MID-TERM REVIEW

UNDP IRAN

"Policy Reforms and Market Transformation of the Energy Efficient Buildings Sector of the I.R. Iran"

(EEEB Project)

October 2019

PROJECT SUMMARY TABLE

Project title:	Policy Reforms and Market Transformation of the Energy Efficient Buildings Sector of the I.R. Iran			
GEF Project ID:			*at endorsement*	*at completion*
UNDP Project ID:	00063735 PIMS: 4018	**GEF financing:**	4,000,000 USD	
Country:	Iran	**IA/EA own:**	125,000	
Region:		**Government:**	28,391,760	
Focal Area:	Climate Change	**Other:**		
FA Objectives, (OP/SP):		**Total co-financing:**	28,516,760	
Executing Agency:	Vice Presidency for Science and Technology (VPST) – Committee for Energy Efficiency and Environment (CEEE)	**Total Project Cost:**	32,516,760	
Other Partners involved:	• Department of Environment (DoE) – the new focal point for GEF • Building Research Center (Subsidiary of Ministry of Road and Urban Development) • Iran National Standard Organization • Iran Fuel Conservation Co. (IFCO) (a subsidiary of Ministry of Petroleum) • Iran Renewable Energy and Electrical (Energy Efficiency Subsidiary of Ministry of Power)	**ProDoc Signature (date project began):**		18 Aug 2016
		(Operational) Closing Date:	Proposed: 31 Dec 2020	Actual:

EXECUTIVE SUMMARY

This report presents the main findings of the Mid-term Review (MTR) of the "Policy Reforms and Market Transformation of the Energy Efficient Buildings" (EEEB)[1] project implemented by UNDP and Vice Presidency for Science and Technology (VPST) in the Islamic Republic of Iran. The review was commissioned by UNDP Iran and was carried out during September-October 2019 (including a field mission during the period 31 August – 8 September 2019) by a team of two independent experts. The MTR's scope encompasses all activities from the project's start date, indicated in the Project Document as August 2016, to the point of review (September/October 2019).

The project is financed with an amount of USD 4 m by the Global Environment Facility (GEF) and is implemented by UNDP and Vice Presidency for Science and Technology (VPST) for a period of four years between 2016 and 2020. Its overall goal is to achieve GHG emission reduction in Iran's buildings sector through legislative, policy and regulatory reforms and implementation of cost-effective mitigation measures. The project has supported the implementation of policies on energy efficiency and developing appropriate means of applying building energy codes.

While the amount of information generated by this review was large, the findings presented in this chapter cover only the project's most essential aspects and are to some extent focused on those issues that require improvement and the attention of project stakeholders. The MTR's findings are organized in the following sections: i) Project Design; ii) Project Implementation; and, iii) Project Results.

Project Design

The Project Document and the Inception Report paint a good overview of the situation in the area of energy efficiency in buildings in Iran. The analysis of the stakeholders and institutional responsibilities – which in the country is quite complex – is described adequately and provides useful guidance to the project team. Also, the definition of the problem is clear and well-structured. However, in spite of these strengths, the project design suffers from a number of shortcomings that have presented serious challenges to the project team and stakeholders. The project's level of ambition is too high for the resources and timeframe of this project, the proposed interventions are not always consistent and the selection of indicators and targets in the Results and Resources Framework (RRF) could have been done more carefully. all the different pieces of the project are components of a complex framework that should function as a whole. Overall, the Project Document does not do a good job in describing and outlining a coherent picture that brings and links all project components together. At the level of activities, the description is quite vague, lacking detail, which makes it difficult to see how the activities contribute to the whole initiative. Also, the sequence of interventions does not receive a lot of attention. Further, many of the

[1] The EEEB acronym used by the project stakeholders stands for "energy efficiency and environment in buildings".

indicators and targets identified in the Results and Resources Framework (RRF) of the Project Document (Pro Doc) do not meet the SMART criteria. In hindsight, it is clear that such major interventions that the EEEB project involves require a different structuring the project.

Project Implementation

During the implementation phase, the project team has taken a number of adaptative measures in response to the challenges identified above.

With regards to the pilots, it has reorganized the process in three waves (batches) to recover time. To expedite the work, the 3rd and 4th batches will start in the middle of the 2nd batch (Q1 of 2020). The team has also made progress in defining what constitutes a "pilot", which was a major challenge related to the fact that the Project Document did not provide full clarity on this. With regards to the buildings' size, based on the original project document, the standard area for residential buildings has been set 120 m2. For non-residential buildings, it is set at 5,300 m2. Also, recognizing limited possibilities of ESCOs and building owners to provide financing, the project team has designed the batches in a way that involves the provision of financial support by the project, but in a decreasing fashion. Further, in order to attract more contribution and participation of buildings, the project has widened the scope of interventions. All these are commendable adaptive measures which starting from this year have given the "pilots" component significant impetus. The project has also decided to hire a specialized Managing Company which will be responsible for managing and supervising all pilot works. This is an important measure for a number of reasons, but most importantly because the works involved in the pilots are quite complicated technical and contractual matters. Also, the use of a dedicated supervising company will free project staff from the pilots and allow them to focus on other matters requiring their attention.

Being perhaps the most crucial element of the project, the establishment of the market mechanism has also seen some progress in the course of the current year (2019). First, a dedicated staff member is hired to tend to this component. Further, a concept note laying out the model had been developed and is pending approval from the relevant partners. Implementing and testing the model will be a significant challenge. In the opinion of some stakeholders interviewed for the MTR, there is a risk that the EEE market won't be implemented and promoted on a full national scale, but will remain limited to the pilot scale. This is a real risk as the EE market will involve many components and actors and will require a number of processes, procedures and extensive coordination. For successful implementation of the market, it will be necessary to have an appropriate financing scheme and a set of regulations that will underpin the functioning of the market. Establishing these elements will take time. In this situation, it will be essential for the project team to develop realistic scenarios for how to proceed with the establishment of the market mechanism within the time and resource constraints of the project. This work should go beyond the exiting concept note and focus on what is realistically feasible and what is not identifying clear timelines for all alternatives and respective activities. Also, more focus on the financing scheme, and where feasible the

involvement of commercial banks, will be necessary. Further, the project could explore ways of linking the EE market model to existing financial incentives available in the country.

With regards to finance, by the time of the MTR the project had spent a total of about US$ 700,000, or about 22% of what was budgeted for the four-year period. This total amount spent represents about 18% of the total funding provided by GEF for this project (US$ 4 m). The project has had quite low execution for all years, which is a reflection of the delays and challenges it has experienced (and which have been described in the previous sections). It should also be noted that project finances have been affected by the depreciation of the Iranian currency. The Iranian Rial has been devalued by about 2.5 times since April 2018, which has more than doubled the amount of local currency available in the budget. Clearly, without this devaluation the project's execution rates would have been much higher. Despite the changes in the context and adjustments introduced in the inception report, the project's budget has not been revised so far. At this point in time, there seems to be consensus among the project team and some of the stakeholders that the project would benefit from a budget revision.

With regards to the M&E system, the most foundational M&E tool of the project, the Results and Resources Framework, has a number of weaknesses which have been pointed out in the previous sections of this report. These weaknesses have represented a serious challenge for the project team in their planning and implementation activities. Also, the Project Document lacks a strong and consistent Theory of Change (ToC) that ties all the different project elements together into one single piece. This has been addressed in the Inception Report where a short ToC has been included, but still a coherent framework that links all the different pieces of this project together is still lacking. This has made it difficult for the project team to plan and track activities in a comprehensive fashion. There is still a lot that needs to be done in order to improve the quality of project management and monitoring. The oversight role of the Steering Committee should be further strengthened. The project team will need to focus on the establishment of the Monitoring, Reporting and Verification (MRV) system for the pilots. The monitoring of risks through the risk log or risk register is another priority that should be addressed by the project team and brought to the attention of the Steering Committee. Overall, the performance of VPST and UNDP has been adequate, but stronger engagement is required to press ahead with some of activities that have suffered from considerable delays.

Project Results

With regards to the achievement of results, the mid-term targets that have been achieved are primarily related to activities related to policy development, training and awareness-raising. These are the areas where the project has made the most progress thus far. A number of mid-term targets have not been achieved, which is not surprising given the delays and challenges that the project has experienced. These targets will require greater attention by the project team during the remainder of the project's lifetime. Most of them are bound to see accelerated progress int he coming months because they are linked to the pilots and the establishment of the market

mechanisms which have experienced delays but are well under way now. There are a number of indicators and targets that are unclear or unrealistic. The project team has flagged these indicators and targets and has done some analysis around their feasibility.

On the efficiency front, there have been some achievements, but also some crucial challenges such as the delays in implementation. Administrative (project management) costs have been low, averaging about 5% of total project expenditure for the whole period of project implementation, which is an indication of good administrative efficiency.

The sustainability of the EE market beyond the piloting conducted under the EEEB project involves substantial challenges. It is crucial that the financing of EE investments is done on a market basis, which will ensure the sustainability of investment. The establishment of the market mechanism underpinned by the EE Certificate will be crucial for sustaining the results that the project is seeking to achieve. The key question of how the market mechanism will be established in the remaining time of this project should be the most crucial issue facing the stakeholders. In addition, the financial sustainability of the market mechanism will require the establishment of a dedicated fund or partnership with existing national funds and the establishment of a proper financing scheme. Alternatively, the involvement of the financial sector (i.e. commercial banks) in the financing of EE improvements in the buildings sector will strengthen the viability and sustainability of this market. Another key aspect of sustainability is the involvement of all EE-related players in building sector (knowledge-based, start-ups, suppliers, service providers, etc.), and not only ESCOs. This will require the provision by the project of requisite training for all players.

Further, the fundamental replication mechanism of this project is the "EE Market" mechanism which is expected to lead to large-scale transformation in the energy sector. The hinge for the replication success of this project is the establishment of the EE Market. This is going to be a serious challenge, given the complexity of issues involved in the establishment of such a market. If the project will manage to test the EE market mechanism (including the EE certificates) through the pilots, it will have achieved a very important goal. However, there are other objectives of this project which will be achieved through the pilot initiatives. They are expected to showcase an approach for the implementation of energy efficiency improvements in buildings by demonstrating a number of things, including the feasibility (cost-effectiveness) of EE improvements, the approach for undertaking such improvements, technological solutions to EE problems, etc. There are also other elements of the project beyond the market mechanism and the pilots that are important – for example, EMIS, training programmes, awareness-raising initiatives, etc. So, it will be important to replicate these elements as well after the project's end on a larger scale.

Gender

The project is focusing on women as managers at home (to reduce energy consumption on daily basis, educate the family about energy efficiency and to buy energy efficient home appliances).

The project has launched a series of awareness-raising workshops aimed at exploring the role of women in reforming consumption patterns and behaviour change which was designed and implemented to raise awareness about the importance of optimizing energy consumption and providing practical solutions, especially for women working in offices. In these workshops, women were trained to improve energy-efficient behaviours. While the reporting documents provided by the project team do not expressly mention gender concerns, it is clear that the scalability and replicability potential of the pilots have the potential to positively benefit everyone, including women. One potential improvement from the project team would be a more detailed discussion of the gender aspect of this project.

* * *

Based on the experience of this project, the MTR identified the following lessons:

Lesson 1: Recognizing the Complexity of Energy Efficiency

One important lesson that can be drawn from this evaluation is that UNDP and its partners must recognize the immense complexity of energy efficiency. EE is a very complex area with various moving parts and involving a wide variety of stakeholders. Promoting energy efficiency investments in the building sector requires not only financial incentives for building owners and ESCOs, but also information about potential opportunities for cost-effective investments. This information is not obvious to building owners and ESCO companies – it has to be generated and this is something that is done through energy audits. Energy audits require their own institutional infrastructure to be in place – energy audit companies and agents who are well-trained to conduct audits.

Lesson 2: Importance of Project Design

This MTR has highlighted a number of challenges related to the design of the Project Document. In particular, some of the indicators and targets seem to have been determined quite unrealistically and will require a revision. The main point here is that the setting of the project targets should be based on a better analysis of what is feasible and what is not. Targets that are far off from the real capabilities of the project indicate that the expectations from this project at the design stage must have been quite removed from the actual situation.

Lesson 3: Importance of Market Mechanisms for Energy Efficiency Investments

Another key lesson that can be drawn from this project is that it is crucial that the financing of EE investments is done on a market basis, which ensures the sustainability of investments. Many projects provide grants as incentives for encouraging investments in EE improvements. This is good in the short run demonstrating the effects of a certain approach or technology, but in the long run it is not sustainable. Only market-based solutions are sustainable in the long run. In the case

of the EEEB project, the establishment of the market mechanism underpinned by the EE Certificate will be crucial for sustaining the results that the project is seeking to achieve.

The following is the project's rating in this MTR.

Monitoring and Evaluation	
Overall quality of M&E	MS
M&E Design at Entry	MU
M&E Plan Implementation	MS
IA & EA Execution	
Overall Quality of Project Implementation/Execution	MS
Implementing Agency Execution	MS
Executing Agency Execution	MS
Outcomes	
Overall Quality of Project Outcomes	MS
Relevance	R
Effectiveness	MS
Efficiency	MS
Sustainability	
Overall likelihood of Sustainability:	ML
Financial resources	ML
Socio-economic	L
Institutional framework and governance	ML
Environmental	L
Overall Project Results	MS

This evaluation makes the following recommendations:

Recommendation 1: Addressing Implementation Delays and Project Revision

To complete all the key activities, and in particular the pilots that are underway, the project will most likely need a no-cost extension. This matter was brought up in the meetings with most project stakeholders. The recommendation of this MTR is for the project team to conduct a careful review of this matter based on the implementation plans and submit a clear request to the Steering Committee for its consideration.

Further, the project team should focus on the supervision and coordination of the execution of the pilot buildings, which is going to be a very complex exercise and crucial for increasing the delivery of the project. The project team should establish regular (preferably, bi-weekly) meetings with the parties delivering the works (ESCOs) where it can discuss progress and possible bottlenecks.

Another major recommendation of this MTR is to adjust the project's design and RRF in accordance with the changes in the external environment and in line with the estimations that the project team has produced (as discussed in the previous sections of this report). Given the

challenges with the project indicators and targets presented in the table above, the MTR team suggests a comprehensive and systematic review of the RRF by the project team and project stakeholders to understand what was the original intention of the selected indicators and what is feasible in the current situation. The project team has made good progress now in identifying alternative indicators and targets which are not only more realistic and feasible, but also closely related to the project's primary goal and objectives. Revisions to the RRF within the constraints of GEF guidelines should be discussed and approved in the project's Steering Committee and further agreed with UNDP and GEF.

This MTR also recommends that the scope of EE improvements is widened to include any building-related improvements, including electricity savings, and at the same time excluding CCHP technologies which at this point in time do not seem feasible under this project.

Further, the MTR recommends that the project team pay greater attention to the ways in which disadvantaged groups, including women and persons with disabilities, could benefit from this project either as beneficiaries of the various project activities or as participants in the pilot projects.

Recommendation 2: Coordination and Engagement with Relevant Stakeholders

The project team should seek to strengthen coordination with all relevant stakeholders within the framework of the project. The Steering Committee is a good platform for strengthening this coordination. Starting from 2019, there has been a greater engagement of some of the key partners, including VPST, with the project, which has resulted in the reinvigoration of coordination and acceleration of project activities. It will be important now for the project team to strengthen the role of the Steering Committee, have more frequent meetings and involve other partners that have thus far been less involved with the process.

It will be important for the project team and stakeholders to identify lessons and complementarities with the projects funded by JICA and the German Ministry for Environment, and others that might be ongoing in the country. The potential for synergies is particularly strong with the German-funded project which is implemented by VPST.

Recommendation 3: Pilots Initiatives and Market Mechanism

The project team should finalize its definition of "buildings" and submit it to the Steering Committee and project stakeholders for endorsement. In this way, everyone will be reading from the same page. Further, the project team should focus on the establishment of the Monitoring, Reporting and Verification (MRV) system for the pilots. This should also include the establishment of a system to monitor the quality of implementation of pilot initiatives by the contractors. This will be essential as more and more pilots get underway. The project team should also assess the need for additional resources in the supervision of contractors. Closer engagement with the contractors will strengthen the quality and cost-effectiveness of pilots. The quality assurance system could include spot-checks of projects by contracted technical support consultants

during and after the construction. The project team should organize training sessions on the monitoring and implementation of pilot projects by the contractors.

Further, it will essential for the project team in close cooperation with the VPST to develop some realistic scenarios for how to proceed with the establishment of the market mechanism within the time and resource constraints of the project. This work should go beyond the exiting concept note and focus on what is realistically feasible and what is not identifying clear timelines for all alternatives and respective activities. A key decision by the government that the project team should facilitate is on the appointment of an influential state entity to be responsible for managing the market mechanism. This decision is essential and should be made as soon as possible. Also, more focus on the financing scheme, and where feasible the involvement of commercial banks, will be necessary. Further, in case the development of the EE Certificate Scheme is moving too slowly, the project could even consider a "simulation exercise" of testing such a scheme.

Recommendation 4: Energy Management Information System (EMIS)

The project team should bring the issue of the ownership of EMIS to the attention of the Steering Committee and key stakeholders, which should make a firm decision is made soon. Also, project stakeholders should define and agree from the outset the work-flow, processes, procedures and roles and responsibilities for EMIS. Furthermore, the project team does not need to reinvent the wheel with EMIS – such systems have been developed in other countries with UNDP support (i.e. Bosnia and Herzegovina, Serbia, India, etc.) and the project could facilitate learning and exchange of experiences with these countries. The project team should explore the possibility of support to the contractor selected for the development of EMIS from an international expert who has experience with the successful implementation of such systems in the countries.

Recommendation 5: Sequencing of Activities

Given the interconnectedness of the different pieces (components) of the EEEB project, it will be essential for the project team to carefully review the sequencing of activities and decide what activities are essential and in which order. Some key decisions need to be made in this regard. First, is it possible to test the EE market mechanism through the pilots (any of the batches that are planned? If not, how will the market mechanism be tested? How many pilots (buildings) will be necessary to test the market mechanism? Can the market mechanism be established without the EMIS system being fully operational? What legal instruments will be necessary to have a fully functioning market mechanism and how long will it take to develop those instruments and get them approved? An even more fundamental question is whether it is possible within the timelines of this project to have a basic market mechanism ready for testing. These are issues that the project team should assess realistically and bring to the attention of the Steering Committee for a clear decision on how to proceed. If these issues are settled satisfactorily at this stage, then the project can focus on what is feasible and try to do the best of the remaining time and resources.

Recommendation 6: M&E System and Project Finance

The monitoring of risks through the risk log or risk register is another priority that should be addressed by the project team and brought to the attention of the Steering Committee. In the risk log, risks should be categorized by level and actions for reducing their likelihoods should be identified and taken.

The project should track more effectively a number of crucial parameters. The following are the most important:

- Another element that the project team could track more effectively is the uptake of project outputs (studies, trainings, etc.) and the degree to which they serve their intended purpose. For example, the project could monitor more closely the extent to which analytical documents produced by the project get incorporated into national policies and programmes.
- Also, the project team could track more effectively the degree to which the capacity of participants in the various training programmes improves. This was an important activity of the project which could not be assessed by the MTR team because of the lack of data.
- The project team should track closely the experience of pilot initiatives, the lessons they generate and the extent to which they get scaled up. It is early to talk about their scale of replication, but one characteristic of them is that they serve to produce lessons which when shared may lead to replication. They can be vehicles for transmitting experience and play a crucial role for upscaling and replication. However, it is not clear how their lessons will be collected, analyzed, synthesized and shared. The project should develop a tracking mechanism for pilot initiatives, including documenting results, lessons, experiences and good practices.
- The project should monitor co-financing more effectively by improving its tracking system.

A revision of the budget is necessary, certainly within the constraints of GEF guidelines. It is commendable that the project team has already developed a budget plan. The team should now present the budget plan to the Steering Committee for its discussion and endorsement, and subsequently receive all the necessary approvals for the changes. Further, the project team should track co-financing carefully and at the time of the final evaluation should work with the evaluation team to document and validate all the co-financing information.

Recommendation 7: Sustainability and Capacity Building

The project team should explore ways of strengthening the financial sustainability of the market mechanism through a dedicated fund or partnership with existing national funds and the establishment of a proper financing scheme. Alternatively, the involvement of the financial sector (i.e. commercial banks) in the financing of EE improvements in the buildings sector will strengthen the viability and sustainability of this market.

The project team should pay more attention to the limited capacity of ESCOs and building owners. The lack of sufficient local capacity and experience is one of the causes of the delays that the

project has experienced. The project team should strengthen the capacity building component of the project and where feasible allocate more attention and resources to the issue of capacity building for energy companies and professionals. The project team should also seek to engage a broader range of EE-related players in the building sector (knowledge-based, start-ups, suppliers, service providers etc.), and not only ESCOs. This will require the provision by the project of requisite training for all players.

The project should reconsider and revamp the educational and awareness-raising activities, and, if possible, to allocate additional funding to these types of activities. It is also necessary that the project establish a more effective and targeted awareness campaign and trainings for building owners. It is also recommended that the project start exploring behavior insights relate to energy efficiency taking account interesting international experiences which in this area are plentiful now.

Further, the project team could be given more flexibility in setting new approaches and methods in raising awareness and shaping the public's behavior. As an example, the project team has envisaged the building of "*near-zero energy buildings*" (which could include schools) to demonstrate the benefits of building energy codes and standards. The project team believes that the effects of such demonstrations will be sustained for a very long time by having such buildings visited by the public and students. This proposal and similar ideas should be submitted to the Steering Committee for a decision based on a concrete assessment by the project team of their feasibility within the constraints of the project.

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ACRONYMS AND ABBREVIATIONS

APPR	Annual Project Progress Report
BHRC	Building and Housing Research Center
BEMS	Building Energy Management Systems
CTA	Chief technical adviser
CCHP	Combined Cooling Heating and Power
CEEE	Committee for Energy Efficiency and Environment
CO	County Office
CSSAP	Cross-Sectoral Strategy and Action Plan
DoE	Department of Environment
DOE	Department of Environment
DNPM	Deputy National Project Manager
EEM	EE Market
EE	Energy Efficiency
EEEM	Energy Efficiency and Environment Market
EEEB	Energy Efficient Buildings
EMIS	Energy Management Information System
ESCO	Energy Service
GEF	Global Environment Facility
GHG	Greenhouse gas
IGEA	Investment Grade Energy Audit
IFCO	Iran Energy Conservation Company
IRENEX	Iran Energy Exchange
INSO	Iran National Standard Organization

JAICA	Japan International Cooperation Agency
MPO	Management and Planning Organisation
M&E	Measurement and Evaluation
MTR	Mid-term Review
MCLS	Ministry of Cooperatives, Labour, and Social Welfare
MFA	Ministry of Foreign Affairs
MRV	Monitoring, Reporting and Verification
NDC	National designated commitments
NPD	National Project Director
NPM	National Project Manager
OECD DAC	Organisation for Economic Co-operation and Development's Development Assistance Committee
PBO	Planning and Budgeting Organization
Pro Doc	Project Document
PIR	Project Implementation Review
SATBA	Renewable Energy and Energy Efficiency in Electricity
RES	Renewable Energy Sources
RRF	Results and Resources Framework
SERI	Sharif Energy Research Institute
SDG	Sustainable Development Goals
TE	Terminal Evaluation
ToR	Terms of Reference
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
UNDP	United Nations Development Programme
VPST	Vice Presidency for Science and Technology

1. INTRODUCTION

This report presents the main findings of the Mid-term Review (MTR) of the "Policy Reforms and Market Transformation of the Energy Efficient Buildings" (EEEB)[2] project implemented by UNDP and Vice Presidency for Science and Technology (VPST) in the Islamic Republic of Iran.[3] The review was commissioned by UNDP Iran and was carried out during September-October 2019 (including a field mission during the period 31 August – 8 September 2019) by a team of two independent experts. This chapter provides an overview of the MTR's objectives and methodology employed for the collection of information and analysis of the data.

1.1. Purpose of the MTR

The MTR's goal is to assess the project's overall progress towards expected results, identify how activities were designed and implemented up to the point of the MTR and provide project stakeholders with lessons and recommendations for the remainder of the implementation period and the continuation of activities in this area. More specifically, the MTR was conceived and conducted with the following specific objectives in mind:

- To assess overall project performance against project objectives and outcomes as set out in the Project Document, Logical Framework, and other related documents;
- To assess the extent to which results have been achieved, partnerships established, capacities built, and cross-cutting issues such as gender equality addressed;
- To establish whether the project implementation strategy has been optimal and recommend areas for improvement and learning;
- To identify gaps and weaknesses in the project design and provide recommendations as to how it may be improved in the future;
- To assess project strategies and tactics for achieving objectives within established timeframes;
- To critically analyze the project's implementation and management arrangements;
- To provide an appraisal of the project's relevance and efficiency of implementation;
- To review and assess the strength and sustainability of partnerships with government bodies, civil society, private sector and international organizations;
- To assess the gender aspects of implementation and results;
- To draw lessons that may help improve the selection, design and implementation of project activities in the remainder of the project;
- To provide the project team and partners with feedback on issues that are recurrent and need attention, and on improvements regarding previously identified issues;

The results of this MTR will be used primarily to:

[2] The EEEB acronym used by the project stakeholders stands for "energy efficiency and environment in buildings".
[3] Throughout the report, the terms Islamic Republic of Iran and Iran with be used interchangeably.

- Support the decision making of the project team, relevant government partners and UNDP CO management on: i) implementation modalities of the present stage, and ii) strategic planning of activities in this area in the remainder of the project's lifetime.
- Provide UNDP and GEF with lessons from this particular project on overall project implementation and delivery, including potential corrective/adaptive measures that need to be applied to the design/implementation of other country programme interventions to enhance their effectiveness, efficiency, relevance and sustainability prospects.

1.2. MTR's Scope and Methodology

The MTR's scope encompasses all activities from the project's start date, indicated in the Project Document as August 1st, 2016, to the point of review (August/September 2019). The Terms of Reference (ToR) where the scope and main steps of the MTR process were laid out are attached in Annex I of this report.

Key issues on which this MTR has focused are:

- Project design and its effectiveness in achieving stated objectives.
- Assessment of key financial aspects, including planned and realized budgets, financing, etc.
- The project's effectiveness in building the capacity of local institutions and strengthening policy framework to encourage sustainable development.
- Strengths and weaknesses of project implementation, monitoring and adaptive management and sustainability of project outcomes including the project's exit strategy.
- Recommendations, lessons learned, best practices that may be used further in the project or in future interventions.

The MTR has applied OECD DAC criteria[4] and definitions and has followed norms and standards established by the United Nations Evaluation Group. It is guided by the requirements set forth in UNDP's evaluation toolkit, and in particular the "*Handbook on Monitoring and Evaluation for Development Results*"[5] and "*Guidance for Conducting Mid-Term Reviews of UNDP-supported, GEF-financed Projects*". [6] It also meets the requirements set forth in GEF's "*Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects*".[7]

The methodology is based on mixed methods and involves the use of commonly applied evaluation tools such as documentary review, interviews, information triangulation, analysis and synthesis.

[4] Criteria for evaluating development assistance: relevance, effectiveness, efficiency, sustainability and impact of development efforts.
[5] http://web.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf
[6] http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf
[7] https://www.gefieo.org/sites/default/files/ieo/evaluations/files/gef-guidelines-te-fsp-2017.pdf

A participatory approach was taken for the collection of data, formulation of recommendations and identification of lessons learned. MTR activities were organized according to the following stages: i) planning; ii) data collection; and, iii) data analysis and reporting. The figure below shows the three stages and the main activities under each of them.

Figure 1: MTR Stages

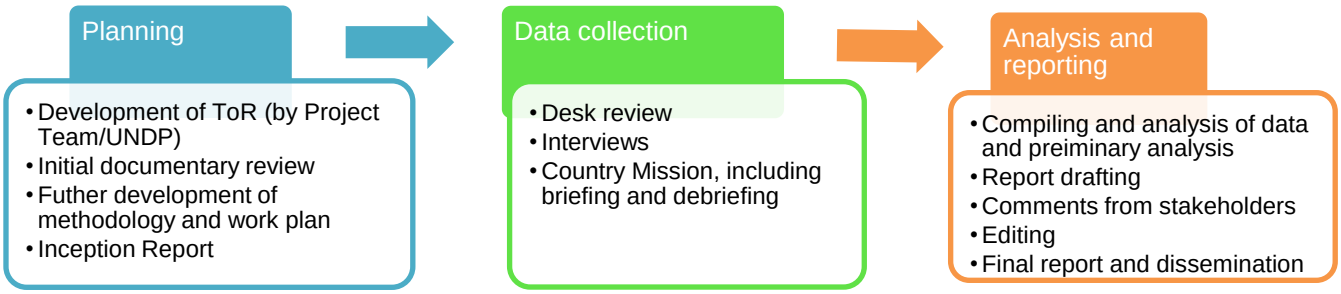


Table 1 further details the main activities that were undertaken by the team under each stage.

Table 1: MTR Steps

I. Planning • Development of the ToR (by the Project Team/UNDP) • Start-up teleconference and finalization of the work plan • Collection and revision of project documents • Elaboration and submission of inception report
II. Data Collection • Further collection of project-related documents (home-based) • Mission preparation: agenda and logistics • Country Mission • Interviews with key stakeholders • Mission debriefings & Mission report summary
III. Data analysis and reporting • In-depth analysis and interpretation of data collected • Follow-up interviews • Develop draft evaluation report • Circulate draft report with project team and stakeholders • Integrate comments and submit final report

MTR Planning

The planning and preparation phase included the development of the ToR by the Project Team, UNDP and project partners and the design of the MTR framework. An inception report was prepared by the evaluation consultants and agreed with the project team and UNDP.

Data Collection

The data collection process involved a comprehensive desk review of project documents and semi-structured interviews with stakeholders and partners (see Table 2 for a list of data sources).

