rights-based approach. This was mainly done through the large-scaled RES projects which benefitted several thousand and in which the DREI Project played a significant role.

112. The Project has mobilized over US$1.0 billion of investment that keeps growing, opening new pages in the history of the renewable energy investment in Kazakhstan on the basis of green taxonomy that is also replicated in Uzbekistan, site-specific auctions with 240 MW of RES projects thus far, the Law on small-scale RES support, a green bonds market that will reach US$1.0 billion in green projects, and DAMU tagging of green projects. DAMU's capacity is managing at least 5,000 SMEs per month

of which a significant fraction of them is green with US$713 million of investment already supported[61].

3.3.6 Efficiency

113. The efficiency of the DREI Project has been rated as ***highly satisfactory*** notwithstanding the 6.5-year period of time it took to execute the Project, over a design period of 5 years. The difficulties to implement the Project during COVD-19 pandemic and the civil strife around 2022 mentioned in Para 110 forced the Project into extensions from 2020 to 2024. The inefficiencies of the Project execution are not due to Project management, but rather the difficult market conditions of low tariffs and the COVID-19 pandemic, forcing the PMU to expend more time and effort to overcome these challenges. These issues did not prevent the Project from delivering its mandate, using the additional time with the best possible efficiency. For example, when the Project could not deploy the FSM, it used its resources for research in the agricultural and other sectors as well as gender-related research, support for auction system improvements and support in laboratories for technology quality,

114. The cost efficiencies of technical assistance provided by the Project were highly satisfactory, financed by GEF funds with a surplus at the EoP, followed by healthy co-financing from the private sector, beneficiaries and GoK. The usage of GEF funds allocated to each stakeholder was determined by the GoK, specifically the MoE and DAMU. Most of the funds allocated were used to support implementation of RES investments, contributing to the efficiency of GEF expenditures. There is currently a surplus of US$147,000 of GEF funds with the Project having reached all of its targets.

3.3.7 Mainstreaming

115. The DREI Project has managed to mainstream DREI financing of renewable energy projects. Most notable Project activities to mainstream DREI Project activities were:

- all stakeholders (GoK ministries, public agencies, private sector ESCOs and service providers, and SMEs) being aware of DREI-supported activities and investments projects;
- the GoK becoming more solid in providing the policy and regulation;
- MoE raising awareness of renewable energy and global climate change issues throughout Kazakhstan using Project resources, notably events as covered in Para 78.

116. Most notable activities still to be conducted to fully mainstream DREI activities throughout Kazakhstan in renewable energy includes:

- demonstrations of RE technologies in heat pumps to the several million apartment residents in Kazakhstan;
- demonstrations of RE technologies such as biomass heating systems to several thousands of other apartment residents in Northern Kazakhstan and solar thermal heaters in Sothern Kazakhstan.

3.3.8 Overall Project Outcome

117. Project outcomes have been ***highly satisfactory.*** The Project has successfully supported GoK in the promotion of private-sector RE investment in Kazakhstan to achieve Kazakhstan's 2030 target for renewable energy through the development and implementation of pilot RES projects and demonstrating and deploying site-specific RE auctions and using green bonds as a means to leverage

[61] https://damu.kz/en

significant financing for RE projects in Kazakhstan. The outcomes of the Project have been successful in:

- establishing appropriate policies, programmes and regulations that reduce investor risks, scale-up investment towards achievement of 2030 RES target (Outcome 1);
- establishing appropriate policies, programmes and building capacities of the government, financial and private sectors to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables (Outcome 2);
- establishing sustainable business models and financial mechanisms that support implementation of small-scale urban and rural RES investments and solutions (Outcome 3).

3.3.9 Sustainability of Project Outcomes

118. In assessing sustainability of the DREI Project, the Evaluators asked, "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of DREI Project outcomes was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *4 = Likely (L):* negligible risks to sustainability;
- *3 = Moderately Likely (ML):* moderate risks to sustainability;
- *2 = Moderately Unlikely (MU):* significant risks to sustainability; and
- *1 = Unlikely (U):* severe risks to sustainability.

Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions. Details of sustainability ratings for the DREI Project are provided on Table 9.

119. *The overall DREI Project sustainability rating is likely (L).* This is primarily due to:

- the financing of RE projects becoming much more attractive due to site-specific auctions, the concept of net consumers, and the presence of green bonds;
- 27 policymakers of the GoK who now possess capacities for managing RE market development, empowering women in the RES sector, and strengthening legislative support for the RES development,
- No local opposition to RES projects throughout Kazakhstan.

Table 9: Assessment of Sustainability of Outcomes

Actual Outcomes (as of June 2024)	Assessment of Sustainability	Dimensions of Sustainability
Actual Outcome 1: Policies, programmes and regulations have been put in place to reduce investors' risks that assist in the scale-up RE investments and significantly works towards the achievement of 2030 RES target.	• *Financial Resources:* Low risk due to available funding to reduce investor risk and scale-up RE investments; • *Socio-Political Risks*: Low risk as many SMEs are very supportive of RE projects with improved capacities of the GoK to manage proposed plans for renewable energy projects; • *Institutional Framework and Governance:* Low risk as 27 policymakers of the GoK have improved their capacities for strengthening legislative support for the RES development, managing RE market development through RES site-specific auctions, and empowering women in the RES sector; • *Environmental Factors:* No risk. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 2: Policies, programmes and capacities have been put in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables.	• *Financial Resources*: Low risk as GoK financial resources are available to sustain policy, programmes and capacities to reduce investor risk to small-scale RE projects; • *Socio-Political Risks*: Low risk as there is no opposition to site-specific RE auctions or to new legislation of the Law on the Support of RES; • *Institutional Framework and Governance:* Low risk as GoK have been very supportive of RE projects, with support for site-specific auctions for RE projects (Paras 82-84), and support for the most recently passed a Law on the Support of RES defined as technical installations with a capacity not exceeding 200 kilowatts, which generate electrical and thermal energy using RES (see Para 86); • *Environmental Factors:* No risk. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 3: Sustainable business models and financial mechanisms are in place to support implementation of investments in small-scale RES solutions for SMEs.	• *Financial Resources:* Low risk as site-specific auctions (Para 99), the concept of net consumers (Para 100), and green bonds (Para 102) has made financing of RE projects much more attractive; • *Socio-Political Risks*: Low risk as there is no opposition to RE projects; • *Institutional Framework and Governance:* Low risk as the GoK has committed to site-specific auctions, the concept of net consumers, and green bonds. DAMU is generating the interest of commercial banks for green projects as well as to ESCOs and other contractors to implement RES projects by purposefully segregating green projects into a separate category that DAMU supports; • *Environmental Factors:* No risk. ***Overall Rating***	4 4 4 4 **4**
	Overall Rating of Project Sustainability:	**4 *(L)***

3.3.10 Country Ownership

120. The DREI Project approaches to government-backed legislation, policy frameworks and financing mechanisms has created strong government ownership and drivenness to apply DREI methodologies. This applies to a range of DREI Project activities from technical assistance to strengthening the Law on the Support of RES to the technical assistance provided to Kazakhstani SMEs to support RES investments through preparing agreements for service providers.

121. The GoK also demonstrates country ownership through its strong commitment to achieve voluntary national GHG emission reduction targets through RES investments with SMEs through its partnership with UNDP. The GoK are also moving the process of RES project approvals towards DAMU as a means of building national capacities and minimizing delays and the bureaucracy of the fund disbursement process through various ministries. This should facilitate improved opportunities for achieving voluntary national GHG emission reduction targets in the urban sector.

