



**United Nations Development Programme**

**Review of GEF Project:  
Removing Barriers to Promote and Support Energy  
Management Systems in Municipalities throughout Serbia  
PIMS 4588**

**Mid-Term Review Report**

**April - June 2018**

Dr Zoran Morvaj,  
International consultant

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## **SYNOPSIS**

### **Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia**

**UNDP Project ID:** 4588

**GEF Project ID:** 5518

**MTR time frame:** February 2018 to June 2018

**Date of MTR report:** June 2018

**Region and Countries included in the project:** South East Europe, Serbia

**GEF Focal Area Objective: Climate Change Objective 2:**

**Promote market transformation for energy efficiency in industry and the building sector**

**Implementing partner and other strategic partners:**

Ministry of Energy and Mining of the Republic of Serbia (lead partner)

#### **Acknowledgements:**

The midterm reviewer wishes to acknowledge with gratitude the time and effort expended by all project participants and stakeholders during the course of midterm review. The midterm reviewers would like to thank all stakeholders including UNDP Serbia, Ministry of Mining and Energy (MEM), EMIS Support Unit, and the Project Team for their hospitality, informative and passionate discussions on their experiences in implementing the project; your passion, insights, and candid perspectives add value to the review process to guide and sustain implementation of Energy Management Systems in municipalities throughout Serbia. In particular, the midterm reviewer wishes to thank project manager Ms. Maja Matejić and project coordinator Mr. Dragan Urošević of UNDP Serbia for arranging mission meetings and the field trips. I hope that this report will contribute towards institutionalization and sustainability at implementing Energy Management Systems in municipalities throughout Serbia.

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# 1 EXECUTIVE SUMMARY

## 1.1. Project Information Table

Project Title: Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia			
GEF Project ID:	5518	Country:	Serbia
UNDP Project ID:	4588	Region:	South East Europe
Atlas Project ID:	00094643	Focal Area:	Climate Change
Atlas Award ID:	00087720	FA Objectives, (OP/SP):	
Executing Agency:	UNDP	Other Partners involved:	Ministry of Mining and Energy
ProDoc Signature (date project began):	01.09.2015.	(Operational) Closing Date:	31.08.2020.
Total resources	at endorsement		at midterm review (April 1st, 2018)
	(Million US\$)		(Million US\$)
GEF financing:	2.300		0.849
IA/EA own:	0.200		0.092
	Cash		
	0.300		0.190
	In-kind		
Government:	5.600		2.397
	Cash		
	1.500		1.020
	In-kind		
Others:	11.600		4.930
	Cash		
	0.600		0.380
	In-kind		
Total co-financing:	19.600		9.009
Total Project Cost:	21.900		9.858

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## 1.2 Project Description

1. This Project, which is supported financially by the Global Environment Facility (GEF) as well as various sources of co-financing, seeks to achieve energy savings and avoided greenhouse gas (GHG) emissions by introducing and supporting the implementation of municipal Energy Management Systems (EMS), including Energy Management Information Systems (EMIS), throughout Serbia.
2. This UNDP-supported GEF-financed project's objective is to introduce and support the implementation of municipal Energy Management Systems (EMS), including Energy Management Information Systems (EMIS), throughout Republic of Serbia to increase the EE investments in public buildings and municipal services and to facilitate their more energy efficient operation in general. The project target by the end of the project is to have at least 30 Serbian municipalities to formally adopt and start the implementation of EMS and EMIS. The overall project targets are as follows:
  - to leverage at least USD 15 million for new EE investments by successful introduction of EMS and EMIS in Serbian municipalities;
  - energy savings of at least 26 GWh (94 TJ) per year or 390 GWh (1,400 TJ) over the default lifetime of 15 years from the investments and other measures facilitated by the adoption and implementation of EMS and EMIS in at least 30 Serbian municipalities; and
  - related direct GHG reduction potential of 10 kilotons CO<sub>2eq</sub> per year or of 150 kilotons CO<sub>2eq</sub> over the default lifetime of 15 years of the investments and other measures undertaken.
3. The project strategy is defined by a number of outputs that are clustered by outcomes, which together will achieve the project objective. These outcomes are:

Outcome 1: An enabling legislative and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures

Outcome 2: Central and municipal EE support units are established and operational and their capacity is built to establish energy management and information systems at the municipal level

Outcome 3: At least 10 projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.