Table 2: Data Sources

Evaluation tools	Sources of information	
Documentation review (desk study)	General documentation	• UNDP Programme and Operations Policies and Procedures • UNDP Handbook for Monitoring and Evaluating for Results • GEF Monitoring and Evaluation Policy and Guidelines
	Project documentation	• GEF approved Project Document • Baseline assessment report of the project • Annual work plans • Project Implementation Reviews • Project Board Minutes • Updated risk logs • A large number of reports produced by the project.
	Governments documents/papers	Including relevant policies, laws, strategies, etc.
	Third-party reports	including those of independent local research centers, IFIs, etc.
Interviews with project staff and key project stakeholders	These included:	• Interviews with key project personnel including the Project Manager and technical experts. • Interviews with relevant stakeholders including government agencies, relevant local NGOs, development partners, private sector representatives, etc. • Interviews with beneficiaries in the project sites. • Interviews with sub-national councils/authorities

- ***Desk Review*** - The MTR team analyzed relevant documents, project documents and progress reports, as well as country development policies and strategies.[8] Most relevant documents were shared with the MTR evaluators by the project team. Documents from similar and complementary initiatives, as well as reports on the specific context of the project formed part of the analysis.
- ***Semi-structured Interviews*** – Some interviews were organized distantly by phone, but the most important took place during the country mission (in Tehran) which took place in the first week of September. A key target of the interviews were project stakeholders, including beneficiaries. Interviewees included, among others, project staff, government officials, UNDP

[8] Key project-related reports shared by the project team were the following:
- Two project implementation reviews (PIR) in 20018 and 20019
- Two six-month reports
- Brief report to UNDP each three months
- Brief monthly report to VPST

staff, development partners, civil society, private sector, etc. The most important stakeholders were the Project Team, VPST and other government counterparts, UNDP CO and various project beneficiaries. Particular attention during the interviewing process was paid to the gender dimension of the project with the aim of ensuring a balance in the views expressed by male and female beneficiaries of the project. A preliminary list of stakeholders interviewed for this evaluation is presented in Annex IV of this report.

- ***Visits of pilot initiatives*** – A number of pilot initiatives (buildings) that have been selected by the project for retrofits were visited by the evaluation team in the course of the mission in Tehran.
- ***Open-ended questions*** were used to enable interviewees to express their views freely and raise the issues they considered most important. A questionnaire was designed to guide the semi-structured interviews and ensure that questions were investigated consistently across all interviews (the questionnaire can be found in Annex III).

Data Analysis

Information obtained through the documentary review and interview process was triangulated against available documented sources, and then synthesized using analytical judgment. The method of triangulation is shown in Figure 2 below.

Figure 2: Method of Triangulation

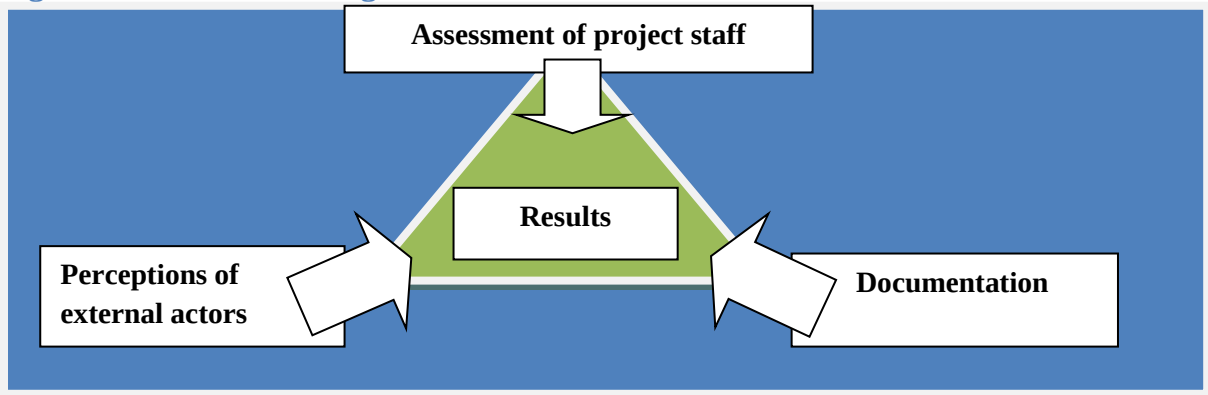
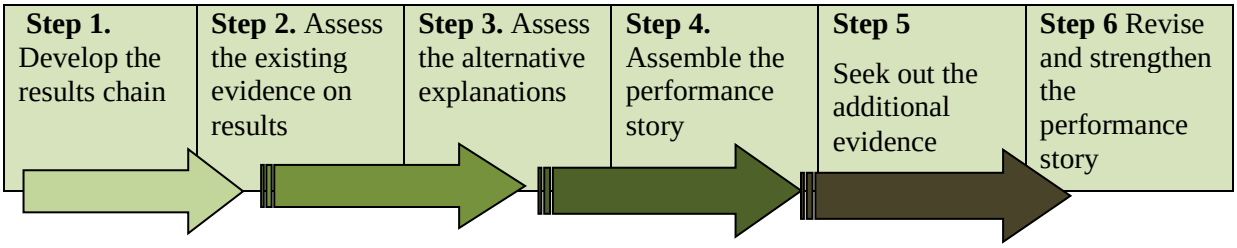


Figure 3 (below) shows the steps that were taken for the analysis.

Figure 3: Steps in Analysis Process



The review was conducted on the basis of the standard criteria of relevance, effectiveness, efficiency, and sustainability (see Annex II for a more detailed list of questions that were used for the analysis of information).

- ***Relevance,*** covering the assessment of the extent to which outcomes are suited to local and national development priorities and organizational policies, including changes over time;
- ***Effectiveness,*** covering the assessment of the achievement of the immediate objectives (outputs) and the contribution to attaining the outcomes and the overall objective of the project; and an examination of any significant unexpected effects of the project (either of beneficial or detrimental);
- ***Efficiency,*** covering the assessment of the quality of project implementation and adaptive management; adequacy of planning and financial management; the quality of monitoring and evaluation; the contribution of implementing and executing agencies in ensuring efficient implementation;
- ***Sustainability,*** covering likely ability of the intervention to continue to deliver benefits for an extended period of time after completion.

The analysis also covered aspects of project formulation, including the extent of stakeholder participation during project formulation; replication approach; design for sustainability; linkages between the project and other interventions within the sector or in the beneficiary countries; adequacy of management arrangements, etc.

Table 3 shows the six-scale rating system that was used to rate the various dimensions of this evaluation.

Table 3: Rating Scale

Rating for the assessment of Relevance, Effectiveness and Efficiency	
HS	Highly Satisfactory: The project has no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
S	Satisfactory: The project has minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
MS	Moderately Satisfactory: The project has significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
MU	Moderately Unsatisfactory: The project has major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
U	Unsatisfactory: major problems
HU	Highly Unsatisfactory: The project has severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
Ratings for sustainability assessment	
LS	Likely sustainable: negligible risks to sustainability
MLS	Moderately Likely sustainable: moderate risks
MUS	Moderately Unlikely sustainable: significant risks
Additional	
N/A	Not Applicable
U/A	Unable to Assess

1.3. MTR Limitations

No major challenges were incurred in the conduct of this review. One limitation was the fact that no completed renovations could be examined because of delays with the piloting process (which will be discussed further in this report). The project staff did their best to organize all the necessary meetings with stakeholders and share all the needed documentation. The evaluators made all possible efforts to minimize potential limitations emerging in the review process.

1.4. Structure of the Report

The current chapter provides an overview of the MTR's objectives and methodology. The second chapter provides a description of the project and development context. The third chapter presents the main findings of the report and consists of three parts: the first part assesses key aspects of project design and formulation; the second part focuses on implementation issues; and, the third part presents an assessment of the results achieved by the project along the standard dimensions of relevance, effectiveness, efficiency and sustainability. The fourth chapter summarizes the main conclusions and identifies key "lessons learned" drawn from the experience of this project and the last (fifth) chapter provides a set of recommendations for the consideration of project stakeholders. Additional information supporting the arguments made throughout the document is provided in the annexes attached to this report.

2. PROJECT DESCRIPTION AND SECTORAL CONTEXT

2.1. Project Summary

The objective of the project is to achieve GHG emission reduction in Iran's buildings sector through legislative, policy and regulatory reforms and implementation of cost-effective mitigation measures. The project has supported the implementation of policies on energy efficiency and developing appropriate means of applying building energy codes. This objective was envisaged to be achieved by:

- Reviewing the legislative, policy and regulatory frameworks that impact building efficiency in Iran to come up with enhanced laws, policies and regulations on building energy efficiency, and facilitating their enforcement; revisiting the building code and products standards and labels to develop improved energy efficiency requirements for the design and operation of buildings, as well as improved energy efficiency specifications for appliances and equipment used in buildings; and, enhancing professional infrastructure of the local energy service industry by contributing to the development of a training system on energy-efficient and conserving operation, installation and operation of smart BEMS, and maintenance of energy-consuming building facilities and services.
- Developing and implementing demonstration building retrofit projects showcasing combined energy-efficient and renewable energy measures in demonstration buildings; implementing pilot hybrid energy efficiency system (hybrid of fossil and renewable energy sources) in selected buildings; and, piloting of energy service (ESCO) business, thus stimulating EE market transformation.
- Introducing mechanisms for a competitive energy efficiency and environment market; utilization of sectoral energy price differentials, thus providing the margins for trading of certified energy savings, i.e. EE certificates, developing policy framework for promoting energy service and energy efficiency business, identifying and formulating mechanisms for promoting development and diffusion of energy-efficient technologies, preparing procedures for developing infrastructures for training energy service professionals and issuing professional certificates, developing a system of quality assurance of energy efficiency and environmental quality services in the building sector, developing a stakeholder awareness-raising campaign and developing proposals for financing mechanisms for households.

As the box below shows, the project is financed with an amount of USD 4 m by the Global Environment Facility (GEF) and is implemented by UNDP and Vice Presidency for Science and Technology (VPST) for a period of four years between 2016 and 2020.

Box 1: Project Summary

- ***Implementing Agency***: UNDP
- ***Executing Agency***: Vice Presidency for Science and Technology (VPST)
- ***Grant Amount (GEF)***: US$ 4,000,000
- ***UNDP Contribution***: US$ 125,000
- ***Government Co***-financing: US$ 28,391,760
- ***Total Project Value***: US$ 32,516,760
- ***Project Duration***: August 2016 – December 2020
- ***Project site***: Tehran

2.2. Problems Addressed by the Project

Iran is the world's seventh largest emitter of carbon dioxide (CO2) and the residential and commercial building sectors represent some 23% of the country's CO2 emissions. Furthermore, the building sector consumes more than 38 percent of the total final energy in Iran. In recent decades, Iran has undergone rapid urbanization, with 70% of the population now living in urban areas. Combined with growing demographic trends, this will result in an increased annual demand for energy and ever-higher GHG emissions. Increasing energy efficiency in buildings, therefore will be an important contribution to reducing emissions and climate change mitigation.

Considerable efforts have been recently made to improve the status of energy efficiency in buildings. The Committee for Energy Efficiency and Environment (CEEE) was established (but later disbanded) as a cross-sectoral organizational body responsible for coordinating the activities of the various relevant stakeholders. Multiple projects have been designed to facilitate the market transformation, but more effort is required to achieve a substantive reduction in energy intensity.

The dominant energy resource in Iran is natural gas, for which there are three main end-uses in the residential sector: space heating (65.4%), water heating (28.8%) and cooking (5.85%). Major contributing factors to the building sector's high energy intensity include:

- The low price of energy in the past, heavily subsidized up to 2010, in particular for households. Subsidies were recently substantially decreased; however, building practices have not yet been amended to accommodate this new reality.
- Lack of a viable market for energy efficiency in buildings, there has been no real room for formation and development of knowledge-based companies and ESCOs that would have led to considerable energy savings in the building sector;
- Low utilization of technologies that would contribute to an increase in energy efficiency such as Combined Cooling Heating and Power (CCHP) systems, Building Energy Management Systems (BEMS), etc.
- Poor insulation of the building envelope and lack of adherence to good energy-efficient practices in construction;

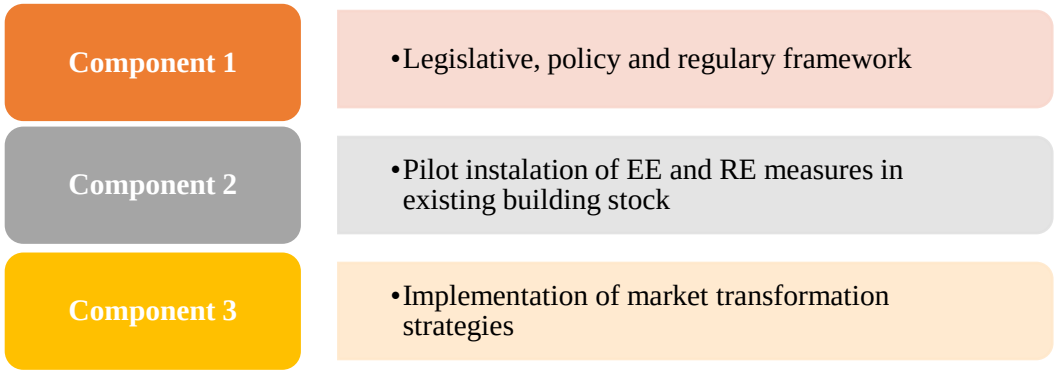
- Energy inefficient heating and water heating systems and appliances and other inefficient household appliances;
- Poorly designed and maintained central boiler rooms and central heating systems;
- Under-usage of renewable energy, especially solar, for heating and water heating;
- Inadequate implementation and enforcement of Iran's building energy code and the need for the code to be updated;
- Low public awareness of energy efficiency and a lack of a coordinated, cross-sectoral energy efficiency policy;
- Insufficient training and understanding, especially among building professionals, of the principles of energy-efficient building and heating system design and operation; low awareness, among professionals and the general public, of the economics of energy efficiency and the impact of energy use on climate change.

In response to these challenges, the objective of the project "Policy Reforms and Market Transformation of the Energy Efficient Buildings" is seeks to lower GHG emissions from the buildings sector through legislative, policy and regulatory reforms and implementation of cost-effective mitigation measures, as well as increasing the share of renewable energies (specifically solar water heaters) to meet the energy requirements of new buildings and existing stock.

2.3. Project Objective and Outcomes

The key problem of Iran's building sector is its low energy efficiency, with high GHG emissions as a direct consequence of that. Therefore, the project aims at improving the energy efficiency of public and private buildings by addressing main barriers, which are summarized in three groups: inadequate motivation and access to finance, underdeveloped local technical capacities for implementing EE in buildings, and inadequate policy and regulatory framework for energy-efficient building sector. To remove these barriers (root causes) related to, the project adopts a three-pronged approach, based on the three components shown in the figure below.

Figure 4: Project Components

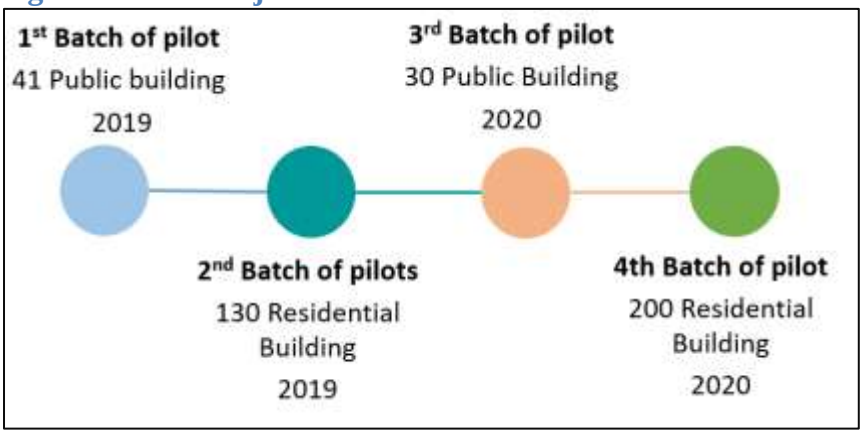


- Under component 1, the project was designed to work with relevant national and municipal public authorities to design and adopt policies and regulations and to improve coordination

among policy stakeholders in order to enable uptake of EE and RES measures in public and private buildings as well as improving the enforcement of the existing and updated policies and regulations.

- Under component 2, specific EE and RES solutions were designed to be implemented in existing buildings to demonstrate state of the art technologies for building heating systems and advanced maintenance and operation practices. The scope of work in the pilot section was designed to include 400 buildings (80 public and governmental+320 residential). Double panel windows and solar water heaters were designed to be installed in these 400 buildings, as necessary. The designed pilot project program is shown in Figure 5 below. Practicing ESCO-based Business Models, Prototype of EE Certificate and support EEE Market development, EE Technologies Promotion, and Demonstration and Showcasing are other goals of project pilots.

Figure 5: Pilot Projects[9]



- Under component 3, the lack of finance and motivation for implementation of EE projects is addressed by supporting ESCO and knowledge-based companies which will provide EE solution against certified claims for energy savings achieved, which they will be able to sell on an open market. In addition, national awareness-raising and an advocacy campaign will be conducted to secure public support and promote behavioral changes towards energy-efficient heating in buildings. In this manner, the EE market transformation will be initiated by creating skills and implementation capacities on the side of EE service and equipment providers, by stimulating demand for such service at the end-users, and by providing financial mechanisms for EE project implementation through introduction of EE certificates. These tasks may be performed by utilization of an Energy Management Information System (EMIS) which will act as a decision-making tool, as well as an instrument for policy implementation.

[9] As will be seen in the following sections of this report, with the aim of expediting the pace of implementation of the project, the project team has compressed these four batches to three.

Following the successful implementation of these three components, the project is expected to contribute to energy efficiency through:

- Revision of energy-related regulations and standards
- Creation and implementation of energy efficiency labels for the buildings
- Development of EMIS (energy monitoring information system) that could be deployed to be implemented by other sectors
- Development of the energy efficiency market in Iran that could be used by other sectors as well to trade energy efficiency certificates
- Development of a comprehensive ESCO business model
- Development of financial instruments to fund energy efficiency projects
- Support for start-ups and knowledge-based companies in the field of energy efficiency
- Development of required instructions for implementation of "bylaw for energy efficiency and environment market".

Figure 3 (below) summarizes key results expected to be achieved by the project in terms of energy savings, reduction of CO2 emissions and employment created through project activities.

Figure 6: Expected Results

2.4. Project Implementation Arrangements

The Project Document was signed on 16 August 2016, and the project start date was set as 1st of August 2016, with an expected end date of 31 December 2020. The project document outlines project objectives and activities and the project management structure (described in more detail in the following sections of this report). UNDP was designated as the project's "implementing agency", whereas the "implementing partner" from the local authorities was designated the Vice Presidency for Science and Technology. The main role of VPST is to support the project team and facilitate the working processes in terms of attracting more contributions from key stakeholders, as well as supervise the project to move in line with the country's EE policies and priorities.

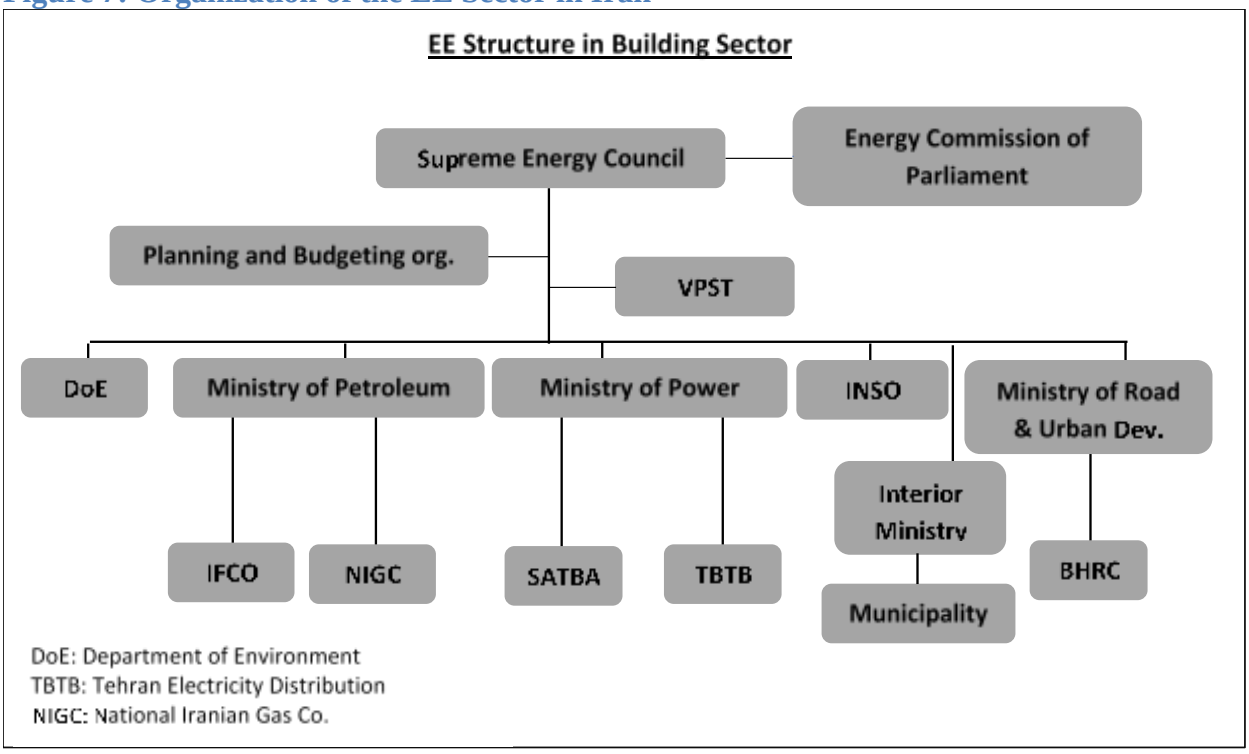
The project's mode of implementation was set as "*National Implementation*", although the actual implementation retains features of "*Direct Implementation*", with procurement and recruitment

conducted by UNDP on the basis of UNDP rules. The project Inception Workshop organized in February 2017 was followed by an Inception Report which provided a revision of certain key aspects of the project and provided more clarifications on the project design. These aspects will be discussed in more detail in the following sections of this report.

2.5. Beneficiaries and Stakeholders

Iran's energy efficiency institutional set-up is quite complex, with a diversity of organizations sharing various related responsibilities. The complexity can be seen in the chart below, which outlines the key players in the country's energy efficiency sector and their relationships.

Figure 7: Organization of the EE Sector in Iran



Given that the EEEB project operates in this complex environment, it has a range of partners and stakeholders which are described very briefly in this section.

The key government entity responsible for the EEEB project (implementing partner) is the Vice Presidency for Science and Technology (VPST) – Committee for Energy Efficiency and Environment (CEEE). VPST's main mandate is to develop a knowledge-based economy. CEEE was established within VPST as a cross-sectoral body to coordinate the activities of relevant stakeholders. Regarding energy efficiency, its main duty is to support emerging industry/start-ups in developing innovative and modern technologies in EE. CEEE members are from corresponding

ministries and relevant governmental organizations.[10] The box below provides a brief description of CEEE's mandate.

Box 2: Mandate of VPST's CEEE

In 2013, due to their extra-organizational position and mission of executing the national science and technology masterplan, the Vice Presidency for Science and Technology (VPST) stepped up to take on this role through the formation of the Committee for Energy Efficiency and Environment (CEEE).

The original mission of this committee included:

- Coordinating programs and building up synergy between various executive organizations
- Working with executive organizations towards removing obstacles for energy services and the environment-related businesses
- Aiding formation of knowledge-based companies whose missions are to develop advanced energy and environment related technologies
- Aiding capacity increase for technology and science via the development of research centers and knowledge-based companies and institutes
- Codifying a plan for development of efficient technologies for activating the potential for energy optimization and following up the plan with domestic and international companies
- Cooperation in international endeavors for limiting greenhouse gas emissions
- Supporting the network of EE private sector concerns vis-à-vis financing needs and fulfilling their information requirements through the generation of required data and information;
- Reducing innovation risk and safeguarding intellectual EE-related knowledge;
- Providing support in incubation and diffusion of new EE technologies for the network of technology providers and universities;
- Awareness-raising;
- National and international collaboration on science/technology-based approaches to EE.

The Supreme Energy Council is the top decision-making body responsible for setting the country's energy policy.[11] The head of the council was initially the President, who assigned this responsibility to his deputy in the Planning and Budgeting Organization. According to the Law on "Reform on Energy Consumption Pattern", policy making in the energy sector, including

[10] VPST proposed to the Supreme Energy Council a by-law for the creation of Energy Efficiency and Environment Market (EEEM), which was adopted in March 2017. Based on this by-law, VPST is one of the members of energy saving commission defined in the by-law and has a central role in overseeing the implementation of the EEEM by-law. CEEE is now focusing on setting implementing mechanisms and instructions for implementation of Energy Efficiency and Environment Market (EEEM).

[11] The Supreme Energy Council was established in the country's 3rd five-year development plan in response to the requests for merging two ministries of power and petroleum and having one unique Energy Ministry which was not considered practical that time.

renewable energies and energy efficiency (production and consumption), is the responsibility of the Supreme Energy Council.

The Ministry of Petroleum and the Ministry of Power are key members of the Supreme Energy Council.[12] Ministries of Petroleum and Power (through their subsidiaries, Iran Energy Conservation Company (IFCO) and Renewable Energy and Energy Efficiency in Electricity (SATBA)) are responsible for setting, modifying and revising key energy efficiency policies. These two ministries, in addition to the Ministry of Agriculture and Ministry of Industry, Mine and Trade, are responsible for the identification of technologies required in the field of energy supply and consumption. They are mandated to facilitate the design and implementation of these technologies in the country.

Two other members of the Supreme Energy Council are the Ministry of Road and Urban Development and the Ministry of Interior (overseeing municipalities),[13] which have responsibilities related to the building sector. Through its Building and Housing Research Center (BHRC) and Deputy of Housing and Construction, the Ministry of Road and Urban Development is responsible for building standards through national building regulations.

The Iran National Standard Organization (INSO), in cooperation with the Ministries of Petroleum and Power, is responsible for the development and certification of standards. INSO is responsible for the implementation of energy consumption standards. Also, in cooperation with the Ministry of Road and Urban Development, it is responsible for setting and overseeing the implementation of building materials standards.

A number of other stakeholders play an important role in the area of energy efficiency. The Iran Planning and Budgeting Organization (PBO) is another member of the Supreme Energy Council. It is the governmental organization responsible for developing the country's five-year strategic development plans. The Department of Environment (DOE) is the national organization responsible for climate change and environment issues. DoE has been assigned as focal point for GEF since June 2019. The Tehran municipality is responsible for issuing permits for those buildings which are compliant with energy efficiency regulation and standards.[14] The Tehran municipality, through its Sustainable Development and Environment Department, plays a major role in increasing public awareness around the issue of energy efficiency. The Iran Energy Exchange (IRENEX) is a public joint-stock company registered in the base market of Iran Fara Bourse. The IRENEX statute stipulates that all energy carriers and energy-based derivatives shall be listed and traded on one of the IRENEX markets. The company's mission is to develop a market

[12] In Iran, there is no Ministry of Energy as one institution, but two separate ministries, Ministry of Petroleum and Ministry of Power. The first is responsible for thermal energy and fuel efficiency and the second for electrical energy efficiency.

[13] The Ministry of Interior is responsible for overseeing and coordinating the work of sub-national governments.

[14] The focus here is on the municipality of Tehran, because this is where the EEEB project is focused. Other municipalities play a similar role in other locations.

in which trades are done under transparency, efficiency and liquidity. Further, the Parliament's Energy Commission has a supervisory role over the sector.

Besides, there are a number of civil society organizations working in this area. The most important of them are the Energy Institute of the universities (Sharif Technology, Tehran, Khaje Nasir, Poly-Technique and Science and Research Azad Universities) working on education, research and development of energy efficiency and renewable energy technologies. Environmental NGOs (like Haamian Zamin and Cheragh-e-Raga) are working on raising public awareness and providing general training courses on sustainable development, climate change, environment and energy efficiency.

With regards to the policy context, there are three main instruments related to energy efficiency in buildings:

- The Sixth- Five Years Development Plan of Islamic Republic of Iran – Article 44; indicates that 5 % reduction in annual energy consumption from the building sector.
- The Law on "***Reform on Energy Consumption Pattern***" is the most important document pertaining to energy efficiency in Iran. This law was passed with regards to principle 123 of Iranian constitution on March 8, 2011 and consists of twelve chapters and seventy five articles, the first of article reads: "Preventing losses - from production to final use - in the application of energies that are generated, imported and consumed within the country in a manner that does not diminish national production and welfare levels and results in improvement of efficiency and productivity, cost-effective use of energy, better operation, helping sustainable development and preservation of environment." The law identifies the "Supreme Energy Council" as the sole policy-making body with regards to renewable energies, optimization of energy supply and demand and consumption of various energy carriers.[15] Each chapter of the law describes and defines a certain set of required information or addresses a specific set of actions that need to be taken.
- The Law on "***Elimination of barriers to competitiveness production and promoting financial system***" is another high-level document that was codified in early 2015 (April 21) and aims at improving Iran's financial state and production levels. The law consists of 60 articles, each of which addresses a certain subject regarding barriers of competitive production and/or improvement of country's financial system. This law was first codified late in 2014 and mentioned in article "G" of the national budget law for year 1393 (2015 – 2016), but later was further developed and promoted as a permanent law instead of being bound to the annual budget.

[15] This council is chaired by the president, other members include Minister of Petroleum, Minister of Energy, Minister of Economic Affairs and Finance, Minister of Industry, Mine and Trade, Minister of Agriculture, Head of Atomic Energy Organization, Head of Department of Environment and Head of Management and Planning Organization.

Under these main laws, there are associated regulations and standards aimed at promoting energy efficiency in building sectors. These include:

- National Building Regulations, Code 19 for energy efficiency.
- Benchmarking standards “14,253” and “14,254” for buildings’ energy consumption and energy label instruction for residential and non-residential.
- Standard “16,000” for boiler houses for periodical technical audit and inspection for optimizing energy consumption and emission reduction.
- Regulation and technical standards for energy consumption in green buildings.

The project’s direct beneficiaries are owners of public and residential buildings in the Tehran area and beyond. Indirect beneficiaries include a larger swathe of the population which is expected to benefit from the scaling up of the activities promoted by the project.

3. FINDINGS

While the amount of information generated by this review was large, the findings presented in this chapter cover only the project's most essential aspects and are to some extent focused on those issues that require improvement and the attention of project stakeholders. The MTR's findings are organized in the following sections: i) Project Design; ii) Project Implementation; and, iii) Project Results.

3.1. Project Design

This section examines the project's logic and design features by focusing on elements like the logic of the project intervention, the results framework, management arrangements, identification of risks and assumptions, use of lessons derived from other projects, linkages with relevant UNDP or donor projects, UNDP's comparative advantage in the area, planned stakeholder engagement, replication approach and exit strategies, etc. The main questions that drive the analysis presented in this section are shown in the box below.