3.3.11 Gender equality and women's empowerment

122. The DREI Project has contributing to greater involvement and participation of women in RES sector through building their capacities and changing traditional behavioural patterns. Gender equality efforts of the Project:

- online webinars on the "Empowerment of Women in Energy" were conducted in December 2021. The webinars were attended by industry specialists from ministries and akimats of the Republic of Kazakhstan, representatives of companies in the energy sector, operators of renewable energy system facilities, and experts. The total number of participants was 89 people with good representation of both women and men;
- a regional workshop on "Fostering Women's Participation in the Energy Sector in Central Asia" was jointly held with the Qazaq Green Association, OSCE and the Project in Astana on 7-8 December 2022. The event offered a platform for 30 representatives from energy ministries, industry, women's energy associations, and academia from Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan to discuss regional opportunities and challenges facing women in the energy sector[50];
- a number of offline trainings were conducted for representatives of second-tier banks and small and medium-sized businesses and other stakeholders. With more than 700 participants (46% of them women), these regional trainings were aimed at building capacity to implement small-scale renewable energy projects and to promote the active participation in FSM;
- a series of 10 webinars were organized specifically for banks, leasing and microfinance companies, on 11-20 October 2022 with a total number of 142 participants (including 66 women), to raise awareness of small-scale energy efficiency and renewable energy projects, assessing gender equality aspects and impacts of RES projects in Kazakhstan and to promote the active participation in FSM;
- a dedicated workshop aimed at empowering women in the sector of renewable energy sources was held in October 2023 to present the "Gender Balance in the Renewable Energy Sector in Kazakhstan" published In September 2023. The workshop created a platform for key decision makers from government, Parliament and diplomatic corps to deep dive into the report's key

[50] https://www.osce.org/oceea/534621

findings and identify way forward. The event was also used to establish a robust network of women in the renewable energy sector, differentiate gender impacts of RE activities at the national level, and activating an action plan of the network, which will guide them to towards gender equality in clean energy. One of the entry points for discussion was the launching of a new project in 2023 on the production of biomass briquettes in the agricultural that was aimed at helping women in rural areas with access to clean and affordable energy sources;

- training on "Enhancing the Quality of Legal Expertise Through a Gender Lens: From Theory to Practice" in June 2024 with support from the Ministry of Culture and Information. The training brought together women members of Parliament representatives of state bodies and NGOs to deepen their understanding and skills in applying gender expertise in legislation governing the area of just energy transition and digital transformation. More than 40 participants went through different international practices and case studies of gender mainstreaming in the legislative process.

123. There is also;

- a "Ladies in Green" gender club that is very active with women in green energy sector and power sector in Just Transition advocating for strong gender policies. The Project supported on training events for Ladies in Green for ToT;
- a published success story on the Shaulder solar power plant funded with green bonds[51];
- a published success story of a women entrepreneur in renewable energy[52].

These efforts are geared towards attract more new professionals, especially the younger generation women, to the industry.

124. Based on the May 2023 gender report, it is also evident that no quantitative inputs were provided to fully assess the impact of the financed projects on women and girls. On bidding documents for financial support to DREI Project (and NAMA projects), the Project recommended providing a description of communications with beneficiaries and stakeholders (such as frequency, format of discussions with beneficiaries taking into account gender aspects). The ratio of direct project beneficiaries (men and women) is a mandatory component of the project application and is included in the submission. This requirement ensures that gender balance is considered and documented. Bidding documents were to be finalized to include a section describing the gender baseline indicators before the project starts. Therefore, immediately after project launch or within two years, starting a gender evaluation was highly recommended as well as to include a clause on women's participation in the evaluation of the concluded contracts.

125. Personal experiences of female DAMU officials working in green finance was difficult but lasting up to 15 years in green finance. The concern for the women was that there was too much affirmative actions towards empowering women with no regard to balancing genders. Notwithstanding that there are actually more women than men working in RE, there is the opinion of the female officials that as long as the man or woman has the education and qualifications to do the work, they should get the position. However, affirmative actions still need to be enforced to ensure this balance is sustained.

126. To summarize, gender equality efforts of the Project was rated as **satisfactory**.

[51] https://undpkaz.exposure.co/post-459428

[52] https://www.undp.org/ru/kazakhstan/stories/perekhod-na-vie-ekonomicheskaya-vygoda-dlya-kazakhstanskikh-predprinimateley

3.3.12 Cross cutting issues

127. According to the Project's "Environmental and Social Screening Summary", the screening outcome is "Eliminating policy, financial, market and technical barriers, and creating an enabling environment for investments in renewable energy, include activities that have no risks of adverse social or environmental impacts. However, actual renewable energy projects may cause impacts such as the generation of waste, noise and visual pollution, potential discrimination of women to access financing, etc. that are limited in scale and temporary.". With this risk categorization, there were no significant environmental and social issues associated with the DREI Project.

128. The Evaluation also notes that no direct attention was given to the impact of the Project on vulnerable groups (i.e. people with disabilities, youth). However, the most important risk management measure with regards to the Project was to undertake consultations during project identification (to determine the project stakeholders and their roles during project implementation) and during project implementation and commissioning. Consultations on all components were designed to be gender-sensitive, inclusive and responsive to the needs of the stakeholders identified. A mechanism to deal with potential conflict issues during implementation has been incorporated in the Project design.

3.3.13 GEF Additionality

129. The issue of GEF additionality is quite clear on the DREI Project. Without the Project, there would be much less activity with renewable energy projects, less collaboration between government, NGOs and the private sector, and less renewable energy systems with SMEs in Kazakhstan. Hence, there is GEF additionality for the DREI Project.

3.3.14 Catalytic/Replication Effect

130. Some of the catalytic and replication effects of the DREI Project are as follows:

- the site-specific auctions promoted by the Project in 2019 were catalytic in generating interest in starting large-scale renewable projects by both the public and private sectors. Site specific auctions were then replicated for a number of large-scale grid power generation facilities;
- the issuance of green bonds by the Astana International Exchange of the Astana International Financial Centre in August 2020, catalyzed and generated interest in this financial instrument with the UNDP reporting that US$500,000 of these bonds sold out almost immediately.;
- the green bond financial mechanism has been replicated through the Project's work with DAMU to link these green bonds to RE and EE funding. Of note, the Project using GEF funds left over in April 2024, assisted the Almaty Akimat for the issuance of municipal bonds, the first of its kind case in Central Asia with an expected issuance amount of more than US$1.1 billion. These were to finance 20 strategic green projects in the field of sustainable transport, energy and infrastructure that were selected against the bond issue.

131. There does not appear to be any challenges to the replication effects of the Project. Unlike the NAMA project which potentially has a shortage of ESCOs and service providers to implement several energy efficiency projects, there does not appear to be a shortage of ESCOs and service providers servicing solar PV projects, owing to the relative simplicity of installing solar PV panels as opposed to complex heating systems under the NAMA project. There is, however, a looming shortage of biomass ESCOs and service providers which has the potential to limit replication of biomass energy projects in Northern Kazakhstan.

3.3.15 Progress to impact

132. In terms of progress to impact of the DREI Project, there have been efforts since 2019 by the GoK (specifically MoE) to continue with site-specific RE auctions and green bond issuance as a means to contribute to the scale-up of small-scale RE projects and Kazakhstan's target for renewable energy of 10% by 2030 and 40% by 2050.

133. DAMU is also searching for guarantee fund to continue to securely and reliably move funds from the GoK, specifically DAMU, to ESCOs and stakeholders, similar to the setup of the NAMA project. This shows commitment by the GoK, and to meet its commitments towards the goals of the 2023 "Updated NDC of the Republic of Kazakhstan to the global response to climate change" that calls for a 25% reduction in emissions by 2030, compared to 1990 levels. GoK's plans for a guarantee fund are currently under discussion.

134. Another measure of progress to impact has been the GoK's willingness to gradually raise electricity tariffs by 10-15% in the next 5 years. The GoK, however, acknowledges the dangers of raising tariffs too quickly citing the social unrest of 2022. The raising of tariffs is welcome news for incentivizing RE investments with improved rates of return.

4. FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

4.1 Findings

135. The DREI Project has managed to achieve 1,041,174 tCO_{2eq} of direct lifetime emission reductions exceeding the target by a factor of 2.3 (Para 72 and Table 8). The Project achieved measures to de-risk renewable energy investments through:

- the Project piloting site-specific auctions for starting RE project investments and green bond issuances for financing small and large-scale RE projects;
- the production of a wind and solar atlas for Kazakhstan that reduces risk for potential investors to reduce risks. This included a web platform of wind and solar maps, an information library on RES sites, and audits of the information security management system of RES auctions;
- increasing capacities of testing laboratories personnel for RE devices to reduce the “hardware risk” of RES investments;
- supporting the GoK on amendments to the Law on Support of RES which introduces the concept of "small-scale renewable energy facilities" and “net consumers”, including raising the threshold for the net consumer and legal entity from 100 to 200 kW, guaranteed grid connectivity for small energy producers, and exemption of them from transmission tariff, and allowing net consumers to sell back unused energy back to the grid. The Law also contains financing mechanisms for the construction, reconstruction, and modernization of regional electricity grids owned by municipal entities, funded by budgetary resources, fostering development of renewable energy (particularly small-scale installations), and facilitating investment in regional electricity grid infrastructure; and
- building capacities of relevant stakeholders to conduct Project-developed M&V methodologies on RE investments facilitated by the DAMU issuance of green bonds and deployment of other financial instruments;
- the Project contributing to greater involvement and participation of women in RES sector through building their capacities and changing traditional behavioural patterns.