Outcome 4: Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency
4. The key success indicators of the project are:
  - Extent to which EE policies and regulations are adopted and enforced;
  - Volume of investment mobilized; and
  - Tonnes of CO<sub>2</sub> equivalent avoided
5. The Project starting date was 01 December 2015, with duration of 5 years, and the budget of 2,300,000 US\$ (GEF) and 200,000 US\$ (UNDP).

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### 1.3 Project Progress Summary

6. The project idea was approved by the GEF Secretariat in January 2014, and the full-size Project proposal was approved in June 2015. The Project Document was signed in October 21<sup>st</sup> 2015.
7. The Project Manager was in place as of July 2015. The arrangement for hosting the project office was made with the Chamber of Commerce and Industry of Serbia in September 2015. The Project Coordinating Officer and the Project Assistant were recruited in December 2015 and started their duties in February 2016. The Project Board was appointed in January 2016.
8. The time elapsed between the project idea and Project Document signing was less than 2 years, which was a remarkably fast approval process. Consequently, the Inception report which was prepared in February 2016, didn't introduce significant changes into the original Project Document.
9. The mid-term review was commissioned during the first quarter of 2018 and covers the period 01.12.2015 – 31.03.2018.

### 1.4 Recommendations

10. The Project team has achieved very good results and progress towards meeting all the end-of-project targets. Managing project implementation was exemplary and in line with the Project strategy, hence there is not much to be recommended in that respect.
11. However, the key challenge at this stage for the Project team is assuring project sustainability by the project's completion time. Consequently, a number of recommendations are provided in that respect.

#### **Recommendation 1: Transfer the ownership of EMIS to MoME**

After completion of the project all EMIS related administration, maintenance and support activities will need to be handled by MoME. Therefore, the sooner MoME starts preparing itself for that with the Project support - the better. The Project may prepare a 'Handover protocol' where the roles and responsibilities of both parties will be defined over a transitional period. The Handover protocol should also specify what kind of support (technical, financial, capacity strengthening, etc.) the Project will provide to MoME.

#### **Recommendation 2: Determining the final status of Central EE support unit**

So far, the Unit is staffed by temporary staff. The Project should prepare a document on roles and responsibilities of Central EE support, unit inclusive of an organigram with necessary number of staff, their job description and required qualifications. It should be taken into account that number of EMIS users would increase for current 30-something municipalities towards 90 municipalities which are obliged by the Law to implement energy management practices. The biggest challenge would be limitation for new employment in government institutions.

#### **Recommendation 3: Supporting transition from energy data entry to energy management**

Entering data on buildings and energy consumption into EMIS is the first step towards the introduction of energy management practice in municipalities. The second step is to start using this data to manage energy consumption on regular basis, and this is much harder. Not all of the nominated energy managers could be expected that they can master these skills easily. The Project team will need to provide continuous hands-on support to energy managers for developing necessary skills and confidence. As a part of the support mechanism, the Project may consider hiring local assistants who could maintain regular contacts with Energy managers.

#### **Recommendation 4: Transfer web site hosting**

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As a part of exit strategy, the Project should make arrangements for permanent hosting of the website at some of the partner institutions.

**Recommendation 5: EMIS upgrades**

It is important that all software upgrades are well documented on the software development side and supported with prepared users' guidelines.

**Recommendation 6: Strengthening outreach to participating municipalities**

Project was doing an extensive work on general information dissemination, communication and public awareness. In the upcoming period, the project has to focus on direct communication to Mayors in order to increase their understanding of importance of EMS practice, and of the work energy managers are doing. The Project needs to support energy managers at strengthening their role in municipalities management structures, to safeguard the progress made, and to secure continuation of EMS and EMIS practices.

The Project has to aim at supporting municipalities at making changes in municipalities' organigrams and staff jobs description, so that a position of dedicated energy managers is firmly integrated into the municipalities' management structure.

Further on, Pancevo and Kragujevac are apparently the most advanced municipalities in the group that the Project is working with. To help other municipalities achieving faster progress, it would be useful to organize number of workshops in Pancevo and Kragujevac, and present their results, practices and approaches to other mayors and energy managers. These events should be co-organized with MEM and SCTM for the sake of continuity and sustainability.

**Recommendation 7: Supporting networking of Energy Managers**

The Project should formalize arrangements with SCTM and defining the role of SCTM in supporting energy managers after the Project's completion. The SCTM could provide support to energy managers for annual budget planning for EE as a part of municipal budget preparation.