Box 3: Key Issues Related to Project Design

The key questions driving the analysis in this section are:

- Whether the project has a clear logic with outcomes flowing from activities and the latter driven by project objectives.
- Whether assumptions and risks were adequately identified at the outset of the project.
- Whether lessons learned from other UNDP interventions were incorporated into the project design.
- Whether the project's linkages to other relevant projects in the UNDP portfolio or by other donors were properly identified and capitalized on.
- Whether UNDP's comparative advantages were adequately exploited.
- Whether stakeholder consultation was an essential part of the project incorporated from the project design phase.
- Whether the replication approach was sound, and an exit strategy was clearly identified.
- Whether management arrangements were properly identified, with roles and responsibilities adequately determined prior to project approval.

It is important to emphasize here that this section's discussion does not pertain to how the project was implemented, but primarily to how it was designed. The next section (Project Implementation) addresses primarily implementation issues.

3.1.1. Analysis of the Project Document and Planning Matrix

First and foremost, it is important to note here that as far as the design of the project design is concerned, two foundational documents are crucial – the ***Project Document*** and the ***Inception Report***. The Inception Report is crucial in this case because the project spent a lot of time in preparation. The project idea was initially conceived before 2010 and the project document underwent a revision in 2014/2015. The project received its approval in 2016 and the signing of the project document occurred in August 2016. During the long period that the project was under conceptualization and implementation, the political and socio-economic context in Iran has changed significantly, and so has the context in the area of energy efficiency (EE). Therefore, it was necessary for the Inception Report, which was formulated after the Inception Workshop in mid-2017, to provide a number of additional revisions to the project approach. The inception report further provided a good overview of the context at that time and additional clarifications to elements that were not clear in the Project Document.

Overall, the Project Document and the Inception Report paint a good overview of the situation in the area of energy efficiency in buildings in Iran. The analysis of the stakeholders and institutional responsibilities – which in the country is quite complex – is described adequately and provides useful guidance to the project team. Also, the definition of the problem is clear and well-structured. However, in spite of these strengths, the project design suffers from a number of shortcomings that have presented serious challenges to the project team and stakeholders. These shortcomings will be discussed throughout this report, but in section the focus will be on key flaws – the project's level of ambition, the consistency of proposed interventions and the selection of indicators and targets in the Results and Resources Framework (RRF). This section will also provide a very brief analysis of the design of the project's key initiatives (building pilots, establishment of the EE market and the development of the EMIS system).

Project's Scope and Complexity

The first observation derived from this project's assessment is that its scope and size is extremely ambitious and does not measure up to its timelines and the resources (financial, human, technical, etc.) made available for its implementation. The project has many dimensions, each of which represents a significant level of complexity that involves many stakeholders, intertwined responsibilities between different actors, lack of effective coordination, etc. Multiple activities are required to be delivered in parallel and successful delivery is dependent on multiple stakeholders, who often have different motivations and interests. Practically, each of the project's areas (listed in the box below) is so large that it could have been addressed by a standalone project of similar proportions. In effect, this project involves all major components related to energy efficiency, shown in the box below, which makes it an intervention that seeks to address in a very comprehensive fashion all main issues related to energy efficiency in buildings. While in principle this is good, in practice this type of intervention requires a completely different level of resources, as well as political commitment. The task that this project faces is simply too large.

Box 4: Aspects of Energy Efficiency to which the EEEB Project Contributes

The following are areas in which the project is currently contributing directly:

- Improvement in Policy and Legislation
- Revision of Standards
- EE Audits
- EE Labelling
- Purchase of Equipment for the Testing Laboratory
- Establishment of EE Information System (EMIS)
- Establishment of EE Market
- Implementation of EE Renovations/Retrofits
- Capacity building, professional training and certification
- Awareness-raising on energy efficiency renovations

Not only does the project cover a wide range of issues, but also the goals and targets it is seeing to achieve are extremely ambitious. While a lot can be said about the many unrealistic targets that this project involves (and which will be discussed further in this report), it is important to briefly highlight at this point the major things this project seeks to achieve, which are quite ambitious for a project of this size.

- One key component of the project is the completion of 400 pilots[16] which involve the renovation/retrofitting of public and residential buildings (see the box below for a brief description of the pilots' component of the project). For a project with a USD 4 m budget and 4-year lifetime this is an extremely ambitious goal. The design, contracting, implementation, monitoring and measurement of any one of these pilots is a significant challenge, especially given the fact that some of these buildings are large administrative buildings belonging to the government. Managing the multiple contracts and contractors engaged in this process is also a major enterprise that requires significant resources and skills. Furthermore, economic conditions in Iran (very low energy prices) make it difficult to identify such high number of pilot buildings under market conditions. EE retrofits are not economically viable, so they will not happen automatically under current market conditions.

- Another key component of the project is the establishment of an Energy Monitoring Information System (EMIS) for buildings at the national level. This another major goal that requires a large amount of resources (both financial and technical) and political support. For a large country like Iran, the amount of information that will have to be processed by such a system is huge. Also, the institutional complexity of the sector makes the operation of such a system highly complicated.

[16] The design of the pilot component envisaged the renovation/retrofitting of 80 non-residential and 320 residential buildings, which in itself is a monumental effort for a project of this size.

- The project is also seeking to establish a "market for energy savings", called by the project as the EE Market (EEM), through the use of EE certificates. The EE certificate is a hybrid certificate which includes fuel, electricity and CO2 eq. emissions (which in the project is called the EE&E certificate) and which allows energy users to sell their savings to entities that require higher consumption. The establishment of the market requires the development of significant information and legal infrastructure that is necessary for it to function, including monitoring and verification systems for energy consumption, energy efficiency certificates, etc. Ideally, the established market mechanism was to be tested through the pilots implemented by the EEEB project (see the box below for a description of the relationship between the market mechanism and pilots), but to what extent this will be possible remains to be seen as progress with the establishment to of the EE Market has been slow for reasons that will be discussed further in this report.

Box 5: Role of Pilots in the Project

The implementation of the pilot projects is expected to play the following roles:

Practicing and demonstrating the process of the creation of an energy efficiency certificate and its trading through an energy efficiency market. The process includes the following steps:

- Selection of the potential buildings for the implementation of EE measures.
- Investment grade energy audit in the selected buildings
- Selection of the most financially/technically fitting measures
- Implementation of the selected measures
- Measurement and verification (M&V hereafter)
- Creation of energy efficiency certificate

The completed pilot projects will enable the project to:

- Identify barriers, challenges, and any bottlenecks
- Pave the path of energy efficiency implementation in the building sector
- Prove the benefits of projects to stakeholders, ESCOs, the public sector and others.
- Facilitate the future implementation of energy efficiency measures in various sectors like industry and transportation.
- Provision of a comprehensive feasibility study as well as ESCO's business model with regard to Iran's current economic situation (e.g. high inflation rates and low/subsidized energy prices).
- Empowering the ESCOs both technically and financially

Implementing pilots and demonstration of the ESCO business model can bring confidence to the market. In addition, implementing pilots will support:

- Acceleration, development and deployment in the marketplace of competitive energy-related products, processes and systems
- Solutions that enable technical and other barriers to market uptake to be overcome
- Iran's national capacity to access, develop and apply international class EE initiatives
- Policy makers and public bodies through results, outcomes and learning

In hindsight, it is clear that such major interventions that the EEEB project involves require a different structuring the project. Admittedly, the amount of funds available through co-financing as envisaged in the project document is substantial, but the resources under the control of the project and the human resources available to the project team do not fully match the level of ambition of this project. Many stakeholders interviewed for this review, including the project team, consider that the scope of this project is too ambitious. The evaluators think that more focus on just a section of what is aimed in the project document would have made the project more effective by allowing the team and partners to concentrate on just a few crucial issues.

Project's Logic

The ultimate goal of the EEEB project is the creation of a market for energy efficiency in buildings (both public and private). The creation of the market requires two components – demand and supply. On the demand side are any parties and sectors that are willing to buy the certificates (for examples, owners of buildings) and on the supply side are both ESCOs and buildings owners which are financially investing money for the implementation of EE measures and generate EE certificates. For the market to function, it is essential that the building owners and ESCOs face financial incentives for EE improvements, understand the opportunities for profits, and communicate with each other on these opportunities. All the components envisaged in the Project Document play a role in facilitating this process – the work on the policy and legal instruments (including EE standards), the information system (EMIS), the pilots for testing the functioning of the market, etc. The EE Certificate instrument is particularly important because it addresses the challenge of low (subsidized) energy prices in the building sector.

In EE certificate model, there will be parties who have the obligation to save energy and if they cannot do it cost-effectively themselves, they will seek to buy "EE certificates" in order to meet their obligation. For example, buyers might be petrochemical companies which buy gas from the government. They can purchase EE Certificates to buy gas from the government at a lower price. In other words, by taking advantage of the difference in prices between the industrial sector and the building sector, the idea is that the EE certificates will enable savings in the building sector to be sold to the industrial sector where energy prices are higher.

As can be seen from this description, all the different pieces of the project are components of a complex framework that should function as a whole. However, the Project Document does not do a good job in describing and outlining this coherent picture that brings and links all these components together. At the level of activities, the description is quite vague, lacking detail, which makes it difficult to see how the activities contribute to the whole initiative. Also, the sequence of interventions does not receive a lot of attention. For example, for the EE market mechanism to be tested through the pilots, it is required that the EE certificate instrument is in place before the piloting in the buildings. Further, the timeframe required for this process is a lot longer from what is envisaged in the project document (and the entire duration of the project).

Project's Results and Resources Framework

Besides this complexity, the project document lacks clarity in certain key areas and suffers from a number of inconsistencies. This is particularly the case with the Results and Resources Framework. Many of the indicators and targets identified in the Results and Resources Framework (RRF) of the Project Document (Pro Doc) do not meet the SMART criteria[17] prescribed by UNDP M&E guidelines. Some of the targets are not realistic, especially with hindsight after a period of time in which the project has been implemented. Others are defined in a vague way which makes it difficult to establish the level of their achievement.

The challenges with the project's RRF are significant and the project team has been struggling to grapple with them. At the inception phase, an effort was made by the project to address some of the issues related to the RRF by revising it,[18] but many of the challenges remained. Further, some additional gaps seem to have appeared between the targets in the project document and inception report – for example, the outcomes and their associated outputs are not always well aligned.

Table 4 below provides a list of the RRF indicators and targets that present a challenge to the project team. The project team has been struggling with them and this MTR presents an opportunity for highlighting them and proposing their revision. The notes section of the table below provides a description of the problem that the respective indicators and targets present and suggestions for revision based on project team calculations. It should be noted that all the estimations mentioned in the table below in relation to indicator or target revisions are based on calculations made by the project team.

Table 4: Inadequate Project Indicators and Targets

Indicator/Target	Notes
Cumulative CO2 emission reductions by 2029 from new buildings to be built during project lifetime (2016-2020), M tons CO2 ***Baseline: 0*** ***Target: 153 m tons CO2***	The project team has estimated that the 153 million ton of CO2 target is unrealistic needs to be revised. The project team has estimated that a target of 16 M tons CO2 is a feasible (albeit challenging) one.
Average thermal energy consumption for space and water heating in pilot buildings reduced kWh/m2-yr. ***Baseline: 277***	The project team proposes to convert this indicator from thermal to total (including electricity). When shifting from thermal to total energy (including electricity), the baseline changes from 277 to 767, but for public buildings only, as

[17] Specific, Measurable, Attainable, Relevant, and Time-Bound.
[18] The reason for the revision was that from the time of developing project document to the inception workshop was more than one year and according to the country situation and priorities, it was required to make some modifications in the RRF.

Target: 208	the project has data only from the walkthrough audit of over 100 public buildings. In such a case, the existing baseline which is 277 would become 767 and the target of 20% reduction would be 614 kWh/m2-yr. It should be noted that 20% energy savings would be obtained through 25% of thermal saving plus 8 -10 % of electricity saving. It might be easier to have relative target (percentage of energy savings) rather than absolute amount. In this case, 20% saving would be a good target.
Average thermal energy consumption for space and water heating in new buildings in Iran by 2029 (residential & non-residential), kWh/m2-yr ***Baseline: 277*** ***Target: 160***	This indicator applies to newly constructed buildings. From the project's team perspective, this is being undertaken under a separate project by the Ministry of Road and Urban Development and the targets apply to that project. The measurement of this indicator is not feasible for the project team and as such this indicator is proposed for removal.
Number and scope of policies and innovative models on reducing air pollution on all populations, formulated, adopted, implemented ***Baseline: 0*** ***Target: 2***	No policies related to this indicator have been developed because the indicator is not clear. This indicator is not directly related to the project's goal and objectives. It was added in the Inception Report without any activities being introduced to realize it.
Number and scope of policy tools adopted and used to reduce energy consumption. ***Baseline: 0*** ***Target: 3***	These policy tools are not clarified in the project document, so given the lack of clarity the project team has reported the following which are bring used in the first batch of pilots: • Energy passport (ID) Tool developed through EMIS • EMIS guidebook has been drafted expected to finalized in 2020 • One EPC model including M&V guideline, maintenance framework drafted and will be practiced through pilots in 2020 • Energy efficiency certificate structure drafted and expected to be finalized in Q2 2020
No of demonstration pilot of heating-cooling insulation building with an integrated fossil-base and renewable energy system consists of CCHP, BEMS and SWH technologies.	So, far no demonstration has taken place. Demonstrations include integrated suites of technologies being deployed within the building sector retrofit. There is a need for a better definition of this indicator. The project team proposes that CCHP and SWH technologies be replaced with feasible EE measures.

Baseline: 0 ***Target: 8***	The project team and some stakeholders have proposed the following two demo projects: 1- Design and construction of a sample EC, EC+, EC++ buildings to showcase the differences in terms of envelope and energy demand 620,000 USD EEEB project share: 50% Government share: 50% 2- Design and construction of a near zero energy building 240,000 USD
No. of Training centers for EEEB practitioners established. ***Baseline: 0*** ***Target: 1***	The project team decided not to establish a new training center, but to cooperate with an existing and effective one. The project has identified the Technical and Vocational Training Organization for this. Practical training for installers, mechanical, electrical and civil operators and technicians will be organized through this center.
Number of buildings connected to EMIS and using energy management practices.[19] ***Baseline: 0*** ***Target: 300***	Currently, EMIS is not developed yet. When established, it may be populated with data from the pilots' M&V and EE certificates. The project team has no capacity for full implementation of the EEE market. 25 buildings have been considered by the project team in the contract with contractor to be connected to EMIS including both new constructed and existing buildings. In addition, there is the possibility of inserting the data of pilot buildings to it as well, when data are available and reliable.
No. of EE certificates generated for sale on MEEE (million certificates). ***Baseline: 0*** ***Target: 30***	This indicator was removed in the project's inception report. The project team believes that this indicator should be removed because it is not the mandate of the project to implement the MEEE market and generation of EE certificates. The project has the capacity to issue the EE certificate for the pilot buildings only.
CO2 emission reduction from implemented EE pilot projects at demo buildings (Mton CO2). ***Baseline:*** ***Target: 1***	The project team has estimated that this target is not feasible. Based on its estimations, a more realistic target would be 16.5 and 66 kton, instead of 330 kton and 1 Mton, respectively.
Amount of CO2 equivalent mitigated and energy efficiency/ achieved with a focus on the residential sector (kt CO2). ***Baseline: 0*** ***Target: 100***	This indicator applies only to residential buildings – as opposed to the previous indicator which applies to all pilots. It is not clear why there has been this separation of indicators related to emissions. Based on the project team assessment, this target is not feasible. Based on the methodology applied, the amounts of 4.6 and 18.3 kton can be achieved from residential buildings, as opposed to 50 and 100.

[19] This indicator was added through inception workshop to the inception report and was not in the original project document.

Number of training courses delivered. ***Baseline: 0*** ***Target: 20***	The number of people trained would be a better indicator than the number of trainings. The project team has drafted a training plan, which could serve as the basis for estimating a target for the number of people trained.
Level of public awareness about EEEB in different target groups. ***Baseline: Unknown*** ***Target: Public awareness tripled.***	The project team has suggested the revision of this indicator to "number of campaigns and awareness-raising events", because measuring and monitoring the level of public awareness is not possible in practice. This is not a *SMART* indicator.

Given the challenges with the project indicators and targets presented in the table above, the MTR team suggests a comprehensive review and revision of the RRF by the project team and project stakeholders. The project team has made good progress now in identifying alternative indicators and targets which are not only more realistic and feasible, but also closely related to the project's primary goal and objectives. Revisions to the RRF should be discussed and approved in the project's Steering Committee and further agreed with UNDP and GEF.

Other Critical Issues

In addition to the above-mentioned shortcoming, there are other aspects of project design related to specific key components that could have been more adequately addressed in the Project Document. The following are the major ones.

1. EMIS

While being one of the most important components and results of the project, EMIS is not defined in clear terms in the project document. First of all, the issue of ownership is not clearly defined and the project has been struggling with this. Ideally, the issue of ownership should have been resolved from the outset of the project, so that the design of EMIS was done with the clear owner in mind. The ownership issues have clear implications for the design of the system and the process through which it is managed. Secondly, there is limited guidance about the process through which EMIS will be managed and operated. This is extremely important because the process through which EMIS will be managed and roles and responsibilities involved in its operation matter as much as the design and content of the system.

Given such lack of clear guidance, the project team in cooperation with its stakeholders, and in particular VPST, must determine as soon as possible the ownership issue. During the interviews for the MTR, the evaluation team heard a variety of opinions on the ownership issue. The evaluation does not prescribe a particular solution, as it is up to the stakeholders to decide which is the optimal version for Iran. But the evaluation highly recommends that the ownership issue is

brought to the attention of the Steering Committee and key stakeholders and that a firm decision is made soon. Also, the project stakeholders must define and agree from the outset the work-flow, processes, procedures and roles and responsibilities for EMIS. Furthermore, the project does not need to reinvent the wheel with EMIS – such systems have been developed in other countries with UNDP support (i.e. Bosnia and Herzegovina, Serbia, India, etc.) and the project could facilitate learning and exchange of experiences with these countries. The contractor selected for the development of the EMIS system also expressed interest in support from an international expert who has experience with the successful implementation of such systems in the countries.

2. Definition of "*Buildings*"

Another challenge of the project document is that while stipulating the conduct of 400 pilots by the project, it does not identify in clear terms what constitutes a "pilot". While at first look a pilot could seem to mean "one building", given the size of administrative/government buildings in Iran, it is implausible in the framework of this project to retrofit 400 such large buildings. This matter has been confusing for the project team and partners. To address this lack of clarity, the project has proposed to define this indicator in terms of area (square meters), rather than designating an arbitrary building structure as a single "building". Furthermore, according to the original project document, more than 70% of the pilot project will be implemented in residential buildings. Again, this indicator seems quite arbitrary given the lack of a clear definition for buildings. This evaluation recommends that the project team submit its definition of "buildings" to the Steering Committee and project stakeholders and receive their endorsement on the matter. In this way, everyone will be reading from the same page.

3. Establishment of Market Mechanism

The most difficult aspect of this project is the establishment of an EE marketplace where EE Certificates resulting from the implementation of EE improvements will be traded. Without a price incentive, under the current low levels of energy prices, not much follow-up in energy efficiency investment can be expected. This process is not clearly expounded in the Project Document. The establishment of the market requires that a number of elements are in place simultaneously – the information system (EMIS), the policy and legal framework, the monitoring and verification system, the financing framework, etc. The market mechanism also needs to be piloted in a transitory phase, which is what the purpose of the pilots was.[20] So, a clear identification of the sequence of a number of process should be in place – and this sequence is not adequately identified in the Project Document (see the point below on the issue of sequencing). Furthermore, an influential government entity must undertake the responsibility for the operation of the market

[20] The project might be able to "pilot" the EE certificate scheme even if it does not yet exist but by means of creating a simulation of how the system could potentially look like (e.g. promise a price for kWh saved to ESCOs/building owners and let them suggest projects where they can receive the price incentive/bonus once the savings have been realized).

mechanism – this has not been decided yet. The project team is encouraged to work with the VPST and stakeholders to get this important decision made.

4. Sequencing of Project Activities

Furthermore, ideally there is also a need to sequence properly the implementation of the pilots with the establishment of the market. The idea is that the trading of EE certificates could be tested through the pilots. The establishment of the market, its requirements and sequencing are not clearly analyzed in the project document. It also seems unlikely that the trading of EE certificates will be possible to be tested through the pilots undertaken by the project – the establishment of the system just takes a lot of time and this is not recognized in the project design.

5. Incentives for ESCOs and Building Owners

Another challenging aspect of the project document is that it does not recognize the difficulties that are present in the ESCO market, which has left the project with few opportunities for the implementation of retrofit EE projects and ESCO business models. The EE/ESCO market is immature and there is a lack of sufficient number of ESCOs in the energy sector required to fully deliver on project commitments. The low numbers of ESCOs and the lack of expertise is created by limited demand for their services, which is the result of the low energy prices. Energy efficiency investment have a very long pay-back time and therefore are not considered attractive by building owners. So, overall, there is a lack of experience and an unwillingness of investment by ESCOs. Given this situation, to stimulate interest from ESCOs and building owners, the project should focus more resources on awareness-raising and training activities for representatives of ESCO companies and building owners. The campaign should focus on low-hanging fruits – those EE investments which may be cost-effective. The project team should also explore the extent to which authorities are able to provide financial incentives to ESCO companies to improve the attractiveness of entry into this market, including the development of alternative EE certigicate schemes.[21] It is also necessary that the project establish a more effective and targeted awareness campaign and trainings for building owners.

6. Changes in the Project Approach (i.e. widening scope of the project to include thermal energy, moving away from CCHP, etc.)

The project design established a number of targets specifically focusing only on thermal energy, which precludes savings from electricity savings in areas like lighting, air conditioning, etc. This is a design limitation that constrains many opportunities for energy efficiency in buildings. The project team has identified a number of significant EE improvements that fall outside the boundaries of this design. Therefore, this MTR suggests that the scope of EE improvements is widened to include any building-related improvements, including electricity savings, and at the

[21] Recent discussions in Iran have included the idea of a "energy savings feed-in tariff" or a payment per kWh saved.

same time excluding CCHP technologies which at this point in time do not seem feasible under this project.

3.1.2. Assumptions and Risks

The Project Document identifies a set of assumptions underlying the project, as well as major possible risks in implementation. Nine specific risks are identified in the Project Document:

1. Potential lack of public awareness of EE
2. Potential lack of inter-sectoral coordination between project key stakeholders including line ministries and private sector
3. Potential for weak or delayed policy implementation, most notably lack of enforcement of the more stringent energy-efficient building codes
4. Low level of knowledge and skills among local professionals to integrate energy efficiency in building design and operations.
5. Potential strong negative public reaction to the reduction of fuel price subsidies
6. Possible low availability of the energy-saving products
7. It may not possible to find enough low-efficiency government-owned buildings to meet the target of retrofitted systems in the pilot phase.
8. It may not be possible to find energy-saving measures for the pilot phase which are cost effective.
9. There may be a low level of interest from engineers in receiving training in energy-saving installation and maintenance.

Overall, the identification of risks is done in an adequate manner. Of these nine risks, the ones that have materialized and posed significant challenges for the project are the following four:

1. ***Inadequate cost-effective energy-saving measures for the pilots***: – This has been a major challenge for the project. The main reason for the lack of energy-saving opportunities is the low and subsidized energy prices in the country that make EE investments unattractive. Promoting energy efficiency and investing in efficiency improvements in an environment where the price of energy is highly subsidized due to the country's endowment with energy resources is very challenging as there are limited financial incentives in place for saving on energy. Based on interviews in Tehran, it is clear that energy efficiency is a quite low priority for building owners as energy prices are low and subsidized. But financial incentives are not everything that matters. Another reason is the lack of information among building owners about potential money-saving EE investments in their properties and also low awareness about the benefits of EE among the general population. The project has been trying to increase awareness through public campaigns and trainings, but the level of effort that is required in this area to achieve significant impact is a much larger magnitude. Hence, the recommendation for the project to reconsider and revamp the educational and

awareness-raising activities. It is also recommended that the project start exploring behavior insights related to energy efficiency, taking account international experiences which in this area are plentiful now.

2. ***Inadequate co-operation between project stakeholders***: - As has mentioned in the previous sections, EE is a very complex sector in the country, with multiple actors playing various roles and having different responsibilities. Responsibilities for the various stages that are involved in energy efficiency investments – including things such as EE standards, labelling, energy audits, monitoring and verification, financial incentives, renovations and retrofittings, etc. – are fragmented and distributed among many stakeholders. Navigating this complex institutional set up has been difficult for the project team. Moreover, the level of interest and involvement of different actors with the project has been varied. The project alone is unable to transform the institutional set up, which is largely a political issue. In these conditions, the project team has sought to work with interested parties as much as it can, using the authority of the implementing partners (VPST) to reach out to other partners. Looking forward, the project team should seek to strengthen coordination within the framework of the project. The Steering Committee is a good platform for strengthening this coordination. Starting from 2019, there has been a greater engagement of some of the key partners, including VPST, with the project, which has resulted in the reinvigoration of coordination and acceleration of project activities. It will be important now for the project team to strengthen the role of the Steering Committee, have more frequent meetings and involve other partners that have thus far been less involved with the process.

3. ***Weak or delayed policy implementation***: - This risk is broadly defined, but it encompasses a number of challenges that the project has encountered so far. For example, energy audits are conducted by energy efficiency consultancy companies, ESCOs, individual auditors and energy experts. For ESCOs and energy consultancy companies, IFCO and SATBA have their own accreditation and assessment processes. However, there is not specific certification system in place for energy auditing, nor a defined authorized organization to make it. Further, there is a lack of defined, approved and adopted ESCO business contract models (EPC - energy performance contracts) which may be applied and accepted by all public and private building owners. Also, the targets set forth for implementation of article 12, or "G", of the law "Elimination of barriers of competitiveness production" are not implemented effectively, which has been considered as a major contribution of the government committed to co-financing. This policy gap represents a challenge for the emergence of the EE market and is an issue that the project can bring more forcefully to the attention of policymakers. Also, the slow development of the EE Certificate scheme has been a significant challenge to project implementation.

4. ***Low level of knowledge or interest amongst professionals***: - This risk has been framed as "a *low level of knowledge and interest among professionals*", but in effect it is "*low level of knowledge and experience and limited capacity in ESCO, energy and knowledge-based companies as well as professionals*". While not the solution to all the problems, ESCOs can be crucial players in the sector and the project and their limited capacity has presented the project with serious challenges, hence the focus on them here. As was mentioned above, low and subsidized energy prices have led to limited feasible projects and consequently limited EE market opportunities for ESCO businesses. Given this lack of opportunities, the ESCO sector in the country remains undeveloped and unconsolidated. This has led to a lack of sufficient local capacity and experience that causes delay in the implementation of the pilot initiatives. In response to this challenge, the project team could allocate more attention and resources to the issue of capacity building for energy companies and professionals.

Additional risks that have impacted the project

In addition to the risks outlined above, there have been other risks that have affected the project in a substantive manner, but which were not identified in the Project Document. The following is a brief description of the major ones:

1. Prioritization of Energy Efficiency by National Authorities

While energy efficiency in public buildings is an important target area for the Iranian government,[22] it is not its first priority given the current economic situation. It should be noted, however, that a number of steps have been already taken by the authorities. For example, a strategic goal for the government is the renovation and retrofit of public and commercial buildings with a target of 500,000 residential and 100,000 public and commercial buildings between 2020-2030. Furthermore, a number of steps have been undertaken in the country, which include the following:

- Setting of laws, rules, regulations and standards and efforts to enforce energy efficiency improvements
- Revising and updating rules and standards for energy efficiency
- Establishment of energy management department in the organizational charts of public building
- Organization of training courses in the field of energy management systems in building sector
- Training and certification of energy experts on Measurement and Verification of energy saving
- Forming more companies in the field of EE building technologies providers such as smart metering, control and monitoring systems as well as renewable sources

[22] Energy efficiency plays a vital role in reducing the impact of energy costs on business and domestic consumers, as it lessens carbon emissions and decreases Iran's dependence on fossil fuels, which improves national competitiveness and sustains employment. Achieving greater efficiency in resource inputs also improves productivity and reduces costs.

- Promotion of implementation of some EE measures like higher efficient double-glazed windows, improving the efficiency of lighting systems and more attention to maintenance of cooling and heating systems in buildings

These steps are important, but a lot more action is required to establish an active EE market. These initiatives provide a good basis for the project – the question is how to accelerate progress towards the transformation of this sector.

2. Risks to Scaling up Pilots

The sustainability of the EE market beyond the piloting conducted under the EEB project also involves substantial challenges. It is crucial that the financing of EE investments is done on a market basis, which will ensure the sustainability of investment. The establishment of the market mechanism underpinned by the EE Certificate will be crucial for sustaining the results that the project is seeking to achieve. The key question of how the market mechanism will be established in the remaining time of this project should be the most crucial issue facing the stakeholders. In addition, the financial sustainability of the market mechanism will require the establishment of a dedicated fund or partnership with existing national funds and the establishment of a proper financing scheme. Alternatively, the involvement of the financial sector (i.e. commercial banks) in the financing of EE improvements in the buildings sector will strengthen the viability and sustainability of this market. Another key aspect of sustainability is the involvement of all EE-related players in building sector (knowledge-based, start-ups, suppliers, service providers etc.), and not only ESCOs. This will require the provision by the project of requisite training for all players.

For the remainder of this project, the team and stakeholders should pay greater attention to the financing aspects of the market mechanism. The fund that will underpin the EE market needs to be designed carefully and the process requires the involvement of many stakeholders that have not been involved yet in the project (i.e. financial regulator, Ministry of Finance, etc.). Also, project stakeholders should explore the extent to which commercial banks could be involved more actively in the financing of EE projects.

3. Availability of Energy Efficiency Information

A key challenge for the promotion of energy efficiency in public building is the lack of recent energy performance information and energy index across Iran's building sector to enable a monitoring of the wholesale prices of fossil fuels and energy usage across buildings over time. Evidence and experiences in the Iranian ESCO market indicate that energy efficiency in public buildings has gradually improved due to the establishment of new laws and standards. In most public buildings, responsible organizations have set energy efficiency targets in their overall strategic planning. The establishment of the EMIS system will help in this regard, but as mentioned above it will be crucial to clarify a number of key issues related to EMIS before the system can become effective.

4. Currency Devaluation

The devaluation of the local currency has represented another challenge risk in terms of project payback and attractiveness for private sector engagement. This is a major external challenge over which the project has no control. But it will be important for the project team to analyze the impact of this challenge in more detail and in cooperation with other stakeholders to identify mitigating measures.

