UNIDO INDEPENDENT EVALUATION DIVISION
OFFICE OF EVALUATION AND INTERNAL OVERSIGHT

Independent Terminal evaluation

Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation

UNIDO Project ID: 103056
GEF Project ID: 3593

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

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This report has been prepared for UNIDO for the Terminal Evaluation of the UNIDO GEF Project "Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation".

Project Manager: Marco Matteini

Evaluation team: Marjan Mihajlov, MSc, International expert, *Author*
Vitaly Bekker, National expert, *Contributor*

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Abbreviations and acronyms

APR	Annual Project Reports
EE	Energy Efficiency
EU	European Union
ET	Evaluation Team
GDP	Gross Domestic Product
GEF	Global Environmental Fund
GHG	Greenhouse Gases
HQ	Head Quarters
ICPO	Innovation Center for Production Optimization
IED	Independent Evaluation Division
ITE	Independent Terminal Evaluation
M&E	Monitoring and Evaluation
NPD	National Project Director
OECD	Organisation for Economic Co-operation and Development
PAC	Project Advisory Committee
PIR	Project Implementation Reports
PMU	Project Management Unit
PSC	Project Steering Committee
REA	Russian Energy Agency
SMART	Specific, Measurable, Attainable, Relevant, Trackable
SO	Systems optimisation
SC	Steering Committee
TA	Technical Assistance
TE	Terminal Evaluation
UNIDO	United Nations Industrial Development Organisation

Glossary of evaluation-related terms

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the development objectives of an intervention were or are expected to be achieved.
Efficiency	A measure of how economically inputs (through activities) are converted into outputs.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Intervention	An external action to assist a national effort to achieve specific development goals.
Lessons learned	Generalizations based on evaluation experiences that abstract from specific to broader circumstances.
Log frame (logical framework approach)	Management tool used to guide the planning, implementation and evaluation of an intervention. System based on MBO (management by objectives) also called RBM (results based management) principles.
Outcomes	The achieved or likely effects of an intervention's outputs.
Outputs	The products in terms of physical and human capacities that result from an intervention.
Relevance	The extent to which the objectives of an intervention are consistent with the requirements of the end-users, government and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed.
Target groups	The specific individuals or organizations for whose benefit an intervention is undertaken.

Executive summary

This report summarizes the findings of independent terminal evaluation of GEF financed project "Market Transformation Programme on Energy Efficiency in Greenhouse Gas-intensive industries in the Russian Federation".

The evaluation was conducted in the period of September to November 2017, by an independent evaluation team, composed of Marjan Mihajlov, Team Leader and Vitaly Bekker, national evaluation expert. The evaluation is conducted in accordance to the TOR and the relevant GEF guidelines. Although implemented by two agencies, UNIDO and EBRD, subject of this TE is only UNIDO's part of the project.

The objective of this evaluation and report is to assess the achievement of project performance and provide ratings for targeted objectives and outcomes. The assessment of project results seeks to determine the extent to which the project objectives were achieved and determine if the project has led to any other short- or long-term and positive or negative consequences.

Main evaluation findings and recommendations

The key findings of this terminal Evaluation Report are summarized below upon evaluation criteria.

Design. Proved to be relevant to the country context and addresses key sector needs and market barriers. At least one target in the results framework has proved to be optimistic. Some indicators are not SMART, thus makes it difficult to track the progress.

Effectiveness. The achievement of the outputs and outcomes are within the extent of satisfactory to highly satisfactory.

Efficiency. Although initially foreseen to last 5 years (2010 – 2015) the Project had two extensions, first until December 2016 and second time extended until December 2017. The justification for the extension was to continue with the good implementation pace that the project had achieved after significant difficulties in engaging partner companies faced during the first 2 project years and of course to achieve the expected outputs, outcomes and developmental/ environmental benefits as much as possible.

Relevance. The Project is very relevant to the national development and environmental priorities and strategies and the needs of the target groups.

Impact. The Project succeeded to initiate an intensive process for structural improvement of industrial energy efficiency (EE) in heavy and light industries through the implementation of energy management systems in line with ISO 50001 and other energy efficiency measures with visible results and wider direct positive effect on rational energy use with related environmental benefits. Impact indicators refer to the total project scope, not separately per agencies.

Sustainability. No significant risks to the sustainability of project results. Replicability process has been initiated during the implementation period. Great potential of replicability in future.

Monitoring and Evaluation. Well defined Monitoring and Evaluation plan. Minor short comings in the implementation.

Implementation. This aspect has been rated as satisfactory as it showed to be effective, particularly in the second part of the project. A remark has been put on the involvement of the second implementing agency as there is room for such an implementation arrangement to be improved in the future. Execution and ownership on the local partner (REA) has been highly rated.

Rating

The main dimensions of project performance on which ratings are provided in terminal evaluation are: outcomes, sustainability, quality of monitoring and evaluation, quality of implementation, and quality of execution[1].

The overall ratings on the outcomes of the project is based on performance on the following criteria: a) Relevance, b) Effectiveness and c) Efficiency. The calculation of the overall outcomes rating of projects considers all the three criteria, of which relevance and effectiveness are critical.

TABLE 1 Summary of project performance ratings

Criterion	Rating
Outcomes	**Satisfactory (S)[2]**
Relevance	Highly satisfactory (HS)[3]
Effectiveness	Satisfactory (S)
Efficiency	Moderately satisfactory (MS)
Sustainability of project outcomes	**Likely (L)[4]**
Quality of monitoring and evaluation	**Satisfactory (S)**
M&E Design	Highly satisfactory (HS)[5]

[1] Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, Unedited. Approved by the GEF IEO Director on 11th of April 2017.

[2] Level of outcomes achieved was as expected and/or there were no or minor short comings.

[3] Level of outcomes achieved clearly exceeds expectations and/or there were no short comings

[4] There is little or no risks to sustainability

[5] There were no or minor short comings and quality of M&E design / implementation meets expectations.

Criterion	Rating
M&E Implementation	Satisfactory (S)[6]
Quality of implementation and execution	**Satisfactory (S)** [7]
Implementation	Satisfactory (S)
Execution	Satisfactory (S)
OVERALL ASSESSMENT	**SATISFACTORY (S)**

Recommendations

Based on the findings, the report provides several recommendations to UNIDO and project stakeholders. The aim of these is 1) to help improve the selection of sectors, to enhance the design and implementation of similar future projects and 2) ensure sustainability and replicability process in the country.

UNIDO:

- In case of a joint implementation, indicators to be set separately for all expected results in order to ensure appropriate evaluation for each of the agencies.
- When preparing the project documents, it is necessary to ensure that baseline data is included for every indicators and that indicators are as much as possible SMART (Specific, Measurable, Attainable, Realistic and Timely)[8].
- Formal delivery of the ownership over the project web site and peer-to-peer network to a governmental institution in order to ensure sustainability of these tools.
- Trainings to include local context (in order to bring the materials closer and credible to the audience) and different sector representatives including top management and financial sector, to have better understanding and acceptance of the EE concept within companies.
- Project design to include more time for engagement with companies and project start-up time - both to assess the project design against changes in context and secondly to allow for project teams to be put in place
- International network of project beneficiaries and users may provide continuous improvement and support to the sustainability and replicability of project results.

[6] Moderately Satisfactory (MS): There were some short comings and quality of M&E design/implementation more or less meets expectations.

[7] There were no or minor short comings and quality of implementation / execution meets expectations.

[8] Quality Standards for Development Evaluation, DAC Guidelines and Reference Series, OECD

Governmental Stakeholders:

- A suitable governmental institution to take over the ownership over the project web site along with the peer-to-peer network ensuring the sustainability of the tools.
- It is very important to use the momentum that the Project has created in order continue the pace of the EE policy improvement an implementation,
- Support the sustainability of the project results after the project completion.
- Regional and international cooperation upon project completion could support sustainability of project results.
- Companies are encouraged to involve top management in the training in order to have better understanding and faster inclusion of the EE concept.

I. Evaluation objective, methodology and process

Introduction

Subject of this independent terminal evaluation is the GEF financed project "Market Transformation Programme on Energy Efficiency in Greenhouse Gas-intensive industries in the Russian Federation".

The terminal evaluation was conducted in the period of September to November, 2017, by an independent evaluation team, composed of Marjan Mihajlov, Team Leader and Vitaly Bekker, national evaluation expert.

The project is implemented by two agencies, UNIDO and EBRD. As requested by the TOR, subject of this TE is only UNIDO's part of the project.

This report is based on extensive document review, observation and interviews with stakeholders.

Objective

The terminal evaluation assesses the achievement of the Project outputs and outcomes and provides ratings for targeted objectives and outcomes, and also impacts where possible. The assessment of the project results[9] seeks to determine the extent to which the project objectives were achieved.

The **key question** of the TE is whether the project has achieved or is likely to achieve its main objective, i.e.to reduce greenhouse gas emissions in the Russian Federation by transforming the market for Industrial Energy Efficiency in GHG-intensive industries.

The evaluation has three **specific objectives**:

(i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact;
(ii) Identify key learning to feed into the design and implementation of the forthcoming projects; and
(iii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

The TE has an **additional purpose** of drawing lessons and developing recommendations for UNIDO and the GEF that may help for improving the

[9] The positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short- to medium-term outcomes, and longer-term impact including global environmental benefits, replication effects, and other local effects, The GEF Monitoring and Evaluation Policy, paragraph 57d.

selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion.

Scope

This terminal evaluation refers only to UNIDO's part of the project and activities, as EBRD's activities were not included in the scope of this evaluation.

The terminal evaluation (TE) covers the whole duration of the project from its starting date in 10/12/2010 to the estimated completion date in 31/12/2017. It assesses project performance against the evaluation criteria:

- ✓ relevance,
- ✓ effectiveness,
- ✓ efficiency,
- ✓ sustainability and
- ✓ impact for the UNIDO component of the project.

Methodology and process

The TE is conducted in accordance with the Terms of Reference prepared by UNIDO Independent Evaluation Division, in compliance with UNIDO Evaluation Policy[10] and with UNIDO Guidelines for the Technical Cooperation Project and Project Cycle[11], GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations[12], GEF Monitoring and Evaluation Policy and GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies.

The TE was carried out as an independent terminal evaluation using a participatory approach whereby all key parties associated with the project were informed and consulted throughout the evaluation process. While conducting the evaluation, the evaluation team leader liaised with the UNIDO Independent Evaluation Division (ODG/EIO/IED) on the conduct of the evaluation and methodological issues.

In line with its objectives, the evaluation has two main components. The first component focuses on an overall assessment of performance of the project, whereas the second one focuses on the learning from the successful and unsuccessful practices in project design and implementation.

The ET was provided with support from the UNIDO project manager office and the national project team in the Russian Federation, acting as resource persons.

[10] UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)

[11] UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

[12] Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, Unedited. Approved by the GEF IEO Director on 11th of April 2017.

The Terms of Reference for this TE provided some information on the evaluation methodology which was further elaborated with the inception report for the purpose of operationalizing the ToR. The inception report provides details on the methodology for the evaluation and includes an evaluation matrix with specific issues for the evaluation.

The evaluation team used different methods to ensure that data gathering and analysis deliver evidence-based qualitative and quantitative information, based on diverse sources: desk studies, literature review, individual interviews, group interviews, direct observation, presentations and feedback review.

The methodology was based on the following:

- ☐ Desk and literature review of documents related to the project. Main sources of information were:
  - Project documents and progress reports,
  - Project monitoring data (data bases),
  - Project staff at UNIDO HQ,
  - Project staff based in the field,
  - Project stakeholders / beneficiaries at various levels,
  - Previous evaluation of relevance.

  List of consulted documents is given in Annex 1.
- ☐ Stakeholder consultations were conducted through structured and semi-structured interviews and focus group discussion.

  Key stakeholders interviewed include:
  - UNIDO Management and staff involved in the project (management and implementation staff).
  - Representatives of donors and counterparts (beneficiaries).
  - Users of project services (trainers, trainees, partner companies).

  List of interviewees is given in Annex 2.
- ☐ On-site observation of results achieved.
- ☐ Field visit to Russian Federation. The mission agenda included visit of several companies and institution, users of project services.

The evaluation was implemented in five phases which are not strictly sequential, but in many cases iterative, conducted in parallel and partly overlapping:

i. Inception phase: The evaluation team prepared an inception report (IR) providing details on the methodology for the evaluation and included an evaluation matrix with specific issues for the evaluation.
ii. Desk review started with the beginning of the evaluation and continued throughout the process accompanied with data analysis;
iii. Interviews, survey and literature review. The ET had more than 20 meetings interviewing more than 30 people.
iv. Country visit – took place from 9th till 20th of October visiting project team and institutional beneficiaries in Moscow, followed by visits and interviews

with partner companies and national experts and trainees in four different cities: Yekaterinburg, Kazan, Mamadysh and Naberezhnye Chelny;

v. Data analysis and report writing.

At the end of the field mission, a presentation of the preliminary findings was held in UNIDO HQ. The preliminary findings were discussed with the project team, Evaluation Division, GEF Coordination unit and fellow colleagues from Energy Efficiency Division.

II. Country and project background

This chapter gives basic information about the country and the project, as background to this evaluation. The information provided in this chapter largely reflects the official project document[13]. For the purpose of this evaluation, this information can be regarded as baseline (initial conditions) to some extent, particularly in the areas where the project has foreseen interventions.

Country background

At the time of the project design and still today energy efficiency of Russian industry is significantly below the global average. There are a number of reasons for this disadvantage: an ageing capital equipment stock, traditionally low energy prices and abundant national energy resources, in combination with implementation problems on governmental and enterprise level.

This situation has been changing rapidly. Government has set an ambitious target of a 40% improvement of the energy intensity by 2020. National gas prices are increasing steadily, to the level of export prices and electricity sector reforms created a liberalized electricity market leading to market-based prices for electricity. This development raises the interest for energy efficiency significantly. In fact, many options could be implemented that are cost-effective today.

However, the uptake rate for these efficiency options is slow. There are still serious barriers that stand in the way of financing and implementing energy efficiency options. The knowledge in enterprises about the real energy efficiency opportunities needs improvement as well as the capacity in government to develop and implement effective energy efficiency policies.