4.2 Conclusions

136. While the DREI Project was “just a drop in the bucket” for financing RE projects compared the US$610 billion required to decarbonize Kazakhstan, the Project leaves behind several successful examples of measures to reduce investor risks to renewable energy projects, including site-specific auctions and green bonds. With much work to be done to reach 10% of renewable energy by 2030 and 40% by 2050, Kazakhstan, specifically GoK, needs to ramp up its capacities to manage and implement RE projects in a timely manner to meet its voluntary commitments to reduce GHG emissions by 25% by 2030 in line with the April 2023 “Updated Nationally Determined Contribution” of Kazakhstan to the UNFCCC.

137. The Project has proceeded to a point where there was strong support to the GoK to develop and implement large and small-scale RE projects with SMEs to achieve these voluntary national GHG emission reduction targets. This resulted in a strong commitment by the GoK to continue with support for RE technology investments and replicate site-specific auctions and green bond financing.

GoK's willingness to cautiously raise the electricity and heating tariffs by 10-15% annually starting in 2024 also signals a commitment to further develop renewable energy investments.

138. However, the public derisking measures to promote renewable energy has demonstrated how these measures are far more cost-effective for Kazakhstan, creating significant economic savings and lowering generation costs. The opportunity for policymakers in Kazakhstan is to now pursue further policy and financial derisking measures, both reforming the design of existing measures and implementing new measures that target unaddressed investment risks (Para 142). The only outcome from these measures is more reliable, affordable and clean power for Kazakh citizens.

139. The only needs for scaling-up renewable energy investments in Kazakhstan not addressed by the DREI Project has been:

- a guarantee fund that supports SME green investment initiatives; and
- the establishment of an emission trading scheme (ETS). This, however, will require a lot of time and effort. Thus, more time needs to be allocated to achieve intermediary objectives towards an ETS such as the setup of an MRV system, built capacities of SMEs (to report GHG emission reductions to MENR), and Akimat and other government personnel (also to setup emission reduction targets and the setup of relevant regulatory by-laws and budgets to formalize establishment of carbon abatement targets).

4.3 Recommendations

140. The recommendations made in this Evaluation are made in the spirit of improving delivery of RE projects on a post-Project future initiative, and on the basis of the lessons learned during implementation of the DREI Project.

	Recommendation	Entity Responsible	Time Frame
141.	**Recommendation 1:**		
	Setup a "guarantee fund" for SMEs under DAMU to further de-risk RE investments. The guarantee funds will initially be capitalized from annual contributions from the Government and participating second-tier banks and MFIs to serve as a guarantee funds to encourage more SMEs to invest in renewable energy. The possibility of UNDP and other MFIs contributing to this guarantee fund towards a joint issue of ESG bonds on the local securities market should be explored. This would provide necessary and effective support to SMEs that support green projects (such as renewable energy) and the principles of sustainable development.	MoE, DAMU and UNDP	Immediate
142.	**Recommendation 2**		
	Continue with further derisking measures for renewable energy investments for unaddressed policy and financial. Measures may include: • *continual updating of long-term national renewable energy strategies;* • *improvements on the one-stop shop that supports streamlined process for RE permits, and recourse mechanisms for contract enforcement and compliance;*	MoE	Immediate

	Recommendation	Entity Responsible	Time Frame
	• *continued awareness raising campaigns to mitigate social acceptance risk of renewable energy projects;* • *continuing R&D on new RE technologies that have the potential to add efficiencies to RE power generation capacities. This may include small-scale wind turbines (with blades and without blades) and solar thermal collectors, as well as off-grid solar PV sets with storage.* • *addressing "imported components logistical risk" that became reality after the war in Ukraine started. This involves some imported components becoming inaccessible or disproportionately expensive due to sanctions or logistics disruptions, often components produced in Russia by companies under sanctions, EU-origin components imported via Russia (costly due to logistical complications) and some components imported from China[53].* Public derisking measures of reforming the design of existing measures and implementing new measures that target unaddressed investment risks would promote more cost-effective renewable energy for Kazakhstan that has the potential to create significant economic savings and lowering generation costs.		
143.	**Recommendation 3**		
	Allow a period of 2 to 4 years to build capacities to implement an MRV system with the certification of GHG auditors and building a market towards the award of Certificates of Emission Reduction (CERs). The value of carbon credits can add value to RE developments (such as solar PV that offsets fossil-fel power generation and biomass heating systems) that improves the RoI on these investments. However, initiating this market will take years. Firstly, there must be acceptance of the 5 MRV protocols (developed by the Project in 2023) by all SMEs, Akimats and interested parties for renewable energy (including small-scale devices, street lighting, solar farms and biomass heating applications). This should be the outcome of the training sessions for 4 regional authorities in 2021 under the sister NAMA project, to raise their awareness and to prepare for upcoming changes in compliance to the new Eco Code that introduces emission reporting at regional level. This acceptance should have the impact of setting up and operationalizing MRV systems in SMEs, Akimats, and private developers of solar and wind farms for grid-connected power generation. Secondly, rules and procedures for certification of emission reduction credits from the NAMA project should facilitate a number of projects where emission reductions are quantified under the auspices of MENR. This can then be certified to generate certified emission reductions (CERs) of the various EE and RE projects. These can be posted onto a domestic ETS. With sufficient volume of CERs, emission reduction projects can then be marketed as CERs through a sale order placed with a broker for a buyer purchase.	MoE, MENR and UNDP	Medium term
144.	**Recommendation 4**		

[53] The Chinese components if regarded as "dual purpose", must undergo additional lengthy custom clearance procedures in Kazakhstan which are known to UNDP. This refers to biomass briquette manufacturing equipment and any equipment with microchips.

	Recommendation	Entity Responsible	Time Frame
	Provide technical assistance and implement within the next few years battery energy storage systems (BESS) to balance power generation from solar PV systems. When solar PV power generation stops at night, the Kazakhstani grid relies on Russian power to make up for the shortfall. There are ongoing studies on BESS to mitigate or even eliminate this shortfall requirement. One of the study elements should be the construction of excess solar PV capacity that can be stored in BESS for use in evenings and nighttime. With Kazakhstan starting to build its solar PV and wind capacities, it will be a few years before there is excess capacity for BESS.	MIC and UNDP	Medium term

4.4 Lessons Learned

145. *Lesson #1: Changes were necessary in the FSM from partial loan principal subsidies of 25% to 35%*. For 2022 DREI Project investments, there was an agreement between SMEs and DAMU that loan principals would be reimbursed at a rate of 25% upon completion of the investment. This FSM proved to be much simpler to administer than its predecessor, the interest rate subsidy which was implemented between 2019 and 2022 on the NAMA project for energy efficiency projects. By the end of May 2023, there were only 2 applicants for RE projects for the 25% loan principal repayment, necessitating a review of the level of loan principal reimbursement. A raise in the level of reimbursement to 35% was sufficient to meet the GHG emission reduction target for the DREI Project.

146. *Lesson #2: Workshops, seminars, webinars, and use of video clips of various UNDP DREI Project activities were beneficial to raising awareness of the DREI's FSM and other Project activities*. These awareness raising efforts targeted 5 stakeholder groups:

- representatives of the regional networks of banks. Efforts to raise awareness continued during late 2023 and early 2024 with webinars, field and online seminars, and round tables to meet with bank representatives, MFIs, DAMU, and other interested parties. More than 14 offline and online seminars, 3 panel sessions and roundtables and high-level events were held with second-tier banks were held (Para 95); and
- SMEs, farmers, business associations, property associations and other potential beneficiaries. On-line seminars for representatives of SME businesses started during the COVID-19 pandemic, raising awareness of the need for using RES for their own needs, as well as existing regulatory frameworks, MRV methodologies. SME awareness raising also included information passed on by "word-of-mouth". SMEs were an important stakeholder group that were direct beneficiaries of RES investments using the modified FSM of the Project;
- personnel from testing laboratories and representatives of companies in the field of renewable energy. Training was delivered on testing of solar photovoltaic panels, wind turbines, solar collectors for hot water supply and biomass boilers;
- donors and government, notably the video and news clips on various DREI activities;
- women whose groups comprised 40-50% of all stakeholders. The Project activity to promote women's equality were satisfactory (Paras 122-126).