3.1.3. Lessons from Other Relevant Projects Incorporated into the Project Design

The Project Document does not identify any other relevant projects or lessons learned from similar interventions in the country either by UNDP or other partners. This is perhaps because energy efficiency is a new area of work for UNDP in Iran. The main areas of work of UNDP Iran under the environmental portfolio (listed in the box below) do not involve any activities directly related to energy efficiency. So, there are no direct linkages between the EEEB project and other projects in the UNDP portfolio that could have been capitalized.

Box 6: Environmental Portfolio of UNDP Iran

The following are the environmental projects that UNDP Iran has implemented recently:

- HCFC Phase-out Management Plan for Iran
- Conservation of Iranian Wetlands Project
- Conservation of Asiatic Cheetah Project
- Carbon Sequestration Project
- Building a Multiple-Use Forest Management Framework to Conserve Biodiversity in the Caspian Hyrcanian Forest Landscape

However, it would have been useful if the Project Document had identified interventions related to the EEEB project undertaken by other actors. It is not clear how many similar projects have been implemented recently or are ongoing in Iran, but the MTR identified three relevant initiatives.

- A project financed by Japanese JICA on the promotion of ESCO intervention in public buildings.[23] This project has had a lot of commonalities with the EEEB project.
- A project financed by the German Ministry for Environment and implemented by the consulting company of DIW Econ Petra Opitz on the establishment of energy efficiency market in Iran.[24] This project as well shares a lot of commonalities with the EEEB project. Furthermore, its implementing partner in VPST.

It will be important for the project team and stakeholders to identify synergies and establish close cooperation with these two projects, and others that might be ongoing in the country. The potential

[23] http://open_jicareport.jica.go.jp/pdf/12339248.pdf
[24] https://www.tehrantimes.com/news/429871/Iran-Germany-kick-off-co-op-on-energy-efficiency-market

for synergies is particularly strong with the German-funded project which is implemented by VPST.

Another notable project which is relevant to EEEB is a pilot project on "Efficiency Improvement in Buildings and Energy Optimization in Boiler Houses" which implemented various energy-saving measures in 200 buildings within the city of Tehran, based on directive passed by the Iranian Economic Council on the efficiency of boiler houses in buildings (see the box below for a description of the directive). This project can provide a number of lessons learned for the EEEB project.

Box 7: Directive on the Efficiency of Boiler Houses

Based on the Consumption Pattern Reform Law, the Iranian Economic Council has passed a directive that allows the Ministry of Petroleum to invest US$ 2 billion to improve the efficiency of boiler houses in buildings. This directive aims to reduce greenhouse gas emission and energy consumption in buildings. The quantified goal is to reduce CO2 emissions by approximately 43 million metric tons. The noteworthy sections are summarized below:

1. Investment in 500,000 residential and 100,000 public buildings. The savings are to be achieved via burner adjustment, installation of smart gas meters (obligatory), insulation, automatic scale removers, etc.
2. The savings will be measured against the consumption during the past two years of the building in which energy-saving measures are implemented. The maximum rate at which savings will be purchased is set to 4500 Rials (approximately 0.13 USD) per cubic meter. The savings purchase period is also set to 22 months and 33 months for public and residential buildings respectively. However, the period was later revised and extended to 60 months for all building types.
3. National Iranian Oil Company (NIOC), is responsible for covering supervision, control and monitoring costs.
4. The government's commitment of US$ 2 billion investment will be adjusted based on Central Bank of Iran's official rates during payment period.
5. The projects will be finalized by 1396 (2017 – 2018). This was later extended.
6. NIOC is responsible for calculation of resources obtained from savings and declare the figures to the Management and Planning Organization.
7. A comprehensive software system must be developed in all stages including project referral, acquisition, execution, delivery and supervision.
8. All equipment used through the course of the project must have been approved by the Ministry of Oil beforehand. A full list of approved equipment will be accessible by the public.
9. The payments to ESCOs will be allocated in predetermined periods of 3 months after validation of the saving results. The measurement and verification (M&V) results will be reviewed and re-evaluated at the end of each year and adjusted accordingly as well.
10. Participating ESCOs must have been rated by the Management and Planning Organization prior in related fields (mechanical facilities, electrical facilities and energy optimization) prior to their entry to the projects.

11. Participating M&V bodies must have been rated by the Management and Planning Organization prior in related fields (mechanical facilities, electrical facilities and energy optimization) prior to their entry to the projects.
12. Publicity and propagation of the project in mass media must be carried out.
13. Municipalities must report their actions with regards to energy optimization in construction of new buildings every 6 months.

The Iranian Economic Council Directive has paved the way for energy optimization in boiler houses, which are one of the largest energy consumers in buildings. However, this directive and its related initiatives have faced many obstacles, which have led to a four-year delay in its execution.

3.1.4. UNDP's Comparative Advantage

Although UNDP has no experience with energy efficiency projects in the country, its vast experience with energy efficiency in other countries enables it to apply the lessons learned in other environments to Iran's situation. Combined with the good image, effective financial system control, procurement systems, close links and trusted partnership with government and non-governmental partners, this experience allows UNDP to ensure the effective implementation of a complex project. Energy efficiency is an area where UNDP can build a track record in Iran and develop lasting partnerships. UNDP is making attempts to unlock Green Climate Fund (GCF) funding for Iran and if these efforts succeed, it will be possible to pursue energy efficiency project in the country for which the EEEB project could provide the foundations.

The following box summarizes some key advantages of UNDP in the implementation of environmental projects.

Box 8: Key Elements of UNDP's Comparative Advantage

- UNDP has developed good partnerships with the government, civil society, private sector, research institutes, etc. National stakeholders value UNDP for its neutrality and impartiality. The trust and respect commanded by UNDP and the access it has to government officials, as well as civil society, place UNDP in a good position to play a strong advocacy role on the one hand, and, on the other, to undertake pioneering initiatives.

- UNDP has extensive experience supporting capacity development initiatives through advocacy, policy advisory, and technical assistance services. Implementation of this project has benefited from the experience and technical support UNDP provided as a specialist in capacity development.

- Its global experience and lessons learned in the same sectors in many countries around the world provide UNDP with a distinct advantage. UNDP is able to mobilize support from a

range of UNDP and UN structures. Its access to a vast global network of experts allows it to tap into comparative experiences and technical support from other regions. UNDP's regional office in Bangkok, in particular, provides technical support to numerous projects across a number of areas. Regional technical advisors assist with project formulation and input into the development of the logical frameworks, recruitment of international experts, identification of key stakeholders, etc.

- UNDP has extensive experience and capabilities related to regional cooperation. A significant part of UNDP's work is regional (multi-country) in nature. It has great capabilities for promoting south-south and triangular cooperation and can mobilize technical expertise to develop a suitable regional knowledge platform.

- UNDP's strong record of working with GEF on climate change mitigation and environmental projects allows it to capitalize on valuable GEF expertise in these sectors. UNDP has one of the largest portfolios of GEF-funded projects in the world. The experience and capacity that this implies is a significant comparative advantage in developing and implementing such types of projects.

- Another one of UNDP's strengths is its broad-based development approach focused on strengthening national capacities for sustainable development through the integration and mainstreaming of various development aspects. SDGs are used by UNDP as an integrating platform for all development efforts in various countries and as an instrumental for engaging with a wide spectrum of stakeholders, which has proven to be a critical factor of success in many instances.

- UNDP's extensive experience in the country is one of its strongest assets and a comparative advantage. Long-established partnerships with partners are crucial for ensuring smooth implementation, sustainability and replication of various initiatives.

3.1.5. Planned Stakeholder Participation

An overview of the project's stakeholders and beneficiaries was provided in section 2.5. of this report. Despite the complexity of the EE sector in Iran, the Project Document provides a good outline of the main stakeholders in the project. The inception report adds further value by providing a more coherent analysis of stakeholders and their roles in the project. The table presented in Annex V of this report, taken from the inception report, shows the list of all actors relevant to the project and their specific roles and responsibilities in the project. Exceptions to the list are organizations like Iran's Energy Exchange Organization (IRENEX) which were not identified initially, but which are not involved by the project in the establishment of the EE market through the EE certificate instrument.[25]

[25] The idea is that EE certificates representing energy savings could be traded through the Energy Exchange.

However, as can be seen from the table in Annex V, the responsibilities and duties of each stakeholder are described only in general terms, without clarifying specific duties to be carried out by each of them in the context of project activities. This gives the impression that at the time of the development of the project document and the inception report there was no full clarity about specific roles and responsibilities in the project.

3.1.6. Replication Approach

The fundamental replication mechanism of this project is the "EEE Market" mechanism which is expected to lead to large-scale transformation in the energy sector. The hinge for the replication success of this project is the establishment of the EE market. This is going to be a daunting task, given the complexity of issues involved in the establishment of such a market. Key elements and challenges related to the establishment of the market are discussed throughout this report.

If the project will manage to test the EE market mechanism (including the EE certificates) through the pilots, it will have achieved a very important goal. However, there are other objectives of this project which will be achieved through the pilot initiatives. They are expected to showcase an approach for the implementation of energy efficiency improvements in buildings by demonstrating a number of things, including the feasibility (cost-effectiveness) of EE improvements, the approach for undertaking such improvements, technological solutions to EE problems, etc. The project team has envisaged an approach for the implementation of the project initiatives which is commendable, but the replication and scaling up dimension will require more attention.

Box 9: Implementation Approach for the Pilot Initiatives

The project team envisages the implementation of the pilot projects in a step-wise incremental way consisting of four phases:

1. The role of the EEEB project as a market maker (financer) will decrease and gradually the role and the share of public and private sectors will increase.
2. M&V institution and its duties will be identified/clarified and be discussed by stakeholders to improve the M&V procedures. It is expected from pilot projects to have a well-designed M&V procedure in a way to be implemented completely by Iranian stakeholders once the project finished.
3. The project has involved four technical committees with governmental stakeholders, namely: a) Market and regulation, b) M&V, c) building energy ID, and d) pilots. In these committees the project team attempts to show the road how to implement the project in large-scale. Indeed, the aim of these committees is soft-landing of the knowledge of project team to governmental stakeholders.[26]
4. Increasing capacity of auditors and ESCOs.

There are also other elements of the project beyond the market mechanism and the pilots that are important – for example, EMIS, training programmes, awareness-raising initiatives, etc. As such,

[26] In view of the project team, the M&V and Pilot committees can be merged, given their connections.

sustainability and replicability are crucial aspects of the project's design. So, it will be important to replicate these elements as well after the project's end on a larger scale. This is an area that deserves greater attention from the project team. How will the continuity of these initiatives be ensured? How will they be scaled up and by whom? What is the project's exit strategy in these areas? At the point of this MTR, it is not fully clear what the sustainability path of this project is and what replication model will be used by the authorities to take the approach tested under this project to scale.

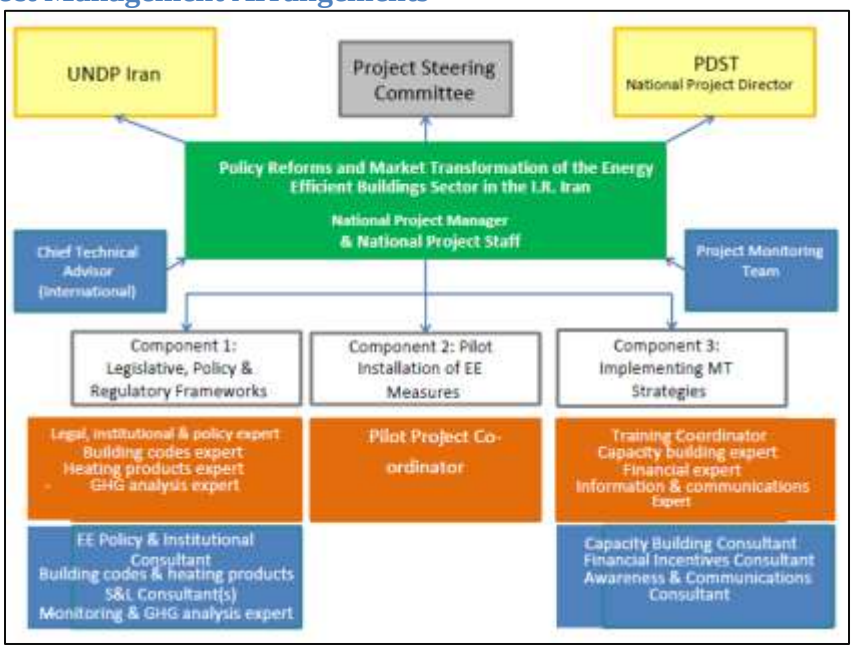
3.1.7. Management arrangements

Overall, the Project Document and Inception Report have been used as the basis for the project management. The Project Results Framework (RRF), presented in the project inception report,[27] is the most important project management tool, as it defines the main indicators for the project goal, objectives and outcomes, including the baseline value, and the mid-term and end-of-project targets for each indicator against which the project's performance will be directly evaluated. As has been mentioned in the previous sections, both the Project Document and RRF have suffered from substantial shortcoming which have posed significant challenges for the project team. One lesson learned for the UNDP CO from this project is the importance of having a well-designed project framework that enables the project team to operate swiftly by taking advantage of institutional opportunities. Further, this MTR recommends a careful overhaul and revision of the Project Document and RRF at this point in the project. The project team has already a good understanding of the main bottlenecks related to the RRF and has made estimations for the revision of indicators and targets which should be brought to the attention of the Steering Committee.

In terms of management arrangements, the project's structure laid out in the Project Document was designed to provide an effective and integrated means to oversee and manage the multiple state level activities. As such, effective project management requires a combined mix of expertise in renewable energy, energy efficiency, project administration, and project management. The management arrangements identified in the Project Document are shown in the figure below.

[27] As has already been mentioned, the RRF version presented in the Inception Report is a slightly modified version of the one presented in the Project Document.

Figure 8: Project Management Arrangements[28]



These arrangements seem appropriate for the nature of the EEEB project (and as will be seen in the following section they correspond to some extent to the arrangement that eventually turned out during the implementation stage). The project team was designed to be managed by a National Project Manager (NPM) with support from UNDP. The Project Document also envisaged that during the first two years of project implementation the NPM would be supported by a part-time international chief technical adviser (CTA) as well as by local support staff in the overall project management, including logistical support, circulation of discussion papers and draft reports, raising public awareness on project activities, accountancy support, coordinating and monitoring the work of the consultants and providing other support needed.

The three project components were designed to be staffed by part-time teams of local experts and international experts, working closely together. Component 1 (Legislative, Policy and Regulatory Frameworks) was designed to be driven by experts and consultants with experience in policy, building codes, heating products and GHG monitoring. Together they were expected to research international best practices, propose changes in current legislation, develop proposals for enforcement strategies and mechanisms for compliance and develop methodologies for measuring building and heating system performance. This team was expected to advise on the design and delivery of Component 2 (Installation of EE measures), which would be managed by a Pilot Project Coordinator. The team working on Component 3 was envisaged to consist of experts and consultants with experience in capacity building, finance, training and communications. The Capacity Building team would work with experts and consultants with expertise in building codes and heating products to analysis the baseline situation and design a capacity building plan focused

[28] Figure taken from the EEEB Project Document.

on manufacturers and supply chain stakeholders. The financial expert and consultants were expected to examine international best practices and develop the analyses for the implementation of household financial incentive schemes and coordinate capacity building activities for financial institutions. The communications expert and consultants were expected to identify stakeholder groups and key partners, and design and co-ordinate a communication and awareness strategy and accompanying campaign. They would also be responsible for coordinating surveys to assess the impact of the consumer campaign and the training programs.

While in the Project Document organizational arrangements are laid out as described above, in practice during the implementation stage the situation has been different to some extent, as will be described in more detail further in this report.

3.2. Project Implementation

The project has a long history and during its lifetime has undergone a number of important stages. The figure below shows the project's key milestones.

Figure 9: Key Project Milestones

Project starting date : 18 Agust 2016
Project team on board : 1 November 2016
Inception workshop date: 27 February 2017
1ST Project Steering Commitee date: 23 May 2017
Manageral change: December 2017 - April 2018
Project progress report (PIR): 30 June 2017
Mid-Term Evaluation: September-October 2019

Originally, the project was conceived by UNDP and IFCO and the proposal was submitted by the Ministry of Petroleum to the Ministry of Foreign Affairs, as focal point of the GEF. The project was initially approved by GEF and UNDP in June 2010, but the signing of the Project Document was delayed because of sanctions in the energy sector. In 2014/2015, the initial proposal was revised in line with the "Law on Elimination of Barriers for Competitive Production and Financing System (Article 12)". The project document was signed 18 August 2016, with the starting date set as 1 August 2016.

The project team was assembled a couple of months after the signing of the project document. By November 2016 the Project Management Unit was in place and included the National Project Manager, Deputy National Project Manager, Communication and Networking Expert and Finance and Operation Expert. The project's inception workshop took place in February 2017, which represents the launch of the project.[29] Also, in November 2016, the Committee for Energy Efficiency and Environment (CEEE) provided the project with an office space (60 m2), along with furniture and internet connection in Sharif Energy Research Institute (SERI).

It should also be noted that the project has experienced a number of significant delays. All in all, it took six years to move from the approval of the project to the signing of the project. Between the signing of the project document and the organization of the inception workshop another six months had passed. Certain delays were experienced further after the official launch of the project. The recruitment of the project team was completed in August 2018.

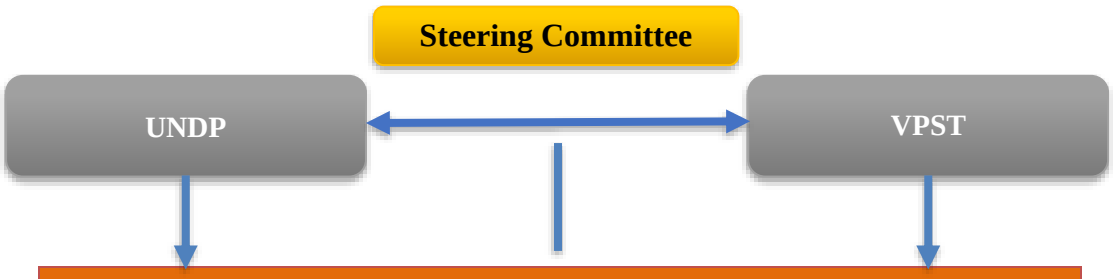
[29] The Inception Workshop of the Project was held on February 27th 2017 and was attended by around 30 participants representing relevant stakeholders of the Project. The workshop was held under the auspices of Vice Presidency for Science and Technology. Apart from representatives of the project, participants included also representatives of CEEE and consulting companies.

A major challenge for the project has been the high turnover of staff. The project manager position has changed three times during the lifetime of the project, with a gap between December 2017 and April 2018 without a Project Manager.[30] Further, the National Project Director has changed, with the current one is the advisor to the Vice President of Science and Technology. Also, the Chief Technical Adviser has changed, with a new one recruited in June 2019.[31] Another challenge reported by the project has been the difficulty of finding available qualified experts, which is linked to the country's limited experience with energy efficiency. Also, the long recruitment process was identified as a challenge by participants in interviews for this MTR.

Management Arrangements

The previous section provided a description of the management arrangements as they were conceived during the design stage and outlined in the project document. The actual arrangement during the implementation stage has been slightly different and will be described in this section of the report. Key project positions are shown in the figure below.

Figure 10: Simple project organization chart



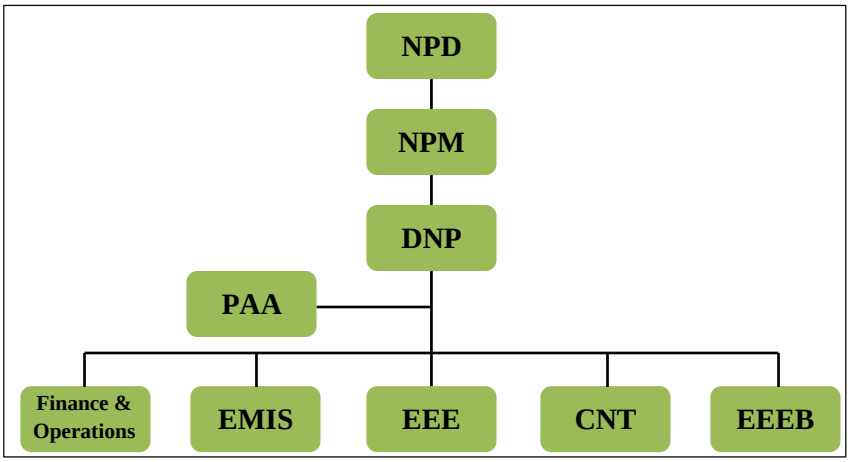
PROJECT TEAM
National Project Director
Project Manager
Deputy Manager
CTAs and international experts/consultants
Pilots Expert
EEEM Expert
EMIS Expert
Communication & Training Expert
Finance and HR

[30] The first Project Manager was recruited in October 2016 and left in December 2017. The second Project Manager held the position from 21 April 2018 to 25 January 2019 and the third Project Manager from 26 January 2019 up to now.

[31] The first CTA has been involved with the project from the project planning stage to the inception workshop. The second CTA started in June 2019 and during this time and has supported the project team with technical assistance in monitoring of project progress, reporting and how to proceed with a future plan.

The figure below shows the project's internal organizational structure and lines of accountability for each of the project's components.

Figure 11: Project Organigram



The project is overseen by a Steering Committee, which is co-chaired by UNDP and VPST. From the beginning of the project until the point of the MTR, the project's Steering Committee has met four times – roughly once a year, as opposed to twice a year which was the minimal requirement in the Project Document. The box below provides a brief description of the actual composition of the Steering Committee, which is to some extent different from what was envisaged in the Project Document. The current composition of the Steering Committee reflects the reality better than the outdated version that was proposed in the Project Document.

Box 10: Composition of the Project Board

The following are the members who have participated in steering committee meetings:

- General Director of International Affairs of Environment and Sustainable Development, Ministry of Foreign Affairs (MFA);
- Advisor to the Minister and Head of Policy and Employment Development Office, Ministry of Cooperatives, Labour, and Social Welfare (MCLS);
- Deputy Director of Human Environment Department; Energy Office, Department of Environment (DoE);
- Deputy Minister of Roads & Urban Development;
- CEO of Iran Fuel Conservation Company (IFCO);
- Director of Environment and Economic and Social Development Programs, UNDP, Iran Country Office;
- President of Road, Housing & Urban Development Research Center (BHRC);
- Head of Renewable Energy and Energy Efficiency Organization (SATBA);
- CEO of Great Tehran Electricity Distribution Company;
- Integrated Planning Director, National Iranian Gas Company;
- Head of Environment Management and Sustainable Development Center; Energy Management Office, Tehran Municipality;

- General Director of Office of Supervision on the Implementation of Environment and Energy Consumption Criteria Standard, Iranian National Standardization Organization (INSO);
- Deputy Director of Entrepreneurship and Employment Development, Ministry of Cooperatives, Labour, and Social Welfare (MCLS);
- Directing Manager, Iran Association of Energy Service Companies;

The box below provides a brief description of the project staff and their responsibilities. The project is overseen by a National Project Director who reports to the Steering Committee. The management of the day to day activities is overseen by a full-time Project Manager and Deputy Project Manager. The key expert positions in the project are dedicated to the main components of work – there are dedicated full-time experts working on ***EMIS***, ***Pilots***, and ***EEE Market***, respectively. These experts are supported by international advisers on a needs-basis. The overall project is also supported by a Chief Technical Adviser (CTA), who provides direct technical support to the project team in preparing annual work plans, monitoring and supervising the day-to-day implementation of project components, as well as transferring technical knowledge, especially in the area of competitive market.

Box 11: Project Staff

1. ***National Project Director (NPD)***
   - Supervise and guide the project implementation directly as well as through the Project Steering Committee meetings;
   - Reviews (PIRs) and meeting at regular intervals with the national project manager;
   - Certifying the annual and, as applicable, quarterly work plans, financial reports and ensuring their accuracy and consistency with the project document and its agreed amendments.

2. ***National Project Manager (NPM)***
   - Assume operational management of the project according to the project document and UNDP policies and procedures for nationally executed projects;
   - Ensure smooth and timely implementation, as well as strategic development;
   - Coordinate project implementation with projects and activities carried out by project partners and stakeholders, build partnerships and leverage resources.

3. ***Deputy National Project Manager (DNPM)***
   - Ensuring day-to-day implementation of the project in accordance with the annual work plans, project document, UNDP national implementation rules and UNDP/GEF procedures;
   - Collaborate with UNDP to ensure that specified project tasks are outsourced to suitable consultants and/or organizations, and overseeing implementation of such contracts;

- Coordinating implementation of work plan by project office, partners and stakeholders and provide assistance in development and approval of annual work plans.

4. ***Finance & Operations Expert***
   - Planning: assist the NPM in project budget monitoring and project budget revision
   - Reporting: prepare project financial reports and submit to NPM and NPD for clearance and furnish to UNDP as required.
   - Coordination of events: Make sure all arrangements are in place for holding an event.

5. ***Communication, Networking & Training Expert (CNT)***
   - Develop a Public Awareness and Communications Plan
   - Ensure that highest level of stakeholder engagement is achieved in project activities;
   - Develop training needs analysis and provide training methodologies and innovative approach in the training area.

6. ***Energy Management & Information System (EMIS) Expert***
   - Prepare functional specification for EMIS covering macro and micro level requirements of EEEB and MEEE;
   - Day-to-day management and further development of the EMIS software;
   - Supporting the NPM in drafting TORs and technical specifications for any IT related procurement.

7. ***Energy Efficiency and Environment Building Code (EEEBC) Expert***
   - Ensuring day-to-day implementation of the EEEBC implementation and pilot evaluation;
   - Ensuring day-to-day implementation of the reference laboratory development plan and installation;
   - Providing technical inputs for EMIS implementation in coordination with EMIS officer.

8. ***Energy Efficiency and Environment Market (EEEM) Expert***
   - Review ESCO's baseline energy profile for accuracy and inclusion of all relevant energy use;
   - Assist in validation of proposed Energy Conservation Measures (ECM)
   - Provide comments/recommendations on the ESCO's preliminary Operations and Maintenance Plan.

9. ***Project Administrative Assistant (PAA)***
   - Answers to the phone calls and emails, and responds to the clients;
   - Types the letters and translate the reports/presentations (both Persian and English);
   - Provide support to international consultants in the implementation of their tasks for the achievement of project results (communication, contracts, agenda, visas, hotel reservations, etc.).

Overall, the management structure that has been adopted has been adequate and has responded well to the needs and the challenges that the project has faced. No major concerns were raised by the project stakeholders with regards to the staffing and the organizational structure of the project. The recruitment of dedicated full-time experts for the project's key components (EMIS, Pilots and EEEM) seems to have given the project a good impetus during the current year. Also, the use of the CTA and other international advisers has provided the project with much needed technical support and knowledge. It should also be noted that the current project staff are committed, knowledgeable and dynamic. Had the project team had this shape shortly after the project started, progress with the activities (which will be reviewed in detail in the effectiveness section of this report) would have been much more advanced.

3.2.1. Adaptive Management

To understand adaptive management approaches by the project team, first it is important to understand the challenges that the project has faced and then identify the adaptive actions to address those challenges and mitigate their effects. The following are the major challenges that were identified in the course of the MTR and a brief description of some of the adaptative measures that the project team has undertaken in response to these challenges.

1. Changing Context around the Project

The political and institutional context in the country has changed since the conception of the project (this was already discussed in the section about Assumptions and Risks). The project was conceived before 2010 and the project document was revised in 2014/2015. The project received its approval in 2016 and the signing of the project document occurred in August 2016. During the long period that the project was under conceptualization and implementation, the political and socio-economic context in Iran has changed significantly, and so has the context in the area of energy efficiency. The Inception Report formulated after the Inception Workshop in mid-2017 provides a good overview of the context at that time and strengthens the project's approach.

The project's RRF was revised at the time of the inception workshop and these changes were reflected in the RRF that was attached to the inception report. The reason for the change was that from the time of the development of the project document to the inception workshop more than one year has passed and as a result of changes in the country's situation and priorities it was necessary to make adjustments to the RRF. Despite the improvements, there remained gaps between the project document and the inception report (for example, the outcomes and their associated outputs are not all aligned), which the project team is not able to fully understand. Furthermore, a number of indicators in the current RRF remained problematic – as has been indicated in the previous sections of this report.

Due to the fact that the project had not been appropriately staffed until the beginning of this year, the team had not dealt with RRF-related challenges until recently. Now that the whole project team is fully operational and the team understands the limitations of the current RRF, it is the opportune

time to revise the RRF – including the key indicators and targets. One major recommendation of this MTR is to adjust the project's design and RRF in accordance with the changes in the external environment and in line with the estimations that the project team has produced (as discussed in the previous sections of this report).

2. Implementation Delays Due to Slow Recruitment and Staff Turnover

Another major challenge that has been already discussed in this report is the implementation delays that have resulted from the slow establishment of the full project team and the high staff turnover. In the last year, the project has responded to this challenge by recruiting more resources to compensate for the lost time. The progress that has been made this year is visible across all dimensions – work on the pilots has been reenergized, with three rounds now planned and the process for the first and second batches underway. The project team has been holding bi-weekly meetings with all contractors to monitor and track the progress and avoid delays with the implementation of pilots. The project team is also holding regular weekly meetings with VPST to strengthen coordination and reduce delays in decision-making. Another positive adaptive measure has been the formation of component-based committees to strengthen coordination and engagement of key stakeholders. The VPST from its side is now closely engaged with the project and is very keen on having this project achieve all its expected results.

For all the positive adaptive measures that the project team has taken to address the implementation delays that the project has experienced, it is clear at this point that to complete all the key activities, and in particular the pilots that have been planned, the project will most likely need a no-cost extension. This matter was brought up in meetings with most project stakeholders. The recommendation of this MTR is for the project team to conduct a careful review of the outstanding activities and the timeframe required for their completion and, based on an updated project implementation plan, to submit a clear request to the Steering Committee for its consideration.

3. Accelerating the Implementation of Pilots

Significant delays in the project have occurred in component two - "*Implementing pilot renovation project in residential and public buildings*". The first batch of pilots was launched in March 2019, with a significant delay for a variety of reasons, including the limitation in good opportunities for good investments, weak interest from the side of ESCOs, difficulties in attracting financial contributions from building owners, the complexity of the development of the ESCO model and bidding process, etc. The first wave of 17 pilots is underway, with the first contracts signed with ESCOs in July 2019.[32] The second wave has also been initiated and preparations for the bidding process are underway.

[32] This report's section of effectiveness provides the list of 17 pilots included in the first wave.

The Project Document envisaged about 400 pilots to be implemented in 4 stages (batches). The plan included 80 non-residential and 320 residential buildings. The project team has taken a number of adaptive measures to facilitate this process.