Energy Management Systems (EMS) has proven to be an effective tool for enterprises in other countries. Typically, they raise the annual efficiency improvement by 1-2 percentage points over a period of many years. This represents an increase by a factor two to three. Such improvements have been observed for large companies and small and medium sized enterprises (SMEs). However, experience shows that the EMS requirements for SMEs cannot be as

[13] Request for CEO endorsement/approval, Submission Date: 21 June 2010

demanding and detailed as for large enterprises. Both groups of enterprises need a differentiated approach.

The Government has passed an ambitious new energy efficiency law, which poses a considerable burden on the policy-making capacity in particular of the Ministry of Energy. It is reorganizing its structure to raise the effectiveness of implementation of the law. For example, it is transforming one of its associated bodies that had some research tasks into a new Russian Energy Agency with a much broader set of responsibilities. Clearly a new range of skills and experts will be needed to further develop, implement and monitor policy measures. This new agency as well as other government bodies needs capacity building in order to adequately meet the demands set by the new energy efficiency law.

Market barriers

The following text summarizes the barriers identified in the project document that is the planning phase.

Collectively, the barriers to greater industrial energy efficiency can be seen as a consequence of the absence of a pervasive 'energy efficiency culture' among both policy-makers and end-users. Barriers can be categorised into four main groups: those that relate to the legislative and regulatory system, those related to economic and structural factors, financial barriers, and barriers related to a lack of the necessary knowledge, skills and management capacity within the industrial sector and potential service providers.

Legislative / regulatory

The energy-related legislative and regulatory framework in Russia has tended to be strong focussed on the supply-side and energy security. Early attempts at introducing programmes for energy efficiency tended to be poorly designed, while policy measures and institutional frameworks were frequently changed, leading to uncertainty and a lack of continuity. The government started developing a new energy efficiency law and initiatives for implementation of an energy efficiency policy. Relevant ministries began to work together on the issue of energy efficiency, and there are plans to create a national energy efficiency agency. However, in order to ensure that this addresses the particular needs of industrial companies, it is likely that institutional capacities will need to strengthen in order to develop the necessary knowledge and skills.

Economic

Compared to the situation in OECD countries that have developed effective energy efficiency policies during the last decades and created an accepted culture of energy efficiency in governments, end-users as well as technology providers, Russia is starting from a much less advanced position, requiring a careful approach to industrial energy efficiency.

The price paid for natural gas by Russian consumers has long been heavily subsidised, and only a fraction of that paid in Western Europe. In 2006, Russian

gas prices stood at only 29% of the average for Western Europe and, although the intention has been stated to bring domestic gas prices up to international levels by 2011, the price gap has not yet narrowed significantly.

The IFC estimate that almost half of Russia's manufacturing capacity dates from before 1985. It was therefore commissioned during a period when energy was regarded as a plentiful resource, and is cost was scarcely considered. Because of the very low importance that has historically been attached to the efficient use of energy in the industrial sector, there has been a corresponding lack of emphasis on training specialists in industrial energy efficiency.

Financial

The lack of availability of finance for energy efficiency investments is a significant barrier in Russia, as it is in many countries in the region. Longer term loans are frequently unavailable, and local lenders rarely have sufficient technical expertise to understand industrial energy efficiency investments in sufficient detail to correctly assess risks and returns. Greater volumes of lending for energy efficiency, whether directly from IFIs or via financial intermediaries, can only occur if a sufficient number of high-quality projects are being proposed by industrial firms. To achieve this, it is necessary to address barriers relating to knowledge and skills in the firms themselves.

Business skills and information

International experience has shown that even when active energy efficiency policies are implemented, the energy efficiency potential in industry may still remain far from being realized. Individual companies frequently suffer from a lack of awareness/knowledge about energy efficiency.

Project background

Based on the actual situation with respect to industrial energy efficiency in Russia, and the significant opportunity given by the recent adoption of a Russian Energy Efficiency Law, the overall objective of the project was to reduce greenhouse gas emissions in the Russian Federation by transforming the market for industrial energy efficiency in GHG-intensive industries. The project aimed to achieve this market transformation through activities that:

- structurally improve industrial energy efficiency (EE) in heavy and light industries through increased energy efficiency investments,
- have a wider direct positive effect on rational energy use with related environmental benefits, and
- improve the capacity of the government to develop effective (industrial) energy efficiency policies.

The cost-efficiency and effectiveness of energy efficiency projects in industry can vary widely. A programme with structured approach based on systems optimisation and Energy Management Systems is initially resource intensive, but evidence shows that it generates more cost-effective projects and projects with

greater emissions reduction. These activities targeting national experts, service providers and industry experts will be tied to and support legislative developments in the Ministry of Energy and the new Russian Energy Agency providing a basis for sustained benefits long after the end of GEF funding.

Therefore, the main goal of this GEF project was:

1) to enhance the effectiveness and efficiency of the project portfolio funded through the credit lines and
2) to build local capacity in government and industry (including training of trainers) to achieve results in replication and sustainability far beyond the project life span and contribute significantly to market transformation.

Based on the previous considerations and Russian barriers, a programme for industrial energy efficiency in Russia was based on the following components:

- Preparatory activities for capacity building programmes under 2) and 3);
- A capacity building programme to introduce energy management systems and systems optimization tools to large energy-intensive industries;
- A capacity building programme to introduce energy management systems in Small and Medium enterprises;
- A government support programme, which is crucial to the long-term sustainability of the project activities.

The project included four components:

Component 1: “Enhancing knowledge assets” creating the training materials, information campaign and training trainers;

Component 2: “Capacity building for large industry”: targeting knowledge and financial market barriers aiming to facilitate investment in EE for large companies;

Component 3 and “Capacity Building for SMEs” targeting knowledge and financial market barriers aiming to facilitate investment in EE for SMEs; and

Component 4 “Policy support” targeting legislative and market barriers”.

The key performance indicators that were set by the project for two implementing agencies UNIDO and EBRD include:

- Total CO2eq emission reductions as a result of the investments in industrial energy efficiency – target 3.8 million tonnes (over 10-year lifetimes) by 2015
- Volume of investment – target 300 USD by 2015
- Total energy saved (GWh/yr) – target 1.4 TWh per year by 2015

The full logical framework is included as annex 3.

TABLE 2 Project factsheet

Project title	Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation
UNIDO Project ID	103056
GEF Project ID	3593
Region	ECA
Country(ies)	Russian Federation
Project donor(s)	GEF
Project implementation start date	10/12/2010
Expected duration	36 months
Expected implementation end date	31 December 2017
GEF Focal Areas and Operational Project	Climate Change
Implementing agency(ies)	UNIDO and EBRD
Executing partners	45T
UNIDO RBM code	8,078,625 (UNIDO component)
Donor funding	
Project GEF CEO endorsement / approval date	7/22/2010
UNIDO input (cash and in kind, USD)	695,631
Co-financing at CEO Endorsement, as applicable	307,595,631
Total project cost (USD)	322,980,631
Mid-term review date	6/30/2013
Planned terminal evaluation date	8/31/2017

(Source: Project document)

Project Implementation Arrangements

The project has been set up to be coordinated by the EBRD and UNIDO through their local Russian offices and headquarters in London and Vienna. Local execution took place through two Project Management Units (PMU) to address project management needs of UNIDO and EBRD. The UNIDO executing agency is the Russian Energy Agency, which is a Federal State budgetary organization under the Ministry of Energy of the Russian Federation.

The division of responsibility for particular tasks and components among the agencies is given in the table below.

TABLE 3 Division of tasks and components

Component	Lead
Component 1: Development of training materials, website & train-the-trainers programme	**UNIDO**
1.1 Development and translation of training materials and tools	UNIDO
1.2 Information campaign and development of a project web site	EBRD
1.3 Training of national experts on energy management systems and systems optimization	UNIDO
1.4 Training of loan officers in local banks and technical assistance to banks	EBRD
Component 2: Energy management system capacity building programme for large energy -intensive industries	**EBRD**
2.1 General enterprise training on energy management systems	EBRD
2.2 On-site energy management system training	EBRD
2.3 On-site systems optimisation training	EBRD
2.4 Energy audits	EBRD
2.5 Development of energy efficiency investment plans	EBRD
2.6 Documented demonstration projects	EBRD
2.7 Recognition and peer-to peer/knowledge networks	EBRD
2.8 Participation of equipment manufacturers and suppliers	EBRD
Component 3: Introduction and implementation of an energy management system in selected SMEs	**UNIDO**
3.1 Energy management training and implementation in SMEs	UNIDO
3.2 Systems optimisation training for SMEs	UNIDO
3.3 Implementation of energy management and benchmarking to increase energy efficiency of SMEs	UNIDO
3.4 Energy audits	UNIDO
3.5 Technology database and certification	UNIDO
3.6 Preparation of energy efficiency investment plans	UNIDO
Component 4: Government capacity building and support programme	**UNIDO**
4.1 Capacity building on industrial energy efficiency policy	UNIDO
4.2 Support to the implementation of the new law on energy efficiency in Russia	UNIDO

On the basis of intensive discussions with various stakeholders in planning phase and a thorough analysis of existing market barriers, the EBRD and UNIDO have ascertained that the most effective approach to developing the Industrial Energy Efficiency market is through a combination of technical assistance, which is incorporated into all project components and investment (as foreseen in the project document).

Project Advisory committee

To secure a constructive stakeholder dialogue throughout the project an Advisory Committee (PAC) has been foreseen and established consisting of the Ministry of Energy, Ministry of Economic Development and other representatives from relevant ministries, the Russian Energy Agency, and associations with interest in industrial energy efficiency, project development and finance. The members of the PAC are given in Annex 4. As seen by the project document, the main role of the Advisory Committee was to provide advice and feedback on the project design and support implementation during operations with policy support and by facilitating key partnerships across the market. The Advisory Committee also was seen to provide a forum for the advancement of sustainable energy finance in industry. The Advisory Committee members typically play important roles in promoting and sustaining a favourable policy environment for investments.

UNIDO and the EBRD project implementation team was to convene the Advisory Committee semi-annually to advise the project on operational issues and promote coordination with other national initiatives and policies. The first Advisory Committee meeting was planned to be organized after launching the project. The purpose of the first meeting was to announce that the project has started operation, present strategies for the first year and discuss the implementation plan. Other potentially interested government, FI and other partners were planned to be invited to the meeting as observers.

Project Management Unit (PMU)

All field staff was hired as per UNIDO recruitment rules. During the entire implementation period of the project, UNIDO provides the PMU with the necessary management and monitoring support.

The PMU was responsible for the overall operational and financial management in accordance with rules and regulations imposed by UNIDO/GEF for directly executed projects. It prepared progress reports, financial reports etc. which were submitted to UNIDO-HQ and the PSC. At the end of the project, the PMU produced the terminal report, submitted to the Project Steering Committee.

Stakeholders

EBRD and UNIDO are engaging in extensive consultations with local stakeholders. Local stakeholder participation in the Program was extensive in all components with representatives from government, developers, and financial institutions.

The main government bodies involved in energy efficiency policy-making process involved in the project include:

- Ministry of Energy;
- Russian Energy Agency;
- Ministry of Economic Development;
- Ministry of Natural Resources and Environment;
- Ministry of Industry and Trade;
- Ministry of Foreign Affairs;

Other public and private sector stakeholders involved in the project include:

- Analytical Centre of the Russian Government;
- OPORA RUSSIA (NGO for SMEs);
- Russian Union of Industrialists and Entrepreneurs;
- Russian Association of Energy Service Companies;
- Regional/Oblast authorities and EE related institutions;
- Universities;
- Industrial enterprises;
- Energy efficiency consultants and service providers; and others.

III. Project assessment

The terminal evaluation assesses and rates the project performance on the following dimensions: outcomes, sustainability, quality of monitoring and evaluation, quality of implementation, and quality of execution. Other than that, the report makes efforts to deliver an assessment on some additional questions in order to provide a more substantial picture on the overall project performance, such as project design, impact and some relevant cross-cutting performance criteria.

The **key question** of the TE is whether the project has achieved or is likely to achieve its main objective, i.e. to reduce greenhouse gas emissions in the Russian Federation by transforming the market for Industrial Energy Efficiency in GHG-intensive industries. As set, the project was expected to lead to a transformation of the market for industrial energy efficiency through activities that will:

- improve industrial energy efficiency in heavy industries,
- have a direct positive effect on rational energy use with related environmental benefits, and
- improve the commercial prospects of industrial borrowers.

The evaluation has three specific objectives:

(i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact;
(ii) Identify key learning to feed into the design and implementation of the forthcoming projects; and

(iii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

These and more questions are further elaborated in the following chapters of this report.

A. Project design

This subchapter gives an assessment of the Project's overall design and log frame.

Overall design

The Project was designed considering the legislative situation of the time when the document was prepared (2009-2010). Law on Energy Efficiency was introduced at the end of 2010 and resulted in creation of REA, which later became a main strategic partner of the Project.

It is evident that the project as initially designed was and is still very consistent with the Country's needs and priorities.

The government of the Russian Federation has made many attempts to introduce an energy efficiency policy in Russia: a special law on energy efficiency was adopted in 1996, first federal program on "energy efficient economy" was introduced in 2002 but was not effective and was cancelled in 2006, an energy strategy for Russia was adopted in 2003 and later revised recognizing the need to attract investments in improving energy efficiency but the functionality of this strategy was not completely clear. The real impetus for the EE policy came with a presidential decree in 2008 assigning the Ministry of Economic Development and other ministries to prepare a concept of a national energy conservation programme to stimulate energy resource conservation in Russia. A governmental Coordination Council was also created in order to solve problems with respect to energy saving and energy efficiency issues and for coordination of federal, regional authorities and businesses to implement energy saving policy and increase the energy-efficiency of the Russian economy. Furthermore, in 2009, a revision of the Federal Law "About energy saving and increasing of energy efficiency" has been debated and approved by the Parliament. The Ministry of Economic Development of the Russian Federation coordinates the energy efficiency activities of various government institutions and leads the discussion on the necessary amendments of related legislation and regulations. Also, that year the Russian president ordered the Government to develop an integrated system of energy efficiency management at national, regional and municipal level creating a national energy efficiency agency.