147. *Lesson #3: Boilers for heating systems with wood chips provide more heat but are more expensive whereas boilers for heating systems with straw do not heat as well but are cheaper*. This is conundrum for service providers in the Petropavlovsk region and regions where waste biomass is plentiful. Servicing this market more efficiently for biomass boilers will require unique approaches on which stakeholders to target for wood chip or straw boilers (the choice depends on the proximity to the sources of such wastes: straw-fired boilers are cheaper, but straw is more expensive to transport).

APPENDIX A - MISSION TERMS OF REFERENCE FOR DREI PROJECT TERMINAL EVALUATION

Title:	International Consultant for services of Terminal Evaluation for UNDP-supported GEF-financed projects
Place of work:	Home based with business trips within Kazakhstan
Period:	29 working days during May 2024 – June 2024 (6 weeks)
Contract type:	Individual contract
Project ID and title:	00101058, UNDP-GEF Project "Derisking Renewable Energy Investment" (DREI)

1. INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the full-sized project titled "De-risking renewable energy investment" (PIMS 5490) implemented through the UNDP Kazakhstan /Ministry of Energy of the Republic of Kazakhstan (MoE). The project started in February 2018 and is in its 6th year of implementation. The TE process must follow the guidance outlined in the document 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects' (https://erc.undp.org/methods-center/guidelines/gef-project-evaluation-guidelines).

2. PROJECT BACKGROUND AND CONTEXT

The objective of the project is to promote private sector investment in renewable energy in Kazakhstan to achieve Kazakhstan's 2030 and 2050 targets for renewable energy. The project was designed to target both large-scale and small-scale renewable energy sources. The goal of this project is to support achievement of energy market transformation in Kazakhstan by expanding the use of renewable energy sources in the electric power industry from the share of renewable energy sources of 0.77% to 10% by 2030, i.e., increase the production of renewable energy by about 10 times.

To achieve the goal, the project includes activities to support renewable energy projects, which should reduce emissions of at least 460,000 tons of CO2. In addition, by the end of the project, the project should support the commissioning of 9.5 MW of capacity, small-scale renewable energy (RES) generation, which will produce about 500 GWh of energy.

The project was designed in three components:

- Component 1. Large-scale renewable energy: policy & financial derisking measures that focuses on putting in place appropriate policies, programmes & regulations to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target;
- Component 2. Renewable energy for life: policy derisking measures that center on appropriate policies, programmes and capacities to reduce risk and attract investment in small-scale (on-grid & off-grid) renewables;

- Component 3. Renewable energy for life: financial derisking & incentives that establish sustainable business models and financial mechanisms to support investment in small-scale urban & rural RES solutions.

Of the total combined GEF and UNDP cash budget of USD 4.61 million were allocated as a grant to support implementation of the project, of which USD 1.9 million were allocated for the implementation of financial support mechanisms under the Component 3 of the project which makes around 41% of the whole budget.

The project document was signed in February 2018, and its implementation started in February 2018. Total project budget is USD 55.52 million, $4.51 million of which is a contribution from the GEF. Implementing Agency from the Government is the Ministry of Energy of the Republic of Kazakhstan.

Kazakhstan's generating stations in Kazakhstan are aging and in need of renewal; 57% of the power grid was deteriorated in 2013 and the number of deteriorating plants is expected to grow. The investments required to boost the economy and sustain the development of the power sector after 2040 are estimated at US$100 billion, with half of the investments needing to target the development of the renewable energy sector. At the same the electricity tariffs in Kazakhstan for individual users have been growing due to the high degree of wear of the existing generating assets. On average, the residential tariffs have risen by 4% during 2015, however some regions of Kazakhstan experienced rises of up to 40%. The tariffs for companies are on average 30% higher than tariffs for individual end-users.

Another issue, concerning all Kazakhstan regions, is the supply of energy to remote rural consumers: about 255 settlements and 9,000 farms are not connected to the national grid. Kazakhstan's large scale and low population density in rural areas necessitates the development of additional transmission lines, the maintenance of which will inevitably increase the energy cost. Small-scale off-grid renewables are considered to be an economically feasible option for consumers in remote areas of Kazakhstan and for regions with unstable electric power supply. Therefore, the ambition of the DREI project was to use allocated grant resources to mobilize private investment for small-scale renewable energy projects.

Kazakhstan is by far the largest GHG emitter in Central Asia with annual emissions of 284 Mt CO2e in 2012 and has one of the world's highest GHG emissions per capita (16.9 tCO2). The energy intensity of the country's economy in 2010 – 0.68 toe per 1000 dollars of GDP – was almost six times that of Western Europe (0.11), almost triple that of the US (0.24). GHG emissions have been steadily rising since the early 2000s, when the emissions bottomed out at around 146 Mt CO2e, or 41% of the 1990 peak level of 358 Mt CO2e. In the energy sector, which is the largest GHG emitting sector accounting for 85% of all emissions, the rise in GHG emissions was mostly caused by steady economic growth/increased energy demand and a high reliance on GHG intense fuels (predominantly coal), as well as by outdated and inefficient energy generation and transmission infrastructure. The share of coal in electric energy production makes up to 2/3 in the energy mix. High GHG per capita emissions and reliance on coal in the energy sector presented an opportunity for the country to shift towards sustainable development through the development of renewable energy sources of different nature and scale.

The project was instrumental in pioneering the issuance of debut "green" bonds in partnership with Damu Entrepreneurship Development Fund as a part of the project activities in piloting various financial support mechanisms. The funds raised were allocated for the construction of a 2 MW solar power plant in the Turkestan region. This pilot intervention shifted the paradigm of the debt instrument market and helped to establish the sustainable bond market in Kazakhstan. The further market issuances after UNDP debut intervention totalled more than 0.5 bln as of 2023. In 2022 the project has redesigned its financial support mechanism programme aimed at facilitating private sector investments in small-scale renewable energy

sources projects, to assist in transition of Kazakhstan to low carbon economy and to pilot an innovative green financial instrument that could be later scaled up and utilised by the Government of Kazakhstan.

The scheme was built basing on previous UNDP-GEF "Nationally Appropriate Mitigation Actions for Low-carbon development" project's experience and existing SME support schemes used by Damu fund[54], by targeting specifically renewable energy sources, and was implemented jointly with Damu.

The scheme initially included 25% loan principal subsidy, which was increased up to 35% in August 2023 due to increased commercial interest rates of financial organizations for debt financing caused by unstable geopolitical situation and global economic recession caused by the COVID-19 pandemic. In 2023, 4 projects applied for financial support were successfully launched, as of beginning of February 2024, around 12 new application (projects) were endorsed and received loans from commercial. Currently those projects are on the different stages of implementation.

Building on the experience of DREI project there is a strong commitment within the Government of the RK and other stakeholders to further improve legislation and attract further investments in clean energy to generate new capacities and reduce greenhouse gas emissions.

3. TE PURPOSE

The TE report will assess the achievement of project results against what was expected to be achieved, and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The TE report promotes accountability and transparency, and assesses the extent of project accomplishments. The information, findings, lessons learnt, and recommendations generated by the TE will be used by the Project Board, UNDP, GEF and other relevant stakeholders to inform future programming.

The TE team will consist of two consultants. The TE International Consultant will be leading the evaluation process, and will be in charge of organizing and directing the TE and producing the TE report. The TE International Consultant will be working remotely with a feasible support by the TE National Consultant, who will be providing and responding to all questions and comments of the International Consultant at the back to back mode. The TE National Consultant will provide necessary substantive and operational support in carrying out this evaluation. The TE National Consultant will have more opportunities to travel inside the country and assist the International Consultant in conducting interviews and gathering information, as well as its subsequent analysis.

4. TE APPROACH & METHODOLOGY

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

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

[54] https://damu.kz/en/

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

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to MoE, «DAMU» Entrepreneurship Development Fund», and other stakeholders, including financial institutions, such as Astana International Finance Centre, commercial banks, RES solutions integrators, independent consultants, executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject areas, Project Board, project beneficiaries, academia, local government and CSOs, etc. Additionally, the TE team (National Consultant - in person, and the International Consultant – using communication technologies) is expected to conduct field missions to *Kazakhstan*, including the following project sites: Shymkent, Turkestan, North Kazakhstan region, Aktobe, Almaty and Astana (for the meetings with stakeholders).