- First, it has reorganized the process in three waves (batches) to recover time. To expedite the work, the 3rd and 4th batches will start in the middle of the 2nd batch (Q1 of 2020).[33]

- The team has also made progress in defining what constitutes a "pilot", which was a major challenge related to the fact that the Project Document did not provide full clarity on this. With regards to the buildings' size, based on the original project document, the standard area for residential buildings has been set 120 m2. For non-residential buildings, it is set at 5,300 m2. Based on consultations with stakeholders and previous definitions in a similar project, the project team has proposed a size of 500 m2 for residential buildings. Further, the project team considers that the implementation of "400 pilot buildings" will be easier by focusing on large buildings.

- Also, recognizing limited possibilities of ESCOs and building owners to provide financing, the project team has designed the batches in a way that involves the provision of financial support by the project, but in a decreasing fashion. For the first batch the project will play the role of the "market maker" by fully financing the works. In this batch, 60% of the total cost will be paid to ESCOs after full installation and delivery of the equipment and the 40% rest will be paid based on the performance of ESCOs and the amount of energy saving realized. For the second batch, the approach is to have up to 50% financial support of the project and the rest allocated by building owners.

- Further, in order to attract more contribution and participation of buildings, the project has widened the scope of interventions by adopting the following requirements:
  - No restriction to the type of building
  - No restriction to the type of EE measures
  - Attracting the interest of the public through awareness campaigns that are being held in three large cultural houses of Tehran municipality
  - Focusing on building complexes that have a larger number of units.

All these are commendable adaptive measures which starting from this year have given the "pilots" component significant impetus. The project has also decided to hire a specialized Managing Company which will be responsible for managing and supervising all pilot works. This is an important measure for a number of reasons, but most importantly because the works involved in the pilots are quite complicated technical and contractual matters. Also, the use of a dedicated

[33] If the redefinition of buildings will be accepted by the Steering committee as the basis for the pilots.

supervising company will free project staff from the pilots and allow them to focus on other matters requiring their attention.

4. Market Mechanism

Being perhaps the most crucial element of the project, the establishment of the market mechanism has also seen some progress in the course of the current year (2019). First, a dedicated staff member is hired to tend to this component. Further, a concept note laying out the model had been developed and is pending approval from the relevant partners. Implementing and testing the model will be a significant challenge. In the opinion of some stakeholders interviewed for the MTR, there is a risk that the EEE market won't be implemented and promoted on a full national scale, but will remain limited to the pilot scale. This is a real risk as the EE market will involve many components and actors and will require a number of processes, procedures and extensive coordination. For successful implementation of the market, it will be necessary to have an appropriate financing scheme and a set of regulations that will underpin the functioning of the market. Establishing these elements will take time.

In this situation, it will be essential for the project team to develop realistic scenarios for how to proceed with the establishment of the market mechanism within the time and resource constraints of the project. This work should go beyond the exiting concept note and focus on what is realistically feasible and what is not identifying clear timelines for all alternatives and respective activities. Also, more focus on the financing scheme, and where feasible the involvement of commercial banks, will be necessary.

Further, the project could explore ways of linking the EE market model to existing financial incentives available in the country. The following are examples of financing/subsidy programmes for energy efficiency improvements:

- Financial Support to ESCO companies, after implementation and verification of EE measures targeted to energy savings through EPC contracts based on Article 12 of Law on "Elimination of Barriers to Competitiveness Production and Financing System".[34]
- Subsidizing interest rate of the loans for energy efficiency projects (SATBA and IFCO has performed this scheme before but now it is not in operation).
- Guaranteed purchase power from renewable sources.
- Tax exemption for energy efficiency knowledge-based companies by the National Innovation Fund.

[34] This initiative is on-going and is likely to include improvements of efficiency of gas heaters as one of the common types of heating systems.

5. Capacity of Stakeholders

Another crucial aspect that is not sufficiently emphasized in the project document, but which deserves more attention by the project team is the limited capacity of ESCOs and building owners. The lack of sufficient local capacity and experience is one of the major causes of the delays that the project has experienced. The project team has taken some adequate adaptive measures in this direction has produced some good training programme, as well as an adequate training plan which is included in Annex VI of this report. But there is a need to further strengthen the capacity building component of the project, and if feasible allocate additional resources to this type of activity.

3.2.2. Partnership Arrangements

As has been already mentioned, the EEEB project involves a large number of stakeholders from different sectors and institutions, which is a reflection of the complexity of the EE sector in Iran. The following entities are the project's main partners:

- Management and Planning Organisation (MPO)
- Iran National Standard Organization
- Ministry of Road and Urban Development
- Building Housing Research Center (BHRC)
- Ministry of Petroleum (MoP) through its Deputy for Planning and Iran Fuel Conservation Organization (IFCO)
- Ministry of Power through SATBA (responsible for EE and Renewable Energy)
- Iran ESCO Association
- Municipality of Tehran
- Iran Construction Engineering Organization
- Department of Environment as the GEF focal point in Iran and one of the key stakeholders involved in the EEE market
- Universities and related research centers
- Environmental NGOs

Of these partners, the ones which have been most closely involved with the project are the following (in addition to the VPST which is the project's implementing partner):

- Building Housing Research Center (BHRC)
- Iran ESCO Association
- Iran National Standard Organization (INSO)
- IFCO

The project team has established a good relationship with these organizations. Representatives of these bodies met for the MTR seemed quite engaged with the project and expressed interest and

commitment towards the project activities. The new Project Manager and project team have managed to create a good momentum now in the partnership with these entities.

Some stakeholders, however, are not as responsive as the project requires. The main forum for engaging these partners – the Steering Committee – has either met too rarely, or is not well attended by some members. The most active member of the Steering Committee and the decision-making process have been the above-listed organizations (BHRC, INSO, ESCO Association, etc.). They have provided suggestions for policies and standards revisions, have presented the compliance system for enforcing policies and standards, have nominated pilot buildings and have provided any other consultation that EEEB project required. In the remainder of the project's lifetime, the project team should identify ways on strengthening the role of the Steering Committee and engaging more actively the partners that so far have been only marginally involved.

3.2.3. Feedback from M&E Activities Used for Adaptive Management

As noted in the previous sections, adaptive management was used for the project team's response to changing circumstances. This adaptive reaction resulted from the monitoring system that was put in place by the project team to identify problems and seek solutions. The design of the Monitoring and Evaluation (M&E) system provided in the Project Document has been generally adequate. It has comprised standard tools used in similar projects, in accordance with established UNDP and GEF procedures. The primary tools that have been employed are the Inception Workshop, Quarterly Reviews, Annual Reviews, periodic monitoring through site visits, mid-term review (who findings are presented in this report), and an expected Terminal Evaluation.

3.2.4. Project Finance

This section of the report provides a brief overview of the project's financing and expenditures, based on information provided by the project team.

Project Expenditure

The table below shows project expenditures by outcome area for the four years of operation. As can be seen from the table, by the time of the MTR the project had spent a total of about US$ 700,000, or about 22% of what was budgeted for the four-year period. This total amount spent represents about 18% of the total funding provided by GEF for this project (US$ 4 m).

Table 5: Budget Execution by Outcome Area

No.	Outcome Area	Budgeted (as per Pro Doc)	Spent	Execution Rate (%)
Year 2016				
1	Outcome 1	17,000	4,190.37	25
2	Outcome 2	18,500	5,279.90	29
3	Outcome 3	2,000	0.00	0
4	Outcome 4	15,500	2,723.74	18
5	Project Management	12,750	3,032.97	24
6	**Total**	**65,750**	**15,226.98**	**23**
Year 2017				
1	Outcome 1	134,000	56,574	42
2	Outcome 2	281,000	24,915	9
3	Outcome 3	63,500	36,728	58
4	Outcome 4	10,000	3,682	37
5	Project Management	40,750	41,484	102
6	**Total**	**529,250**	**163,383**	**31**
Year 2018				
1	Outcome 1	403,700	141,805	35
2	Outcome 2	420,700	33,973	8
3	Outcome 3	166,400	51,051	31
4	Outcome 4	57,100	2,772	5
5	Project Management	37,850	23,092	61
6	**Total**	**1,085,750**	**252,692**	**23**
Year 2019 up to End of June				
1	Outcome 1	373,050	147,541	40
2	Outcome 2	722,700	77,496	11
3	Outcome 3	350,400	36,101	10
4	Outcome 4	40,000	5,970	15
5	Project Management	62,450	22,929	37
6	**Total**	**1,548,600**	**290,037**	**19**
ALL YEARS				
1	Outcome 1	927,750	350,110	38
2	Outcome 2	1,442,900	141,665	10
3	Outcome 3	582,300	123,880	21
4	Outcome 4	122,600	15,148	12
5	Project Management	153,800	90,537	59
6	**Total**	**3,229,350**	**721,340**	**22**

Also, as can be seen from the table, the project has had quite low execution for all years, which is a reflection of the delays and challenges it has experienced (and which have been described in the previous sections). While execution rates are low across all components, there has been some

diversity across outcome areas. Outcome 2 has experienced the weakest execution rates, averaging about 10% over the entire period of project implementation. Outcomes 1 and 3 have had execution rates of 38% and 21% respectively. Overall, administrative (project management) costs have been low, averaging about 5% of total project expenditure for the period in question.

The table below shows the project's expenditure by category of expenditure. As can be seen from the table, one of the largest categories of expenditure is contractual services with companies which have implemented the activities pursued by the project. Spending under this category amounts to 29% of total expenditure. 2019 has been the year in which total expenditure and expenditures for contractual service have been the highest. Other large categories of spending have been "local consultants", "international consultants" and "equipment". Overall, in terms of execution against the plan, the "international consultants" category has had the highest rate – about 34% for the whole period in question. The "equipment" category has a very low execution rate of about 9%.

Table 6: Expenditure by Category

Expenditure Categories	Since Aug. 2016	2017	2018	2019	All Years	Plan	% of Total
1. - Contractual Services-Companies	0	30,596	78,420	97,587	206,603	1,391,000	14.9
2. - Local Consultants	9,929	76,819	56,859	30,173	173,781	551,000	31.5
3. - International Consultants	0	34,522	16,587	61,722	112,831	330,000	34.2
4. - Grants	0	0	0	0	0	0	0.0
5- Equipment	5,280	3,484	78,394	48,358	135,516	1,462,000	9.3
6. - Events, conferences, travel	18	9,186	10,570	14,129	33,903	107,000	31.7
7. - Admin expenses	0	8,776	11,862	38,067	58,706	284,000	20.7
TOTAL	**15,227**	**163,383**	**252,692**	**290,037**	**721,340**	**4,125,000**	**17.5**

What is notable from the two tables above is that the project has had low execution rates overall, especially with regards to the pilots' outcome and the purchase of equipment. This is a clear consequence of the delays that the project has encountered. It is also clear that spending has increased, reaching the highest level in 2019 (and considering the figure does not represent the total amount for the year – this will become available at year's end). It should also be noted here that project finances have been affected by the depreciation of the Iranian currency. The Iranian Rial has been devalued by about 2.5 times since April 2018, which has more than doubled the amount of local currency available in the budget. Clearly, without this devaluation the project's execution rates would have been much higher.

Project Co-Financing

The monitoring and measurement systems for co-financing in this project are not clearly defined in the project document (for example, there is no clarity on the measurement of in-kind contributions). The project team does not have a strong methodology for tracking co-financing. The table below shows the amount of co-financing reported by the project team for the period in question. This information has not been validated through this MTR and the project team is in the process of obtaining the necessary confirmation for this amount of co-financing. The MTR's

recommendation is for the project to track co-financing carefully and for the team that will conduct the project's final evaluation to do a validation of the total amount of co-financing.

Table 7: Co-financing (US$)

Outcome Areas	Co-Financing
Outcome 1	4,583,239
Outcome 2	7,852,877
Outcome 3	942,981
Outcome 4	0
Project Management	412,800
Total	**13,791,897**

General Remarks

Despite the changes in the context and adjustments introduced in the inception report, the project's budget has not been revised so far. At this point in time, there seems to be consensus among the project team and some of the stakeholders that the project would benefit from a budget revision. The project team has developed a plan for the reallocation of the budget, which includes the following proposals for revisions:

- Reduction of the amount of co-financing, given the fact that Article 12 is not active as planned due to sanctions and the country's economic status.
- Reallocation of the budget for equipment into other categories for other uses (i.e. contractual services).
- Reallocation of budget from Component I to Component II.
- Integration of in-kind contributions into the project budget.

The MTR's recommendation is that a revision of the budget is necessary. It is commendable that the project team has already developed a budget plan. The team should now present the budget plan to the Steering Committee for its discussion and endorsement, and subsequently receive all the necessary approvals for the changes.

3.2.5. Monitoring and Evaluation

Design at Entry

The most foundational M&E tool of the project, the Results and Resources Framework, has a number of weaknesses which have been pointed out in the previous sections of this report. These weaknesses have represented a serious challenge for the project team in their planning and implementation activities. Also, the Project Document lacks a strong and consistent Theory of

Change (ToC) that ties all the different project elements together into one single piece. This has been addressed in the Inception Report where a short ToC has been included, but still a coherent framework that links all the different pieces of this project together is still lacking. This has made it difficult for the project team to plan and track activities in a comprehensive fashion.

Other than these fundamental shortcomings, the M&E tools identified in the Project Document have been appropriate and have included standard instruments used in UNDP projects, such the following:

- ***Inception Workshop***: Based on the Project Document, a formal Project Inception Workshop was expected to be held at the project's start (in reality, the inception meeting was held in February 2017, about 7 months after the Project Document was officially signed on 18 August 2016).

- ***Annual Project Progress Report (APPRs)***: The APPR is a UNDP requirement and part of UNDP's CO central oversight, monitoring and project management. It is a self -assessment report by project management to the CO and provides input to the CO reporting process and the ROAR, as well as forming a key input to the PSC Review.

- ***Project Implementation Review (PIR)***: The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from on-going projects.

- ***Mid-Term Review (MTR)***: An MTR (which is this current report) was foreseen in the Project Document as an instrument for determining the project's progress and identifying important mid-project corrections.

- ***Terminal Evaluation (TE)***: An independent TE is foreseen by the Project Document to take place at the end of the project and expected to be undertaken in accordance with UNDP and GEF evaluation policies. The TE is expected to look at the impact and sustainability of the project's results, including the contribution to capacity development and the achievement of global environmental benefits and goals.

- ***Monitoring Team***: Under the management arrangements, a project monitoring team was envisaged to be established to monitor project progress on an on-going basis. This is reality did not happen.

While the monitoring and evaluation tools laid out in the Project Document were adequate in maintaining quality control, the project design suffered from a flawed RRF and a lack of consistency between the different components. Further, as has been stated in the previous sections of this report, the project design was very ambitious for the nature of this project and the resources

and timelines that it involved. Overall, the rating of the Monitoring and Evaluation design at entry point is "Marginally Unsatisfactory".

Implementation

For the assessment of the use of the M&E framework during the implementation phase, the evaluation team had access to some of the project documentation related to monitoring and reporting. The following documents were reviewed in the course of this MTR:

- Project Document and Inception Report
- Annual Project Implementation Reviews (PIRs were available for years 2018 and 2019 only, and not for previous years)
- Steering Committee Meetings Notes
- Mission Reports by some of the consultants engaged by the project

The following are some of the instruments that were used by the project team during the implementation of the project:

- The Inception Workshop was held on 27 February 2017. Overall, it was adequate in assisting project partners to fully understand and take ownership of the project. It brought the relevant stakeholders of the project on to a common platform and share a better understanding of the project including project goals and outcomes, objectives, focus sectors, key activities, state priorities & work plan. The Inception Workshop resulted in an Inception Report, which as mentioned before modified certain elements of the project and also introduced a Monitoring and Evaluation Plan.

- Another key instrument in the monitoring process has been the use of Project Implementation Reviews (PIR). These reports provide a reasonable picture of project-related issues, a review of the project outcomes and outputs and indications whether objectives have been met or are still pending, as well as matters requiring the attention of the project team and stakeholders. They have provided the project team with a platform for sharing information and engaging with some of the stakeholders. Overall, the quality of these documents seems to have been adequate, but they could be further strengthened in the analysis of challenges facing the project, the discussion of potential solutions and the information provides on cross-cutting issues such as gender mainstreaming.

- Starting with the latest reshuffle of the project team, the National Project Manager has been closely involved in overseeing and managing project activities. Also, the National Project Director has played an important guiding and monitoring role during this period by working closely with the project manager. He has been very engaged with the project and has been providing not only oversight, but also substantive support by discussing the progress and problems, assisting with advice on project activities. Further, the VPST has

become very engaged with the project this year and is very keen on having the project achieve all its major results.

For all these improvements, there is still a lot that needs to be done in order to improve the quality of project management and monitoring. The following are some key measures that could benefit from closer attention by the project team and stakeholders:

- The oversight role of the Steering Committee should be further strengthened. Only four meetings have taken place so far (once a year),[35] instead of two meetings per year. Further, some of the partners have not been as engaged as necessary. Steering Committee meetings should be more frequent and attended by all main stakeholders. They should focus on more specific issues and problems. Decisions identified clearly in the reports.

- The project team will need to focus on the establishment of the Monitoring, Reporting and Verification (MRV) system for the pilots. This should also include the establishment of a system to monitor the quality of implementation of pilot initiatives by the contractors. This will be essential as more and more pilots get underway. The project team might need to assess the need for additional resources in this area. Closer engagement with the contractors will strengthen the quality and cost-effectiveness of pilots. The quality assurance system could include spot-checks of projects by contracted technical support consultants during and after the construction. The project team should also organize training sessions on the monitoring and implementation of pilot projects by the contractors.

- The monitoring of risks through the risk log or risk register is another priority that should be addressed by the project team and brought to the attention of the Steering Committee. In the risk log, risks should be categorized by level and actions for reducing their likelihoods should be identified and taken.

- The project should track more effectively a number of crucial parameters. The following are the most important:
  - One element that the project team could track more effectively is the uptake of project outputs (studies, trainings, etc.) and the degree to which they serve their intended purpose. For example, the project could monitor more closely the extent to which analytical documents produced by the project get incorporated into national policies and programmes.

[35] The following are the dates of the Steering Committee meetings:
- First Meeting - May 2017
- Second Meeting - Jul. 2018
- Third Meeting - Nov. 2018
- Fourth Meeting - July 2019

- Also, the project team could track more effectively the degree to which the capacity of participants in the various training programmes improves. This was an important activity of the project which could not be assessed by the MTR team because of the lack of data.
- The project team should track closely the experience of pilot initiatives, the lessons they generate and the extent to which they get scaled up. It is early to talk about their scale of replication, but one characteristic of them is that they serve to produce lessons which when shared may lead to replication. They can be vehicles for transmitting experience and play a crucial role for upscaling and replication. However, it is not clear how their lessons will be collected, analyzed, synthesized and shared. The project should develop a tracking mechanism for pilot initiatives, including documenting results, lessons, experiences and good practices.
- The project should monitor co-financing more effectively by improving the tracking system at the infrastructure project level.

In the last year, the project team has improved the use of the available tools for monitoring and has done an adequate job in monitoring issues that have arisen in the project. The M&E system has overall been adequate for tracking progress and assessing the achievement of project objectives. Some improvements are still necessary, especially with regards to tracking parameters such as co-financing and others listed above.

UNDP country office should also track this project systematically to understand what has worked and what hasn't (also using lessons derived from this MTR process) and ensure that these lessons are incorporated in the design of future interventions of a similar nature.

The rating of the Monitoring and Evaluation at implementation is "Moderately Satisfactory".

3.2.6. Execution and Implementation

Performance of the Executing Agency (VPST)

As the Implementing Partner of this project, VPST was foreseen in the Project Document to be directly responsible for the oversight of the project. Overall, stakeholders interviewed for this MTR agree that the VPST is well-positioned in the country's institutional structure to provide the project with the right degree of support and entry points in the area of energy efficiency. The VPST has influence and significant resources which are crucial for the project. It is also implementing other similar projects, such as the project on the energy efficiency market with support from the German Ministry for Environment. It should also be noted that VPST's CEEE has established three technical sub-committees for the establishment of the EE market, whose meetings project staff have been attending.

Stakeholders noted that starting from 2019 there has been a renewed and much closer engagement of VPST with the project. The VPST representatives met for this evaluation were very well informed about the activities of the project and quite eager to make this project yield all the expected results. The project manager has been having weekly meetings with VPST and project director and is receiving substantial support from the VPST on all the components of the project.

Given the challenges and delays experienced by the project, but also the renewed engagement and great support the VPST has been providing to the project this year, the rating for the Executing Agency in this project is "Moderately Satisfactory".

Performance of Implementing Agency (UNDP)

UNDP has provided the necessary support throughout the entire cycle of the project, including in its identification, preparation of concept, appraisal, preparation of the detailed proposal, approval and start-up, oversight, supervision, completion and evaluation. UNDP has also played a role in the monitoring and evaluation of the project, working closely with project partners to ensure that the outputs of the project were on track through field visits, consultations and reviews with stakeholders. Another major role of the UNDP in this project has been in the recruitment of project staff and procurement process – all these are conducted by UNDP using UNDP rules and procedures. Beyond that, UNDP has also provided technical advice and advisory support to the project, primarily through its regional technical advisers.

Overall, the performance of UNDP (the Implementing Agency) has been adequate. UNDP has provided an appropriate level of support to the project team. During the MTR field work and interviews with project stakeholders, no major concerns were noted with regards to UNDP's performance and its role in the project. In particular, no delays were noted in the transfer of funds and no shortcomings were detected in the conduct of monitoring activities. Where the role of the UNDP Country Office could have been more effective is in ensuring more stability in the project staff, given that the high turnover of staff has had a significant impact on the delays documented in this report, and in working more closely with the respective government agencies in unblocking the issues that have caused some of the delays in implementation. UNDP could also use its "convening power" to coordinate the relevant more effectively around this project through a strong partnership strategy for the project. This is not easy, given the complexity of the sector and the multitude of the actors involved, but by leveraging the position and influence of VPST and its status and reputation in the country, UNDP might be able to help the project team obtain a more effective engagement of the stakeholders in the project activities.

For these reasons, the rating of Implementing Agency's performance in the project is "Moderately Satisfactory".

3.3. Project Results

This section of the report is organized along the standard dimensions of UNDP evaluations: i) relevance - the extent to which the project has been relevant to the country's priorities and needs; ii) effectiveness - whether the project has been effective towards the achievement of desired and planned results; iii) efficiency - whether the process of achieving results has been efficient; iv) sustainability - the extent to which the benefits of the project are likely to be sustained; and, v) mainstreaming – the extent to which considerations related to gender, human rights and SDGs have been incorporated into project activities.

3.3.1. Progress Towards Results

Although it is not possible to talk about ultimate results because the project is still underway, and even when completed full effects of many activities will take time to play out, it is possible to provide an overview of the project's progress towards the achievement of targets – especially, the mid-term targets defined in the Project Document and Inception Report.

The table below shows an analysis of the achievements of the project for each indicator. It also shows with color codes the targets that have been achieved at the point of the MTR. Three things stand out from the table.

- First, the mid-term targets that have been achieved (and which have been marked in green in the table below) are primarily related to activities related to policy development, training and awareness-raising. These are the areas where the project has made the most progress thus far. From the table below, it is clear that overall the project has experinced serious delays and challenges in the most crucuial areas (i.e. pilots, market mechanism, etc.).

- Second, a number of mid-term targets have not been achieved, which is not surprising given the delays and challenges that the project has experienced. These targets are marked in red in the table and will require greater attention by the project team during the remainder of the project's lifetime. Most of them are bound to see accelerated progess int he coming months because they are linked to the pilots and the establishment of the market mechanisms which have experienced delays but are well under way now.

- Third, there are a number of indicators and targets that are unclear or unrealistic. They are marked in blue in the table. The project team has flagged these indicators and targets and has done some analysis around their feasibility. The table below shows in the notes section ideas and proposals for how these indicators could be revised based on project team estimates. The recommendation of this MTR is for these ideas and proposals to be submitted to the Steering Committee for approval and be formalized into a revised project RRF.

Table 8: Status of Outcome and Output Indicators at MTR Point

Assessment of Project Log Frame Indicators (*as of October 2019*)

It should be noted here that the results presented in the table below are the results that the CO has estimated at the point of the MTR (September – October 2019). In the table below, Green is used for mid-term targets achieved, Red is used for targets that have not been achieved, and Turquoise is used for indicators and targets that are unclear or unachievable and that the project team would like to revise.

Project Strategy	Objectively Verifiable Indicators				Current Situation at point of MTR	Notes
	Indicator	Baseline	Mid-Term Target	End-of-Project Target		
GOAL:	•Cumulative CO_2 emission reductions by 2029 from new buildings to be built during project lifetime (2016-2020), M tons CO_2	• 0	• Zero	• 153	N/A	No pilots have been completed yet, so cumulative emission reductions at this point are zero. However, the project has estimated that the 153 million ton of CO2 target is unrealistic. The project team has estimated that a target of 16 M tons CO2 is a feasible (albeit challenging) one. The project team needs to clarify the origin of this target and identify with partners ways of addressing this challenge.
OBJECTIVE:	•Average thermal energy consumption for space and water heating in pilot buildings reduced kWh/m2-yr	• 277	• 208	• 208	240 Residential	The project team proposes to convert this indicator from thermal to total energy (including electricity).

					270 non-residential (public)	When shifting from thermal to total energy (including electricity), the baseline changes from 277 to 767, but for public building only as the project only have data from walkthrough audit of over 100 public buildings. In such a case, the existing baseline which is 277 would become 767 and the target of 20% reduction would be 614 kWh/m2-yr. It should be noted that 20% energy saving would be obtained through 25% of thermal saving plus 8 - 10 % of electricity saving. It might be easier to have a relative target (percentage of energy saving) rather than absolute amount. In this case, 20% saving would be a feasible target. The project team needs to discuss with partners the extent to which modifications to these targets are possible.
	• Average thermal energy consumption for space and water heating in new buildings in Iran by 2029	• 277	• 160	• 160	Less than 277	This indicator applies to newly constructed buildings. These buildings relate to a separate project by the Ministry of

	(residential & non-residential), kWh/m2-yr					Infrastructure and Urban Development. Given that these are new buildings, energy savings could be based on energy calculations of the building design (instead of actual measurements). As designs are expected to meet the new Building Energy Code requirements, energy calculations can be done on the basis of the residential unit designs and kWh/m2/yr calculated and compared with the baseline level. However, the relation of the EEEB project to these activities seems to be minimal, which is why the measurement of this indicator does not seem feasible to the project team. The project team should bring this issue to the attention of the project stakeholders for a resolution.
COMPONENT 1: LEGISLATIVE, POLICY AND REGULATORY FRAMEWORKS						
Outcome 1: key laws, policies, strategies, regulatory documents, frameworks and studies are approved and in place to provide overall national direction for the cost-effective CO2 mitigation/building EE measures and facilitation of cross-sectoral	• No of MEEE policy document prepared	• 0	• 1	• 1	0	This indicator relates to the Energy Efficiency and Environment Market by-law. Under this by-law a couple of implementing mechanisms and

coordination and coherence for improved enforcement under the MEEE framework.						instructions will be developed to support the implementation of the by-law.
	• Number and scope of policies and innovative models on reducing air pollution on all populations, formulated, adopted, implemented	• 0	• 1	• 2	N/A	No policies related to this indicator have been developed because the indicator is not clear. This is a new indicator which was added in the inception report and is not directly related to the project's goal and objectives. So, the its removal from the project log-frame seems justified.
Output 1.1: A completed review of EEEB policies, legislation, standards and regulations and proposed action plan for improving compliance enforcing procedures	• No of policy updates for enhancement of EE policies, laws, regulations and standards to ensure improved EE in building sector.	• 0	• 1	• 2	1	Article 12 of the law on elimination of barriers to competitiveness production ratified in 2017 and it is in progress with IFCO in building sector. This is not supported by the project. It is a national law and it is on-going. In building sector 10 contracts between IFCO (as implementing organization of this law from Ministry of petroleum) and 10 ESCOs and suppliers have been signed for EE in buildings (two projects have been implemented and are in the last stages for verification of savings). In addition, a contract with a

						supplier for the replacement of 1,000,000 low efficient heaters with high efficient ones is being implemented. The new revision of INSO 14254 (labeling of non-residential) by the project is under revision expected in 2020.
Output 1.2: Proposed enforcement system for energy efficiency and environment buildings code (EEEBC) implementation	• No of developed EE code enforcement system	• 0	• 0	• 1	0	The new revision of building energy code 19 and implementing mechanism for its enforcement is ongoing and expected later in 2019.
	• No. of reference test laboratories properly equipped and trained to certification of EE building products	• 0	• 0	• 1	1	BHRC has been selected to be a reference test laboratory. Half of required equipment are delivered to the reference laboratory of BHRC and training to the BHRC staff is on-going.
Output 1.3: Energy Management and Information System (EMIS) for buildings established and operational	• Number of buildings connected to EMIS and using energy management practices.	• 0	• 100	• 300	0	Currently, EMIS is not developed yet. When established, it will be populated with data from the pilots' M&V and EE certificates. The number of buildings in the residential and non-residential pilots is not going to be equal to the number of building blocks with unique metering (for example, 300 pilots will not correspond to 300 blocks of buildings with unique metering). In this situation, the project team is seeking a

						reduction of the number of connected buildings to 20 and 70 instead of 100 and 300. Their estimation is that the same emissions reduction will be achieved with this change.
Output 1.4: A Cross-Sectoral Strategy and Action Plan (CSSAP) for energy efficiency in building sector inclusive of EEE market (MEEE) mechanisms established, implemented and monitored.	• No. of EE certificates generated for sale on MEEE (million certificates)	• 0	• 10	• 30	0	This indicator was removed in the project's inception report. The project team believes that this indicator should be removed because it is not the mandate of project to implement the MEEE market and generation of EE certificates. The project has the capacity to issue EE certificate for the pilot buildings only.
	• No. of EEEB projects facilitated, implemented and monitored under the CSSAP	• 0	• 100	• 300	0	The project has initiated the first batch of 17 pilots. The second batch of pilots has just been launched with a public call for 150 residential buildings.
	• Number and scope of policy tools adopted and used to reduce energy consumption	• o	• 2	• 3	0	These policy tools are not clarified in the project document, so given the lack of clarity the project team has reported the following tools which are used in the first batch of pilots: - Energy passport (ID) Tool developed through EMIS

						- EMIS guidebook has been drafted expected to finalized in 2020 - One EPC model including M&V guideline, maintenance framework drafted and will be practiced through pilots in 2020 - Energy efficiency certificate structure drafted and expected to be finalized in Q2 2020 None of these instruments has been adopted yet, hence the zero under the reported result so far.
COMPONENT 2: PILOT INSTALLATIONS OF EE AND RE MEASURES IN EXISTING BUILDING STOCK						
Outcome 2: Improved heating systems and integration of SWH systems in privately owned residential buildings and government-owned buildings.	• CO_2 emission reduction from implemented EE pilot projects at demo buildings	• Some CO_2 emission reductions (not attributed to the project)	• 330 Kton CO_2 emission reductions cumulatively from pilots in existing buildings (Up to 10 years after project completion)	• 1 Mton CO_2 emission reductions cumulatively from pilots in existing buildings (Up to 10 years after project completion	0	The project team has estimated that this target is not feasible. Based on its estimations, a more realistic target would be 16.5 and 66 kton, instead of 330 kton and 1 Mton, respectively. The project team should identify the origin of this indicator and find a solution in collaboration with project stakeholders.