This all confirms the consistency of the project design with the country's priorities in the planning phase, aimed at delivering institutional and technical capacity building, together with policy context and designing effective energy efficiency policies.

However, there remains the mid-term review finding that the design was too optimistic in at least one of its assumptions[14] - target set for SME's training in EnMS. Although the project intensively sped up its pace in the second stage, the risks related to approaching and engaging new companies turned out to be not adequately anticipated. This also might be a result of late awareness campaign which is also related to the design.

Adaptive management steps taken by the project team were adequate according to the ongoing changes in the legislation framework. Specific results achieved by the Project, were tracked and performed according to the initial tasks. All updates that were done in compliance with initial Project Document strategic framework were approved by relevant decisions of Steering Committee and UNIDO Head Office.

According to the project design, activity *1.2 Information campaign and development of a project web site,* scheduled for execution within first 1.5 years of the project, was responsibility of EBRD and meant to support the overall project's promotion and outreach efforts. Due to contingent problems and delays in the execution and completion of activity 1.2, in 2014 UNIDO decided to start its own PR campaign and activities, although with smaller scope due to the limited resources.

Log frame

A results framework represents the underlying logic that explains how the development objective of a project is to be achieved, achieved by translating the results chain into indicators that measure the degree to which inputs are being transformed into specific activities and outputs.

Project's results framework is shown as matrix and it gives a detailed and clear description of the project showing how the activities will lead to outputs, i.e to outcomes. It is easy to follow and understand. However, no associated risks are identified per each component, so one cannot track the risk mitigation progress and assess it at the end.

In July 2015, EBRD decided to freeze its activities on the project in accordance to the latest developments in the country, however the results framework remained the same as no changes have been introduced.

[14] See Annex 5 Progress table

Indicators

As indicated before, in terms of monitoring, the project document sets out three key performance indicators:

- Total CO_{2eq} emission reductions as a result of the investments made by 2015 (end of project) in industrial energy efficiency – target 3.8 million tonnes (over 10-year lifetimes)
- Volume of investment – target 300 million USD by 2015
- Total energy saved (GWh/yr) – target 1.4 TWh per year by 2015

The indicators refer to the total scope of the project, do not reflect separate project components as there was no breakdown made between Agencies. Therefore, it is problematic to access performance of individual Agency against the targets, however it does not prevent tracking and monitoring results.

With regards to investments, no individual investment targets were set for UNIDO and EBRD, however investments were expected to be triggered by both agencies' work i.e. by project components 2 and 3. UNIDO's EnMS programme strongly promoted starting with no-cost and low-cost measures since these opportunities have been neglected and even more important as a strategy to build up resources for EE investments (through energy/money savings). As such, the EnMS programme is meant to be also a tool to drive more and sustained investments in EE. UNIDO's approach based on prioritization of "no-cost" and "low-cost" measures became particularly attractive and appropriate for companies after March 2014 when devaluation of the Rubles against the Euro, that happened following consequent increase of interest rates which had made the capital investments in IEE technologies very expensive.

With regards to energy savings, as set originally the indicator does not explain what savings fall under this category of monitoring (direct, indirect etc.).

The indicators and targets set in the project results framework are mainly clear and measurable. They describe fine the expected results, easy to measure the progress, specific about one certain thing (for example. 50 quick audits, 100 SMEs trained, 80 government officials trained etc.). However, some of them are missing some characteristics to easily track the progress.

A good and usable indicator is SMART indicator: Specific, Measurable, Attainable, Realistic, Timed. Table 8 given in the Effectiveness section provides a brief analysis of the indicators.

Sources of verification

Sources of verification indicated in the projects results framework appear to be clear and understandable, easy to use to track the status of the outputs and outcomes, i.e. the progress. For the purpose of the evaluation, the ET was given access to the documentation for appropriate verification of the indicators.

TABLE 4 Project design: summary of findings and rating

Summary of findings	
➢ Design proved to be relevant to the country context and addresses key sector needs and market barriers. ➢ At least one target has proved to be optimistic. ➢ Some indicators are not SMART, thus makes it difficult to track the progress.	
Rating	
Overall design	Satisfactory (S)[15]
Log frame	Satisfactory (S)

B. Implementation performance

This subchapter gives an assessment of project results, impact, sustainability, M&E system and other relevant aspects.

Relevance

Market Transformation Programme on Energy Efficiency in Greenhouse Gas-intensive industries in the Russian Federation is a full-sized project, consistent with the GEF's focal areas addressing the its priority strategy of Climate Change Mitigation[16] covered by GEF-4 STRATEGIC PROGRAM: CC-SP2-Industrial EE.

Project objectives were relevant for the stakeholders' groups during the time of execution. Goals and final outputs have strong support and commitment of federal level stakeholders and representatives of private companies, resulted in rapid spread of UNIDO EnMS implementation methodology starting from large energy-intensive industries to residential micro-districts.

The Russian Energy Agency, as part of the Ministry of Energy is the national executing partner of the Project, since considerable burden on the policy-making capacity has been put on this Ministry. Therefore, the Project is seen to lay foundations for accelerated adoption of energy efficiency in industry and building up a cadre of experts with practical skills within the government and in industry.

Project tasks were in-line with changing federal regulatory framework, that took place during 2010-2017, i.e. Law on Energy Efficiency #261 (2010), Sub-

[15] Level of outcomes achieved was as expected and/or there were no or minor short comings

[16] GEF focal area strategies (Biodiversity, International Waters, Land Degradation, Chemicals and Waste, and Climate Change Mitigation, as well as cross-cutting issues like sustainable forest management).

regulatory acts for stimulation of EE implementation in industry (2012-2017), National Energy Efficiency Action Plan by Ministry of Economic Development (2017).

At the end of the project, it proves to be very relevant to the national development and environmental priorities and strategies of the Russian Federation and consistent with national priorities that support sustainable development. Having the results and upon the interviews, it is certainly safe to say that the project fulfils the target group needs and expectations.

TABLE 5 Implementation performance: summary of findings and rating

Summary of findings	
➢ The Project is very relevant to the national development and environmental priorities and strategies.	
Rating	
Relevance	Highly satisfactory (HS)[17]

PROJECT RESULTS

This subchapter gives an overview to what extent have the expected outputs, outcomes and long-term objectives been achieved or are likely to be achieved.

Effectiveness

The Project has delivered results in three different components, as planned originally within the project document. At the end of the project, all are quantified and ready to be assessed in terms of progress. The comparison of what has been expected and what has been achieved shows that the project is within the extent of satisfactory to highly satisfactory. The outcomes achievement is also satisfactory, as confirmed with the stakeholder interviews.

Main project results are following:

- Facilitation in development of fundamental guidelines and creation of department of energy efficiency and industrial energy management in REA, with focus on practical implementation of best UNIDO practices in terms of energy and resource efficiency
- Visible promotion of best modern energy management operation practices. Cooperation with largest energy-intensive industries which resulted in public acceptance of the results by the relevant Ministerial stakeholders

[17] Level of outcomes achieved clearly exceeds expectations and/or there were no short comings

- Introduction of ISO 50001 and number of relevant trainings for various stakeholders. Resulted in third-party certification of 11 companies which successfully passed pre-certification or training phase.
- Capacity building results are visible and confirmed. Additional is creation of experts and site specialists network, that continues to work sustainably after finish of the project.

The next table gives a brief overview of the Project's progress in regards to achieving of the expected outputs and materialized co-financing for UNIDO part of activities.

TABLE 6 Assessment of implementation of activities – achievement of outputs

Component 1 Enhancing knowledge assets	**Component 3 Capacity building in SMEs**	**Component 4 Policy support**
• 4 activities met the expectations; • One activity exceeded the expectation.	• 4 activities met the expectations. • 3 of activities exceeded the expectations. • 2 of the activities somewhat lower than expected.	• 3 activities met the expectations. • 4 of activities exceeded the expectations.

The details of the progress assessment is given in Annex 5.

TABLE 7 Materialized co-financing at project completion (in USD)

Sources of Co-financing	**Name of Co-financer**	**Type of Co-financing**	**Amount Confirmed at CEO endorsement**	**Actual Amount Materialized at Midterm**	**Actual Amount Materialized at Closing**
UNIDO	UNIDO	• Grant/ • in-kind	• 695,631	• Cash 66,624 + 925,000 In-Kind	Cash 185,000 + 1,504,000 In-Kind
Government	REA	• In-kind	•	• 100,000	• 550,000
Government	Regional and local public organization/ authorities	• In-kind	•	• n/a	• 84,000
Private sector	Private companies (EnMS/ESO)	• Investments	•	• n/a	• 55,250,000
Private sector	Private companies	• In-kind	•	• n/a	• 427,000
•	•	**• TOTAL**			**• 58, 000, 000**

In regards to the outcomes of the Project:

- **Capacity building** Over 200 EE consultants and practitioners were trained at the Expert Level in EnMS and more than 110 in ESO (system optimization), 99 of them were qualified as UNIDO EnMS Experts and 54 as

ESO Experts. Over 200 companies have received training in EnMS and ESO and 52 companies successfully implemented EnMS and carried out energy audits as integral part of the EnMS work. Most of the capacity building activities were carried out in collaboration with Russian education and training institutions such as the Centre of Energy Technologies of the Republic of Tatarstan and the Technical University of the Ural Mining and Metallurgy Company. –[18].

- **Investments** - All companies that implemented EnMS (UNIDO component) have developed energy saving programmes/ plans; lists of planned measures for EE increase that are reflected in the final EnMS reports of national experts, and the total planned investments by companies for 2014-2017 in monetary terms amount to 3.2 billion RUB (equals to more than 54 mil dollars). These companies also invested equivalent of 10 million dollars in course of EnMS implementation.
- **Government capacity** – Governmental institutions, in particular the Russian Energy Agency have worked with the Project very closely for more than 4 years and managed to achieve significant results and visible immediate and strategic effects[19]. Over 200 government officials from regional and federal levels have been trained in industrial energy efficiency policy preparation and best available practices such as EnMS, 43 experts from Russian Energy Agency were trained in different aspects of energy management and its implementation, including information campaigns and web tools. Other numerous documents and trainings were part of the support REA have received, to increase the capacity to design and implement an effective industrial EE policy. UNIDO and REA jointly organized and delivered a training programme on Energy Performance Measurement Indicators for more than 50 practitioners.

In cooperation with the Russian Energy Agency (REA) the project developed an innovative methodology and related guidelines for energy efficiency benchmarking in industry. First a dry-test was carried out with 50 Russian companies from the oil and gas extracting sector; then it was piloted in additional 70 enterprises from 3 other industrial branches (bakery, paper, cement) in the Tomsk region. It has led to tangible impacts.

Companies that were part of the first pilot study in the Oil and Gas extracting sector, achieved 214 mil USD savings through implementation of recommendations made as result of the study. Proposals for the introduction of incentives for IEE benchmarking were submitted by the Russia Energy Agency to the Government at the end of 2017 and are still under discussion.

[18] Most of the achieved outputs exceeded the expectations.

[19] Statement of Ms. Galperina, Deputy Head of Russian Energy Agency, Final Project report, 2017.

Having these in mind, the Project succeeded to achieve the expected outcomes to a satisfactory level.

It remains a question if the target set for EnMS training for SMEs (100) could have been achieved in full if the information campaign and the rest of the public awareness activities were implemented in an earlier phase of the project.

Following table gives a brief analysis of the indicators in terms of its SMARTness.

TABLE 8 Analysis of indicators

Outputs	**Objectively Verifiable Indicators**	**Comment on the SMARTness**	
			Comment
Component 1: Enhancing knowledge assets	Fully developed set of training materials for energy management system implementation and systems optimisation training, including build-up of systems optimisation library;	Not measurable	Scope of the set necessary (maybe in a form of a TOR).
	Information campaign implemented;	Not measurable	Scope of the campaign necessary (maybe in a form of a TOR).
	Fully functional Russian-English language web site;	Ok	
	Discussion forum and Peer-to-Peer network established and operational;	Ok	
	Up to 120 national trainers fully trained in EMS and systems optimization;	Ok	
	Enhanced capacity of local banks to identify and process loans for industrial energy efficiency;	Not measurable and specific	Number of banks (officer) to receive capacity building.
Component 3: Capacity building in	100 SMEs trained in energy management systems;	Ok	

Outputs	Objectively Verifiable Indicators	Comment on the SMARTness	
			Comment
SMEs	25 large SMEs trained in systems optimization;	Ok	
	25 systems optimization assessments completed in large SMEs;	Ok	
	Russian benchmarking developed and introduced in 2-3 SME-sectors and 50 SMEs;	Ok. (although 2 or 3 makes difference; it should be accurate as much as possible)	Benchmarking was piloted in 4 industrial subsectors
	50 quick audits carried out by national experts and audit companies;	Ok	
	Data bank on energy efficiency technologies developed;	Ok	
	Voluntary certification scheme prepared;	Ok	
	50 energy efficiency investment plans prepared;	Ok	
Component 4: Policy support	80 government officials trained in industrial energy efficiency policy preparation;	Ok	
	Proposals for selection and approval of projects submitted to the new federal target programme delivered;	Not measurable	Number of proposals or other quantification or specification of the proposals.
	Monitoring and evaluation procedures for the federal target programme developed;	Not measurable	Number of M&E procedures or other quantification or specification of the procedures.
	Experts of the energy agency trained in information campaigns and the use of the web	Not measurable	Number of experts to receive training. Number of trainings.

Outputs	Objectively Verifiable Indicators	Comment on the SMARTness	
			Comment
	site and its tools;		
	Proposals delivered to REA on data collection and analysis structure;	Not measurable	
	Proposals delivered for the introduction of a Russian Energy Management Standard and road map for long-term agreements with industry;	Not measurable	
	Recommendations prepared for certification scheme of industrial energy efficiency equipment;	Not measurable	

TABLE 9 Effectiveness: Summary of finding and rating

Summary of findings	
➢ The achievement of the outputs and outcomes are within the extent of satisfactory to highly satisfactory.	
Rating	
Effectiveness	Satisfactory (S)

Efficiency

This subchapter gives an overview on the extent to which the Project has produced the results (outputs and outcomes) within the expected time frame.