**Recommendation 8: Strengthening monitoring and verification of energy savings**

The project should prepare technical guidelines for installation of 'smart' energy meters at a time of doing energy audits and implementing retrofit measures, which would be connected to EMIS and used for monitoring and verifying energy savings from demonstration projects. This should be accompanying with instructions on how to calculate and verify energy savings achieved.

The Project should focus on 'one-year verifiable monitoring data' collection and analysis. Adequate methodology has to be proposed and documented. It could be either calculation based, or based on installation of dedicated meters which should be connected to EMIS

The Project should also insist that during preparation of new investment proposal, monitoring and verification solutions have to be an integral part of a project, and provisions for specific metering arrangements have to be included into the overall investment costs.

**Recommendation 9: Supporting scaling up of EMS and EMIS practice**

As a part of formalization of relationships with SCTM, the Project should reach an agreement with SCTM to include information sessions on EMS and EMIS in regular SCTM events. Towards the end of the project life time, a Conference of Mayors of Serbia could be organized to promote results and set the stage for scaling up and roll out the EMS and EMIS practices.

Additionally, the Project could also promote introduction of EMS and EMIS practice for central government buildings.

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**Recommendation 10: Modification of Output 4.3 on updating curricula**

Updating curricula of schools is highly structured and time-consuming process which may happen only with Ministry of Education strong involvement. It is therefore unrealistic to expect that the Project may be able to achieve this target by the end of the project life time.

It is therefore proposed to modify this particular activity, which still should be focused on capacity buildings, but instead of the vocational school, the target could be to develop a course for installer and maintenance staff related to EE and RES measures. The partner for that could be the Centre for Training of Energy Managers at the Faculty of Mechanical Engineering in Belgrade, which was originally supported by JICA. JICA could be approached if interested of extending its support for setting up training program for EE and RES professionals.

**Recommendation 11: Modification of Output 4.5 Public outreach campaigns, events and facilities (such as EE info offices and stands)**

As described in the Communication section of the report, Energy management and EMIS have been frequently presented on various occasions (workshops, trainings, national and regional TVs, meetings, international events, etc.). However, setting up EE info offices and stands across Serbia, requires resources beyond the means of the project.

The Project could advise municipalities that as a part of their EE action plans, they should plan local promotion and awareness campaigns aiming at providing citizens with information on how they could use energy more efficiently at their homes. The municipalities may decide to set up their own EE info centres.

The project should invite providers of EE and RES equipment and services to the events that Project is organizing.

## **1.5 Mid-Term Project Ratings and Achievement Summary with Comments**

12. Mid-term project ratings and summary of achievements are provided in the Table 1.



**Table 1 Review of project progress against targets with comments**

<b>Project component</b>	<b>End of project targets as defined in the Inception Report (IR)</b>	<b>Ratings</b>	<b>Comments</b>
<b>Project Objective:</b> Promote greater investment in energy-efficiency in public buildings and services in the municipal sector in Republic of Serbia	Direct GHG emission reduction: 150 ktons of CO2eq calculated over the default lifetime of 15 years of the investments or other EE measures implemented	Highly Satisfactory	Some end-of-project targets are already achieved at the mid-term, while the other are on the way to be achieved:  The achieved GHG emission reduction at mid-term are:  <b>6.65 ktons of CO2eq per year</b>  The achieved energy savings at mid-term are:  <b>47.88 TJ per year.</b>  The archived co-financing at mid-term are:  <b>6.0 mil US\$.</b>  Number of new partnerships at mid-term:  <b>31 municipalities</b> in partnership with the project have formally adopted and started the implementation of EMS and EMIS.
	Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.		
	15 m US\$ co-financing by the end of the project		
	30 new partnerships (i.e. 30 municipalities have formally adopted and started the implementation of EMS and EMIS)		

<p><b>Outcome 1:</b> An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.</p>	<p>Formal adoption of at least 5 new/updated Government regulations, rulebooks and/or municipal ordinances directly supported by the project to enable effective implementation of municipal energy management and energy management information systems</p>	<p>Highly Satisfactory</p>	<p>Three members of UNDP Project team and two technical experts engaged by the Project in their capacity as experts have been officially appointed as members of 18 working groups established by the Ministry of Mining and Energy for the preparation of different pieces of legislation related to energy efficiency and energy management. So far 1 Govt. decree, 15 rulebooks and 3 decisions of the Ministry have been adopted.</p>
<p><b>Outcome 2:</b> Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at municipal level</p>	<p>The central EE support unit either within the Ministry responsible for energy or as an independent entity established, adequately staffed and capacitated and with adequate financial allocations by the after the end of the project. monitoring reports published using data from EMIS</p>	<p>Highly Satisfactory</p>	<p>The Central EE support unit within the Ministry of Mining and Energy is established and in operation. The Unit supports municipalities in implementing EMIS.  Financing of the Unit is provided through the relevant budget line of the Ministry.  In addition, the special Project Implementation Group comprising 8 people was formed in 2016 to support the implementation of the Project.  31 municipalities have formally adopted and started the implementation of EMS and EMIS by signing MoU with UNDP.  Additionally, 4 municipalities have formally adopted and started the implementation of EMS and EMIS by its own capacity.  26 energy managers have been appointed as licensed <b>municipal energy managers</b>.</p>