	• Number of new technologies adopted and scaled up that support more efficient energy use	• 0	• 3	• 6	• 0	**Note:** Feasible technologies will be identified through Investment Grade Energy Audits. Investment Grade Energy Audit (IGEA) guidebook drafted and expected to finalized in Q1 2020 The following six technologies have already been adopted in Iran (outside of the project), but the project will seek to promote their scaling up: - Double and triple glazing windows with UPVC frame - CCHP - CHP - Micro CHP - Solar PV - Hermetic gas heaters
	• Amount of CO_2 equivalent mitigated and energy efficiency/ achieved with a focus on residential sector	• 0	• 50 kt CO2	• 100 kt CO2	0	This target applied to residential buildings only. It is not cleat why there is not a unified indicator for all emissions. Based on the project team assessment, this target is not feasible and requires revision. Based on the methodology applied, the amount of 4.6 and 18.3 kton can be achieved from residential buildings, instead of original mid-term and final targets set at 50 and 100 kton.

Output 2.1: Business model for installation of SWH systems and their integration with other building energy conservation measures successfully piloted	• No. of successful ESCO business model-designed, engineered, installed, operated and maintained EEEB demo projects	• 0	• 1	• 1	0	An ESCO business model-will be tested in batches 1st and 2nd of pilots, and will be refined and implemented in the 3rd batch in 2020.
	• No of demonstration pilot of heating-cooling insulation building with an integrated fossil-base and renewable energy system consists of CCHP, BEMS and SWH technologies	• 0	• 4	• 8	0	So, far no demonstration has taken place. Demonstrations include integrated suites of technologies being deployed within the building sector retrofit. There is a need for a better definition of this indicator. The project team proposes that CCHP and SWH technologies be replaced with feasible EE measures, depending on the feasibility of the measures and the actual market demand for them.
Output 2.2: Approved follow-up actions for the widespread application of completed demonstration projects showcasing successful applications of EEEB technologies (including SWH), techniques and practices in the residential and non-residential buildings in Iran	• No. of buildings completed and operational pilot projects	• 0	• 100	• 300	0	Ongoing.
	• No. of policy for scaling up and replicate demonstration projects is in place	• 0	• 0	• 1	0	The policy for scaling up will be determined in consultation and co-operation with the Ministry of Road and Urban Development and other policy making organizations in Q2 of 2020 when the first

						set of demonstration projects will have emerged.
Output 2.3: Developed and disseminated technical guidelines and training materials based on the results and evaluation of EEEB demonstrations.	• No. of EEEB guidebooks and training materials developed and disseminated	• 0	• 4	• 10	4	Four training materials have already been developed and disseminated: - EE for women - EE for journalists - ESCO business model - EE in building for public users is on-going
COMPONENT 3: IMPLEMENTATION OF MARKET TRANSFORMATION STRATEGIES						
Outcome 3: MEEE promoting ESCOs to nationwide transformation of construction techniques for a thermally insulated building shell and reduced heating loads as well as improved behaviour and attitude of building owners and administrators towards energy use in buildings	• No. of Training centers for EEEB practitioners established.	• 0	• 1	• 1	0	The project team has decided not to establish a new training center, but to cooperate with an existing one. The project has identified the Technical and Vocational Training Organization for this work, which it has signed an MoU. Practical training for installers, mechanical, electrical and civil operators and technician will be organized through this center. The development of the training material is ongoing.
	• Number of new partnerships for EE policy implementation	• 0	• 1	• 2	3	The project has signed three MoUs with BHRC, Sharif Energy Research Institute and Technical and Vocational Training Organization (TVTO). It should be noted that main partners of project are 1)

						IFCO and 2) INSO for revising national standards of building energy performance (labelling), #14253 and #14254 and 3) BHRC in revising ECBC-Code 19th and developing Implementing mechanisms for enforcement of Code 19)
Output 3.1: Operational and continuing capacity development programs, and local EEEB accredited professionals.	• Developed training program in place	• 0	• 1	• 1	1	Training plan has been developed.
	• Number of ESCO companies engaged in EE Certificate model implementation	• 0	• 5	• 10	2	Two companies are nominated to implement the 1st batch of pilots. 1. Pishran Energy Co. 2. Behine Sazan Sanat Tasisat Co. The pilots will be connected to the EE certificate at the end. If the guaranteed saving will be achieved, the EE certificate will be granted to ESCOs.
	• Number of training courses delivered	• 0	• 10	• 20	4	Four professional training courses delivered: 1. ESCO business model for ESCOs 2. Energy Efficient Maintenance for maintenance operators of residential buildings 3. Case studies and best practices of ESCO

						business model is set in Aug. 2019 4. All about Energy Efficiency in Building for building managers and maintenance team – delivered in Sep. 2019. The number of people trained would be a better indicator than the number of trainings. The project team has drafted a training plan, which could serve as the basis for estimating a target for the number of people trained.
Output 3.2: Continuing public awareness-raising program on EEEB developed and implemented.	• Level of public awareness about EEEB in different target group	•Unknown	• Public awareness doubled.	• Public awareness triple.		The project team has suggested to revise this indicator to "number of campaigns and awareness raising events", because measuring and monitoring the level of public awareness is not possible in practice.
	• No. of public awareness campaigns about EEB for different target groups	•0	• 2	• 5	2	Communication strategy is based on targeted municipality areas with holding smaller awareness campaigns (at least 20 events) Two awareness campaigns delivered to: 1. EE campaign in 112 schools for 6700 students 2. Awareness campaign for 500 employed women from government

						stakeholders and relevant organizations Awareness campaigns will be held for three more target groups: building owners and managers, Journalists and Public audience in 22 municipal areas of Tehran.
	• Number of NGOs engaged in promoting sustainable energy use to households	•0	• 2	• 3	2	Through a public call, two NGOs have delivered their proposals and two separate agreements have been issued with them for raising awareness of different target groups, starting with Schools students and Women. - Cheragh-e-Raga - Hamian Zamin
Output 3.3: Sustainable financial schemes for EEEB established and are functional.	• No. of established and operational financial schemes	• 0	• 1	• 2	0	Two types of financial schemes - revolving fund and green sokuk - have been examined but not established.
	• No. of local and international financial institutions providing financing for EEEB project	• 0	• 1	• 2	0	
COMPONENT4: PROJECT MANAGEMENT UNIT						
OUTCOME 4: Project strategy undertaking planned outputs and activities and financial resources fully achieved.	• Project implementation progress percentage	• 0	• 40%	• 100%	17.5 %	721,339 USD
	• Government Budget allocation percentage achieved	• 0	• 30%	• 100%	48 %	13,791,897 USD

3.3.2. Relevance

This section provides an assessment of the relevance of the project. While there may be many criteria for assessing the project's relevance, here it will be assessed along the following dimensions: i) relevance to the country's needs and priorities; ii) relevance to UN Country Priorities and UNDP's Country Mandate and Strategy; and, iii) relevance to GEF objectives.

Relevance to the country's needs and priorities

- The project goal, 153 Million tons cumulative CO2 emission reduction is completely in line with the national designated commitments (NDC) that is reducing 4 percent of carbon emission until 2030.

- Two objectives of the project, firstly 25% reduction in existing building and secondly 60% reduction in new buildings, are completely compliant with the target set (50% reduction in energy intensity of the country) based on the Law of reform in energy consumption pattern (Law #1770) that must be achieved by end of 6th, 5-year development plan of the country.

Relevance to UN Country Priorities and UNDP's Country Mandate and Strategy

As noted in the project's Inception Report, the project is highly relevant to UNDP's mandate and strategy and the UN's country priorities.

- UNDAF Outcome: Environmentally Sustainable Development – National capacities to integrate energy efficiency in residential and economic sectors promoted.
- UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Environment and Sustainable Development
- UNDP Strategic Plan Secondary Outcome: Strengthened national capacities to mainstream environment and energy concerns into national development plans and implementation systems

- UNDP Country Programme
    - The CP (2012-16) focused on four main areas: (a) poverty reduction; (b) health in terms of support to GFATM implementation; (c) environmentally sustainable development; and (d) natural disaster management.
    - On the topic of the environment, the country programme focused on contributing to national capacities for integrated management, conservation, and sustainable use of ecosystems and biodiversity; and for a representative network of "protected areas" to be further strengthened. Climate change mitigation and adaptation capacities were targeted at the national and subnational levels, to contribute to the adoption of a climate resilient development path that is aligned with an "inclusive growth" development model. National capacities were supported to strengthen

mechanisms for assessing and monitoring environmental impacts and trends, including those that signify the relationship between environmental degradation and poverty. UNDP cooperated with Iran to access global funding mechanisms under the Multilateral Environment Agreements.

- Expected CPAP Outputs
    - The CP (2012-16) focused on four main areas: (a) poverty reduction; (b) health in terms of support to GFATM implementation; (c) environmentally sustainable development; and (d) natural disaster management.

This project contributes towards the climate change mitigation goals at the national and subnational levels. Specifically, it contributes to Outcome 4 of the CP: National, subnational and local capacities enhanced to ensure:

- Integrated management, conservation and sustainable use of ecosystems, natural resources and biodiversity;
- Mainstreaming environmental economics into national planning and audits;
- Effective use of knowledge and tools in prevention, control and response to current and emerging environmental pollution; and,
- Formulation and implementation of climate change mitigation and adaptation plans and projects.

Relevance to GEF Objectives

The project is also in line with GEF's climate change mitigation strategy which aims "*to support developing countries to make transformational shifts towards low-emission development pathways compatible with the objectives of the UNFCCC and the Paris Agreement*".[36] In particular, it contributes to GEF's goal of promoting innovation and technology transfer for sustainable energy breakthroughs.

Based on the examination of project activities and the opinions of stakeholders interviewed in the course of the MTR mission, the project is rated as "Relevant".

[36] https://www.thegef.org/topics/climate-change-mitigation

3.3.3. Effectiveness

This section provides a brief overview of the project's effectiveness, which in this case implies the extent to which the project has achieved what it set out to achieve.

The main achievements of the project are outlined in detail in the previous section of this report focused on "progress towards results". Overall, the outcomes targets identified in the Project Document have not been achieved, but the main problem is with the way the outcomes have been defined – as discussed in the design section of this report, the outcome indicators used in this project's RRF are way too ambitious. Some mid-term output targets have been achieved, but a number of them have not been achieved. Furthermore, as discussed already, a number of output indicators and targets are not realistic or lack clarity and therefore need to be modified. This is something that should be discussed and settled in the project's Steering Committee.

The general observation that can be made with regards to effectiveness is that the project has suffered from serious delays, but starting from this year (2019) there has been renewed impetus, an acceleration of activities across all components, closer engagement with stakeholders and better use of resources. The achievements of this project up to this point are described in more detail in the table on the assessment of project Log Frame indicators in the section on "progress towards results". This section will highlight just some of the major results by component:

Component 1

- Conduct of EE market situational analysis study and development of conceptual model for EE market;
- Development of ESCO business model guidelines and work instructions;
- Situational analysis of EE in buildings;
- Approval by Supreme Energy Council of the by-law on EE Market;
- Approval by Ministry of Road and Urban Development of the new version of Code 19 drafted in cooperation with BHRC;
- Approval of implementing mechanisms for the enforcement system of Code 19;
- Review of EE legislation and benchmarking with international best practices;
- Initiation of work on development of the new version of INSO 14253 and INSO 14254;
- Establishment of EMIS infrastructure framework through the installation of the data server and individual wireless protocol;
- Procurement of equipment for BHRC's reference laboratory.

Component 2

- 12 contracts with ESCO companies have been completed (1st batch of pilots) – list of 12 pilots is provided in the table below.

- Public call for 2nd batch of pilots has been announced;
- 10 investment grade energy audits have been conducted in residential and non-residential buildings;
- 150 walk-through energy audits have been conducted in public buildings;
- 6 buildings under envelope audit;
- 200 residential and non-residential buildings included in the pilot programme for EE in boiler houses;
- 24 agreements exchanged by VPST to support application of EE & RE in universities and NGOs;
- 4 national macro plans supported by VPST in-line with EE & RE in buildings;
- 113 energy field knowledge-based and start-up companies supported by VPST;
- Draft Measurement and Verification (M&V) guidelines, ESCO business models and Energy Performance Contracts (EPCs) drafted in cooperation with the Iranian ESCO Association.

Table 9: List of First Batch Pilots

No.	Building Name	Building Surface (m^2)	Annual Natural Gas Consumption (m^3)	Annual Electricity Consumption (kWh)	Building Code
1	Ministry of foreign affairs (Building No.7)	17000	200000	3116000	A_001
2	Ministry of foreign affairs (East Building No.8)				A_002
3	Ministry of foreign affairs (West Building No.8)				A_003
4	Tehran Municipality Deputy of culture and society	5830	99530	714500	A_004
5	Ministry of Information and Communications Technology (Main Building)	10000	335000	1300000	A_005
6	Ministry of cooperative labor and social welfare (Beheshti Building)	8000	225000	530000	A_006
7	Sharif University of technology Faculty of	4850	220000	435140	A_007
8	Industrial Development and Renovation Organization of Iran	14000	52450	8960	A_008
9	Iranian Industrial Management Institute				A_009
10	Iranian Industrial Management Faculty				A_010
11	Ministry of cooperative labor and social welfare (Main Building)	16000	220	21120	A_011

Component 3

- Market analysis study on the level of public awareness on EE in Tehran;
- 5 seminars conducted for governmental stakeholders;
- 500 women trained on climate change and energy efficiency in buildings;
- A seminar conducted for journalists who are interested in climate change issues;
- 16 journalists trained in on EEEB aspects;
- A seminar conducted for ESCO experts;
- 16 ESCO experts trained;
- 112 schools and 6,700 students involved in EE campaign;
- 6,700 students involved in EE campaign;

As has been mentioned in previous sections, the key components on which the project should focus its attention now are the development of EMIS, the establishment of the EE market and the successful completion of the pilots. The figure in the following page shows the timelines the project team has developed for the completion of the three pilot batches.

Given the challenges and delays in implementation that the project has encountered, but also the accelerated implementation pace that has set in this year, the rating of the project's effectiveness is "Moderately Satisfactory".

Figure 12: Timelines for the Completion of the Three Pilot Batches

Pilots, 1st batch

WBS	Activity	Output / Deliverable	Weight Factor	Expected timeline		2019						2020											
				Start	Finish	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1	Energy audits and identification of saving measures	Report	**20%**	2019-07	2019-10																		
1.1	Review of energy audit reports																						
1.2	Follow up on approval of saving measures by building owner																						
2	Implementation of saving measures and commissioning	Saving measures	**65%**	2019-08	2019-12																		
2.1	M&V Plan																						
2.2	M&V baseline																						
3	Opeartion, maintenance and execution of activities	Guidelines	**12%**	2020-01	2020-12																		
3.1	M&V reporting																						
4	Training	Training material	**3%**	2020-01	2020-12																		

Pilots, 2nd batch

WBS	Activity	Expected timeline		2019						2020												2021				
		Start	Finish	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
1	Public call for buildings, companies and suppliers	2019-08	2019-12																							
2	Public call for tender of MC	2019-10	2019-11																							
3	Categorizing buildings as well as assessment of companiers and suppliers	2019-10	2019-12																							
4	Preparetory works such as issuing contracts	2019-11	2020-02																							
5	M&V plan and baseline	2020-01	2020-02																							
6	Installation of saving measures	2019-12	2020-06																							
7	M&V reporting and approval on modifications	2020-07	2021-03																							
8	Final delivery	2021-04	2021-05																							

Pilots, 3rd batch

WBS	Activity	Expected timeline		2019						2020												2021									
		Start	Finish	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
1	Public call for buildings, companies and suppliers	2020-01	2020-05																												
2	Public call for tender of MC	2020-03	2020-04																												
3	Categorizing buildings as well as assessment of companiers and suppliers	2020-03	2020-05																												
4	Preparetory works such as issuing contracts	2020-04	2020-07																												
5	M&V plan and baseline	2020-05	2020-07																												
6	Installation of saving measures	2020-06	2020-12																												
7	M&V reporting and approval on modifications	2020-12	2020-08																												
8	Final delivery	2020-09	2020-10																												

3.3.4. Efficiency

This section provides an assessment of the project's efficiency. To assess efficiency, the report focuses on a number of parameters that are closely associated with efficient project management. These parameters are categorized into the following categories: i) budget execution rates; ii) timeliness of project activities; and iii) synergies with other projects.

Budget Execution Rates

Budget execution rates can be an adequate indicator of efficiency because inefficient projects usually have delays in expenditure which results in more spending occurring at accelerated rates closer to project end dates. This typically leads to hurried decisions and hastened implementation which is rarely efficient. The table below shows execution rates, provided by the project team.

Table 10: Budget Execution

Outcome Areas	2016	2017	2018	2019	Average
Outcome 1	25	42	35	40	38
Outcome 2	29	9	8	11	10
Outcome 3	0	58	31	10	21
Outcome 4	18	37	5	15	12
Project Management	24	102	61	37	59
Total	**23**	**31**	**23**	**19**	**22**

As can be seen from the table, the budget execution rate for the whole period has been quite low – standing at about 22% of planned expenditure at the point of MTR. Within project components (outcomes) there some diversity in terms of execution rates. Outcome 2 has seen weak execution rates averaging about 10% in the period of project implementation. The other two components have had execution rates of 38% and 21% respectively. Overall, administrative (project management) costs have been low, averaging about 5% of total project expenditure for the whole period of project implementation, which is an indication of good administrative efficiency.

Timeliness of Activities

Another indicator of project efficiencies is the extent to which implementation falls behind established timelines. The main challenge with this project when it comes to delays has been the major delays with key components, especially the pilots and the market mechanism. This becomes clear when comparing the current status of activities to the timelines/calendar presented in the Inception Report. These matters have been discussed in detail in the previous sections of this report. There have also been delays resulting from procedures in hiring members of the project team and as well the higher turnover of project staff.

Synergies with Other Projects

The MTR has identified two initiatives which are similar to the EEEB project:

- A project finance by Japanese JAICA on the promotion of ESCO intervention in public buildings.[37] This project shares a lot of commonalities with the EEEB project.
- A project financed by the German Ministry for Environment and implemented by the consulting company of DIW Econ Petra Opitz on the establishment of energy efficiency market in Iran.[38] This project as well shares a lot of commonalities with the EEEB project. Furthermore, its implementing partner in VPST.

The EEEB project is not cooperating with these two initiatives, which is a missed opportunity because the similarities of objectives they are pursuing means that there is significant potential for synergies, and thus efficiencies. On a going forward basis, it will be important for the project team and stakeholders to establish close cooperation with these two projects, and others that might be ongoing in the country. The potential for synergies is particularly strong with the German-funded project which is implemented by VPST.

Overall, on the efficiency front, there have been some achievements, but also some crucial challenges such as the delays in implementation. The efficiency rating of the project is "Moderately Satisfactory".

3.3.5. Sustainability

While the sustainability of project outcomes is shaped by a number of factors, the focus of this section is on risks related to financial, sociopolitical, institutional, and environmental sustainability of project outcomes. These are standard dimensions in the evaluation of GEF-funded projects.

Financial resources

The sustainability of the EE market beyond the piloting conducted under the EEEB project involves substantial challenges. It is crucial that the financing of EE investments is done on a market basis, which will ensure the sustainability of investment. The establishment of the market mechanism underpinned by the EE Certificate will be crucial for sustaining the results that the project is seeking to achieve. The key question of how the market mechanism will be established in the remaining time of this project should be the most crucial issue facing the stakeholders. In addition, the financial sustainability of the market mechanism will require the establishment of a dedicated fund or partnership with existing national funds and the establishment of a proper financing scheme. Alternatively, the involvement of the financial sector (i.e. commercial banks)

[37] http://open_jicareport.jica.go.jp/pdf/12339248.pdf
[38] https://www.tehrantimes.com/news/429871/Iran-Germany-kick-off-co-op-on-energy-efficiency-market

in the financing of EE improvements in the buildings sector will strengthen the viability and sustainability of this market. Another key aspect of sustainability is the involvement of all EE-related players in building sector (knowledge-based, start-ups, suppliers, service providers, etc.), and not only ESCOs. This will require the provision by the project of requisite training for all players.

Given these positive examples, but also challenges, the likelihood of sustainability of the project's outcomes from a financial perspective is rated as "Moderately Likely".

Socio-economic

Although there are always socio-economic risks to the sustainability of project outcomes emanating from the political situation, the area of climate change mitigation and adaptation is less political in nature.

Given this, the likelihood of sustainability from the socio-economic perspective is rated as "Likely".

Institutional framework and governance

The project's sustainability from a governance and institutional perspective is related to the likelihood that project outcomes will be sustained beyond the project's completion. As can be surmised from the discussion in the previous sections, replicability and scalability are at the forefront of the project mission. The intended purpose of the pilot projects is to showcase how such systems could be made self-sustainable and replicable, driven largely by markets rather than the subsidy, which is usually the case.

From a sustainability perspective, the fundamental replication mechanism of this project is the "EE Market" mechanism which is expected to lead to large-scale transformation in the energy sector. The hinge for the replication success of this project is the establishment of the EE Market. This is going to be a serious challenge, given the complexity of issues involved in the establishment of such a market. Key elements and challenges related to the establishment of the market are discussed throughout this report.

If the project will manage to test the EE market mechanism (including the EE certificates) through the pilots, it will have achieved a very important goal. However, there are other objectives of this project which will be achieved through the pilot initiatives. They are expected to showcase an approach for the implementation of energy efficiency improvements in buildings by demonstrating a number of things, including the feasibility (cost-effectiveness) of EE improvements, the approach for undertaking such improvements, technological solutions to EE problems, etc. There are also other elements of the project beyond the market mechanism and the pilots that are important – for example, EMIS, training programmes, awareness-raising initiatives, etc. So, it will be important to replicate these elements as well after the project's end on a larger scale. This is an

area that deserves greater attention from the project team. How will the continuity of these initiatives be ensured? How will they be scaled up and by whom? What is the project's exit strategy in these areas?

Another key aspect of sustainability is the involvement of all EE-related players in building sector (knowledge-based, start-ups, suppliers, service providers, etc.), and not only ESCOs. This will require the provision by the project of requisite training for all players.

Further, a number of awareness raising and training events have been conducted or are planned by the project. The key question here is what has been the level of uptake (or absorption) among the recipients of these trainings. This is something that the project team should be able to track more effective in the remainder of the project. Uptake and absorption of knowledge among the local populace is also of foremost importance.

Given these remaining challenges, the likelihood of sustainability from the governance perspective is rated as "Moderately Likely".

Environmental

The project has made significant contributions to the national objectives of ensuring demand-side market-based solutions for the development of RE/EE technologies in Iran.

The activities involved in this project do not involve any direct environmental risk. Therefore, this dimension of sustainability is rated as "Likely".

The following table summarizes the sustainability of the project's achievements according to the four dimensions.

Table 11: Sustainability Rating

Sustainability Dimension	Risk Assessment
Financial risk	ML
Socio-Economic risk	L
Governance risks	ML
Environmental risks	L

3.3.6. Mainstreaming

The MTR also examined the project's mainstreaming of cross-cutting programming principles, such as gender equality, engagement of vulnerable groups, Sustainable Development Goals (SDGs), etc.

Gender

In a typical Iranian family, women play a critical role in the social and cultural structure of the family and the administration of the household. Since women have an active role as a partner and mother, they can be very effective in promoting energy and environment optimization within the family. The project is focusing on women as managers at home (to reduce energy consumption on daily basis, educate the family about energy efficiency and to buy energy efficient home appliances). The project has launched a series of awareness-raising workshops aimed at exploring the role of women in reforming consumption patterns and behaviour change which was designed and implemented to raise awareness about the importance of optimizing energy consumption and providing practical solutions, especially for women working in offices. In these workshops, women were trained to improve energy-efficient behaviours.

During the summer 2019, the project conducted awareness-raising and training for 160 women working at the Municipality of Tehran, Department of Environment and Refah Bank. Further, through Cheragh Raga - an NGO contractor – the project organized energy efficiency training for 112 schools in Tehran. The project also conducted workshops for women on energy efficiency and environment in buildings, focusing on women staff of government organizations related to the project. Through five workshops for about 400 women, the findings show that women are less resistant to change and more sensitive to environmental issues like air pollution. In one of the workshops, the effectiveness of the training was observed when many of the trainees returned the training materials in order to save paper and preserve the environment.

While the reporting documents provided by the project team do not expressly mention gender concerns, it is clear that the scalability and replicability potential of the pilots have the potential to positively benefit everyone, including women. One potential improvement from the project team would be a more detailed discussion of the gender aspect of this project. For example, in the tracking of results and reports, there is potential to discuss how project activities benefit women (for example in terms of beneficiaries of project initiatives, training and education, etc.).

Engagement of Vulnerable Groups

This project has the potential to create working opportunities for people in engineering, auditing, construction, and material supplying. Especially women can work in all the mentioned fields. In addition, reducing energy consumption means more petroleum and natural gas exports, more public funds available for social programmes, and consequently less poverty. Further, the project is expected to contribute to people's basic right to a clean, safe and ecologically-balanced

environment. For all this potential, there is a lack of evidence that points to a targeting by the project of vulnerable groups and addressing the needs of persons with disabilities, low-income families, etc.

The following is a brief summary of the main dimensions in which the project should focus in the coming months.

- Need to encourage the adoption of resilient livelihoods through the implementation of environmentally sustainable technologies.
- Need to encourage participation of local stakeholders in developing EE solutions, which will lead to a greater level of community involvement in implementing EE solutions.
- Focus on job creation, poverty reduction and reduced vulnerabilities, which are crucial aspects of human rights.
- Possibility of creating employment, which is particularly attractive for women.

Sustainable Development Goals

The EEEB project is well-positioned to contribute to the SDGs at the national level. Through the training and awareness raising activities, the project has assisted on the mainstreaming climate change mitigation concerns into national policy frameworks. However, as of now, the role of the project in SDG activities has been limited. The project document does not provide any references or links to the SDGs and no such references to SDG-related activities during the implementation phase were encountered in interviews with stakeholders in the MTR mission. This is something that project stakeholders and UNDP could examine more closely for the rest of the project's duration. This does not imply that the project should change its nature and allocate resources to SDG-related activities – the project has a clear focus and it should remain committed to this focus. What is suggested here is that the project could use its activities and events to contribute more to the raising of awareness around the mainstreaming of SDGs at the national level.

4. CONCLUSIONS AND LESSONS LEARNED

The EEEB project is a relevant intervention to Iran's needs and priorities. Its focus on the establishment of a market mechanism for EE investments is important because it contributes to economic development using climate change as an entry point. The project's logic is not based on solving specific problems in a one-off manner, but by helping local institutions take care of these problems in the long run. By seeking to demonstrate feasible technologies through pilots, the project has focused on durable institutionalized solutions, as opposed to one-off activities. This is crucial for sustainability. Stakeholders interviewed for this MTR highly valued the objectives and activities of this project. The project involves highly committed and enthusiastic people striving to tackle the problems identified within the project's scope.

However, the project has also faced challenges. First of all, it is extremely ambitious in scope and size, which do not measure up to its timelines and the resources (financial, human, technical, etc.) made available for its implementation. The project has many dimensions, each of which represents a significant level of complexity that involves many stakeholders, intertwined responsibilities between different actors, lack of effective coordination, etc. Multiple activities are required to be delivered in parallel and successful delivery is dependent to multiple stakeholders, who often have different motivations and interests.

The project has also suffered from implementation delays that have resulted from the slow establishment of the full project team and the high staff turnover. In the last year, the project has responded to this challenge by recruiting more resources to compensate for the lost time. The progress that has been made this year is visible across all dimensions – work on the pilots has been reenergized, with three rounds now planned and the process for the first and second batches underway.

As outlined in this report, there are three crucial areas where there is a need for further progress and greater attention in the coming months: the development of the EMIS system, the establishment of the EE market and the completion of the pilot initiatives. In the remainder of this project, stakeholders should prioritize these areas to ensure that activities are accelerated.

The table below provides the summary of the project's performance rating, using the standard scale for GEF-funded projects.

Table 12: Overall Project Performance Rating

Monitoring and Evaluation	
Overall quality of M&E	MS
M&E Design at Entry	MU
M&E Plan Implementation	MS
IA & EA Execution	
Overall Quality of Project Implementation/Execution	MS

Implementing Agency Execution	MS
Executing Agency Execution	MS
Outcomes	
Overall Quality of Project Outcomes	MS
Relevance	R
Effectiveness	MS
Efficiency	MS
Sustainability	
Overall likelihood of Sustainability:	ML
Financial resources	ML
Socio-economic	L
Institutional framework and governance	ML
Environmental	L
Overall Project Results	MS

There are many lessons that can be drawn from the experience of this project reviewed in this report, but the following are worth highlighting:

Lesson 1: Recognizing the Complexity of Energy Efficiency

One important lesson that can be drawn from this evaluation is that UNDP and its partners must recognize the immense complexity of energy efficiency. EE is a very complex area with various moving parts and involving a wide variety of stakeholders. Promoting energy efficiency investments in the building sector requires not only financial incentives for building owners and ESCOs, but also information about potential opportunities for cost-effective investments. This information is not obvious to building owners and ESCO companies – it has to be generated and this is something that is done through energy audits. Energy audits require their own institutional infrastructure to be in place – energy audit companies and agents who are well-trained to conduct audits.

Lesson 2: Importance of Project Design

This MTR has highlighted a number of challenges related to the design of the Project Document. In particular, some of the indicators and targets seem to have been determined quite unrealistically and will require a revision. The main point here is that the setting of the project targets should be based on a better analysis of what is feasible and what is not. Targets that are far off from the real capabilities of the project indicate that the expectations from this project at the design stage must have been quite removed from the actual situation.