The TE seeks to answer the key questions below that should cover the following key areas of evaluation criteria:

Relevance

- How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities at the local, regional and national level?
- To what extent was the project in line with national development priorities, country programme outputs and outcomes, the UNDP Strategic Plan, and the SDGs?
- To what extent does the project contribute to the theory of change for the relevant Kazakhstan country programme document outcome?

Effectiveness

- To what extent have the expected outcomes and objectives of the project been achieved?
- Have there been any unexpected results achieved beyond the planned outcomes and objectives?
- To what extent has the UNDP partnership strategy been appropriate and effective?
- Which project areas are the most relevant and strategic for UNDP to scale up or consider going forward?

Efficiency

- Was the project implemented efficiently, in line with international and national norms and standards?
- To what extent have project funds and activities been delivered in a timely manner?
- To what extent do the M&E systems utilized by UNDP ensure effective and efficient project management?

Sustainability

- To what extent are there financial, institutional, socio-political, and/or environmental risks to sustaining long-term project results?

- To what extent will targeted men, women and vulnerable people benefit from the project interventions in the long-term?
- To what extent do project interventions have well-designed and well-planned exit strategies which include a gender dimension?

Gender equality and women's empowerment

- How did the project contribute to gender equality and women's empowerment?
- Is the gender marker assigned to this project representative of reality?

Impact

- Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status?

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

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

The mission organization should retain enough flexibility for the evaluation team to determine the best methods and tools for collecting and analyzing data. The evaluation team may apply questionnaires, field visits and interviews, and the evaluation team should be able to revise the approach in consultation with the evaluation manager, appointed by the UNDP Country Office, and the key stakeholders. These changes in approach should be agreed and reflected clearly in the TE Inception Report.

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

5. DETAILED SCOPE OF THE TE

Based on the UNDP Evaluation Guidelines, UNEG Norms and Standards for Evaluations and in consultations with the UNDP Kazakhstan Country Office, the Evaluation will be participatory, involving relevant stakeholders.

The Evaluation will be conducted by the two independent evaluators (the Evaluators) – one TE International consultant (team leader) and one local TE National consultant, - who will propose an evaluative methodology to implement the evaluation effectively, applying such data collection methods as extended desk reviews, stakeholder meetings and interviews, field visits and others. The methodology and a detailed plan for the Evaluation process will be proposed by the Evaluators and agreed as a part of the Evaluation Inception Report.

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects *(*https://erc.undp.org/methods-center/guidelines/gef-project-evaluation-guidelines*)*.

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

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

Findings

i. Project Design/Formulation

- National priorities and country drivenness
- Theory of Change
- Gender equality and women's empowerment
- Social and Environmental Standards (Safeguards)
- Analysis of Results Framework: project logic and strategy, indicators
- Assumptions and Risks
- Lessons from other relevant projects (e.g. same focal area) incorporated into project design
- Planned stakeholder participation
- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation

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

iii. Project Results

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

- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to impact

Main Findings, Conclusions, Recommendations and Lessons Learned

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

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

ToR Table 2: Evaluation Ratings Table for "Derisking Renewable Energy Investment" project

Monitoring & Evaluation (M&E)	Rating[55]
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementation & Execution	Rating
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	

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

Overall quality of Implementation/Execution	
Assessment of Outcomes	Rating
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Sustainability	Rating
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

6. TIMEFRAME

The total duration of the TE will be 29 working days over a time period of 6 weeks starting on May 03, 2024. The tentative TE timeframe is as follows:

Timeframe (working days)	Activity
03.05.2024	Preparation period for TE team (handover of documentation)
(03-09.05.2024) 4 days (recommended 2-4)	Document review and preparation of TE Inception Report
(10.05.2024-17.05.2024) 5 days	Finalization and Validation of TE Inception Report; latest start of TE mission
(20.05-29.05.2024) 7 days (recommended 7-15)	TE mission: stakeholder meetings, interviews, field visits, etc.
(29.05.2024)	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission
(29.05-03.06.2024) 4 days (recommended 5-10)	Preparation of draft TE report
(03-05.06.2024)3 days	Circulation of draft TE report for comments
(05-07.06.2024)3 days	Incorporation of comments on draft TE report into Audit Trail & finalization and issuance of TE report with the audit trail Audit Trail should include the TE details how all received comments have (and have not) been addressed in the final TE report *(See template in ToR Annex H)*
(07-11.06.2024) 3 days	Preparation and Issuance of Management Response by the Commissioning Unit in consultation with the project key stakeholders
(11.06.2024)	Expected date of full TE completion including TE report, management response uploaded to ERC.

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

7. EXPECTED DELIVERABLES

#	Deliverable	Description	Estimated Duration	Target due date	% payment
1	TE Inception Report submission and approval by the Commissioning Unit	TE team clarifies objectives, methodology and timing of the TE. Preparation, finalization and validation of TE Inception Report.	9 working days	17 May 2024	30%
2	Draft TE Report submission and review by the Commissioning Unit	TE mission: stakeholder meetings, interviews, field visits, etc. Initial Findings of mission and full draft report *(using guidelines on report content in ToR Annex C)* with annexes are presented to Commissioning Unit and project management.	11 working days	03 June 2024	30%
3	Final TE Report* and Audit Trail submission and approval by Commissioning unit and RTA	Revised final report and TE Audit trail are submitted to the Commissioning Unit with the management response.	9 working days	11 June 2024	40%

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.[56]

8. TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is the UNDP Kazakhstan Country Office. The Project Team will be responsible for liaising with the TE team to provide all relevant documents, set up stakeholder interviews.

Consultant should arrive to Astana: travel expenses and daily allowances related to the trip are to be covered by the project. During period from 20.05-29.05.2024 Consultant will have the following trips within Kazakhstan, which will be organized and financed by the project.

N	Destination	Days
1	Astana	3
2	Shymkent	1

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

3	Turkestan	1
4	Petropavlovsk	1
5	Aktobe	2
6	Almaty	2

Payment for services will be made from the Project funds with satisfactory discharge of duties and achievement of results.

- The Consultant must fully accept and agree to the requirements of the TOR and the General Terms of the individual contract, including the UNDP individual contract template;
- The Consultant will work under the direct supervision of UNDP Kazakhstan Country Office.
- The Consultant is responsible for the quality and timely submission of the deliverables.
- The Consultant ensures timely and rational planning, implementation of activities and achievement of results in accordance with the Terms of Reference.
- The Consultant provides the results of work in accordance with clause 5 of this Terms of Reference.
- The Consultant shall provide reports in electronic form in MS Word format in English.

Prior to approval of the final report, UNDP will circulate the draft for comments to relevant stakeholders: Project Manager and CTA, Head of Environment and Energy Unit, GEF Portfolio Manager, Ministry of Industry and Infrastructure Development Republic of Kazakhstan, UNDP/GEF RTA.

The UNDP and the stakeholders will submit comments and suggestions within 10 working days after receiving the draft.

9. TE TEAM COMPOSITION & QUALIFICATIONS

A team of two independent evaluators will conduct the TE – one team leader (with experience and exposure to projects and evaluations in other regions) and one team expert, from the country of the project. The team leader will be an international consultant, working remotely with a feasible support by the national consultant who will be providing and responding to all questions and comments of the international consultant at the back to back mode; the team leader will be responsible for the organization and planning of the TE, harmonizing the approach and actions with the stakeholders, finalizing the Inception report, overall design and writing of the TE report. The team expert will be a local expert will facilitate the International Consultant/Team Leader and provide necessary substantive and operational support in carrying out this evaluation.

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

Qualifications for an International Consultant:

The successful candidate will demonstrate the following education, experiences, skills and competences:

Education

- At least Master's degree in energy, environment, finance, business administration or other closely related field;

Experience

- Relevant experience with results-based management evaluation methodologies;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Competence in adaptive management, as applied to Climate Change Mitigation;
- Experience in evaluating projects;
- At least 5 years of experience in the CIS countries financial sector and/or industry is required;
- Experience in relevant technical areas for at least 10 years: Energy Efficiency, or District Heating, or Electric Power;
- Demonstrated understanding of issues related to gender and Climate Change Mitigation; experience in gender responsive evaluation and analysis;
- Experience in financial sector, design of financial instruments and / or implementation of financial schemes or products is required;
- Familiarity with energy efficiency and/or financial sectors related legislation, policies and management structures in CIS would be an asset;
- Experience on evaluation in GEF funded projects/programs is an asset.