The progress of the project was assessed against the existing log frame and corresponding targets and indicators.

Although initially foreseen to last 5 years (2010 – 2015) the Project had two extensions, first until December 2016 and second time extended until December 2017. The justification for the extension was to continue with the good implementation pace that the project had achieved after the significant difficulties faced during the first 2 project years, especially with regard to work with

enterprises on EnMS and energy system optimization. Certainly, another reason for the extension was to allow time for the project to achieve the planned outputs and the expected outcomes and developmental/ environmental benefits as much as possible.

The extension was done on a request of the stakeholders[20] and with an agreement with the key project counterparts. Both extensions were formally accepted and approved by GEF.

The reasons behind this delay in getting the UNIDO's activities off the ground included:

- Incomplete risk analysis,
- Slow engagement of the companies,
- Untimely and partial public campaign,
- Insufficient project coordination between UNIDO and EBRD.

Following comment from the Final report, 2017, appropriately describes the problem with the engagement of the companies:

> *Based on and reviewing the experience of the first project years, after some consultations with counterparts, it was decided to modify the project strategy to achieve the project's intended objectives and bring companies in the EnMS and system optimization technical assistance programmes offered by the project. The new companies engagement strategy hinged on targeting large companies that had already demonstrated interest in energy and resource efficiency and holdings. The choice of the targeting holdings was based on various considerations, including the export orientation and greater interaction with international markets and supply/value chains; the more modern management and business strategy practices, the aspiration for innovation leadership in Russia, the presence of many SMEs within most industrial holdings; the availability of resources to self-sustain replication and scaling-up. It was envisaged that commitment and initiative from holdings' top management would have been sufficient to engage its incorporated enterprises, hierarchical vertically-integrated management makes it easier to ensure commitment and implement necessary actions in several companies simultaneously. In addition, Russian business practices are characterized with high level of bureaucratization. Therefore, commencing a cooperation with each new company requires a lot of paperwork, man-hours and resources, thus delaying the actual implementation process. Addressing this barrier on a holding level (which represents several companies simultaneously*) facilitates the process and saves time and human resources.

[20] Official supporting letters and request for extension from REA (No.07/815 from 30.04.2015 and 07/1637 from 26.10.2016) and Ministry of natural resources and environment (No.10-43/14061 from 17.06.2015 and 2016)

With regards to this delay caused by the slow engagement of companies may come also be illustrated by the comment from the EBRD representative[21], that a preparatory phase could have been a practical solution for both agencies and their joint work.

Information campaign and development of a project web site, although initially foreseen in the first 1.5 years, started its implementation in 2015 with limited scope and resources. Again, it is a question if the efficiency of implementation of the project activities could have been better if the information campaign was fully implemented in timely manner.

TABLE 10 Efficiency: Summary of findings and rating

Summary of findings	
➢ Implementation delay resulted with project extensions.	
Rating	
Efficiency	Moderately satisfactory (MS)

Progress to impact

The Project document sets out an overall objective - to reduce greenhouse gas emissions in the Russian Federation (expected outcome) by transforming the market for industrial energy efficiency in GHG-intensive industries (expected outcome). The assessment of this objective is further discussed through an assessment of the relevant indicators set in the project document.

TABLE 11 Assessment of relevant indicators

Impact	**Indicators and targets for the whole project**	**Target achieved by UNIDO's activities**
GEF Strategic Priorities: Strategic Program 2: Promoting energy efficiency in the industrial sector	Total CO_2eq emission reductions as a result of the investments made up to 2015 (and of project) in industrial energy efficiency – target 3.8 million tonnes (over 10 year lifetimes)	Total CO_2 emission reduction over 10 years[22] more than 2,563,895 tons CO_2
	Volume of investment – target 300 million USD by 2015	3.2 billion RUB or >54 million USD (2014-2017)
	Total energy saved (GWh/yr) – target 1.4 TWh annually by 2015	Total Energy Savings over 10 years 13,443,929 MWh ->

[21] Interview

[22] Emission factors from Ministry of Natural Resources.

Impact	Indicators and targets for the whole project	Target achieved by UNIDO's activities
		average annual savings of 1.34 TWh

Although the indicators are set in a way that do not separately reflect agency's progress[23], it is evident that a significant impact has been achieved.

Bearing in mind the achieved results (discussed in the previous chapter) and the indicators above, it is safe to say that the UNIDO Project's activities succeeded to initiate an intensive process for structural improvement of industrial energy efficiency (EE) in heavy and light industries through energy management systems and energy systems optimization measures with visible results. This is for sure a long-term process that has already began and needs to be continued by the national owners.

These processes have a wider direct positive effect on rational energy use with related environmental benefits, which is also confirmed, having in mind the CO_2 reduction achievements. A broad and extensive program for EE capacity building in SMEs has been implemented that resulted in better understanding of energy management, improvement of EE personal and company skills and competences, implementation of Energy Management Systems (EnMS) and energy saving plans. Following a proven best practice methodology and a structured and systematic approach, companies have managed to integrate energy efficiency in enterprise management culture and daily practices.

According to the information from the Russian Energy Agency, the benchmarking process conducted with the project and the Austrian Energy Agency, lasted 3 years, resulted in a unified guideline and use in 50 companies[24] in the oil and gas industry and replication in over 70 companies from the cement, paper and bakery sectors in the Toms Region. According with the analysis and records of REA oil and gas companies that participated in the pilot industrial energy efficiency benchmarking study saved 214 mil USD during the biennium 2016-2017.

It is the opinion of the stakeholders that the project has resulted in very significant changes and that has helped to overcome the doubts around the EE concept and benefits among the federal institutions in the Government and business sector.

Discussions with the interviewees confirmed the behavioural changes among all stakeholders. The EE concept is widely accepted among decision-makers as a way for financial and environmental benefits and translated into numerous legislative instruments. Business managers recognize it as a solution to save energy and money and accept it as a development and management pillar, while company employees are more confident in the effect of EE solutions.

[23] As said before, they refer to the total project scope.

[24] Counting for 98% of the total sector production.

As continuation of the efforts and the commitments, in October 2017 the Russian Government had a meeting chaired by the Prime Minister to discuss measures to develop energy efficiency and conservation. Focus of the discussions was implementation of a comprehensive plan to improve energy efficiency that will enable Russia not only to reach its' energy efficiency targets, but will have a positive impact on the country's overall economy and its budget. "We should see increased competitiveness through a reduction in the cost of production and technological renovation in problematic sectors, including in housing and utility services. We will achieve the goals set as part of the Paris Agreement. And of course, the energy resources that are freed up will contribute to additional economic growth".[25]

TABLE 12 Progress to impact: Summary of findings and rating

Summary of findings	
➢ Initiated intensive process for structural improvement of industrial energy efficiency. ➢ Wide direct positive effect on efficient energy use with related environmental benefits. ➢ Impact indicators refer to the total project scope, not separately per agency's work.	
Rating	
Impact	Satisfactory (S)

Sustainability of project outcomes

This subchapter assesses the likelihood of sustainability of outcomes at project termination and weighs risks to continuation of benefits from the project.

Risk management

The project document had identified risks in the planning phase. Accordingly, no technical risks were identified associated with the project, nor significant risks related to delivery of capacity building. The risks were identified primarily regarding the ability to make target-setting agreements and energy management standards work for Russian Federation's industry. Looking back to the identified risks from the perspective of almost completed project, following table discusses the status of the risks vis a vis the current situation.

TABLE 13 Discussion of risks

[25] Maxim Oreshkin, Russian Minister of Economic Development, meeting of the Government of the Russian Federation on the development of energy efficiency and energy conservation

Risk (as identified in Project document)	What has been done to mitigate the risk?	Current situation related to the identified risk and risk rating
Failure to achieve outcomes after successful delivery of outputs (long-term sustainability)	The project team has always regarded outputs set out in Project document as a way to achieve Outcomes aiming at strategic development of the project. A number of additional activities were carried out to support reaching outcomes of the project. The project team managed to carry out sustainability activities, including: - establishment of Innovation Center for Production Optimization (ICPO) which aims at further promotion of UNIDO tools and methodologies, related to industrial energy, resource and water efficiency, sustainable chemical management and innovations - establishment of Regional competence centre for sustainable energy development aimed at introduction of energy management to the industry, budgetary sphere public administration, municipal and commercial sectors based on UNIDO experience ad methodology. The centre is created by Ministry of Economic Development having full governmental support. - UNIDO experts supported the development of Russian standard on Monitoring and verification of energy efficiency (GOST ISO 56743-2015, effective since 01 Jan 2017. - UNIDO experts supported the development of BAT industrial guideline as of Sept. 2017 http://www.energoatlas.ru/2017/10/04/ndt48/ - Capacity Building and promotion of EnMS on federal and regional level. Involvement of institutions providing training and services on EE to industry like NCPC, TU, ICPO, Center in Tatarstan and others	Risk is identified as medium. As per October 2017 the Innovation centre and International centre has just been created and so far their contribution to reaching project's outcomes is not clear.
Low government commitment to energy efficiency	The project has maintained ongoing communication and very close cooperation with the Russian Energy Agency being a part of Ministry of Energy and main policy maker in the field on energy efficiency. In order to maximize the project added value and to leveraged the momentum of REA's dynamism, the project has tried to respond and adapt as much as possible to the changing needs and opportunities while keeping firm the ultimate development objectives of the project. The project	Risk is identified as low because the project managed to achieve full support of main governmental stakeholders.

Risk (as identified in Project document)	What has been done to mitigate the risk?	Current situation related to the identified risk and risk rating
	contributed to support research, development and capacity building for a number of policies that can support and accelerate industrial energy efficiency improvements, and in so doing contributing to mitigate (i.e. maintain low) the risk for sustainability, lack of Government commitment and market demand. In addition to close cooperation with REA, the project has collaborated with other governmental stakeholders: Analytical centre for the Russian Government, Ministry of Industry, Ministry of Natural Resources, Ministry of Economic Development etc gaining their support on key project activities and outcomes. Member of UNIDO project team (B.Melnitchuk) has become a member of Energy efficiency expert council of the Russian Government.	
Market risk	Significant efforts have been made to managing the market risk. The project team has carried out substantial EnMS/ ISO50001/ IEE awareness raising and project promotion activities addressing industrial enterprises and associations in a number of Russian regions. The project team has established an open dialogue and cooperative relations with key business community associations and main industrial stakeholders. Such activities were and will remain important to mitigate market risks as well as contribute to the sustainability of the project.	Risk is identified as low because main industrial and governmental stakeholders were part of awareness raising campaign and participated in project's activities.
Implementation Risk	UNIDO has maintained ongoing communication and close cooperation with the Russian Energy Agency. It has sought regular communication and inputs from key business community associations. The project has striven to secure international state-of-the-art expertise to guide and work with leading and experienced national experts and service providers, as well as counterparts and partners (i.e. REA)	Risk is identified as low because main stakeholders have positively recognized the value of the project and gave good feedback on its results.

Sustainability and replicability

The following activities talk about the sustainability and replicability potential[26].

1. Based on the results of the project, the Russian Ministry of Economic development contacted the UNIDO Secretariat and proposed to consider expanding the project to the territory of Russia and the CIS countries. Based on this proposition, a project concept was drafted on "Creation of international EnMS and EE Centre of Competence for CIS countries". The project concept provides for dissemination of experience acquired in Russia and know-how of EnMS implementation in the CIS countries and, further, in the BRICS countries.
2. A UNIDO national expert and UNIDO project coordinator for Component 3, was invited in early 2017 to become a member of a working group on energy efficiency in the Expert Council under the RF Government. Expert Council is created under the auspices of Open Government initiative and is a collegial non-governmental and non-commercial body, ensuring independent analysis of government's decisions and preparation of expert proposals for the Government's consideration.
3. Number of local experts trained and qualified by UNIDO on EnMS and ESO began to apply UNIDO methodology in practice in their regular business practices.
4. There is replication of UNIDO EnMS implementation:

    - EnMS implementation in Magnitogorsk Mining and Steel Works by UNIDO-trained Lead EnMS expert.
    - Establishment of NBC City EnMS Programme targeting the municipalities – lead to government proposal to use EnMS as an indicator for classification of buildings from energy performance point of view.
    - Roll out of integrated management system, including ISO 50001 by one of the partner companies[27] in all its 8 factories.
    - Other partner company is preparing its companies for certification[28].
    - Cooperation and capacity building of the Tatarstan Regional EnMS programme is expected to result in replication of the experience into a regional programme for EnMS implementation with the use of UNIDO methodology.
    - Following the success of NBC City EnMS Programme, came the launch of Sustainable City Programme by Astrakhan City Administration on their request and by their own financial resources.
    - ESO and EnMS courses at the UMMC Technical University.
    - National Cleaner Production Centre – Russia. All of National Lead EnMS and ESO experts trained by UNIDO and engaged in NCPC activities and

[26] Final report 2017, Chapter 9. Project upscale, replication and sustainability
[27] Baltika
[28] UMMC Holding

are actively seeking ways to further promote EnMS and ESO services on commercial basis.

- Establishment of Innovation Center for Production Optimization. ICPO aims at further promotion of UNIDO tools and methodologies, related to industrial energy, resource and water efficiency, sustainable chemical management and innovations.
- Establishment of an international competence centre for EnMS and energy efficiency by the Russian Government.
- Benchmarking process conducted with REA, resulted with a unified guideline, piloted in 4 industrial subsectors and use in 50 companies in the oil and gas industry in RF and replication in over 70 companies from the cement, paper and bakery sectors. In addition, in 2018 REA entered in two commercial contracts with two Russian corporates for providing energy efficiency benchmarking services.
- Web-portal with E-guide for EnMS implementation to be taken over by REA

TABLE 14 Risk management: Summary of findings and rating

Summary of findings	
➢ No significant risks to the sustainability of project results. ➢ Replicability process initiated. ➢ Great potential of replicability in future	
Rating	
Sustainability	Likely (L)[29]

Implementation and execution

The assessment of the implementation and execution of the Project takes into account the performance of UNIDO as an implementing agency and project executing entities in discharging their expected roles and responsibilities. UNIDO's implementation and coordination of the project has been carried out through its PMU in Moscow. UNIDOs executing agency is the Russian Energy Agency, which is a Federal State Enterprise. Other federal institutions are also beneficiaries of the project taking minor responsibilities in the implementation.