Lesson 3: Importance of Market Mechanisms for Energy Efficiency Investments

Another key lesson that can be drawn from this project is that it is crucial that the financing of EE investments is done on a market basis, which ensures the sustainability of investments. Many projects provide grants as incentives for encouraging investments in EE improvements. This is good in the short run demonstrating the effects of a certain approach or technology, but in the long run it is not sustainable. Only market-based solutions are sustainable in the long run. In the case of the EEEB project, the establishment of the market mechanism underpinned by the EE Certificate will be crucial for sustaining the results that the project is seeking to achieve.

5. RECOMMENDATIONS

Recommendation 1: Addressing Implementation Delays and Project Revision

To complete all the key activities, and in particular the pilots that are underway, the project will most likely need a no-cost extension. This matter was brought up in the meetings with most project stakeholders. The recommendation of this MTR is for the project team to conduct a careful review of this matter based on the implementation plans and submit a clear request to the Steering Committee for its consideration.

Further, the project team should focus on the supervision and coordination of the execution of the pilot buildings, which is going to be a very complex exercise and crucial for increasing the delivery of the project. The project team should establish regular (preferably, bi-weekly) meetings with the parties delivering the works (ESCOs) where it can discuss progress and possible bottlenecks.

Another major recommendation of this MTR is to adjust the project's design and RRF in accordance with the changes in the external environment and in line with the estimations that the project team has produced (as discussed in the previous sections of this report). Given the challenges with the project indicators and targets presented in the table above, the MTR team suggests a comprehensive and systematic review of the RRF by the project team and project stakeholders to understand what was the original intention of the selected indicators and what is feasible in the current situation. The project team has made good progress now in identifying alternative indicators and targets which are not only more realistic and feasible, but also closely related to the project's primary goal and objectives. Revisions to the RRF within the constraints of GEF guidelines should be discussed and approved in the project's Steering Committee and further agreed with UNDP and GEF.

This MTR also recommends that the scope of EE improvements is widened to include any building-related improvements, including electricity savings, and at the same time excluding CCHP technologies which at this point in time do not seem feasible under this project.

Further, the MTR recommends that the project team pay greater attention to the ways in which disadvantaged groups, including women and persons with disabilities, could benefit from this project either as beneficiaries of the various project activities or as participants in the pilot projects.

Recommendation 2: Coordination and Engagement with Relevant Stakeholders

The project team should seek to strengthen coordination with all relevant stakeholders within the framework of the project. The Steering Committee is a good platform for strengthening this coordination. Starting from 2019, there has been a greater engagement of some of the key partners, including VPST, with the project, which has resulted in the reinvigoration of coordination and acceleration of project activities. It will be important now for the project team to strengthen the

role of the Steering Committee, have more frequent meetings and involve other partners that have thus far been less involved with the process.

It will be important for the project team and stakeholders to identify lessons and complementarities with the projects funded by JICA and the German Ministry for Environment, and others that might be ongoing in the country. The potential for synergies is particularly strong with the German-funded project which is implemented by VPST.

Recommendation 3: Pilots Initiatives and Market Mechanism

The project team should finalize its definition of "buildings" and submit it to the Steering Committee and project stakeholders for endorsement. In this way, everyone will be reading from the same page. Further, the project team should focus on the establishment of the Monitoring, Reporting and Verification (MRV) system for the pilots. This should also include the establishment of a system to monitor the quality of implementation of pilot initiatives by the contractors. This will be essential as more and more pilots get underway. The project team should also assess the need for additional resources in the supervision of contractors. Closer engagement with the contractors will strengthen the quality and cost-effectiveness of pilots. The quality assurance system could include spot-checks of projects by contracted technical support consultants during and after the construction. The project team should organize training sessions on the monitoring and implementation of pilot projects by the contractors.

Further, it will essential for the project team in close cooperation with the VPST to develop some realistic scenarios for how to proceed with the establishment of the market mechanism within the time and resource constraints of the project. This work should go beyond the exiting concept note and focus on what is realistically feasible and what is not identifying clear timelines for all alternatives and respective activities. A key decision by the government that the project team should facilitate is on the appointment of an influential state entity to be responsible for managing the market mechanism. This decision is essential and should be made as soon as possible. Also, more focus on the financing scheme, and where feasible the involvement of commercial banks, will be necessary. Further, in case the development of the EE Certificate Scheme is moving too slowly, the project could even consider a "simulation exercise" of testing such a scheme.

Recommendation 4: Energy Management Information System (EMIS)

The project team should bring the issue of the ownership of EMIS to the attention of the Steering Committee and key stakeholders, which should make a firm decision is made soon. Also, project stakeholders should define and agree from the outset the work-flow, processes, procedures and roles and responsibilities for EMIS. Furthermore, the project team does not need to reinvent the wheel with EMIS – such systems have been developed in other countries with UNDP support (i.e. Bosnia and Herzegovina, Serbia, India, etc.) and the project could facilitate learning and exchange of experiences with these countries. The project team should explore the possibility of support to

the contractor selected for the development of EMIS from an international expert who has experience with the successful implementation of such systems in the countries.

Recommendation 5: Sequencing of Activities

Given the interconnectedness of the different pieces (components) of the EEEB project, it will be essential for the project team to carefully review the sequencing of activities and decide what activities are essential and in which order. Some key decisions need to be made in this regard. First, is it possible to test the EE market mechanism through the pilots (any of the batches that are planned? If not, how will the market mechanism be tested? How many pilots (buildings) will be necessary to test the market mechanism? Can the market mechanism be established without the EMIS system being fully operational? What legal instruments will be necessary to have a fully functioning market mechanism and how long will it take to develop those instruments and get them approved? An even more fundamental question is whether it is possible within the timelines of this project to have a basic market mechanism ready for testing. These are issues that the project team should assess realistically and bring to the attention of the Steering Committee for a clear decision on how to proceed. If these issues are settled satisfactorily at this stage, then the project can focus on what is feasible and try to do the best of the remaining time and resources.

Recommendation 6: M&E System and Project Finance

The monitoring of risks through the risk log or risk register is another priority that should be addressed by the project team and brought to the attention of the Steering Committee. In the risk log, risks should be categorized by level and actions for reducing their likelihoods should be identified and taken.

The project should track more effectively a number of crucial parameters. The following are the most important:

- Another element that the project team could track more effectively is the uptake of project outputs (studies, trainings, etc.) and the degree to which they serve their intended purpose. For example, the project could monitor more closely the extent to which analytical documents produced by the project get incorporated into national policies and programmes.
- Also, the project team could track more effectively the degree to which the capacity of participants in the various training programmes improves. This was an important activity of the project which could not be assessed by the MTR team because of the lack of data.
- The project team should track closely the experience of pilot initiatives, the lessons they generate and the extent to which they get scaled up. It is early to talk about their scale of replication, but one characteristic of them is that they serve to produce lessons which when shared may lead to replication. They can be vehicles for transmitting experience and play a crucial role for upscaling and replication. However, it is not clear how their lessons will be collected, analyzed, synthesized and shared. The project should develop a tracking mechanism for pilot initiatives, including documenting results, lessons, experiences and good practices.

- The project should monitor co-financing more effectively by improving its tracking system.

A revision of the budget is necessary, certainly within the constraints of GEF guidelines. It is commendable that the project team has already developed a budget plan. The team should now present the budget plan to the Steering Committee for its discussion and endorsement, and subsequently receive all the necessary approvals for the changes. Further, the project team should track co-financing carefully and at the time of the final evaluation should work with the evaluation team to document and validate all the co-financing information.

Recommendation 7: Sustainability and Capacity Building

The project team should explore ways of strengthening the financial sustainability of the market mechanism through a dedicated fund or partnership with existing national funds and the establishment of a proper financing scheme. Alternatively, the involvement of the financial sector (i.e. commercial banks) in the financing of EE improvements in the buildings sector will strengthen the viability and sustainability of this market.

The project team should pay more attention to the limited capacity of ESCOs and building owners. The lack of sufficient local capacity and experience is one of the causes of the delays that the project has experienced. The project team should strengthen the capacity building component of the project and where feasible allocate more attention and resources to the issue of capacity building for energy companies and professionals. The project team should also seek to engage a broader range of EE-related players in the building sector (knowledge-based, start-ups, suppliers, service providers etc.), and not only ESCOs. This will require the provision by the project of requisite training for all players.

The project should reconsider and revamp the educational and awareness-raising activities, and, if possible, to allocate additional funding to these types of activities. It is also necessary that the project establish a more effective and targeted awareness campaign and trainings for building owners. It is also recommended that the project start exploring behavior insights relate to energy efficiency taking account interesting international experiences which in this area are plentiful now.

Further, the project team could be given more flexibility in setting new approaches and methods in raising awareness and shaping the public's behavior. As an example, the project team has envisaged the building of "*near-zero energy buildings*" (which could include schools) to demonstrate the benefits of building energy codes and standards. The project team believes that the effects of such demonstrations will be sustained for a very long time by having such buildings visited by the public and students. This proposal and similar ideas should be submitted to the Steering Committee for a decision based on a concrete assessment by the project team of their feasibility within the constraints of the project.

ANNEX I: MTR'S TERMS OF REFERENCE

1. INTRODUCTION

This is the Terms of Reference (ToR) for the UNDP-GEF Midterm Review (MTR) of the full-sized project titled "Policy Reforms and Market Transformation of the Energy Efficient Buildings Sector of the I.R. Iran (PIMS-4018)" implemented through the Vice Presidency of Science and Technology (VPST) of the Islamic Republic of Iran, which is to be undertaken in 2018. The project started on the 18 August 2016 and is in its third year of implementation. In line with the UNDP-GEF Guidance on MTRs, this MTR process is being initiated before the submission of the second Project Implementation Report (PIR) while in this particular case an advanced MTR was chosen as a result of specific local circumstances. This ToR sets out the expectations for this MTR. The MTR process must follow the guidance outlined in the document "Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects" (http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf).

2. PROJECT BACKGROUND INFORMATION

The project was designed to achieve GHG emission reduction in Iran's buildings sector through legislative, policy and regulatory reforms and implementation of cost-effective mitigation measures as well as increasing the share of solar water heating to meet the energy requirements of new buildings and existing stock. Implementation of policies on energy efficiency and developing appropriate means of applying building energy codes are among the interventions of the present project that would lead to reduced GHG emissions. It is envisaged that this objective will be achieved by:

- Reviewing the legislative, policy and regulatory frameworks that impact building efficiency in Iran to come up with enhanced laws, policies and regulations on building energy efficiency, and facilitating their enforcement; revisiting the building code and products standards and labels to develop improved energy efficiency requirements for the design and operation of buildings, as well as improved energy efficiency specifications for appliances and equipment used in buildings; and, enhancing professional infrastructure of the local energy service industry by contributing to the development of a training system on energy efficient and conserving operation, installation and operation of smart BEMS, and maintenance of energy-consuming building facilities and services.
- Developing and implementing demonstration building retrofit projects showcasing combined energy efficient and renewable energy measures in demonstration buildings; implementing pilot hybrid energy efficiency system (hybrid of fossil and renewable energy sources) in selected buildings; and, piloting of energy service (ESCO) business thus stimulating EE market transformation.
- Introducing mechanisms for a competitive energy efficiency and environment market; implementing pilot hybrid energy efficiency system (hybrid of fossil and renewable energy sources) in selected buildings; and, piloting of energy service (ESCO) business thus stimulating EE market transformation.

  The Project document was signed in August 2016 between UNDP and Presidential Deputy for Science and Technology and has a total budget of $32,516,760, with $4,000,000 from GEF, $125,000 co-financing from UNDP and a pledged $28,391,760 co-financing from Presidential Deputy for Science and Technology. The project is overseen by a National Project Director and Project Steering Committee, and has a Project Central Office in Tehran at the Presidential Deputy for Science and Technology.

3. OBJECTIVES OF THE MTR

The MTR will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR will also review the project's strategy, its risks to sustainability.

4. MTR APPROACH & METHODOLOGY

The MTR must provide evidence based information that is credible, reliable and useful. The MTR team will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review). The MTR team will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTR field mission begins.

The MTR team is expected to follow a collaborative and participatory approach[39] ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, and other key stakeholders.

Engagement of stakeholders is vital to a successful MTR.[40] Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to UNDP, National Project Director, National Project Manager and PCO team, International Project Advisor and National Advisors, key experts and consultants in the subject area, Project Steering Committee members, project stakeholders (in particular the Ministry of Petroleum, Ministry of Energy, and Ministry of Road and Urban Development), academia, local government and CSOs, etc.

The final MTR report should describe the full MTR approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

5. DETAILED SCOPE OF THE MTR

The MTR team will assess the following four categories of project progress. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for extended descriptions.

i. Project Strategy

Project design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.

[39] For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results, 05 Nov 2013.
[40] For more stakeholder engagement in the M&E process, see the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 3, pg. 93.

- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?
- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?
- Review decision-making processes: were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process, taken into account during project design processes?
- Review the extent to which relevant gender issues were raised in the project design. See Annex 9 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.
- If there are major areas of concern, recommend areas for improvement.

Results Framework/Logframe:

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.
- Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc...) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively. Develop and recommend SMART 'development' indicators, including sex-disaggregated indicators and indicators that capture development benefits.

ii. Progress Towards Results

Progress Towards Outcomes Analysis:

- Review the logframe indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix and following the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for each outcome; make recommendations from the areas marked as "Not on target to be achieved" (red).

Table. Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Indicator[41]	Baseline Level[42]	Level in 1st PIR (self-reported)	Midterm Target[43]	End-of-project Target	Midterm Level & Assessment[44]	Achievement Rating[45]	Justification for Rating
Objective:	Indicator (if applicable):							
Outcome 1:	Indicator 1:							
	Indicator 2:							

[41] Populate with data from the Logframe and scorecards
[42] Populate with data from the Project Document
[43] If available
[44] Colour code this column only
[45] Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

Outcome 2:	Indicator 3:							
	Indicator 4:							
	Etc.							
Etc.								

Indicator Assessment Key

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved

In addition to the progress towards outcomes analysis:

- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

iii. Project Implementation and Adaptive Management

Management Arrangements:

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the GEF Partner Agency (UNDP) and recommend areas for improvement.

Work Planning:

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project's results framework/ logframe as a management tool and review any changes made to it since project start.

Finance and co-finance:

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.
- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?

Project-level Monitoring and Evaluation Systems:

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

Stakeholder Engagement:
- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

Reporting:
- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil GEF reporting requirements (i.e. how have they addressed poorly-rated PIRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

Communications:
- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)
- For reporting purposes, write one half-page paragraph that summarizes the project's progress towards results in terms of contribution to sustainable development benefits, as well as global environmental benefits.

iv. Sustainability

- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

Financial risks to sustainability:
- What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

Conclusions & Recommendations

The MTR team will include a section of the report setting out the MTR's evidence-based conclusions, in light of the findings.[46]

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for guidance on a recommendation table.

The MTR team should make no more than 15 recommendations total.

Ratings

The MTR team will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTR report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

Table. MTR Ratings & Achievement Summary Table for (Policy Reforms and Market Transformation of the Energy Efficient Buildings Sector of the I.R. Iran)

Measure	MTR Rating	Achievement Description
Project Strategy	N/A	
Progress Towards Results	Objective Achievement Rating: (rate 6 pt. scale)	

[46] Alternatively, MTR conclusions may be integrated into the body of the report.

	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
Project Implementation & Adaptive Management	(rate 6 pt. scale)	
Sustainability	(rate 4 pt. scale)	

6. TIMEFRAME

The total duration of the MTR will be approximately 21 days over a time period of 12 weeks starting 25th June 2019, and shall not exceed five months from when the consultant(s) are hired. The tentative MTR timeframe is as follows:

TIMEFRAME	ACTIVITY
1st June 2019	Application closes
10 June 2019	Select MTR Team
25 June 2019	Prep the MTR Team (handover of Project Documents)
05 July 2019 2 days	Document review and preparing MTR Inception Report
25 July 2019 3 days	Finalization and Validation of MTR Inception Report- latest start of MTR mission
5 Aug 2019 7 days	MTR mission: stakeholder meetings, interviews, field visits
14 Aug 2019 1 day	Mission wrap-up meeting & presentation of initial findings- earliest end of MTR mission
30 Aug 2019 6 days	Preparing draft report
16 Sep 2019 2 days	Incorporating audit trail from feedback on draft report/Finalization of MTR report
26 Sep 2019	Preparation & Issue of Management Response
26 Sep 2019	Concluding Stakeholder Workshop (not mandatory for MTR team)
30 Sep 2019	Expected date of full MTR completion

The duty station will be home-based with one mission to Tehran, Iran.

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

ANNEX II: KEY QUESTIONS DRIVING THE ANALYSIS OF DATA

Dimension	Key Questions
Relevance	Were project activities relevant to national priorities? Were project activities relevant for the main beneficiaries? Were project activities aligned to UNDP goals and strategies? Has the project tackled key challenges and problems? Were cross-cutting issues, principles and quality criteria duly considered/mainstreamed in the project implementation and how well is this reflected in the project reports? How could they have been better integrated? How did the project link and contribute to the Sustainable Development Goals? To what extent was the project relevant to the strategic considerations of the governments involved? To what extent was the project implementation strategy appropriate to achieve the objectives?
Effectiveness	To what level has the project reached the project purpose and the expected results as stated in the project document (logical framework matrix)? What challenges have been faced? What has been done to address the potential challenges/problems? What has been done to mitigate risks?
Sustainability	How is the project ensuring sustainability of its results and impacts (i.e. strengthened capacities, continuity of use of knowledge, improved practices, etc.)? Did the project have a concrete and realistic exit strategy to ensure sustainability? Were there any jeopardizing aspects that have not been considered or abated by the project actions? In case of sustainability risks, were sufficient mitigation measures proposed? Is ownership of the actions and impact on track to being transferred to the corresponding stakeholders? Do the stakeholders / beneficiaries have the capacity to take over the ownership of the actions and results of the project and maintain and further develop the results?
Efficiency	Have the resources been used efficiently? How well have the various activities transformed the available resources into the intended results in terms of quantity, quality and timeliness? (in comparison to the plan) Were the management and administrative arrangements sufficient to ensure efficient implementation of the project?
Stakeholders and Partnership Strategy	How has the project implemented the commitments to promote local ownership, alignment, harmonization, management for development results and mutual accountability?
Theory of Change or Results/Outcome Map	Is the Theory of Change or project logic feasible and was it realistic? Were assumptions, factors and risks sufficiently taken into consideration?

ANNEX III: INTERVIEW PROTOCOL

For each interview obtain the following information of all the people who were part of the meeting

Name of Interviewee	Title, Department	Institution
Date of Interview	Time	Location
Other Persons present/title	Team members present	

Below is the list of indicative questions which we need to answer for the MTR. Depending on who we interview, we need to choose among the questions below the suitable ones to ask (particularly given that we have normally just around 1 hour for each interview). For example, with implementation partners of specific projects, we may want to focus on part A and some additional questions in other parts as appropriate. For donors and other development partners we may want to focus on part B.

1. EFFECTIVENESS:

1.1. To what extent has the project **achieved its expected objectives**? Were all the planned project outputs and outcomes achieved? What were the **key results achieved** (Please describe, in particular, what **"changes"** have been brought about by the project)?

1.2. Were there any key results not achieved and why? Were there any positive or negative unintended results?

1.3. What was the quality of the deliverables?

1.4. Do you think that all the strategies and plans that were supported will be implemented?

1.5. What were the major **factors contributing** to the achievements of this project? What were the **impeding factors**?

1.6. **Partnerships**: Who were the partners in implementing the project? In your view, how effective has UNDP been in using its partnerships?

1.7. To what extent were government counterparts engaged and interested in the project activities? What roles did they play? Can you mention specific government actors and specific roles they played?

1.8. UNDP's role in **policy guidance**: What was the quality of upstream policy advisory services provided through this project? To what extent was this project able to affect policy

change? If yes, can you mentioned some specific examples? What is the implication of such policy change to the country?

1.9. In what ways can UNDP strengthen its policy advisory role (what worked and what didn't work; why)?

2. RELEVANCE:

2.1. To what extent do you think the project objectives were **aligned with country needs and national priorities, policies or strategies**?

2.2. How was the work conducted under this project connected to the broader reform agenda under way in the transport sector? Was it integrated with the existing reform architecture in the area of transportation? Please provide specific examples.

2.3. To what extent were the **approaches taken by the project** appropriate in terms of the project **design and 'focus**'?

2.4. How coherent was the project in terms of how it fit with the policies, programmes and projects undertaken **by other government counterparts**?

3. EFFICIENCY:

3.1. **Managerial and operational efficiency**:

a) Has the project been implemented **within expected dates, costs estimates**? Explain **'factors'** influencing the level of efficiency.

b) Has the project management taken prompt actions to solve implementation and other operational issues? What was **project management structure** (incl. reporting structure; **oversight** responsibility)?

c) How adequate were the Project Management arrangements put in place at the start of the project? Did the project display effective adaptive management?

d) What were the implications of the project's organizational structure for its results and delivery?

3.2. **Progammatic efficiency:**

a) Were the financial resources and approaches envisaged appropriate to achieving planned objectives? Was there a 'good' mix of upstream and downstream efforts to maximize the results?

b) Were the resources focused on a set of activities that were expected to produce significant results (**prioritization**)? Has the project achieved 'value for money'?

c) Has the project followed any known 'best practices'?

d) Were there any efforts to ensure 'synergies' with other donor initiatives in the target countries? Explain results, and contributing factors.

3.3. What could have been done to improve the overall efficiency of the project?

4. SUSTAINABILITY:

4.1. To what extent are **project benefits likely to be sustained** after the completion of the project? What are the supporting/ impeding factors?

4.2. What are the risks that are likely to affect the persistence of project outcomes?

4.3. What plans were put in place to ensure the continuity of the efforts (e.g., funding, technical capacity)? Has there been an **exit strategy** that describes these plans?

4.4. Do you think that the various key stakeholders see that it is in their interest that the project benefits continue to flow?

4.5. Would you want to see this project extended in its current form or some other form?

4.6. Do you think a project like this would be useful in promoting the achievement of SDGs in targeted countries?

B. ASSESSMENT OF THE PROJECT'S STRATEGIC POSITIONING

5.1. To what extent has the project been **responsive** to meeting the needs of the country?

a) How responsive was the project to changes in development priorities in the sector?

b) To what extent has the project been able to adapt its ongoing programme to take into account the changing realities and sensitivities in the sector?

c) To what extent has UNDP been able to adjust its implementation approach specifically to respond to the challenges created by political and institutional changes?

5.2. To what extent has the project been able to **integrate the concept of sustainable development** in the transportation sector (design, allocation of resources and implementation)? Examples?

5.3. What **was the comparative advantage of** UNDP, when compared to other actors in the same area?

- To what extent has UNDP been able to provide **technical guidance**, and knowledge?
- What are UNDP's **comparative strengths**, vis-à-vis other partners, if any?
- To what extent do UNDP have the skills and expertise needed to support this area?

5.4. To what extent has the project been able to establish **partnerships and networks** with relevant partners and build strategic alliances in supporting key national priorities in the transportation area?

5.5. What do you think would be the **role of UNDP in helping planning for, implementing strategies to achieve and/or monitor progress towards the Sustainable Development Goals?**

C. OTHER ISSUES

Are there any issues that you would like to raise about the project's performance that have not been covered in this interview?

ANNEX IV: LIST OF STAKEHOLDERS INTERVIEWED FOR THE MTR

Day & Date	Time	Institution	Person	Address
Saturday 2019-08-31	11:00 – 12:30	Department of Environment (DoE) – Focal point of GEF	Ms. Saffar, Head of international affairs Center and Conventions	2nd Floor, DoE office, Pardisan Park, Tehran
	13:00 – 14:00	Lunch at Project office		
	14:00 – 16:30	Meeting with project team	Dr. Vatani (National Project Director) Project Team	Project office, No. 180, Teymori Blvd., Tarasht, Tehran
Sunday 2019-09-01	09:00-10:00	Briefing meeting with UNDP	Mr. Soleymani (UNDP's Representative in EEEB project)	UNDP office, 8 Shahrzad Blvd, Darrous, , Tehran, 1948773911
	11:00 – 12:30	Road, Housing and Urban Development Research Center (BHRC)	Mr. ShekarchiZadeh, Head of BHRC	BHRC office, Marvi St., Nargol St., Next to Shahrak Farhangian, Sheikh Fazlollah Noori Exp., Tehran
	13:00 – 13:40	Lunch at Project office (optional)		
	14:00 – 15:30	Municipality, Sustainable development and Environment dept.	Dr. Ansari (Ms.), Head of sustainable development and environment dept.	Head office, Municipality Department of Environment, Avesta Park, Avesta St., Azadi St., Tehran
	16:00 – 17:30	Meeting with project team (if needed)		
Monday 2019-09-02	08:30-10:30	Iranian National Standard Organization (INSO)	Ms. Ghezelbash, Head of Office of Supervision on the Implementation of the Energy and Environmental Criteria Standard	Tehran Office of INSO, South side of Vanak Sq. Tehran
	11:00-12:30	Iranian Fuel Conservation Company (IFCO)	Mr. Hashemi, Head of Energy Conservation in Building Sector	IFCO office, No. 23, East Daneshvar St., North Shirazi St., Mollasadra St., Vanak Sq., Tehran
	12:30 – 13:30	Lunch out of office		
	14:00-16:00	Iran Construction Engineering Organization (ICEO)	Mr. Taheri, Head of Energy Commission of ICEO	ICEO office, No. 10, Mahestan St., Shahrak-e-Gharb, Tehran
Tuesday 2019-09-03	08:00-10:00	AsiaWatt Company (EMIS Contractor) Pishrun Energy, Behineh Sazan, Sanaat Tasisat, Saman Energy, Arian Behsa (ESCOs contractors for implementing pilots)	Mr. Mirshams, CEO of AsiaWatt Mr. Bataei, Mr. Jamali and Mr. Kenari, CEOs of three companies	Project office, No. 180, Teymori Blvd., Tarasht, Tehran
	10:00 – 10:30	Attending in the Workshop of ESCO business model		Project office,

Day & Date	Time	Institution	Person	Address
	10:30-12:00	Meeting with two NGO contractors	Mr. Tahmasbian, CEO of Haamina Zamin Mrs. Javaheripour, CEO of Cheragh-e-Raga	Project office
	12:00 – 13:15	Lunch at Project office		
	14:00-16:00	Meeting with Tehran Electricity Distribution Company (TBTB)	Mr. Sabouri, CEO of TBTB	TBTB office, 3rd St., Valfajr Town, end of north Kargar St.Tehran
Wednesday 2019-09-04	08:00-09:30	Meeting with Vice Presidency of Science and Technology (National Partner)	Mr. Arab, General Manager of Vice President of Science and Technology Ms. Hamidzadeh, Deputy of Women dept. of Vice President of Science and Technology	VPST, No. 20, Ladan alley, North Sheikh Bahayee St., MollaSadra St., Vanak Sq. Tehran
	10:30-11:30	Meeting with Planning & Budgeting Organization (PBO)	Mr. Kafashi, Head of Energy affairs	Safialishah St., Nahrestan St., Tehran
	12:00 – 13:15	Lunch at Project office		
	14:30-16:00	Renewable energy and energy efficiency organization (SATBA)	Mr. Amani, General manager of Technology Development and technical supports	Energy Affairs Deputy Building, Western end of Dadman (Poonak Bakhtari) Blvd., Shahrak-e-Qods, Tehran
Thursday 2019-09-05	10:00-12:00	Debriefing with UNDP	Mr. Soleymani (UNDP's Representative in EEEB project)	UNDP office, 8 Shahrzad Blvd, Darrous, , Tehran, 1948773911
Saturday 2019-09-07	08:00-11:30	Visiting pilot buildings	Visiting 2-3 pilot buildings	Will be set
	12:00 – 13:00	Lunch at project Office		
	13:30-14:30	Energy Exchange Organization (IRENEX)	Mr. Hosseini, CEO of IRENEX	
	15:00-17:00	- Wrap-up meeting with project team - Visiting EMIS Server and Monitoring room	Dr. Vatani (National Project Director) Project Team	Project office

ANNEX V: STAKEHOLDER ANALYSIS[47]

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
1	Iran Supreme Energy Council	Management and Planning Organization (MPO); Technical and Infrastructure Development Department	• In charge of planning in energy sector of the country which includes not only fossil fuels but also renewable energies and energy efficiency • Approve the reforms and new policies, strategies, regulatory documents, frameworks and studies in energy efficiency;	• Support the project results; • Approve the MEEE and facilitate implementing the market. • Enhancing coordination between related bodies in energy efficiency in building sector;
2	Management and Planning Organization (MPO)	Energy Department	• Strategic planning and monitoring of economic and social system of the country. • Prepare, develop and deliver the studies, technical and administrative criteria for construction projects and investments in public companies and public institutions • Develop regulations of recognition of competence, and ranking of individual and legal persons Under contract with the national executive agencies (Article 5 of "Civil Services Management Law"-2007)	• Support the project results; • Commitment in implementing the project; • Cooperate in providing the Regulatory framework; • Reform the laws and regulations on ranking of ESCOs; • Exposure of EEEB Reforms proposals to parliament;
3	Ministry of Energy (MoE)	Power and Energy Department	• MoE is the main organ of the Government in charge of the regulation and implementation of policies applicable to energy; • MoE is responsible for management of supply and demand of energy; • Promoting the training, research and technology, and bedding for goods and services market in electrical industry; • MoE plays a major role in preservation of natural resources, environment protection, public health promotion, welfare and self-	• Support the project results; • Cooperate in implementing the MEEE • Support the training programs and cooperation in education and training courses in EEEB Project; • Support the building code implementation based on the project results; • Cooperate in raising awareness; • Cooperate in providing the Regulatory framework;

[47] This is the project's stakeholder analysis presented in the inception report.

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			sufficiency for sustainable development of the country;	
4	SATBA Iran Energy Efficiency Organization & Iran Organization for Renewable Energies	Building Department	• Up-to-date information and technologies for utilization of renewable energies' resources; • Evaluate the existing potentials and implement numerous projects (solar, wind, geothermal, hydrogen, and biomass); • Guarantee the purchase of electricity generated from renewable sources with the aim of attracting private sector's participation in this field; • Study the research policies in order to prepare the comprehensive plan for development of renewable energies in the country.	• Cooperate in implementing the MEEE; • Cooperate in implementing the EMIS; • Cooperate and Support the M&V in Building sector; • Providing the governmental buildings as a pilot; • Provide R&D in energy efficiency; • Support the energy auditing; • Support the training programs and cooperation in education and training courses; • Attract ESCOs which will tend to sustainable decrease of GHG emissions;
5	Ministry of Petroleum (MoP)	Planning Department	• Manage the oil industry, the producer of oil and petrochemical products. • MoP is in charge of all issues pertaining to exploration, extraction, exploitation, distribution and exportation of crude oil and oil products.	• Facilitate the implementation of MEEE; • Facilitate establishing the EMIS; • Facilitate the implementation of Article 12; • Monitor the all activities related to the energy and environment management in the Project and make the decisions. • Support the training programs and cooperation in education and training courses; • Cooperate in providing the Regulatory framework; • Cooperate in raising awareness; • Support the building code implementation based on the project results; • Make the financial incentives; • Provide R&D in energy efficiency
6	National Iranian Oil Company (NIOC)	Research and Technology Management	• A government-owned corporation under the direction of the MoP, is	• Calculate resources obtained from savings and declare the figures to the Management and Planning Organization.