	At least 30 municipalities have formally adopted and started the implementation of EMS and EMIS with: 1) appointed energy managers and EE support units established; 2) EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors; 3) completed EE strategies and action plans with concrete time-bound EE targets; and 4) monthly/annual energy reports		Data entry into EMIS has just started in some 45 municipalities.  Elaboration of mandatory annual energy reports and energy efficiency programmes and plans are in progress in a number of municipalities (app. 45).
<b>Outcome 3:</b> At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.	At least 10 demonstration projects completed with at least one-year verifiable monitoring data on the saved energy and GHG emissions reduced. At least USD 15 million leveraged for new EE investments facilitated by the project.	Satisfactory	35 municipalities responded to the public call, out of which 17 were fully eligible and accepted for evaluation, 13 municipalities have been selected and have signed a contract with MEM.  7 municipalities completed their projects.  Total amount of UNDP grant committed: 500.000 USD  Total amount of co-financing by MEM: 500.000 USD   However, the project team has to pay attention for realisable verification and reporting of annual energy savings by implemented projects.

<b>Outcome 4:</b> Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.	At least 80% of all Serbian municipalities have signed the Energy Charter with a stated intention to adopt the EMIS.	Satisfactory	109 (65%) out of 169 municipalities have signed the Energy Charter
	Training of at least 100 municipal energy managers.		101 trainees for energy management in municipalities have been trained, 99 trainees have passed the exam. 66 trainees have got the energy manager license (40 number of man and 26 women).
	The curricula of all professional and vocational schools dealing with energy efficiency related professional disciplines (electricians, plumbers, construction workers etc.) and located in the municipalities that have adopted EMIS have been strengthened with state of the art energy efficient technologies and approaches.	Needs to be modified	<p>51 trainees for energy management in buildings have been trained, 44 trainees have passed the exam. 37 trainees have got the energy manager license. (30 number of man and 7 women).</p> <p>340 EMIS end-users have been trained to enter data into EMIS (134 man and 206 women).</p> <p>The Project is facing difficulties with changing curricula for vocational schools. MTR provides some recommendation for modifying this activity and indicator.</p>

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## Mid-term Review

# UNDP-GEF project “Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia”

## 2 INTRODUCTION

This report summarizes the findings of the Mid-Term Review (MTR) process for the UNDP-supported GEF-financed project entitled “Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia” (herein referred to as the “Project”). The Midterm Review Missions for the Project were fielded to Belgrade, Pančevo and Kragujevac. The timeframe of this report is March 2018 to May 2018. The MTR covers the project implementation period from December 2015 till March 2018.

### 2.1. Purpose of Mid-Term Review and Objectives

The purpose of the mid-term review (MTR) for this Project was to assess the progress towards attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements. The MTR serves as an agent of change and plays a critical role in supporting accountability.

In accordance with UNDP-GEF monitoring and evaluation (M&E) policies and procedures<sup>1</sup>, all projects with implementation periods over 3 or 4 years are strongly encouraged to conduct MTRs. In addition to providing an independent in-depth review of implementation progress, the MTR is intended to be responsive to GEF Council decisions on transparency and better access to information during implementation. Key issues to be addressed by this MTR include:

- Project progress to date;
- The achievability of Project targets given the current outcomes, availability of resources and personnel;
- The necessity of resetting targets and resources; and
- Sustainability of Project interventions.

### 2.2. Midterm Review Methodology and Scope

The scope of the MTR covers the entire UNDP-supported GEF-financed project and its components as well as the co-financed components of the project. The MTR assesses Project implementation taking into account the status of Project activities, outputs and the resource disbursements made up to April 2018. The MTR also reports on the progress against the objective, each outcome, output, activity (including sub-activities) and impact indicators listed in the Project document. In addition, the progress against the objective and outcomes will be assessed as to how these will be achieved within the Project duration or if a Project extension might be required. The MTR report concludes with recommendations, as appropriate, for the key stakeholders of the project. The MTR will be approached using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects.