Approach

The implementation approach of the Project represents a common UNIDO approach for EnMS projects as it is a roll out of the best energy efficiency management practices throughout the world[30].

[29] There is little or no risks to sustainability

UNIDO uses a holistic approach that focuses not only on technical improvement, but also on improvement in policy, management, operations and financing where necessary. The approach involves the introduction of EnMS on a company level and optimization of an entire energy system rather than optimization of individual equipment components. To ensure sustainability, the Project focuses on creating a well-functioning local market for Industrial Energy Efficiency services. Thus, it provides replicability of the processes being developed and implemented within the Project.

The Project and its approach promoted local ownership and capacity building using a combination of market push via policy and normative interventions including national energy management standards and market development through delivery of trainings, capacity building and direct implementation support.

After the execution of few industry-only EnMS programmes, the Project decided to widen the scope of its EnMS programme by including also city level organizations and authorities with the objective of further facilitating and accelerating the market transformation and to generate greater demand for EnMS consultancy and related services with the national EnMS experts that were trained and qualified by the UNIDO Project. Another driver for such differentiation of the focus was the fact that energy efficiency on city/ regional levels is quite low in Russia and has a high potential for improvement. Furthermore, regional and city authorities have a major role to play in the implementation of the Russian Federation Programme for Energy Efficiency. The good results from the first city EnMS program implementation was recognized and welcomed and further continued in the city of Astrakhan on their own request and using their own resources.

Engagement - Project Advisory Committee

As recommended by the MTR, UNIDO established in 2014 a Project Advisory Committee and convened it annually to ensure regular stakeholder dialogue. However, instead of biannual progress reports to PAC as recommendation of the MTR, there are annual progress reports.

UNIDO - EBRD

With regards to the project implementation, UNIDO shared the responsibility with EBRD, as a second implementing agency. Both EBRD and UNIDO have clear roles and responsibilities and are adequately resourced for their project management. MTR identified that UNIDO and EBRD keep each other up to date on progress at regular donor cooperation meetings and concentrate on their own project responsibilities, but beyond this limited interaction there is little cooperation or sharing of information. Although no major communication and coordination issues were identified by the agencies, both of them emphasised the

[30] Energy Management Systems (EMS) have proven to be an effective tool for enterprises in other countries

difficulties in terms of time alignment of their activities and shared the opinion that there is room for improvement. Although intended initially, no central project management structure was set during the implementation of the project, nor any closer bilateral cooperation (for example, working group).

A failure to timely implement the crucial information campaign which was the responsibility of EBRD, resulted in unplanned awareness activities in the second part of the project and without proper financial support undertaken by UNIDO. This may also have resulted in slower engagement with companies.

With regards to the implementation arrangements, the project faced an implementation challenge in July 2014 when EBRD froze its activities in the Russian Federation. This resulted in postponing the execution of the financial proposals for selected companies. Although frozen for the time being, their part of the project has not been formally cancelled[31].

EBRD's part was related to financing of pilot projects, involving the banking community to closely work on EE financing mechanisms and introduction for federal level stakeholders and country's largest energy-intensive industrial companies (technical assistance for pilot industrial facilities like Severstal and NLMK, which were planning to get loans from EBRD for further EE and infrastructure development investments). Several detailed feasibility studies, technical assessments and training sessions were delivered for 3-5 companies (Severstal, NMLK, TMK, Tutaev Motors factory).

Engagement with companies

The MTR notified, and also UNIDO and EBRD confirmed, problems in engaging companies in the project activities. Due to the developments with the EBRD and the slow engagement with companies, UNIDO had reviewed its experience of the first project years and after some consultations with counterparts decided to modify its strategy to achieve the intended objectives and bring companies in the EnMS and system optimization technical assistance programmes offered by the project. The new companies' engagement strategy focused on targeting large companies that had already demonstrated interest in energy and resource efficiency as well as holdings. The choice of the targeting holdings was based on various considerations, including the export orientation and greater interaction with international markets and supply/value chains; the more modern management and business strategy practices, the aspiration for innovation leadership in Russia, the presence of many SMEs within most industrial holdings; the availability of resources to self-sustain replication and scaling-up[32].

Adaptive management steps taken by the project team were adequate according to the ongoing changes in the legislation framework of RF. Specific final results achieved by the Project, were tracked and performed according to the initial

[31] According to the interview with the EBRD representative.
[32] Project Final Report, 2017.

plans. All updates were done in compliance with the initial Project Document and were approved by the Steering Committee and UNIDO Head Office.

Execution

It is more than evident that the progress the project had made since 2014/15 during the extensions was made to support the expected results. The credit for the progress are also related to the change in the project execution team which took place earlier.

A good part of the credit for the project results, particularly in component 4, is due to the excellent cooperation with the Russian Energy Agency emphasized by both parties. During the time, REA has increased its capacity, progressed in delivering results and took over the ownership of the project expressing willingness and capabilities for sustainability and replicability.

In terms of cooperation between the project and the beneficiaries, during the interviews various stakeholders (institutions and partner companies) were asked about their opinion on the project approach and whether there is something that they would have changed if the project was about to start again. It is their general opinion that the approach was adequate in serving the project goals. Minor technical remarks were made by some of the companies in the context of further improvement of the services. These are given in chapter IV, Recommendations.

Rating	
Implementation	Satisfactory (S)[33]
Execution	Satisfactory (S)

Quality of monitoring and evaluation

Quality of Project M&E is assessed in terms of:

- Design, and
- Implementation.

The project document includes a well-defined Monitoring and Evaluation plan indicating M&A activities, frequency of monitoring and responsible parties together with allocated budget and timeframe.

In terms of implementation of this system, minor shortcomings have been identified. The following table discusses availability of M&E reports over the project implementation period.

TABLE 15 M&E plan

[33] There were no or minor short comings and quality of implementation / execution meets expectations.

Type of M&E activity	Responsible Parties, frequency	Available reports
Annual Project Reports (APR) and Project Implementation Reports (PIR)	PM Annually	PIRs: - UNIDO Annual project implementation report (PIR), Fiscal Year (FY) 2013 (1 July 2012 – 30 June 2013), date: 28 October 2013; - UNIDO Annual project implementation report (PIR), Date: 27.10.2012. - UNIDO PIR FY 2014, 2015, 2016 APRs: - Project summary activities, 2013; - Annual report, 2014; - Annual report, 2015; - Annual report, 2016 (Period: 01.01 – 31.12.2016). - Final report, 2017.
Steering Committee Meetings (reports) (Project Advisory Committee reports)	PM, UNIDO PM, EBRD PM, At least once a year	Project Advisory Committee report for 2014. Project Advisory Committee report for 2015. Project Advisory Committee report for 2016.
Quarterly progress reports	UNIDO PM, EBRD PM, Quarterly	No quarterly progress reports were identified.
Mid-term review	PM, External Consultants	Midterm Review of the EBRD-UNIDO GEF Project "Market Transformation Programme on Energy Efficiency in Industry in the Russian Federation", Rebecca Gunning, Vladimir Zhuzhe and Ksenia Petrichenko, 28 November 2013
Technical reports	Project Management Team, Hired consultants as needed	1. National experts' reports on implemented EnMS 2. ESO organizational reports 3. ESO assessments reports Various technical reports related to policy work (i.e. EE benchmarking, White Certificates work, etc)
Lessons learnt	Project management team, Annually	No Lessons learn reports identified
Audit	UNIDO, Project management team, Annually	

Although indicated as a recommendation in the mid-term review[34], no biennial progress PAC reports have been identified.

TABLE 16 Quality of monitoring and evaluation: Summary of findings and rating

Summary of findings	
➢ Well defined Monitoring and Evaluation plan. ➢ Minor failures in the implementation.	
Rating	
M&E Design	Highly satisfactory (HS)[35]
M&E Implementation	Satisfactory (S)[36]

Assessment of processes affecting achievement of project results

Preparation and readiness / Quality at entry

The project design in general follows a model adopted and effectively demonstrated by UNIDO with some modifications to the local context. Project's objectives and components seem clear and feasible and in line with the national needs. Project counterparts were appropriately identified and adequate resources put in place. Roles and responsibilities clearly identified.

Project execution and institutional coordination was well set up with clearly identified roles and responsibilities (R&R). However, the R&R design fails to secure total independence of the implementation bearing in mind that some of the crucial activities for the project[37] was foreseen only to one of the implementing agencies (EBRD). Lack or absence of implementation such activity reflects on total project performance.

Country ownership/driven-ness

The Project is very consistent with Russian Federation's national priorities. It serves the national EE strategy and needs, but also with the national climate change priorities in line with the Paris Agreement in 2016 and obligations that the Russian Federation undertook. Project's significant results are largely accepted and the approach acknowledged by the key stakeholders. Improvement and

[34] "The Implementing Agencies should start to report progress to the PAC every 6 months against the Results Framework"

[35] There were no short comings and quality of M&E design / implementation exceeded expectations.

[36] Moderately Satisfactory (MS): There were no or minor short comings and quality of M&E design / implementation meets expectations.

[37] Public campaign

promotion of the EE policy and obligations for implementing a comprehensive plan for EE and energy conservation confirms the commitment of the Government for long term changes and reaching the EE targets.

Web site and peer-to-peer network

In 2016, a web site was made operational[38] including some functions of discussion forum and Peer-to-Peer network. The aim of these tools is to provide operational and significant information and guidance in the field of energy management and energy efficiency in industry as well as other sectors to a wide range of users: participants of the project, energy experts, industrial enterprises, public authorities and other stakeholders. It is of great importance that someone takes the ownership over these tools in order to secure sustainability in the future. This would involve providing a permanent domain for the web site and as well public promotion. REA seems to be the best choice since its experts have been trained in information campaigns and use of the website and its tools. They also expressed readiness to take over the ownership[39].

Stakeholder involvement

The series of interviews that ET had with various stakeholders showed good cooperation and support to the project team. The overall cooperation and coordination with the stakeholders was performed through the advisory committee. Although planned to be convened semi-annually[40], records confirm only two meetings of this body (2015 and 2016), though project reports speak about more than two meetings.

Communication and involvement with project partner companies was done through the working groups consisted of national experts and company EE teams aimed at implementing EnMS systems.

UNIDO's supervision and backstopping

The project is coordinated by the EBRD and UNIDO. Local execution took place through two PMUs, which even though it was initially intended, were housed separately.

Support to the national beneficiaries and project partner companies was done through local national experts trained on the project, supported and supervised by international expert. Interviews with the stakeholders confirm the quality of the support they have received throughout the project.

[38] On a temporary domain unido.ecdl.su.

[39] Interview with representatives of REA

[40] As set in the project document

C. Gender mainstreaming

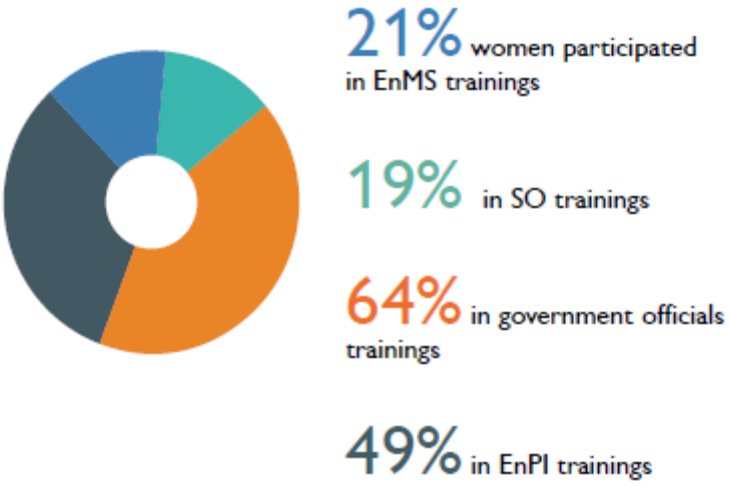
The composition of the project management team is to some extent gender-balanced. It includes female representatives, one as component coordinator and one as a support to the office. In the same regard, the project advisory committee is consisted of 25 members in total out of which five were females.

Project monitoring and data analysis includes collection and analysis of gender disaggregated data to some extent.

In regards to the capacity building programs, following table depicts the gender situation related to the EnMS training.

EnMS training results at glance	
Totally trained:	175
Trained females	34
Trained males	141

Figure Gender breakdown in regards to EnMS trainees



General overview of women participation per trainings

Overall overview of training participants represented by women

Overall project assessment rating

This following subchapter presents the overall project assessment rating. It is done in accordance with the *Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects, Unedited. Approved by the GEF IEO Director on 11th of April 2017*. The main dimensions of the project performance on which ratings are provided are: outcomes, sustainability, quality of monitoring and evaluation, quality of implementation, and quality of execution.

The overall ratings on the outcomes of the project is based on performance on the following criteria: a) Relevance, b) Effectiveness and c) Efficiency. The calculation of the overall outcomes rating of projects considers all the three criteria, of which relevance and effectiveness are critical.

TABLE 17 Summary of project performance ratings

Criterion	Rating
Outcomes	**Satisfactory (S)**[41]
Relevance	Highly satisfactory (HS)[42]
Effectiveness	Satisfactory (S)
Efficiency	Moderately satisfactory (MS)
Sustainability of project outcomes	**Likely (L)**[43]
Quality of monitoring and evaluation	**Satisfactory (S)**
M&E Design	Highly satisfactory (HS)[44]
M&E Implementation	Satisfactory (S)[45]
Quality of implementation and execution	**Satisfactory (S)** [46]
Implementation	Satisfactory (S)

[41] Level of outcomes achieved was as expected and/or there were no or minor short comings.
[42] Level of outcomes achieved clearly exceeds expectations and/or there were no short comings
[43] There is little or no risks to sustainability
[44] There were no or minor short comings and quality of M&E design / implementation meets expectations.
[45] Moderately Satisfactory (MS): There were some short comings and quality of M&E design/implementation more or less meets expectations.
[46] There were no or minor short comings and quality of implementation / execution meets expectations.