Language

- Fluency in written and spoken English.
- Fluency in written and spoken Russian would be an asset.

Functional competencies

- Excellent communication skills.
- Demonstrable analytical skills.

10. EVALUATOR ETHICS

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

11. PAYMENT SCHEDULE

- 30% payment upon satisfactory delivery of the final TE Inception Report and approval by the Commissioning Unit.
- 30% payment upon presentation of findings and satisfactory delivery of the draft TE report to the Commissioning Unit.
- 40% payment upon satisfactory delivery of the final TE report and approval by the Commissioning Unit and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

Criteria for issuing the final payment of 40%[57]:

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

[57] The Commissioning Unit is obligated to issue payments to the TE team as soon as the terms under the ToR are fulfilled. If there is an ongoing discussion regarding the quality and completeness of the final deliverables that cannot be resolved between the Commissioning Unit and the TE team, the Regional M&E Advisor and Vertical Fund Directorate will be consulted. If needed, the Commissioning Unit's senior management, Procurement Services Unit and Legal Support Office will be notified as well so that a decision can be made about whether or not to withhold payment of any amounts that may be due to the evaluator(s), suspend or terminate the contract and/or remove the individual contractor from any applicable rosters. See the UNDP Individual Contract Policy for further details: https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Individual%20Contract_Individual%20Contract%20Policy.docx&action=default

APPENDIX B - MISSION ITINERARY (FOR JUNE 2024)

#	Activity	Stakeholder involved	Place
18 June 2024 (Tuesday)			
	Arrival of Mr. Roland Wong to Astana		
1	Briefing meeting with DREI PMU	UNDP	Astana
2	Meeting with Mr. Nurlan Kapenov	QazaqGreen Association	Astana
3	Meeting with Mr. Zhaslan Kassenov	MoE and NPD, DREI Project	Astana
19 June 2024 (Wednesday)			
	Travel from Astana to Shymkent	AAOs	
4	Visit to Balmuzdak LLP rooftop solar power plant, Turkestan region	Balmuzdak LLP	Pyervomayevka, Turkestan
5	Visit to BaqAgro solar power plant, Turkestan region	BaqAgro	Chubarsu, Turkestan
6	Visit to Dzhanisbayeva IE rooftop solar power plant, Shymkent	Dzhanisbayeva	Shymkent
20 June 2024 (Thursday)			
7	Meeting with DREI CTA	UNDP	Shymkent
	Travel from Shymkent to Almaty		
8	Visit with Ms. Assel Mukazhanova and Ms. Saule Abisheva	DAMU	Almaty
21 June 2024 (Friday)			
9	Meeting with Ms.Mariya Stepanova, Tech Expert 2	UNDP	Almaty
10	Visit to Keruen Plus LLP, rooftop solar power plant, Almaty region	Keruen Plus LLP	Talgar, Almaty
	Travel from Almaty to Astana		
22 June 2024 (Saturday)			
	Working on TE report		
23 June 2024 (Sunday)			
11	Meeting with DREI CTA	UNDP	Astana
	Travel from Astana to Petropavlovsk		
24 June 2024 (Monday)			
12	Visit to Dikanshy LLP biomass pellet boiler	Dikanshy LLP	Petropavlovsk
13	Visit to Agrofirma Mamlyutskaya biomass boiler	Agrofirma	Dubrovnoe, Northern Kazakhstan
	Travel from Petropavlovsk to Astana		
25 June 2024 (Tuesday)			
	Departure of Mr. Roland Wong from Astana		

Total number of meetings conducted: 13

APPENDIX C - LIST OF PERSONS INTERVIEWED

This is a listing of persons contacted in the DREI Team (unless otherwise noted) during the Terminal Evaluation Period only. The Evaluators regrets any omissions to this list.

1. Mr. Assel Nurbekova, Head of Unit, Energy and Environment, UNDP Kazakhstan;
2. Mr. Dosbol Tursumuratov, M&E Officer, DREI Project;
3. Mr. Zhaslan Kassenov, NPD DREI Project, Head of the Renewable Energy Department of the Ministry of Energy of the Republic of Kazakhstan;
4. Mr. Adambek Nurzhan, Project Coordinator, DREI Project;
5. Ms. Madina Kakimzhanova, Communications Analyst, DREI Project;
6. Mr. Oleg Khmelev, CTA, DREI Project;
7. Ms. Assel Mukazhanova, DAMU;
8. Ms. Saule Abisheva, DAMU;
9. Ms. Mariya Stepanova, Tech Expert 2 of DREI Project;
10. Mr. Maksatbek Nuraliyev, Balmuzdak LLP;
11. Mr.Nurken Mahazhanov, Dzhanisbayeva;
12. Mr. Auez Kulzhabayev, Keruen Plus LLP;
13. Mr. Vyacheslav Sutulov, Dikanshy LLP;
14. Mr. Yenbek Talasbayev, Agrofirma Mamlyutskaya.

APPENDIX D - LIST OF DOCUMENTS REVIEWED

1. UNDP-GEF Project Document ‘‘Derisking Renewable Energy Investment in Kazakhstan (DREI Project)”, November 2017;
2. UNDP-GEF CEO Endorsement Document ‘‘Derisking Renewable Energy Investment in Kazakhstan (DREI Project)”, November 2017;
3. DREI Project Inception Report, January 2016;
4. DREI Project PIRs from 2019 to 2024;
5. DREI Project MTR Report, September 2020;
6. DREI Project AWPs 2018-2024;
7. DREI Project Progress Reports 2018-2023;
8. DREI Project Board meeting minutes from 2018 to 2024;
9. UNDP-GEF, “Gender Balance in the Renewable Energy in Kazakhstan: Current Status, Challenges and Solutions”, 2023;
10. Financial Support Mechanism Documents for all Demonstration Projects”, 2022-2024;
11. UNFCCC Summary of GHG Emissions for Kazakhstan, 2022;
12. UN Country programme document for Kazakhstan (2021-2025);
13. Fourth Biennial Report of the Republic of Kazakhstan to the UNFCCC, 2019;
14. Updated Nationally Determined Contribution of the Republic of Kazakhstan to the global response to climate change, Approved by the Decree of the Government of the Republic of Kazakhstan, April 2023;
15. UNECE Report 2017 – 10 CP Kazakhstan, Part1, Chapter 6;
16. UNDP – GEF. Guidance for Conducting Terminal Evaluation of UNDP – Supported, GEF-Financed Project, 2020.
17. Maria Stepanova and Adilkhan Kaliyev, 2nd Technical Expert’s monitoring reports, 2023-2024;
18. Co-financing letters from applicants of financial supports.

APPENDIX E - COMPLETED TRACKING TOOL

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

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

Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.3	Amount of Marine Litter Avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 6	**Greenhouse gas emission mitigated**					***(Metric tons of CO_2e)***
			Expected metric tons of CO_2e (6.1+6.2)			
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)		5.186 mln	0.46 mln.	0	*1.041 mln*
	Expected CO2e (indirect)		*N/A*	Between 1.8-8.0 mln	*0*	*>57 million*
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector					
			Expected metric tons of CO_2e			
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.2	Emissions avoided Outside AFOLU					
			Expected metric tons of CO_2e			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)		5.186 mln	0.46 mln.	0	*1.041 mln*
	Expected CO2e (indirect)		*N/A*	Between 1.8-8.0 mln	*0*	*>57 million*
	Anticipated start year of accounting					
	Duration of accounting		*2019-2033*	*2019-2033*	*2019-2020*	*2019-2023*
Indicator 6.3	Energy saved					
			MJ			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Energy Efficiency Refrigerators (Direct and direct post-post project period combined)		N/A	N/A	N/A	N/A
Indicator 6.4	Increase in installed renewable energy capacity per technology					
	Technology		Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Biomass Gasification		N/A	N/A	N/A	N/A
	Biomass (biogas)		N/A	N/A	N/A	N/A
Core Indicator 7	**Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**					***(Number)***
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation					
			Rating (scale 1-4)			

		Shared water ecosystem	PIF stage	Endorsement	MTR	TE
Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products					
		Shared water ecosystem	Rating (scale 1-4)			
			Rating		Rating	
			PIF stage	Endorsement	MTR	TE
Core Indicator 8	**Globally over-exploited fisheries Moved to more sustainable levels**					***(Metric Tons)***
Fishery Details			Metric Tons			
			PIF stage	Endorsement	MTR	TE
Core Indicator 9	**Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products**					***(Metric Tons)***
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
(select)	(select)	(select)				
(select)	(select)	(select)				
Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.3	Hydrochloroflurocarbons (HCFC) Reduced/Phased out					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					