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<sup>1</sup> [http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance\\_Midterm%20Review%20\\_EN\\_2014.pdf](http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf)

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**Table 2 Summary of Efforts of the Midterm Review**

Review Tier	Key Actions
Macro level	<ul style="list-style-type: none"><li>• Review of project documents</li><li>• Review relevant policies and programs/guidelines</li><li>• Review progress reports</li><li>• Courtesy calls, meetings and interview with policy makers</li><li>• Meetings and interviews with project staffs</li><li>• Interviews with national level key stakeholders</li></ul>
Meso level	<ul style="list-style-type: none"><li>• Review targets in project result framework and Project's accomplishments</li><li>• Find out capacity gaps and resource needed to meet the targets</li></ul>
Micro level	<ul style="list-style-type: none"><li>• Meetings and interviews with stakeholders, program partners, and investors who received the grants, asking them if appropriate, on their satisfaction, benefits of participating in Project and interacting with project team</li><li>• Solicit opinions of beneficiaries and government officials whether the Project interventions are working and are relevant and timely. If not what improvements could be done</li></ul>

### 2.3. Structure of the Mid-Term Review Report

This Review report is presented as follows:

- An overview of project implementation from the commencement of operations in January 2014;
- Review of project results based on project design and execution; and
- Conclusions, recommendations and lessons learned that can increase the probabilities of success.

This MTR was prepared according to GEF M&E policy and according to the "Guidance for Conducting Mid-Term Reviews of UNDP-Supported, GEF-Financed Projects" dated June 2014.

## 3 PROJECT DESCRIPTION AND STRATEGY

### 3.1. Project context

The Project context and implementation environment are clearly described by the inception report. The energy issues at the local level are still not in the focus of attention and are overshadowed by what are perceived as more important issues in the energy sector. Serbian municipalities are facing many challenges such as drastic economic stagnation, obsolete technology, outdated infrastructure, loss of working places and a lack of credit worthiness, while at the same time having a shortage of capacity to perform the required public utility services such as the water-supply, district heating, public lighting and public transport, thereby putting many municipalities in a very difficult situation

However, the legal context is provided by Law on Efficient Use of Energy which has mandated energy management practices for all municipalities with more than 20,000 inhabitants. The Local self-governments (municipalities and cities) as a designated organisation of the energy management system shall pass an Energy Efficiency Programme for the period of three years, in compliance with the Energy Sector Development Strategy and an adopted National Energy Efficiency Action Plan (NEEAP).

The Energy Efficiency Programme shall specifically provide the following:

- Planned energy saving targets, which are in line with the energy savings defined by the Energy Sector Development Strategy, Programme for Implementation of Energy Sector Development Strategy and NEEAP;
- An overview and an estimate of the annual energy demand level, including the assessment of energy performance of facilities;
- Proposed measures and activities that will provide for efficient energy use, and specifically:

- Programme for major energy rehabilitation and maintenance of public facilities used by the local self-government's bodies, public services and public enterprises founded by the local self-government unit;
- Programmes for utility service systems improvement with regard to increasing energy efficiency thereof (district heating system, district cooling system, water supply, public lighting, waste management, public transportation, etc.);
- Other measures that are planned within the meaning of efficient energy use.
- Responsible parties, deadlines and assessment of expected results of each of the measures aimed at achieving the planned target;
- Means necessary for Programme implementation, sources and methods for provision thereof.

Each designated local self-government shall develop the Energy Efficiency Plan for the period of one year. Energy Efficiency Plan passed by the local self-government (municipality) or some other designated organisation of the energy management system shall set down further details on measures and activities from the Energy Efficiency Program, and it shall specifically include: measures and activities envisaged to provide for efficient energy use, responsible parties and deadlines for the implementation of planned activities, expected results for each measure and activity respectively, financial instruments (sources and fundraising methods) envisaged for the implementation of planned measures.

The Law also sets the obligation for public entities to include minimum energy efficiency requirements for public procurement of goods, services and works in the public procurement process. Public procurement Contracting Authorities in procedures for public procurement of goods, services and works specified by the law regulating the criteria, method and procedure for public procurements, shall take into account the energy efficiency aspects in public procurement procedures in preparing technical specifications of goods, services and works and/or in designing criteria for the selection of best offer for goods, services and works.