Criterion	Rating
Execution	Satisfactory (S)
OVERALL ASSESSMENT	**SATISFACTORY (S)**

The overall project assessment rating is Satisfactory, meaning that the level of achievement meets the expectations (indicatively, over 80-95 per cent) and there is no or minor shortcoming[47].

As said before, the calculation of the overall outcomes rating of projects considers all the three criteria, of which relevance and effectiveness are critical where the project scores Highly satisfactory and Satisfactory.

IV. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

The terminal evaluation has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help improve the selection of sectors, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion.

A. Conclusions

"Market Transformation Programme on Energy Efficiency in Greenhouse Gas-intensive industries in the Russian Federation" project confirmed to be very relevant to the needs of the national counterparts, with a design consistent with the national development and environmental priorities and strategies.

The project results seen at the end proves the achievement of the main objective to reduce greenhouse gas emissions even more than when the results are compared to the total project scope indicators.

It is obvious that the Project succeeded at initiating an intensive process for improving the industrial energy efficiency in the industry with visible effects that brought positive effect on rational energy use and even wider positive environmental impact. The beneficiaries have been provided with knowledge and international best practices that proved to deliver results.

Nevertheless, there is room for improvement. The planning phase needs to include more thorough risk analysis that will result with more appropriate targets, improved design and optimal expectations (indicators). This is particularly important in a joint implementation of projects, so both parties can have continuous and interference free implementation up till the end of the project.

[47] Definition from the TOR.

It is up to all beneficiary parties to ensure replicability based on the national experts and build upon the project results. The promotion of the success stories (results) to the potential end users (companies) may foster engagement and contribute the overall strategy.

B. Recommendations

Based on the assessment and findings of this report, the evaluation team prepared several recommendations that can contribute to the achievement of the Project outcomes and outputs and the overall Project objective.

The recommendations are separated according to recommendations to UNIDO and recommendations to Government/Counterpart Organizations.

UNIDO:

- In case of a joint implementation, indicators to be set separately for all expected results in order to ensure appropriate evaluation for each of the agencies.
- When preparing the project documents, it is necessary to ensure that baseline data is included for every indicators and that indicators are as much as possible SMART (Specific, Measurable, Attainable, Realistic and Timely)[48].
- Formal delivery of the ownership over the project web site and peer-to-peer network to a governmental institution in order to ensure sustainability of these tools.
- Trainings to include local context (in order to bring the materials closer and credible to the audience) and different sector representatives including top management and financial sector, to have better understanding and acceptance of the EE concept within companies.
- Project design to include more time for engagement with companies and project start-up time - both to assess the project design against changes in context and secondly to allow for project teams to be put in place
- International network of project beneficiaries and users may provide continuous improvement and support to the sustainability and replicability of project results.

Governmental Stakeholders:

- A suitable governmental institution to take over the ownership over the project web site along with the peer-to-peer network ensuring the sustainability of the tools.
- It is very important to use the momentum that the Project has created in order continue the pace of the EE policy improvement an implementation,

[48] Quality Standards for Development Evaluation, DAC Guidelines and Reference Series, OECD

- Support the sustainability of the project results after the project completion.
- Regional and international cooperation upon project completion could support sustainability of project results.
- Companies are encouraged to involve top management in the training in order to have better understanding and faster inclusion of the EE concept.

C. Lessons learned

The purpose of lessons learned is to bring together any insights gained during the project implementation that can be usefully applied on future projects. Capturing lessons learned from the project implementation may result in improving the selection, enhancing the design and implementation of similar future projects.

- Commencing a cooperation with new companies should be based on the following selection criteria:
  - export orientation,
  - greater interaction with international markets and supply/value chains,
  - modern management and business strategy practices,
  - the aspiration for innovation leadership,
  - companies that had already demonstrated interest in energy and resource efficiency,
  - holdings.
- Companies that had wider energy team cooperating with the project on the EnMS implementation, showed faster recognition of the concept and better results. Wider teas included representatives from different departments involved (production, finance etc.).

ANNEXES

Annex 1: Terms of reference

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE

Independent terminal evaluation of

Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation

UNIDO Project ID: 103056
GEF Project ID: 3593

July 2017

I. PROJECT BACKGROUND AND CONTEXT

1. Project factsheet[49]

Project title	Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation
UNIDO Project ID	103056
GEF Project ID	3593
Region	ECA
Country(ies)	[Keywords]
Project donor(s)	GEF
Project implementation start date	[Publish Date]
Expected duration	36 months
Expected implementation end date	31 December 2017
GEF Focal Areas and Operational Project	Climate Change
Implementing agency(ies)	UNIDO and EBRD
Executing partners	Click here to enter text.
UNIDO RBM code	
Donor funding	8,078,625 (UNIDO component)
Project GEF CEO endorsement / approval date	7/22/2010
UNIDO input (cash and in kind, USD)	695,631
Co-financing at CEO Endorsement, as applicable	307,595,631
Total project cost (USD)	322,980,631
Mid-term review date	6/30/2013
Planned terminal evaluation date	8/31/2017

(Source: Project document)

[49] Data to be validated by the Consultant

2. Project context

The typical energy efficiency of Russian industry is significantly below the global average. There are a number of reasons for this disadvantage: an ageing capital equipment stock, traditionally low energy prices and abundant national energy resources, in combination with low government and management interest.

This situation has been changing rapidly. Government has set an ambitious target of a 40% improvement of the energy intensity by 2020. National gas prices are increasing steadily, to the level of export prices and electricity sector reforms created a liberalized electricity market leading to market-based prices for electricity. This development raises the interest for energy efficiency significantly. In fact many options could be implemented that are cost-effective today.

However the uptake rate for these efficiency options is slow. There are still serious barriers that stand in the way of financing and implementing energy efficiency options. The knowledge in enterprises about the real energy efficiency opportunities needs improvement as well as the capacity in government to develop and implement effective energy efficiency policies.

Energy Management Systems (EMS) has proven to be an effective tool for enterprises in other countries. Typically they raise the annual efficiency improvement by 1-2 percentage points over a period of many years. This represents an increase by a factor two to three. Such improvements have been observed for large companies and small and medium sized enterprises (SMEs). However experience shows that the EMS requirements for SMEs cannot be as demanding and detailed as for large enterprises. Both groups of enterprises need a differentiated approach.

The Government has passed an ambitious new energy efficiency law, which poses a considerable burden on the policy-making capacity in particular of the Ministry of Energy. It is reorganizing its structure to raise the effectiveness of implementation of the law. For example, it is transforming one of its associated bodies that had some research tasks into a new Russian Energy Agency with a much broader set of responsibilities. Clearly a new range of skills and experts will be needed to further develop, implement and monitor policy measures. This new agency as well as other government bodies needs capacity building in order to adequately meet the demands set by the new energy efficiency law.

3. Project objective

The overall objective of the project is to reduce greenhouse gas emissions in the Russian Federation by transforming the market for industrial energy efficiency in GHG-intensive industries. The project aims to achieve this market transformation through activities that will:

- structurally improve industrial energy efficiency (EE) in heavy and light industries through increased energy efficiency investments,
- have a wider direct positive effect on rational energy use with related environmental benefits, and
- improve the capacity of the government to develop effective (industrial) energy efficiency policies.

The project includes four components:

- Component 1: “Enhancing knowledge assets” creating the training materials, information campaign and training trainers;
- Component 2 : “Capacity building for large industry”: targeting knowledge and financial market barriers aiming to facilitate investment in EE for large companies;
- Component 3 and “Capacity Building for SMEs” targeting knowledge and financial market barriers aiming to facilitate investment in EE for SMEs; and
- Component 4 “Policy support” targeting legislative and market barriers”.

The key performance indicators include:

- Total CO_{2eq} emission reductions as a result of the investments in industrial energy efficiency – target 3.8 million tonnes (over 10 year lifetimes) by 2015
- Volume of investment – target 300 USD by 2015
- Total energy saved (GWh/yr) – target 1.4 TWh per year by 2015

The full logical framework is included as annex 1.

4. Project implementation arrangements

During the course of the PPG and related project development work, UNIDO and EBRD have held numerous meetings with stakeholders dealing with industrial energy efficiency in the Russian Federation, including policy-makers, partner banks, utilities, project developers, investors, and companies that provide products and services related to energy efficiency. On the basis of these discussions and a thorough analysis of existing market barriers, the EBRD and UNIDO have ascertained that the most effective approach to developing the Industrial Energy Efficiency market is through a combination of technical assistance, which is incorporated into all project components, and investment.

The project has been executed by the EBRD and UNIDO through their local Russian offices and headquarters in London and Vienna.

Project Advisory committee

To secure a constructive stakeholder dialogue throughout the project an Advisory Committee will be formed consisting of the Ministry of Energy, Ministry of Economic Development and other representatives from relevant ministries, the Russian Energy Agency, and associations with interest in industrial energy efficiency, project development and finance. The main role of the Advisory Committee will be to provide advice and feedback on the project design and support implementation during operations with policy support and by facilitating key partnerships across the market. The Advisory Committee also provides a forum for the advancement of sustainable energy finance in industry. The Advisory Committee members typically play important roles in promoting and sustaining a favorable policy environment for investments.

UNIDO and the EBRD project implementation team will convene the Advisory Committee semiannually to advise the project on operational issues and promote coordination with other national initiatives and policies. The first Advisory Committee meeting will be organized after launching the project. The purpose of the first meeting will be to announce that the project has started operation, present strategies for the first year and discuss the implementation plan. Other potentially interested government, FI and other partners would be invited to the meeting as observers.

Project Management Unit (PMU)

The project will be coordinated by the EBRD and UNIDO through their local Russian offices and headquarters in London and Vienna. Local execution will take place through two Project Management Units to address project management needs.

All field staff are hired as per UNIDO recruitment rules. During the entire implementation period of the project, UNIDO provides the PMU with the necessary management and monitoring support.

The PMU is responsible for the overall operational and financial management in accordance with rules and regulations imposed by UNIDO/GEF for directly executed projects. It prepares progress reports, financial reports etc. which are submitted to UNIDO-HQ and the PSC. It produces annual progress reports, at least two weeks before the annual meetings. At the end of the project, the PMU will produce the terminal report, which is to be submitted to the Project Steering Committee at least two weeks before the Terminal meeting.

Stakeholders

EBRD and UNIDO are engaging in extensive consultations with local stakeholders. Local stakeholder participation in the Program will be extensive in all components with representatives from government, developers, and financial institutions. This list is by no means exhaustive and simply serves to illustrate the profile of select interested parties.

The main government bodies involved in energy efficiency policy-making process who would be involved in the project include:

- Ministry of Energy;
- Russian Energy Agency;
- Ministry of Economic Development;
- Ministry of Natural Resources and Environment;
- Ministry of Industry and Trade;
- Ministry of Foreign Affairs;

Other public and private sector stakeholders to be involved in the project include:

- Analytical Centre of the Russian Government;
- OPORA RUSSIA (NGO for SMEs);
- Russian Union of Industrialists and Entrepreneurs;
- Russian Association of Energy Service Companies;
- Regional/Oblast authorities and EE related institutions;
- Universities;
- Industrial enterprises;
- Energy efficiency consultants and service providers; and others.

5. Budget information

Table 18. Financing plan summary

$	***Project Preparation***	***Project***	***Total ($)***
Financing (GEF / others)	225,000	15,385,000	**15,610,000**

Co-financing (Cash and In-kind)	600,000	307,595,631	**308,195,631**
Levered co-financing		40,000	**40,000**
Total ($)	***825,000***	**362,980,631**	**363,805,631**

Source: CEO endorsement document

Table 19. Financing plan summary - Outcome breakdown[50]

Project outcomes	Donor (GEF/other) ($)	Co-Financing ($)	Total ($)
1. Enhancing knowledge assets	2,174,050	2,300,000	**44740**
2 Capacity building in large industries	6,114,750	150,600,000	156,71
3. Capacity building in SMEs	5,022,300	150,895,631	155,91
4. Policy support	1,329,850	500,000	1,829,850**18298**
Project management	744,050	3,300,000	4,04
Total ($)	**15,385,00015385000.00**	**307,595,631**	**322,98**

Source: CEO endorsement document

Table 20. Co-Financing source breakdown

Name of Co-financier (source)	Classification	Type	Total Amount ($)
EBRD	Implementing Agency	Cash and In Kind	6,900,000
UNIDO	Implementing Agency	Cash and In Kind	695,631
EBRD	Implementing Agency	Loan (credit lines)	300,000,000
Total Co-financing ($)			**307,595,631**

Source : CEO endorsement document

Table 4 : GEF Resources by Agency

GEF Agency	Focal Area	Country Name/ Global	Project	Agency Fee	Total
EBRD	CC	Russian Federation	7,306,375	730,638	8,037,013

[50] Source: Project document.

UNIDO	CC	Russian Federation	**8,078,625**	**807,863**	**8,886,488**
Total GEF Resources			15,385,050	1,538,500	16,923,500

Source : CEO endorsement document

Table 21. GEF Grant and XP funds (thousands US dollars)

	2011-2012	2013	2014	2015	2016	2017
International Experts	300,489.26	438,225.13	549,217.93	298,392.95	258,743.13	83,683.32
Project Travel	33,642.47	67,067.33	110,240.97	173,528.30	173,578.57	23,037.61
Staff Travel	9,065.61	18,743.75	7,618.14	11,676.78	11,835.61	963.70
National Experts	712,539.43	991,954.18	625,935.90	303,048.07	308,257.68	87,702.16
Subcontracts	570,749.02	295,789.54	316,048.77	277,634.07	234,842.41	63,352.33
Trainings/ Study Tours	25,375.50	116,218.06	77,932.53	23,134.38	12,814.54	-
Equipment	645.42	93.81	29,841.45	113,101.07	29,758.26	643.52
Sundries	71,068.42	29,518.93	77443.18	81671.79	62498.17	8,011.44
TOTAL	1,723,575.13	1,957,610.73	1,794,278.87	1,282,187.41	1,092,328.37	267,394.08

Source: SAP database as of July 2017.

II. Scope and purpose of the evaluation

The terminal evaluation (TE) will cover the whole duration of the project from its starting date in to the estimated completion date in 31/12/2017. It will assess project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact for the UNIDO component of the project.