		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.6	Quantity of POPs/Mercury containing materials and products directly avoided					
			Metric Tons			
				Expected		Achieved
			PIF stage	Endorsement	PIF stage	Endorsement
Core Indicator 10	**Reduction, avoidance of emissions of POPs to air from point and non-point sources**					***(grams of toxic eq gTEQ)***
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					***(Number)***
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	8960	14250	-	2.398 mln
		Male	*8960*	14250	-	2.351 mln
		Total	*17920*	28500	-	4.75 mln

APPENDIX F - KAZAKHSTAN DREI PROJECT RESULTS FRAMEWORK (FEBRUARY 2018) WITH RED FONT TO INDICATE RECOMMENDED CHANGES BY EVALUATION TEAM

This project will contribute to the following Sustainable Development Goals: 7. Ensure access to affordable, reliable, sustainable and modern energy for all 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all 12. Ensure sustainable consumption and production patterns 13. Take urgent action to combat climate change and its impacts
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: Environmental Sustainability. By 2015, 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 1.4: Scaled up action on climate change adaptation and mitigation cross sectors which is funded and implemented.

Objective / Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Project Objective: Promote private-sector investment in renewable energy in Kazakhstan in order to achieve Kazakhstan's 2030 target for renewable energy	Objective indicator 1: Total Lifetime Direct and Consequential GHG Emissions Avoided (Tons CO_{2eq}) (GEF indicator 1)	0	48,000 tonnes CO_{2eq} direct emissions	460,000 tonnes CO_{2eq} direct emissions plus between 1.8 and 8.0 million tonnes CO_{2eq} consequential emissions avoided	The Government is committed to declared targets and is willing to adopt and deploy supporting measures Political and economic stability allow for sustained interest among investors to implement projects in Kazakhstan
	Objective indicator 2: Increase in Installed capacity from wind and solar power (MW) and lifetime RE production (MWh) (GEF indicator 3)	0	1 MW (direct, small - scale sector only) = approximately 50 GWh lifetime production	9.5 MW (direct, small-scale sector only) = approximately 500 GWh lifetime production	
	Objective indicator 3: Number of direct project beneficiaries (UNDP mandatory indicator 3)	0	3,000 people, 50% women	28,500 people, 50% women	
Component/Outcome 1 Component 1: Large Scale Renewable Energy: Policy and Financial Derisking Measures	Outcome indicator 1.1: Capacity of the Government to design and implement policy initiatives enabling development of renewable energy markets	The Government has limited capacity to deliver renewable energy derisking strategies	Identified knowledge gaps and prepared training plan	25 policy –makers trained	The Government is willing to adopt the knowledge, best international practices and advice

Objective / Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Outcome 1: Appropriate policies, programmes and regulations are in place to reduce investors' risks, scale-up investment and enable the achievement of 2030 RES target	Outcome indicator 1.2: Reduction in DREI aggregate risk score across 9 DREI risk categories	Aggregate DREI risk score 32 out of 45 (72%) – in 2016 (Best in class - Germany - score 10/45 = 22%)	Aggregate DREI risk score 30 out of 45 (66%)	Aggregate DREI risk score 25 out of 45 (56%)	The Government supports and prioritizes targeted policies for development the market
Component/ Outcome 2 Component 2: Renewable Energy for Life: Policy Derisking Outcome 2: Appropriate policies, programmes and capacities are in place to reduce risk and attract investment in small-scale (on-grid and off-grid) renewables	Outcome indicator 2.1: Degree of support for small-scale renewable energy development in policy, planning and regulations	1 – Virtually no policy or strategy for small-scale climate change is in place	3 – Policy and strategy proposed and consultations ongoing (quality is good)	8 - Strong policy and regulatory frameworks designed with financial / market / incentive based mechanisms	The Government is committed to declared targets and is willing to adopt supporting measures
	Outcome indicator 2.2: Knowledge of small-scale applications in rural and urban areas	RES projects are perceived as more risky, expensive and second class energy supply options compared to traditional energy sources	Developed awareness raising media campaign and short-, medium- and long-term communication strategy to support development of RES. The communication will reflect gender perspectives, channels and needs	At least 25% of women and 25% of men in target stakeholder groups understand the benefits and risks of renewables and support their development	Key stakeholder groups are willing to participate in capacity building and awareness raising activities and have access to the right media sources
	Outcome indicator 3.1: Developed financial and business models for small-scale RES in urban and rural sectors	There are no financial or innovative models in place. Projects are funded fully without use of financial mechanisms.	Business and financial models are designed for key market sectors for testing in selected pilot projects	Standard contracts / agreements prepared to facilitate scale-up	Interest from business and finance sectors to develop the market for selected small-scale renewable energy
	Outcome indicator 3.2: Appropriate financial instruments created for pilot investments in small-scale rural and urban renewables	Small-scale developments are very scarce and face a number of financial barriers.	Financial derisking instruments for small-scale on- and off-grid projects are designed in consultation with the stakeholders and with consideration of	Financial derisking instruments for small-scale on- and off-grid projects are designed and deployed	Government policies and regulations (developed under outcome 2) remove barriers to investments sufficiently to make them attractive

Objective / Outcome	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Component/ Outcome 3 Component 3: Renewable Energy for Life: Financial Derisking and Incentives Outcome 3: Sustainable business models and financial mechanisms to support their implementation in place for investment in small-scale urban and rural RES solutions			the best international practices		
	Outcome indicator 3.3: Investment mobilized to support small-scale projects	0	1000 small-scale projects addressing various technologies and sectors (using business / financial models from 3.1 and 3.2) are implemented	9500 small-scale projects	Adequate demand for small-scale developments

APPENDIX G – EVALUATION QUESTION MATRIX

Evaluative Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities a the local, regional and national level?			
To what extent was the project in line with GEF focal area, UNDP CPD, UNSDCF, Kazakhstan's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, Kazakhstan National Energy Sector Plan 2017-2022 along with relevant SDGs?	Number of national priorities aligned with Project strategy	ProDoc PIRs Project designers	Desk review of PIRs and interviews PMU, stakeholders
To what extent was the theory of change applied in the project relevant to promoting investment in DREI technologies and expanding access to environmental and energy services for the poor within the framework of "leave no one behind agenda"?	Quality of outcomes and indicators on log frame	ProDoc PIRs Project designers	Desk review of PIRs and interviews with project designers, PMU, stakeholders
Are the project objectives and outputs clear, practical and feasible within its frame? Do they clearly address target groups?	Quality of outcomes and indicators on log frame	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with project designers, PMU, stakeholders
To what extent were lessons learned from other relevant projects considered in the design?	Related projects aligned with Project strategy	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with project designers, PMU, stakeholders
To what extent were perspectives of men and women who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during project design processes?	Number of national priorities aligned with Project strategy	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with project designers, PMU, stakeholders
To what extent was this Project designed as rights based and gender sensitive?	Effectiveness and efficiency ratings of the project by the evaluation	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with Project designers, PMU, stakeholders
To what extent does the Project create synergy/linkages with other projects and interventions in the country?	Effectiveness and efficiency ratings of the project by the evaluation	ProDoc PIRs PMU	Desk review of PIRs and interviews with PMU, stakeholders
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
To what extent did the Project contribute to the attainment of the development of outputs and outcomes initially expected/stipulated in the Project Document's logical framework until the end of the project duration?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel

Evaluative Questions	Indicators	Sources	Methodology
To what extent has the UNDP partnership strategy been appropriate and effective?	Stakeholder engagement ratings of the project by the evaluation	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU, stakeholders and MOE personnel	Desk review, interviews with PMU, stakeholders and MOE personnel
In which areas does the project have the fewest achievements? What have been the constraining factors and why? How can or could they be overcome?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
What, if any, alternative strategies would have been more effective in achieving the project objectives?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent are project management and implementation participatory, and is this participation of target groups/ stakeholders contributing towards achievement of the project objectives?	Quality of adaptive management	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent has the project been appropriately responsive to the needs of the target groups and changing partner priorities?	Stakeholder engagement ratings of the project by the evaluation	PIRs and information from PMU, stakeholders and MOE personnel	Desk review, interviews with PMU, stakeholders and MOE personnel
To what extent has the Project contributed to the well-being and human rights of vulnerable groups, including, women? Did the Project effectively contribute to “leave no one behind agenda” and successfully integrate human rights-based approach (HRBA)?	Stakeholder engagement ratings of the project by the evaluation	PIRs and information from PMU, stakeholders and MOE personnel	Desk review, interviews with PMU, stakeholders and MOE personnel
To what extent has Kazakhstan’s financing programme been effective in improving SME socio-economic standing and energy savings?	Quality of financing strategy to intended results	PIRs and information from PMU, financial stakeholders and MOE personnel	Desk review, interviews with PMU, financial stakeholders and MOE personnel
To what extent has Kazakhstan’s demonstration projects and financing programme been effective in creating awareness in urban centers and rural areas for renewable energy technology deployment and in demonstrating a functioning and viable financing model?	Quality of financing strategy to intended results	PIRs and information from PMU, financial stakeholders and MOE personnel	Desk review, interviews with PMU, financial stakeholders and MOE personnel

Evaluative Questions	Indicators	Sources	Methodology
Did Covid-19 measures have a positive or negative effect on the achievement of Project results?	Quality of strategy to intended results	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
Efficiency: Was the project implemented efficiently, in line with international and national norms and standards?			
How well did Project Management work for achievement of results?	Institutional and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent has there been an economical use of financial and human resources? Have resources (funds, staff, time, expertise, etc.) been allocated strategically and cost-effectively to achieve outcomes?	Institutional, financing and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent have project funds and activities been delivered in a timely manner?	Institutional, financing and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent do the M&E systems utilized by UNDP ensure effective and efficient project management?	Institutional and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent was there any identified synergy between UNDP initiatives/ projects that contributed to reducing costs while supporting results?	Institutional and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
Sustainability:			
To what extent will targeted people benefit from the project interventions in the long-term?	Number of stakeholders with issues concerning sustainable livelihoods	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
Are there any political or financial risks that may jeopardize sustainability of project results?	Number of government and financial stakeholders with issues concerning RE	PIRs and information from PMU, financial stakeholders and MOE personnel	Desk review, interviews with PMU, financial stakeholders and MOE personnel
Are the legal frameworks, policies and governance structures and processes in place for sustaining Project benefits?	MOE governance and administrative processes	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent have development partners committed to providing continuing support? What is the risk that the level of stakeholder ownership will be insufficient to allow for the Project outcomes/benefits to be sustained?	Number of funds set up for post-GEF assistance	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
To what extent does this UNDP intervention have a well-designed and well-planned exit strategy?	Institutional and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel

Evaluative Questions	Indicators	Sources	Methodology
What could be done to strengthen exit strategies and sustainability in order to support SMEs?	Institutional and management arrangements of the Project	PIRs and information from PMU and MOE personnel	Desk review, interviews with PMU and MOE personnel
Cross-cutting issues and gender equality and women's empowerment: How did the project contribute to gender equality and women's empowerment?			
To what extent has the Project contributed to "leave no one behind agenda" (including disabled, elderly, youth, refugees etc.)?	Number of stakeholders who are able to comment on gender aspects	Stakeholders	Stakeholder interviews
To what extent have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project?	Quality of design to intended results	ProDoc and PIRs	Desk review
Is the gender marker assigned to this project representative of reality?	Number of stakeholders who are able to comment on gender aspects	Stakeholders	Stakeholder interviews
To what extent has the project promoted positive changes in gender equality and the empowerment of women? Did any unintended effects emerge for women, men or vulnerable groups?	Number of stakeholders who are able to comment on gender aspects	Stakeholders	Stakeholder interviews
Impact: Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status?			
To what extent has the project provided an enabling environment and basis for deployment of DREI Project installations in urban and rural areas?	Effectiveness and efficiency ratings of the project by the evaluation	PIRs Stakeholders (mainly government personnel)	Desk review, interviews with PMU and stakeholders
To what extent has the project established a sustainable financing mechanism for DREI projects? To what extent is the financing model piloted by the project replicable and up-scalable for other settings?	Barriers to objectives Opportunities to leverage	PIRs Stakeholders (mainly government personnel)	Desk review, interviews with PMU and stakeholders

APPENDIX H – RESPONSES TO COMMENTS RECEIVED ON DRAFT TE REPORT

To the comments received on August 2024 for the Terminal Evaluation of the DREI Project

The following comments were provided in track changes to the draft Terminal Evaluation report; they are referenced by institution ("Author" column) and track change comment number ("#" column):

Submitted as a separate file.

APPENDIX I - QUESTIONNAIRE

These questions are designed for Implementing and Project partners:

These questions are designed for Implementing and Project partners:

1. Has the Project been effective at the national levels in influencing implementation of DREI investment projects?
2. Were you involved in revising the changes in the plans for the Project (around the MTR)?
3. What were some of the positive or negative, intended or unintended, changes brought about during project implementation? Were there delays in the delivery of some of the outputs?
4. What were the challenges that enhanced or impeded Project performance? Were alternative approaches considered in overcoming these challenges? Were the issues procurement related, COVID-related, on-the-ground related?
5. Have monitoring and evaluation systems of the Project helped to ensure that activities and outputs were managed efficiently and effectively?
6. What were some of the challenges to design and implement ongoing policy on DREI market diffusion?
7. With respect to awareness raising, have newsletters and other media informed the general public of Project activities?
8. What activities does your organization focus on? Does it empower women or does it ensure everyone is brought into Project activities considering the number of people on the Project?
9. After the Project, what are the next steps to providing continuing support to RES investments? Does this include appropriate institutional capacities (systems, structures, staff, expertise, etc.) to be in place after the Project's closure date? Does this include raising awareness of project developers on solar pV, wind, biogas and biomass?
10. What impact has the Project had on DREI project developers on RES installations? What has been the impact on the livelihoods of the beneficiaries?
11. What has been the impact of the Project on the beneficiaries? How has the Project made a difference in their lives?
12. Do you see any barriers and risks that may prevent further progress to the long-term impact of continuing RES investments by Damu?
13. Do you see any real change in gender equality in the context of decision-making power, and division of labor?
14. What are the most urgent actions to be taken in view that the Project is ending?

These questions are designed for project developers and beneficiary stakeholders:

1. How did you hear about the DREI Project? Did you have newsletters or other media to informed you of the Project?
2. How did you arrange your financing for the DREI installation?
3. Did you experience problems applying for an RES installation with MoE and financial institutes?

4. What were some of the changes brought about during the switch to RE? Please tell me about positive or negative changes, intended or unintended, were there delays in the delivery of some of the materials?
5. What were the challenges during the installation of the RES systems? Were there delays in the installation of the RES technologies, and were alternative approaches considered in overcoming these challenges? Were the issues procurement related, COVID-related, on-the-ground related?
6. With the installation of an RES technology in your household / business, how has the technology benefitted you? What impact has the new RES technology had on you?

APPENDIX J - EVALUATION CONSULTANT AGREEMENT FORM

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

Evaluator 1:

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

Evaluation Consultant Agreement Form[70]

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

Name of Consultant: Roland Wong

Name of Consultancy Organization (where relevant)**:** _____

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

Signed at *Surrey, BC, Canada* on 3 August 2024

[70] www.unevaluation.org/unegcodeofconduct

Evaluator 2:

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

Evaluation Consultant Agreement Form[71]

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

Name of Consultant: Askar Kaliyev

Name of Consultancy Organization (where relevant)**:** _____

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

Signed at *Astana, Kazakhstan* on *3 August 2024*

[71] www.unevaluation.org/unegcodeofconduct

APPENDIX K: EVALUATION REPORT CLEARANCE FORM

Terminal Evaluation Report for UNDP-GEF Project: De-risking renewable energy investment (UNDP PIMS ID: 5490) **Reviewed and Cleared By:**

Commissioning Unit (M&E Focal Point)

Name: Dosbol Tursumuratov

Signature: DocuSigned by: Dosbol Tursumuratov 5F778BE6736141D... Date: 16-авг-2024

Head of Energy and Environment Unit

Name: Assel Nurbekova

Signature: DocuSigned by: Assel Nurbekova 0FD5303AB938497... Date: 16-Aug-2024

Regional Technical Advisor (Nature, Climate and Energy)

Name: Jana Koperniech

Signature: Signed by: Jana Koperniech ED5C241FBA2C457... Date: 16-8-2024