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			a national oil and natural gas producer and distributor headquartered in Tehran. • The NIOC is exclusively responsible for the exploration, extraction, transportation and exportation of crude oil, as well as exploration, extraction and sales of natural gas and liquefied natural gas (LNG).	• Make the financial incentives – based on Article 12 of "law on elimination of barriers to competitive production building community financial system"
7	National Iranian Gas Company (NIGC)	Management Planning Department; Research & Energy and Carbon Management Office	• NIGC manages gathering, treatment, processing, transmission, distribution, and exports of gas and gas liquids.	• Implementing the MEEE; • Providing the governmental buildings as a pilot; • Approve the EE certificate (M&V process); • Commitment in implementing the project; • Support the Verifying Energy saving based on M&V report; • Support the EE-Certificate trading; • Make the financial incentives; • Support the project results;
8	Iran Fuel Conservation Company (IFCO)	M&V Department	• IFCO is a subsidiary of NIOC. • Regiment the fuel consumption in different sectors through review and survey of the current trend of consumption and executing conservation measures nationwide. • Enhancing Public awareness by publishing books, magazines and advertising campaigns; • Enforcing fuel conservation measures in building sector; • Producing high quality and efficient home appliances and fuel consuming system; • Providing disciplinary measures to support public conservation culture; • Assisting research institutes and universities technically and financially to hold energy management training courses for government and private sectors;	• Implementing M&V - Provide M&V in Building sector; • Support the energy auditing; • Support the training programs and cooperation in education and training courses; • Support the project results; • Support in MEEE regulator body;

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			• Implement Article 12 of "law on elimination of barriers to competitive production building community financial system";	
9	Securities and Exchange Organization (SEO)	Energy Exchange Company	• SEO provide a safe environment for investing in securities through supervising the participants' activities in that market and to ensure that efficiency; fairness and order govern securities markets. • The SEO supervises and regulates the entire capital market and is deemed as the key element in the capital market. • The SEO has been the regulatory and supervisory authority of Iran capital market with four main exchanges and other corroborative bodies.[48]	• Facilitate the implementation of MEEE and related regulations • Support and validate the EE-Certificate trading for facilitating the Project implementation;
10	Ministry of Cooperatives, Labour, and Social Welfare (MCLS)	Entrepreneurship Development and Employment Department	MCLS plan and monitor the implementation of Labor Laws and other relevant laws and regulations; • Determine the policy and strategies for the development of entrepreneurship; • Planning in order to lead government actions to facilitate the preparation of entrepreneurship development of labor market and employment; • Monitoring the preparation, development, proposed legislation, and regulations related to the employment, in cooperation with relevant executive agencies;	• Cooperate in raising awareness; • Job creation in the field of Energy Efficiency in Buildings;
		Iran Technical and Vocational Training Organization (TVTO)	• TVTO's main task is providing vocational training and research through 1 - 18 months courses; • TVTO trains skilled and semi-skilled labor force which is needed by industry,	• Support the training programs and cooperation in education and training courses;

[48] The Law for Development of New Financial Instruments and Institutions (The Development Act) was ratified in 2009 to facilitate implementation of Article 44 which paved the way for new entities (e.g. investment banks and different funds), new instruments (e.g. Islamic securities) and new markets (e.g. Iran Fara Bourse and Iran Energy Exchange) to practically commence operation.

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			agriculture and service providers throughout the country, and improves the culture of getting technical skills in the society; • TVTO has continuously developed communication with international Institutes like ILO and WSI, to achieve the latest sciences and technologies and keep step with international standards.	
		Omid Entrepreneurship Fund[49]	• Attract financial resources related to employment; • Attract loan and credit Inside and outside the country; • Create new job opportunities for supporting micro and small businesses, and self-employed; • Giving benevolent loan to meet the essential needs, such as supply and repairs of buildings; • Giving benevolent loan in the form of clusters and chains of creating micro and small businesses, with the participation of all organizations, stakeholders and entrepreneurs to create sustainable employment;	• Support ESCOs;
11	Islamic Consultative Assembly[50] (ICA)	Energy Commission	Approve the Energy Consumption Pattern Reform Law; Legislate laws on all issues within the limits of the Constitution; Government bills are presented to the ICA after receiving the approval of the Council of Ministers; ICA has the right to investigate and examine all the affairs of the country; International treaties,	• Facilitate the new policies and approve the reforms needed; • Approve the EEEB proposals on law reforms; • Support the project results; • Transform the projects message to the community;

[49] http://www.karafariniomid.ir/

[50] Also called the Iranian Parliament, the Iranian Majlis (or Majles: مجلس). The Parliament currently has 290 representatives.

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			protocols, contracts, and agreements must be approved by the ICA; Receiving and issuing national or international loans or grants by the government must be ratified by the Islamic Consultative Assembly; • The Iranian Parliament Committee on Energy[51] or Energy Committee is a standing committee of ICA of Representatives. The Parliament Committee on Energy has general Oil, gas, electricity, water and electric dams and power plants, nuclear power and renewable energy and it can recommend funding appropriations for various governmental agencies, programs, and activities, as defined by House rules.	
12	President's Deputy for Science and Technology (VPST)[52]	CEEE	• Policy-making and planning for providing financial resources in the scientific, technological and innovative system of the country; • Development of technology, strengthening commercialization process and supporting the knowledge-based institutions and companies and the design engineering companies; • Supporting the expansion of research and development activities in the country and promoting the "technological management" power in the knowledge-based companies; • Promotion of technological entrepreneurship and improving the atmosphere of knowledge-based business and guiding the	• Support financing; • Aid capacity increase for technology and science via development of research centers and knowledge-based companies and institutes; • financial investment in the project; • Provide technical context for implementing pilot projects based on result of "Pilot Project of Optimization and Improving Energy Efficiency of Central Heating Systems for Residential and Non-Residential Buildings"; • Provide legislative context for the project; • Raise the awareness;

[51] In Persian: کمیسیون انرژی مجلس شورای اسلامی

[52] Also called ISTI; https://www.isti.ir/

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			country's capitals towards the production of goods and knowledge-based services; • Development of risk-taking investment and providing necessary finance in the knowledge-based economy; • Helping the promotion of media and culture-making activities in the scientific and technological fields; • Observing the international opportunities to develop technology, specially identifying and achieving the newly-emerged technologies through cooperation and coordination of the relevant bodies; • Development of the identification, attraction, transfer and spread processes in the country through cooperation and coordination with the relevant bodies. • Monitor MEEE regulator body under the supervision of Energy Supreme Council;	
13	EEEB Project Team	EEEB Project Office	Planning, Implementing and Managing the Project	• Do the duties and follow the implementation of project results;
14	UNDP	UNDP Iran Office	• Working closely with development stakeholders led by the government including academia and civil society in providing technical assistance and knowledge; • Support the Government in achieving its sustainable and inclusive development objectives; • UNDP program outcomes synchronizes with national priorities outlined in draft 6th National Development Plan. The outcomes promote: Environmentally Sustainable Development, Health and Development and building Resilient Economy.	• Raise awareness at the regional level; • To make contact between the same projects; • Financial investment in the project; • Provide the legislative context for the project; • Approve the logical and monitoring framework; • Monitoring project implementation;

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
15	GEF	Focal Point: Ministry of Foreign Affairs (MFA)	• GEF funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements. • GEF support is provided to government agencies, civil society organizations, private sector companies, research institutions, among the broad diversity of potential partners, to implement projects and programs in recipient countries.	• Financial investment in the project; • Monitoring project implementation;
16	Tehran Chamber of Commerce Industries Mines and Agriculture	Business Services Development	• Promote the private sector; • Make possible contribution to the legislation and policies of the Executive branch and the parliament (Majles); • Provide facilities and technical assistance in cooperation with organization of Investment and technical & Economic Assistance, in the field of foreign investment attraction; • Provide consulting services on foreign investment in Iran, and current law and regulations of the country which are related to foreign trade; • Establish the think tank centers for the promotion of private sector for playing its principal role in revitalization and promotion of the country's economy; • Organize, as the representative of private sector, special exhibitions for products and services of Tehran province; • Promote research and development on foreign trade and foreign investment attraction;	• Develop strategies and solutions for attract funds from private sector; • Involve/Engage the private sector to play a major role in the project; • Strength cooperation between • Raise the awareness and transform the project message to the private sector; • Support and provide facilities to attract foreign investment;
17	Organization for Investment Economic and Technical	Foreign investment Office	According to the **Article 12 of Implementing Regulations of Foreign Investment Promotion and Protection Act** (FIPPA), OIETAI while carrying out the duties relating to admission and	• Support and provide facilities to attract foreign investment; • Facilitate the Project implementation;

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
	Assistance of Iran[53] (OIETAI)		protection of Foreign Investments within the framework of FIPPA, is in charge of performing and conducting foreign investment promotion activities inside and outside the Country as well as introducing legal grounds and investment opportunities, carrying out studies and applied researches, organizing conferences and seminars, cooperating with the relevant international organizations and institutions, and establishing relations and coordination with other agencies in gathering, compiling and providing information related to Foreign Investment.	
18	Department of Environment (DoE)	Human Environment Department; Energy Office	Protection of natural ecosystems and restoration of past the negative effects of on the environment; Study and preparation in order to achieve sustainable development; • Set up the National Environmental Fund; • Capacity building and empowerment of environmental challenges;	• Facilitate the MEEE process; • Develop the infrastructure of MRV process; • Provide environmental and climate change information; • Support in MEEE regulator body; • Support MRV issues;
		Public Participation Office	• Facilitate, support and develop the activities of environmental NGOs in Iran; Create activate link between the NGOs and Government; Monitor the NGOs performance; • Capacity building using social capital for environmental protection and sustainable development; • Facilitate the implementation of projects using participatory approach in the field of environmental protection; • Engage and participate the local communities with considering the best practicing successful companies;	• Promote NGOs in the project;

[53] Related to Ministry of Economic Affairs and Finance Iran

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
19	Ministry of Roads & Urban Development Iran	House & Building Department	Responsible for all regulations in building sector (22 Articles); • Provide urban planning standards, regulations and by laws and promulgation of Supreme Council of Urban Planning and Architecture's acts to the Ministries and responsible organizations and to guide related organizations on the problems arising from implementation of Urban Master Plans. • Supervise urban planning activities of private sector in terms of observing urban planning regulations and standards • Lead determination of standards for housing, government buildings and public infrastructures and to provide and implement Urban Development Plans within technical and administrative framework of the country • Lead formulation of principles, standards and technical specifications and National Codes for buildings and housings within the framework of program and to lead the study and examination of issues related to the construction and building materials as well as provision of required standards for building materials with cooperation of the Standard Institute and Industrial Research Institute of Iran and to support their producers. • Make decision and determine strategies for administrative plans in land, housing, urban planning, government buildings and urban development • Provide and implement government buildings plans and provision of government and public buildings and infrastructures needed for society by Engineering Consultants and competent contractors	• Propose action plan for building code and building rules. • Providing the governmental buildings as a pilot; • Provide the building sector information; • Cooperation with project agents; • Support the project results; • Support the national building regulations and standards based on the project results;

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			within the framework of technical and administrative framework • Make policy on public housing.	
20	Road, Housing & Urban Development Research Center	Buildings & Structures Research Institute; Energy, Acoustics & Light Department	The unique official Iranian research organization in the field of building and housing, is responsible for studying and research on relevant problems associated with construction activities in the country. • Centralized provision and execution of research programs on building and housing by innovation of new methods and techniques, provision and publication of codes of practice and their application instructions, issuance of technical certificate for building products, provision of technical guidance in construction and housing in compliance with national requirements, climatic and local considerations and also by consideration of the need for industrialized construction within the country; • Responsible for Article 19	• Support implementing the building code; • Propose suggestions for implementation of building codes; • Support the researches and information; • Cooperation in training courses; • Support the energy efficiency testing facilities; • Provide R&D in energy efficiency;
21	Ministry of Foreign Affairs (MFA)	Sustainable Development Department	Focal point of GEF	• Facilitate the international affairs; • Support project team;
22	Tehran Municipality	Environment Management and Sustainable Development Center; Energy Management Office	Urban reforms, licensing, creating and modifying all buildings in Tehran city	• Facilitate implementing the process of building code; • Providing the governmental buildings as a pilot; • Support the building code implementation based on the project results; • Facilitate the Project implementation; • Implement the Project results;
23	Tehran Construction Engineering Organization (TCEO)	Department of Architecture; Energy Committee	• Create a professional society of prosperity, knowledge, and art; • Increase productivity and innovation in the construction industry at national and regional	• Suggestions on approving the building code in various stages of implementation; • Support the building code enforcement based on the Building Energy Passport (BEP);

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
			levels and create a platform for international competitions; • Care of the safety, health, and comfort of residential environment and the develop living spaces with design engineers and supervision of TCEO	• Develop qualifications for energy auditors of TCEO by project; • Train and select the energy auditors of TCEO by project; • Facilitate the Project implementation; • Implement the Project results;
24	Iranian National Standardization Organization (INSO)	Monitoring the Implementation of Energy and Environmental Standards Department	Develop, implement and monitor the laws and rules related to the standards.	• Establish the reference laboratory and required standards; • Provide periodic reports of the inspection companies and deliver the results of the measurements and reports to the technical committee of project; • Support the energy efficiency reference laboratory; • Develop energy appliances standard based on the project results; • Facilitate the Project implementation; • Implement the Project results;
25	Media Agencies[54]		• Outstanding role in creating and shaping of public opinion and strengthening of society; • Media acts as watchdog to protect public interest against malpractice and create public awareness	• broadcast the news, reports and results; • Attract the public contribution;
26	NGOs	Public Participation Office at DoE	Increase public/citizens participation in the project	• Engage the NGOs to select buildings and encouraging community for efficient buildings and promoting the role of residential building owners in Tehran; • Cooperation in training and raising awareness; • Support the workshops and programs; • Active participation and close cooperation with project agents;
27	ESCOs	Association of energy service companies	Improve energy efficiency through the auditing, designing, financing and implementing (as a supply group)	• Active participation and close cooperation with project agents; • Work under MEEE framework;

[54] TV, Radio, Papers, …

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
28	Knowledge-based companies	-	Improve energy efficiency (as a supply group)	• Active participation and close cooperation with project agents;
29	Universities	-	• Train energy efficiency as a supply group; • Encourage students to create knowledge-based companies	• Provide infrastructure to developing the Knowledge-based companies in energy efficiency filed; • Provide R&D in energy efficiency; • Cooperation in raising awareness and incentive programs for developing ESCOs;
30	Banks & Financial institutions	-	Energy efficiency financing as a supply group	• Support the ESCOs by EE loans; • Cooperation in sustainable financing mechanisms;
31	Insurance Companies	-	Energy Efficiency Insurance as a supply group	• Support the ESCO insurance; • cooperation with project agents;
32	Community-Based Organization (CBOs)	-	Introduce the challenge of energy consumption in buildings	• Cooperation in raising awareness; • cooperation with project agents;
33	All EEEB Practitioners[55]	-	Apply energy efficiency as a supply group	• Train to design energy efficient buildings; • Cooperation with project agents; • Accept the Project results; • Utilize energy efficient materials, systems and related issues; • Invest into energy efficient buildings; • Cooperation with project agents;
34	Real estate brokers	-	Introduce the features of buildings to customers	• Cooperation in raising awareness; • Transform the project message to the customers; • Provide marketing the energy efficient buildings; • Cooperation with project agents;
35	Real estate agents customers	-	Demand group	• Accept the Project results, save the environment and live efficient;
36	Building Owners	-	Demand group	• Accept the Project results, save the environment and live efficient;

[55] Developers; heating system engineers; architects; builders; Investors; Consultants and Companies related to EE materials

No	Stakeholder	Department	The Roles of Stakeholders	The Project Expectations
37	18+ years old	-	Demand group	• Accept the Project results, save the environment and live efficient;

ANNEX VI: PROJECT'S RESULTS FRAMEWORK

Revised Project Logical Framework

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:

Outcome 1: Responsible government agencies formulate, implement and monitor integrated natural resource management, low carbon economy, and climate change policies and programmes more effectively

Specifically, this project will contribute to the Output 1.2: Climate change adaptation and mitigation solutions developed and considered for adoption / implementation by the Islamic Republic of Iran. The expected output is the reduction of GHG emissions due to increased energy efficiency in Iran's building sector.

Country Programme Outcome Indicators: 1.2.3: Amount of CO2 equivalent mitigated and energy efficiency/ conservation achieved with a focus on industry and residential sectors

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR 2. Catalysing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.

Applicable GEF Strategic Objective and Program:

CCM-2, Energy Efficiency

Applicable GEF Expected Outcomes:

Outcome 2.1: Appropriate policy, legal and regulatory frameworks adopted and enforced

Outcome 2.2: Sustainable financing and delivery mechanisms established and operational

Applicable GEF Outcome Indicators:

Indicator 2.1: Extent to which EE policies and regulations are adopted and enforced (score of 1 to 5)

Indicator 2.2: Volume of investment mobilized

Project Strategy	**Objectively Verifiable Indicators**				**Means of Gauging Success**	**Critical Assumptions**
	Indicator	**Baseline**	**Mid-Term Target**	**End-of-Project Target**		

GOAL:	• Cumulative CO2 emission reductions by 2029 from new buildings to be built during project lifetime (2016-2020), Mtons CO2	• 0	• Zero	• 153	• Calculations based on the quantitative measurements of energy use in space and water heating and fuel mix, based on standard best practice.	• Government will continue building construction at planned rates
OBJECTIVE:	• Average thermal energy consumption for space and water heating in pilot buildings reduced kWh/m2-yr	• 277	• 208	• 208	• Quantitative assessment of thermal performance of buildings through M&V procedures by independent evaluation expert/companies	• Timely allocation of all project financial resources
	• Average thermal energy consumption for space and water heating in new buildings in Iran by 2029 (residential & non-residential), kWh/m2-yr	• 277	• 160	• 160	• Calculations based on the quantitative measurements of energy use in space and water heating and fuel mix, based on standard best practice	• Government will continue building construction at planned rates
COMPONENT 1: LEGISLATIVE, POLICY AND REGULATORY FRAMEWORKS						
Outcome 1: key laws, policies, strategies, regulatory documents, frameworks and studies are approved and in place to provide overall national	• No of MEEE policy document prepared	• 0	• 1	• 1	• Project documents and framework conditions for MEEE work under supervision of IRENEX	• MEEE fully established by government

direction for the cost-effective CO2 mitigation/building EE measures and facilitation of cross-sectoral coordination and coherence for improved enforcement under the MEEE framework.	• Number and scope of policies and innovative models on reducing air pollution on all populations, formulated, adopted, implemented	• 0	• 1	• 2	• Results of policy review process, and decisions on ECBC and buildings energy performance certificates adopted	• MORUB supports adoption and effective enforcement
output 1.1: A completed review of EEEB policies, legislation, standards and regulations and proposed action plan for improving compliance enforcing procedures	• No of policy updates for enhancement of EE policies, laws, regulations and standards to ensure improved EE in building sector.	• 0	• 1	• 2	• Project documentation • PSC evaluation	• Stakeholder engagement fully developed
Output 1.2: Proposed enforcement system for energy efficiency and environment buildings code (EEEBC) implementation	• No of developed EE code enforcement system	• 0	• 0	• 1	• Project documentation • PSC evaluation	• BHRC and MORUD enforces code strictly and consistently
	• No. of reference test laboratories properly equipped and trained to certification of EE building products	• 0	• 0	• 1	• PSC Evaluation • Site visit • Project documentation	• Government co-financing available
Output 1.3: Energy Management and Information System (EMIS) for buildings	• Number of buildings connected to EMIS and using energy management practices	• 0	• 100	• 300	• Monthly/annual energy monitoring reports published using data from EMIS	• Pilot buildings fully engaged

established and operational						
Output 1.4: A Cross-Sectoral Strategy and Action Plan (CSSAP) for energy efficiency in building sector inclusive of EEE market (MEEE) mechanisms established, implemented and monitored.	• No. of EE certificates generated for sale on MEEE-(#Million certificates)	• 0	• 10	• 30	• IFCO/SATBA/DOE/CEEE documents and evaluations	• MEEE regulator body willing to implement
	• No. of EEEB projects facilitated, implemented and monitored under the CSSAP	• 0	• 100	• 300	• MEEE regulatory body reports • Project documentation	• Supreme energy council willing to implement CSSAP under MEEE
	• Number and scope of policy tools adopted and used to reduce energy consumption	• o	• 2	• 3	• EMIS operational, EPC issued and EE certificates produced	• Regulatory framework adopted and in place
COMPONENT 2: PILOT INSTALLATIONS OF EE AND RE MEASURES IN EXISTING BUILDING STOCK						
Outcome 2: Improved heating systems and integration of SWH systems in privately owned residential buildings and government-owned buildings.	• CO2 emission reduction from implemented EE pilot projects at demo buildings	• Some CO2 emission reductions (not attributed to the project)	• 330 Kton CO_2 emission reductions cumulatively from pilots in existing buildings (Up to 10 years after project completion)	• 1 Mton CO_2 emission reductions cumulatively from pilots in existing buildings (Up to 10 years after project completion)	• Quantitative assessment of buildings energy performance improvement through M&V procedures by independent evaluation expert/companies	• MRV procedure implemented by MEEE VPST/GEF/UNDP fund completely mobilize

	• Number of new technologies adopted and scaled up that support more efficient energy use	• 0	• 3	• 6	• Investment grade energy audit (IGEA) reports	• Co-financing for IGEA secured and paid
	• Amount of CO_2 equivalent mitigated and energy efficiency/ achieved with a focus on residential sector	• 0	• 50 kt CO2	• 100 kt CO2	• Quantitative assessment of energy performance of buildings through M&V procedures by independent evaluation expert/companies	• MRV procedure implemented by MEEE • VPST/GEF/UNDP fund completely mobilize
Output 2.1: Business model for installation of SWH systems and their integration with other building energy conservation measures successfully piloted	• No. of successful ESCO business model-designed, engineered, installed, operated and maintained EEEB demo projects	• 0	• 1	• 1	• Project documentation • PSC Approval	• MPO accept the ESCO business model.
	• No of demonstration pilot of heating-cooling insulation building with an integrated fossil-base and renewable energy system consists of CCHP, BEMS and SWH technologies	• 0	• 4	• 8	• PSC Approval • Site Visit	• CEEE, SERI and SUT facilitation
Output 2.2: Approved follow-up actions for the widespread application of completed demonstration projects showcasing successful applications of EEEB technologies (including SWH), techniques and	• No. of buildings completed and operational pilot projects	• 0	• 100	• 300	• Project Documentation • Site Visit	• Host buildings continuously support demo
	• No. of policy for scaling up and replicate demonstration projects is in place	• 0	• 0	• 1	• CEEE&VPST adopted document	• Host buildings continuously support demo

practices in the residential and non-residential buildings in Iran						
Output 2.3: Developed and disseminated technical guidelines and training materials based on the results and evaluation of EEEB demonstrations.	• No. of EEEB guidebooks and training materials developed and disseminated	• 0	• 4	• 10	• Project documentation • Pilot training program plan • Published training material	• Willing stakeholder participation
COMPONENT 3: IMPLEMENTATION OF MARKET TRANSFORMATION STRATEGIES						
Outcome 3: MEEE promoting ESCOs to nationwide transformation of construction techniques for a thermally insulated building shell and reduced heating loads as well as improved behaviour and attitude of building owners and administrators towards energy use in buildings	• No. of Training centers for EEEB practitioners established.	• 0	• 1	• 1	• Project documentation • Site visit	• Sufficient domestic demand to meet supply
	• Number of new partnerships for EE policy implementation	• 0	• 1	• 2	• Project documentation on partnership with Iran energy exchange, IFCO, SATBA, DOE	• Willing stakeholder participation
Output 3.1: Operational and continuing capacity	• Developed training program in place	• 0	• 1	• 1	• Project documentation • Training materials	• Sufficient demand for training

development programs, and local EEEB accredited professionals.	• Number of ESCO companies engaged in EE certificate model implementation	• 0	• 5	• 10	• Project documentation	• MEEE established and operational
	• Number of training courses delivered	• 0	• 10	• 20	• Project documentation • Training materials	• Participants motivated to attend
Output 3.2: Continuing public awareness-raising program on EEEB developed and implemented.	• Level of public awareness about EEB in different target group	• Unknown	• Public awarene ss doubled.	• Public awareness tripled.	• Nationwide awareness campaigns implemented for at least two years and local campaigns implemented for at least one year by end of project	• Ability to resource the campaign and its evaluation
	• No. of public awareness campaigns about EEB for different target groups	• 0	• 2	• 5	• Project documentation	• Sufficient financial resources
	• Number of NGOs engaged in promoting sustainable energy use to households	• 0	• 2	• 3	• Project documentation	• Willing stakeholder participation
Output 3.3: Sustainable financial schemes for EEEB established and are functional.	• No. of established and operational financial schemes	• 0	• 1	• 2	• Documentation of the designed financing scheme, including implementation mechanisms, and rules & regulations	• FIs support the funding and implementation of financing schemes for EEEB projects
	• No. of local and international financial institutions providing financing for EEEB project	• 0	• 1	• 2	• Signed agreements between financing institution and CEEE	• Financing entities becomes interested in venturing on EEEB projects
COMPONENT4: PROJECT MANAGEMENT UNIT						

OUTCOME 4: Project strategy undertaking planned outputs and activities and financial resources fully achieved.	• Project implementation progress percentage	• 0	• 40%	• 100%	• Midterm and final evaluation based on project deliverables	• MEEE established by midterm of project
	• Government Budget allocation percentage achieved	• 0	• 30%	• 100%	• Midterm and final evaluation based on project deliverables	• VPST acceptance of ESCOs and Knowledge-based companies to allocate financial resource

ANNEX VI: TRAINING PLAN

Course Domain	#	Course Title	Level	eligibility	Target Group/ Trainees	Duration (Day)	training responsible
	1	TOT building code 19	Advanced	MSc. engineering	Trainer	5	BHRC-IRCEO
Training of building code 19 for new buildings	2	Basic training of building code 19	Basic	BA engineering	Designer, Engineers	2	BHRC-IRCEO
	3	Advanced training of building code 19	Advanced	BA engineering	Designer, Engineers	3	BHRC-IRCEO
	4	Basic training of building code 19	Basic	BA engineering	Energy third party, inspector, assessor	2	BHRC-IRCEO
	5	Advanced training of building code 19	Advanced	BA engineering	Energy third party, inspector, assessor	3	BHRC-IRCEO
User Training on EMIS platform	6	How to use EMIS platform	Advanced	BA engineering	Engineers	2	Platform Provider
	7	How to access Data and training for system administrator	Advanced	BS engineering	Engineers/ stakeholders	2	Platform Provider
Training on energy inspector	8	TOT New revision of national standard of energy labeling in residential and non-residential building	Advanced	BS engineering	trainer	2	INSO
	9	New revision of national standard of energy labeling in residential and non-residential building	Advanced	BS engineering	inspector	2	INSO

#	Course Title	Level	Eligibility	Target Group/ Trainees	Duration (Day)	training responsible
10	Detail // Investment grade energy Audit	Advance	BS in engineering	energy expert	3	ESCO association / BHRC/ SATBA
11	Practical building energy audits	Advance	Technicians	O&M	2	SERI
12	Practical building energy audits	Advance	BS engineering	energy expert	2	SERI
13	Walk through Energy Audit	Advance	Bachelor degree in engineering	energy professional	1	BHRC_ ESCO association
14	Measurement and Verification (M&V)	Advance-Practical	Bachelor degree in engineering	energy expert	2	ESCO association, IFCO
15	Application of measurement equipment for building envelope	Advance	Technician	energy expert	1	BHRC
16	Building energy Modeling software (Energy Plus)	Advance	Bachelor degree in engineering	energy professional	3	International Consultant, EEEB Project
17	Small scale Renewable energies in buildings	Basic	BS engineering	buildings constructor	1	SERI
18	Small scale Renewable energies in buildings	Advance	BS engineering	energy expert, ESCO	3	SERI
19	Renewable energies (SWH and PV roof top)	Advance	Technicians	(electricians, plumbers)	3	TVTO
20	TOT of ESCO business model - feasibility study)	Advance	MS finance and economic and experience in related fields	trainers	3	project team
21	Introduction to ESCOs, international experiences	Basic	Insurance, banks, financial institutions	energy experts	1	BHRC ESCo association
22	Introduction to ESCOs, international experiences	Basic	ESCO, Engineers, GOV	energy experts	2	BHRC ESCo association
23	Feasibility study for ESCO, ESCO Business Models and funding	Advance	BS of related fields	energy experts, ESCO, stakeholders	3	international Consultant, ESCo association
24	CCHP	Advance	BS of engineer	energy experts, ESCO	2	TVTO
25	Building heating and cooling systems O&M	Basic	junior technicians (Service men)	Small scale O&M man	2	TVTO
26	Building heating and cooling systems O&M	Advance	senior technicians (Service men)	high rise buildings O&M man	2	TVTO
27	Smart and digital O&M	Advanced	BS of engineer	energy expert	2	TVTO
28	BEMS	Advanced	BS of engineer	energy expert	2	TVTO

Course Domain	#	Course Title	Level	Eligibility	Target Group/ Trainees	Duration (Day)	training responsible
Energy Efficiency and Environment Market	29	Energy Efficiency and Carbon Markets	Advance	BS	significant energy users, EE certificate suppliers	1	Energy Exchange
	30	Energy Efficiency Certificate Trading	Advance	BS	significant energy users, EE certificate suppliers	1	Energy Exchange
	31	Implementation of energy efficiency certificate in the world (case study)	Advance	Market stakeholders	significant energy users, EE certificate suppliers	1	Energy Exchange
	32	Implementation of energy efficiency certificate in Iran	Advance	Market stakeholders	significant energy users, EE certificate suppliers	2	Energy Exchange