The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help for improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion. The TE report should include examples of good practices for other projects in the focal area, country, or region.

The TE should provide an analysis of the attainment of the project objective and the corresponding technical outputs and outcomes. Through its assessments, the Evaluation Team (ET) should enable the Government, counterparts, UNIDO and the GEF and other stakeholders and donors to verify prospects for development impact and sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators. The assessment shall include re-examination of the relevance of the objectives and other elements of project design according to the project evaluation parameters defined in chapter VI.

The key question of the TE is whether the project has achieved or is likely to achieve its main objective, i.e.to

The evaluation has three specific objectives:

(i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact;

(ii) Identify key learning to feed into the design and implementation of the forthcoming projects; and

(iii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

III. Evaluation approach and methodology

The TE will be conducted in accordance with the UNIDO Evaluation Policy[51] and the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle[52]. In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies.

The evaluation will be carried out as an independent in-depth evaluation using a participatory approach whereby all key parties associated with the project will be informed and consulted throughout the evaluation. The evaluation team leader will liaise with the UNIDO Independent Evaluation Division (ODG/EVQ/IEV) on the conduct of the evaluation and methodological issues.

In line with its objectives, the evaluation will have two main components. The first component focuses on an overall **assessment of performance** of the project, whereas the second one focuses on the **learning** from the successful and unsuccessful practices in project design and implementation.

The evaluation will use a theory of change approach and mixed methods to collect data and information from a range of sources and informants. It will pay attention to triangulating the data and information collected before forming its assessment. This is essential to ensure an evidence-based and credible evaluation, with robust analytical underpinning.

The theory of change will identify causal and transformational pathways from the project outputs to outcomes and longer-term impacts, and drivers as well as barriers to achieve them. The learning from this analysis will be useful to feed into the design of the future projects so that the management team can effectively manage them based on results.

1. Data collection methods

The main instruments for data collection are the following:

(a) **Desk and literature review** of documents related to the project, including but not limited to:

- The original project document, monitoring reports (such as progress and financial reports, mid-term review report, output reports, back-to-

[51] UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)

[52] UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

office mission report(s), end-of-contract report(s) and relevant correspondence.
- Notes from the meetings of committees involved in the project.

(b) **Stakeholder consultations** will be conducted through structured and semi-structured interviews and focus group discussion. Key stakeholders to be interviewed include:
- UNIDO Management and staff involved in the project; and
- Representatives of donors and counterparts.

(c) **Field visit** to Russian Federation.

2. Evaluation key questions and criteria

The key evaluation questions are the following:

(a) What are the key drivers and barriers to achieve the long term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long term objectives?

(b) How well has the project performed? Has the project done the right things? Has the project done things right, with good value for money?

(c) What have been the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent the achieved results will sustain after the completion of the project?

(d) What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project?

The evaluation will assess the likelihood of sustainability of the project results after the project completion. The assessment will identify key risks (e.g. in terms of financial, socio-political, institutional and environmental risks) and explain how these risks may affect the continuation of results after the project ends. Table 22 below provides the key evaluation criteria to be assessed by the evaluation. The details questions to assess each evaluation criterion are in annex 2.

TABLE 22. PROJECT EVALUATION CRITERIA

#	Evaluation criteria	Mandatory rating
A	**Impact**	**Yes**
B	**Project design**	**Yes**
1	• Overall design	Yes
2	• Logframe	Yes
C	**Project performance**	**Yes**
1	• Relevance	Yes
2	• Effectiveness	Yes
3	• Efficiency	Yes
4	• Sustainability of benefits	Yes
D	**Cross-cutting performance criteria**	
1	• Gender mainstreaming	Yes
2	• M&E:	Yes

	✓ M&E design ✓ M&E implementation	
3	• Results-based Management (RBM)	Yes
E	**Performance of partners**	
1	• UNIDO	Yes
2	• National counterparts	Yes
3	• Donor	Yes
F	**Overall assessment**	Yes

3. Rating system

In line with the practice adopted by many development agencies, the UNIDO Independent Evaluation Division uses a six-point rating system, where 6 is the highest score (highly satisfactory) and 1 is the lowest (highly unsatisfactory) as per Table 23.

TABLE 23. PROJECT RATING CRITERIA

Score		Definition	Category
6	Highly satisfactory	Level of achievement clearly exceeds expectations and there is no shortcoming.	SATISFACTORY
5	Satisfactory	Level of achievement meets expectations (indicatively, over 80-95 per cent) and there is no or minor shortcoming.	
4	Moderately satisfactory	Level of achievement more or less meets expectations (indicatively, 60 to 80 per cent) and there are some shortcomings.	
3	Moderately unsatisfactory	Level of achievement is somewhat lower than expected (indicatively, less than 60 per cent) and there are significant shortcomings.	UNSATISFACTORY
2	Unsatisfactory	Level of achievement is substantially lower than expected and there are major shortcomings.	
1	Highly unsatisfactory	Level of achievement is negligible and there are severe shortcomings.	

IV. Evaluation process

The evaluation will be conducted from September to mid-November 2017. The evaluation will be implemented in five phases which are not strictly sequential, but in many cases iterative, conducted in parallel and partly overlapping:

i. Inception phase: The evaluation team will prepare the inception report providing details on the methodology for the evaluation and include an evaluation matrix with specific issues for the evaluation;
ii. Desk review and data analysis;
iii. Interviews, survey and literature review;
iv. Country visit;
v. Data analysis and report writing.

V. Time schedule and deliverables

The evaluation is scheduled to take place from 9/1/2017 to 11/10/2017. The evaluation field mission is tentatively planned for 10/2/2017 to 10/13/2017. At the end of the field mission, there will be a presentation of the preliminary findings for all stakeholders involved in this project in .

After the evaluation field mission, the evaluation team leader will visit UNIDO HQ for debriefing and presentation of the preliminary findings of the terminal evaluation. The draft TE report will be submitted 4 to 6 weeks after the end of the mission. The draft TE report is to be shared with the UNIDO PM, UNIDO ODG/EVQ/IEV, the UNIDO GEF Coordinator and GEF OFP and other stakeholders for receipt of comments. The ET leader is expected to revise the draft TE report based on the comments received, edit the language and form and submit the final version of the TE report in accordance with UNIDO Independent Evaluation Division (ODG/EVQ/IEV) standards.

Timelines	Tasks
4-15 September 2017	Desk review and writing of inception report
18-19 September	Vienna: briefing with HQ
2 –12 October 2017	Field visit to project site
10-11 October 2017	Presentation of preliminary findings and recommendations
11 - 25 October 2017	Preparation of first draft evaluation report
1 – 3 November 2017	Mission to Moscow and debriefing to key stakeholders and project partners
6 November 2017	Internal peer review of the report by the Independent Evaluation Division / stakeholder comments to draft evaluation report
13 November 2017	Final evaluation report

VI. Evaluation team composition

The evaluation team will be composed of one international evaluation consultant acting as the team leader and one national evaluation consultant. The evaluation team members will possess relevant strong experience and skills on evaluation management and conduct together with expertise and experience in the use of EnMS. Both consultants will be contracted by UNIDO.

The tasks of each team member are specified in the job descriptions annexed to these terms of reference. The ET is required to provide information relevant for follow-up studies, including terminal evaluation verification on request to the GEF partnership up to three years after completion of the terminal evaluation.

According to UNIDO Evaluation Policy, members of the evaluation team must not have been directly involved in the design and/or implementation of the project under evaluation.

The project team in the Russian Federation will support the evaluation team. The UNIDO GEF Coordinator and GEF OFP(s) will be briefed on the evaluation and provide support to its conduct. GEF OFP(s) will, where applicable and feasible, also be briefed and debriefed at the start and end of the evaluation mission.

An evaluation manager from UNIDO Independent Evaluation Division (IEV) will provide technical backstopping to the evaluation team and ensure the quality of the evaluation. The UNIDO Project Manager and national project teams will act as resourced persons and provide support to the evaluation team and the evaluation manager.

VII. Reporting

Inception report

This Terms of Reference (ToR) provides some information on the evaluation methodology, but this should not be regarded as exhaustive. After reviewing the project documentation and initial interviews with the project manager, the International Evaluation Consultant will prepare, in collaboration with the national consultant, a short inception report that will operationalize the ToR relating to the evaluation questions and provide information on what type of and how the evidence will be collected (methodology). It will be discussed with and approved by the responsible UNIDO Evaluation Manager.

The Inception Report will focus on the following elements: preliminary project theory model(s); elaboration of evaluation methodology including quantitative and qualitative approaches through an evaluation framework ("evaluation matrix"); division of work between the International Evaluation Consultant and national consultant; mission plan, including places to be visited, people to be interviewed and possible surveys to be conducted and a debriefing and reporting timetable[53].

Evaluation report format and review procedures

The draft report will be delivered to UNIDO Independent Evaluation Division (ODG/EVQ/IEV) (the suggested report outline is provided in Annex 4) and circulated to UNIDO staff and national stakeholders associated with the project for factual validation and comments. Any comments or responses, or feedback on any errors of fact to the draft report provided by the stakeholders will be sent to UNIDO Independent Evaluation Division (ODG/EVQ/IEV) for collation and onward transmission to the project evaluation team who will be advised of any necessary revisions. On the basis of this feedback, and taking into consideration the comments received, the evaluation team will prepare the final version of the terminal evaluation report.

The ET will present its preliminary findings to the local stakeholders at the end of the field visit and take into account their feed-back in preparing the evaluation report. A presentation of preliminary findings will take place at UNIDO HQ after the field mission.

The TE report should be brief, to the point and easy to understand. It must explain the purpose of the evaluation, exactly what was evaluated, and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the

[53] The evaluator will be provided with a Guide on how to prepare an evaluation inception report prepared by the UNIDO Office for Independent Evaluation.

information contained in the report to facilitate dissemination and distillation of lessons.

Findings, conclusions and recommendations should be presented in a complete, logical and balanced manner. The evaluation report shall be written in English and follow the outline given in Annex 4.

VIII. Quality assurance

All UNIDO evaluations are subject to quality assessments by the UNIDO Office for Independent Evaluation. Quality assurance and control is exercised in different ways throughout the evaluation process (briefing of consultants on methodology and process of UNIDO's Office for Independent Evaluation, providing inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, review of inception report and evaluation report by the Office for Independent Evaluation).

The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality, attached as Annex 5. The applied evaluation quality assessment criteria are used as a tool to provide structured feedback. UNIDO's Office for Independent Evaluation should ensure that the evaluation report is useful for UNIDO in terms of organizational learning (recommendations and lessons learned) and is compliant with UNIDO's evaluation policy and these terms of reference. The draft and final evaluation report are reviewed by UNIDO Office for Independent Evaluation, which will submit the final report to the GEF Evaluation Office and circulate it within UNIDO together with a management response sheet.

Annex 2: List of persons met (interviewees)

Name	Institution	Position	Date and time of interview	Place of interview
Oleg Polumordvinov	City of Astrahan	Mayor	06.10.2017	Moscow
Vincent Duijnhouwer	EBRD		10.10.2017, 10.00h	Moscow
Sergey Korotkov, Maria Lazareva, Boris Melnichuk, Izmail Petrov, Maxim Eliseev, Kamilla Adgamova	Project Team Director of Moscow Office and Output Project Manager Coordinator and responsible for Component 1 and Component 4 Team Leader for Component 3 - National Expert National Experts Project assistant		10.10.2017, 12-14h	Moscow
Dmitry Vachrukov	Ministry of Economic Development	Head of department	10.10.2017, 16h	Moscow
Zukhra Galperina Tikhon Koveshnikov,	Russian Energy Agency	Deputy Director Head of department (Implementation and monitoring of State programme on EE)	11.10.2017, 10h	Moscow
Galina Chynarichina	Analytical Center	Deputy Director	11.10.2017, 12h	Moscow
Slava Pshenichnikov, Maxim Proselkov, Andrey Tarasevich	Project Team	National experts	11.10.2017, 15h	Moscow
Mikhail Zaripov	Baltika (Skype call)	Senior Power Engineer	12.10.2017, 12h	Moscow
Aleksandar Zverev Sergey Mihajlovic	Katur Invest	Leading expert in technical department, Vice director of	13.10.2017, 10h	Yekaterinburg

Name	Institution	Position	Date and time of interview	Place of interview
		production		
Ivan Domrachev	Revda Non-Ferrous Metals Plant	Chief Engineer	13.10.2017, 19.00	Yekaterinburg
Andrey Artemov, Viktor Posadov	Project team	National experts	14.10.2017, 12h	Yekaterinburg
Evgeny Martynov Katya Boroday	Center of EE Technologies, National experts	Director general	16.10.2017	Kazan
Rafael Galimov, Aliya Azizova	KVART	Director general Chief Engineer	16.10.2017	Kazan
Dmitry Pershyn	POZIS	Chief Power Engineer	16.10.2017	Kazan
Ilsur Khsanov Stanislav Starkov	Mamadysh Cheese Butter Factory	Chief Engineer Chief Mechanical Engineer	17.10.2017	Naberezhnye Chelny
Airat Gaifutdinov	Mamadysh WWTP	Chief Engineer		Naberezhnye Chelny
Olga Tarnaeva Ildar Isaev	Zhilcomservice	Director general Chief Engineer	17.10.2017	Naberezhnye Chelny
Anfis Sadriev Anatoly Agafoncev	CNH Industrial	Director general Chief Engineer	18.10.2017	Naberezhnye Chelny
EnMS trainees	KFU Engineering Centre		18.10.2017	Naberezhnye Chelny
Ilya Zuev	City of Naberehznye Chelny	Government Authorities (First Deputy Chairman of the City Executive Committee)	18.10.2017	Naberezhnye Chelny

Annex 3: Bibliography / Documents reviewed

UNIDO (March 2014), Director-General's Bulletin: 'Evaluation Policy'

The GEF M&E Policy and Terminal Evaluations Guidelines, January 2015

Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects

UNIDO – GEF COOPERATION PROJECT OPERATING MANUAL, A handbook on how UNIDO cooperates with the Global Environmental Facility (GEF) and applies for funding from the GEF in focal areas where it has specific comparative advantages, Version 2.0 (as of 11 September 2014)

TERMS OF REFERENCE, Independent terminal evaluation of Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation

Project document (Request for CEO Endorsement / Approval), Market Transformation Programme on Energy Efficiency in Greenhouse Gas-intensive industries in the Russian Federation

FINAL REPORT, Market Transformation Programme on Energy Efficiency In Greenhouse Gas-intensive Industries in Russian Federation, UNIDO project team

Mid-Term Review, Independent terminal evaluation of Market Transformation Programme on Energy Efficiency in Greenhouse Gas Intensive Industries in the Russian Federation

UNIDO ANNUAL PROJECT IMPLEMENTATION REPORT (PIR), Date: 27.10.2012

Project annual report, 2015

Project annual report, 2016

Project annual report, 2014

UNIDO ANNUAL PROJECT IMPLEMENTATION REPORT (PIR), Fiscal Year (FY) 2013 (1 July 2012 – 30 June 2013)

Annex 4 Project Advisory Committee members

No	Organization	Name	Position
1	The Governmnent of Russia	Vitaly Kovalchuk	Adviser to the Department of industry and development
2	Ministry of Energy, Russian Energy Agency	Zukhra Galperina	Deputy director
3	Ministry of Energy, Russian Energy Agency	Tikhon Koveshnikov	Head of Energy efficiency department
4	Analytical centre for the Russian government	Galina Chinnarikhina	Deputy director
5	Analytical centre for the Russian government	Evgey Gasho	Energy efficiency expert
6	Ministry of Foreign Affairs	Sergey Vasiliev	Head of section for cooperation with international organiations
7	Ministry of Industry	Evgeny Petrov	Adviser to the Deparment of strategic development
8	Ministry of Industry	Alexey Gospodarev	Head of Foreign econmic relations department
9	Ministry of Construction and Development	Alexander Fadeev	Head of utility department
10	Ministry of education and science	Igor Ganshin	Deputy Head of International relations department
11	Ministry of natural resources	Nuritdin Inamov	Head of international relations department
12	Moscow government	Boris Baranov	Head of budgetary institution "Energy" of Fuel and Energy department
13	Ministry of Energy of Moscow region	Andrey Lukashov	First Deputy Minister
14	Tomsk regional administration	Natalia Maslova	Adviser to the Governor
15	Russian Aagency for SME support	Viktor Ermakov	Director
16	Industrial Development Foundation	Alexey Komissarov	Director
17	ESCO assosiation	Alexey Tulikov	Head of energy efficiency department
18	Machine building University	Vladimir Frolov	Head of energy efficiency in industry Centre
19	Moscow Energy University	Sergey Guzhev	Head en energy management department

No	Organization	Name	Position
20	Moscow Chemistry University	Tatiana Guseva	Adviser to Energy Efficiency centre
21	Ministry of Economic Development	Dmitry Vachrukov	Deputy Head of department of state regulation, infrastructure reforms and energy efficiency
22	Ministry of Economic Development	*Yaroslav Mandron*	Head of department of state regulation, infrastructure reforms and energy efficiency
21	Baltika Breweries	Yury Chentyrev	Regional Production Director
22	city of Naberezhnye Chelny	Nail Magdeev	Mayor of the city
23	Mamadysh District of the Republic of Tatarstan	Anatily Ivanov	head of the district
24	TU UMMC	Svetlana Fedorova	Deputy director
25	Center of EE Technologies under the Cabinet of Ministers of the Republic of Tatarstan	Evgeny Martynov	Director

Annex 5: Project Result Framework (Source: Project document)

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Impact			
GEF Strategic Priorities: Strategic Program 2: Promoting energy efficiency in the industrial sector	Total CO_{2eq} emission reductions as a result of the investments made up to 2015 (and of project) in industrial energy efficiency – target 3.8 million tonnes (over 10 year lifetimes) Volume of investment – target 300 million USD by 2015 Total energy saved (GWh/yr) – target 1.4 TWh annually by 2015 See Annex G for details of how these targets have been estimated	For all three indicators: Reporting from project sites, data from feasibility studies, verification of savings for all or a representative sample of projects	Energy saving service providers find the line of business profitable, and companies choose to make energy efficiency investments Implementation of project activities will foster industrial energy efficiency investments and reduce CO_{2eq} emissions
Outcomes			
Local trainers have the knowledge resources and skills needed to enhance capacity Participating large industries make EE investments Participating SMEs make EE investments Government capacity enhanced	Average "trainers capacity score" increased[4] – target x4 by project midterm compared to start of project status Investment facilitated in large industries – target US$ 150 million submitted to EBRD credit lines and/or local banks for financing by end of project Investments facilitated in SMEs – target US$ 150 million by end of project	Survey of capacity of trainers at project start, mid-term and end Regular monitoring and reporting of support consultants Regular monitoring and reporting of support consultants	The Program overcomes existing energy efficiency energy market barriers and builds a sustainable market capacity The barriers we identified are indeed the principal constraints to growth in this area. There is no major deterioration in the macro economic and political climate, and Russia emerges from the current financial crisis within the next two-three years.

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
	Government capacity to design and implement an effective industrial EE policy enhanced[5] - target x2 by project mid-term and x4 by end of project compared to start of project	Review of institutional capacity of government at start, mid-term and end of project	
Component 1: Enhancing knowledge assets	Fully developed set of training materials for energy management system implementation and systems optimisation training, including build-up of systems optimisation library; Information campaign implemented; Fully functional Russian-English language web site; Discussion forum and Peer-to-Peer network established and operational; Up to 120 national trainers fully trained in EMS and systems optimisation; Enhanced capacity of local banks to identify and process loans for industrial energy efficiency	Copies of training materials Copies of information assets, contact log Website and use statistics Discussion archive and membership list Participant logs and evaluation forms from trainers' events Deal flow through local banks	Local trainers are interested in the information and resources and this contributes to their capacity to train others
Component 2: Capacity building in large industries	1⁄2-day introductory training sessions to 100 managers in 50 large enterprises delivered; Formal classroom training in energy	Participant logs and evaluation forms Participant logs and evaluation	Macro economic conditions are such that investment in efficiency continues to be attractive, and banks have capital for investment.

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
	management systems and systems optimisation to 100 managers in 20 large enterprises delivered that are additional to the core 10 enterprises;	forms	
	2-day training sessions to participating large enterprises staff delivered;	Participant logs and evaluation forms	
	Extensive on-site EMS training for 10 large enterprises;	Participant logs and evaluation forms	
	Implementation of EMS in 10 large enterprises;	Verification reviews of EMS status in enterprises	
	Full energy audits for the 10 large enterprises carried out;	Copies of audits	
	40-60 enterprise staff trained in systems optimisation at the 10 core enterprises (a total of 30 three-day workshops);	Participant logs and evaluation forms	
	40 system assessments prepared at the 10 core enterprises;	Copies of assessments	
	40 system assessments prepared at the 20 additional enterprises;	Copies of assessments	
	35 full case studies developed;	Copies of case study reports;	

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
	Recognition programme established and participants registered in the peer-to-peer network; 10 complete company energy efficiency investment plans developed; 40 Russian equipment suppliers trained in optimisation of six types of systems (twelve three-day workshops)	Reports from annual events, Discussion archives Copies of plans Participant logs and evaluation forms	
Component 3: Capacity building in SMEs	100 SMEs trained in energy management systems; 25 large SMEs trained in systems optimisation; 25 systems optimisation assessments completed in large SMEs; Russian benchmarking developed and introduced in 2-3 SME-sectors and 50 SMEs; 50 quick audits carried out by national experts and audit companies; Data bank on energy efficiency technologies developed;	Participant logs and evaluation forms Participant logs and evaluation forms Copies of assessments Reports from benchmarking Copies of audits Web-based databank	Macro economic conditions are such that investment in efficiency continues to be attractive, and banks have capital for investment.

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
	Voluntary certification scheme prepared; 50 energy efficiency investment plans prepared;	Documentation on possible scheme structure Copies of investment plans	
Component 4: Policy support	80 government officials trained in industrial energy efficiency policy preparation; Proposals for selection and approval of projects submitted to the new federal target programme delivered; Monitoring and evaluation procedures for the federal target programme developed; Experts of the energy agency trained in information campaigns and the use of the web site and its tools; Proposals delivered to REA on data collection and analysis structure; Proposals delivered for the introduction of a Russian Energy Management Standard and road map for long- term agreements with industry;	Participant logs and evaluation forms Copies of proposals Copies of procedures Participant logs and evaluation forms Copies of proposals Copies of proposals	Institutional and political barriers can effectively be overcome through analysis, information and co-ordination activities

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
	Recommendations prepared for certification scheme of industrial energy efficiency equipment;	Copies of recommendations	

Annex 6: Progress table

Project Component	Expected Outputs	Achieved outputs	Comment on achievement
Enhancing knowledge assets	- Fully developed set of training materials for energy management system implementation and systems optimisation training, including build-up of systems optimisation library;	Training materials include a trainer manual, an extensive set of slides and a manual for trainees for classroom training and practical hands-on factory training. Full packages developed for: - EnMS - Compressed-Air System - Steam System - Pumps Systems - Fans Systems - Motor Systems Smaller package for Refrigeration System Initial library on Web-Portal	Meet the expectation.

	- Information campaign implemented	- National webinar training on EnMS and ISO 50001 in collaboration with Russian Energy Agency (REA) - 25,000 participants recorded
		- 39 articles published
		- Participation in:
		  ○ 30 fairs and exhibitions,
		  ○ 74 seminars, symposiums, forums and conferences,
		  ○ 11 international governmental events and press-conferences.
		- 5 own conferences
		- 3 Project advisory committee meetings.
			Meet the expectation.

	- Fully functional Russian-English language	- Website fully operational (unido.ecdl.su)	Meet the

Project Component	Expected Outputs	Achieved outputs	Comment on achievement
	web site;		expectation.
	- Discussion forum and Peer-to-Peer network established and operational;	- Discussion forum implemented on website	Meet the expectation
	- Up to 140 national trainers fully trained in EMS and systems optimisation	- 175 national trainers trained in EnMS (among them - 45 by reduced programme), with 30 more in process; and 110 fully trained in systems optimisation - 99 qualified as UNIDO EnMS experts, 54 - as SO experts	Exceed the expectation
Capacity building in large industries		- Not Applicable (EBRD responsibility)	/
Capacity building in SMEs	- 100 SMEs trained in energy management systems	- 50 companies received training and implemented the EnMS	Somewhat lower than expected
	- 25 large SMEs trained in systems optimisation;	- 53 large SMEs trained in systems optimisation; - 190 trainees attended UNIDO trainings	Exceed the expectation
	- 25 systems optimisation assessments completed in large SMEs;	- 22 systems optimisation assessments completed in large SMEs	Somewhat lower than expected
	- Russian benchmarking developed and introduced in 2-3 SME-sectors and 50 SMEs;	- Benchmarking methodology developed - Automated benchmarking system developed (benchmarking.su) - Benchmarking introduced to 4 sectors: o Oil and gas o Paper production o Cement production o Bakery - Benchmarking of 121 enterprises carried out	Exceed the expectation
	- 50 quick audits carried out by national	- 52 quick audits carried out by national experts	Exceed the

Project Component	Expected Outputs	Achieved outputs	Comment on achievement
	experts and audit companies;	- 27 internal audits carried out by the companies	expectation
	- Data bank on energy efficiency technologies developed;	- Data bank on energy efficiency technology developed (http://unido.ecdl.su/equipment)	Meet the expectation
	- Voluntary certification scheme prepared;	- Voluntary certification scheme prepared (Rosenergostandart);	Meet the expectation
	- 50 energy efficiency investment proposals prepared at participants;	- All companies that implemented EnMS have developed energy saving programmes/plans; lists of planned measures for EE increase are reflected in the final EnMS reports of national experts, and the total planned investments by companies for 2014-2017 in monetary terms amount to 3.2 billion RUB, and are reflected in the "IEE"Results" table.	Meet the expectation
	- Voluntary labelling/certification scheme agreed with manufacturers	- Voluntary labelling/certification scheme prepared, reviewed with industry stakeholders and policy makers and recommended to implementation by Analytical centre of the Russian Government	Meet the expectation
Policy support	- 80 government officials trained in (industrial) energy efficiency policy preparation;	- 141 government officials trained in (industrial) energy efficiency policy preparation	Exceed the expectation
	- Proposals for selection and approval of projects submitted to the new federal target programme delivered;	- Proposals for selection and approval of projects submitted to the federal target programme and included into policy documents.	Meet the expectation
	- Monitoring and evaluation procedures for the federal target programme developed;	- Monitoring and evaluation procedures for the federal target programme developed by Russian Energy Agency with assistance of UNIDO experts;	Meet the expectation
	- Experts of the energy agency trained in information campaigns and the use of the web site and its tools;	- 43 experts from Russian Energy Agency trained in different aspects of energy management and its implementation, including information campaigns and web tools. - Online training tool in energy performance indicators (indicatoree.ru) developed and implemented by REA	Exceed the expectation

Project Component	Expected Outputs	Achieved outputs	Comment on achievement
		commissioned by UNIDO	
	- Proposals delivered to REA on data collection and analysis structure;	- Proposals and expert recommendations on following issues delivered to REA: ○ Best-practices for energy performance data preparation and analysis; ○ Advanced energy performance metrics and analysis methodologies, including CUSUM, linear and multivariate regression ○ Energy Performance Indicators ○ Energy Baselines and their relation to EnPIs ○ Energy performance improvements calculation ○ Day-to-day management aspects of energy performance and use of EnPIs ○ Best-practices for reporting to management about energy performance	Exceed the expectation
	- Proposals delivered for the introduction of a Russian Energy Management Standard and road map for long-term agreements with industry;	- Comprehensive report (308 pages) containing proposals for the introduction of a Russian Energy Management Standard and road map for long-term agreements with industry and budgetary institutions prepared	Exceed the expectation
	- Recommendations prepared for certification scheme of industrial energy efficiency equipment	- Report for certification scheme of industrial energy efficiency equipment (with focus on electric motors and boilers) prepared and reviewed with industry stakeholders and PAC members.	Meet the expectation