The Law provides for establishment of the Energy Efficiency Fund, but only as a budgetary fund without the status of a legal entity. Each year the Government shall pass the Decree on Annual Programme of the Energy Efficiency Fund. The Fund became operational as of 2014.

The municipalities are eligible to apply for financial support from the Fund. During the implementation of the annual programme of financing, only one project per municipality could be approved.

In 2017 the allocation of 160,000,000 RSD (1.6 million US\$) was planned for the Energy Efficiency Fund.

### 3.2. Problems to be Addressed and Project Strategy as devised by ProDoc

Such precise determinations of the Law on Efficient Use of Energy which mandate energy management practice at municipal level are clearly helpful for the project in addressing its tasks.

However, most of municipalities do not have adequate capacity to deal with energy issues they are supposed to be responsible for and are mainly preoccupied by meeting the ever-growing energy demand and by covering the cost for energy, either directly in public buildings or through some form of utility services.

The key barriers preventing the municipalities to improve their energy efficiency in line with the objectives of the EE law, regulations and action plans and the available financing opportunities are briefly summarized below.

Table 3 Barriers to Energy-Efficiency in the Municipal Sector

Barriers	Barrier Explained	Means of Overcoming Barrier
Legal and Regulatory Barriers	The new Law on Efficient Use of Energy creates a national energy-efficiency programme but does not go into detail about how this programme will be created and how it will be operationalized.	Assisting further development and updating of the required secondary legislation to support the implementation of energy management systems at the municipal level.

Information and Data Barriers	Lack of data concerning public sector energy consumption and losses, thereby making it more difficult to identify and justify the priority EE measures (and investments) to be undertaken.	Detailed surveys on municipal energy consumption at different end user segments will be undertaken and a proper system to collect, monitor, and manage data (EMIS) will be established with institutional arrangements in place to facilitate its regular updating.
Institutional Barriers	Lack of continuity, clarity and co-ordination of the institutional responsibilities in improving energy efficiency of the municipal energy use and supply with institutional responsibilities split between various agencies.	The ministry responsible on energy issues will establish a central co-ordination and support unit to support effective implementation of EMIS at the municipal level. The municipalities will appoint energy managers and establish specific EE support units to manage EMIS and initiate and co-ordinate all EE measures at the municipal level.
Awareness, Knowledge and Capacity Barriers	Lack of awareness, knowledge and capacity among municipal staff (incl. PUCs) on the initiation and implementation of EMS, EMIS, and related follow-up EE measures for municipal energy use and supply.	At least 100 municipal and public officials will be trained on energy-efficiency throughout the lifetime of the project. Besides, by supporting EE related aspects of vocational training, the project seeks to ensure that the new professionals entering the labour market have state of the art knowledge and adequate skills to promote and implement different energy efficiency measures in their day-to-day work.
Financial Barriers	Lack of public funding and inadequate access to private sector funding to finance municipal EE investments.	By adopting and effectively implementing EMIS, the municipalities will obtain a strong tool for prioritizing and justifying the investments on the basis of credible and comprehensive information about the savings to be achieved. Besides, the project will train the municipal energy managers on the required financial analysis and financial structuring to select and present projects in a format that meets the requirements of the different financing entities.

The Project strategy for addressing the barriers is built around four outcomes:

- Outcome 1: An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures;
- Outcome 2: Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at the municipal level;
- Outcome 3: At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation;
- Outcome 4: Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.

The Project is addressing these barriers by supporting implementation of a modern web based, Energy Management Information System (EMIS) as a core element of municipal energy management, which provides basis for municipal energy planning and decision making on municipal investments in energy efficiency projects.

Complementary activities include preparation of EE projects in public buildings/facilities (technical identification, energy audits, elaboration of investment packages, etc.) along with the implementation of 0.5 mill US\$ grant for 10 EE demonstration projects in public buildings. The grant provided by GEF is combined with the Budgetary Fund for Energy Efficiency of the Republic of Serbia and municipal co-financing. The Project also includes extensive capacity building for the identification, preparation and implementation of municipal EE and RE projects. In addition, the Project will include advocacy in the field of EE and further development of EMIS and auxiliary software tools of less complexity aimed at specific tasks of municipal energy management.



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### 3.3. Project implementation arrangements

The project is implemented by UNDP and executed by Ministry of Mining and Energy with close cooperation and coordination project team. The project organigram is provided on Figure 1.

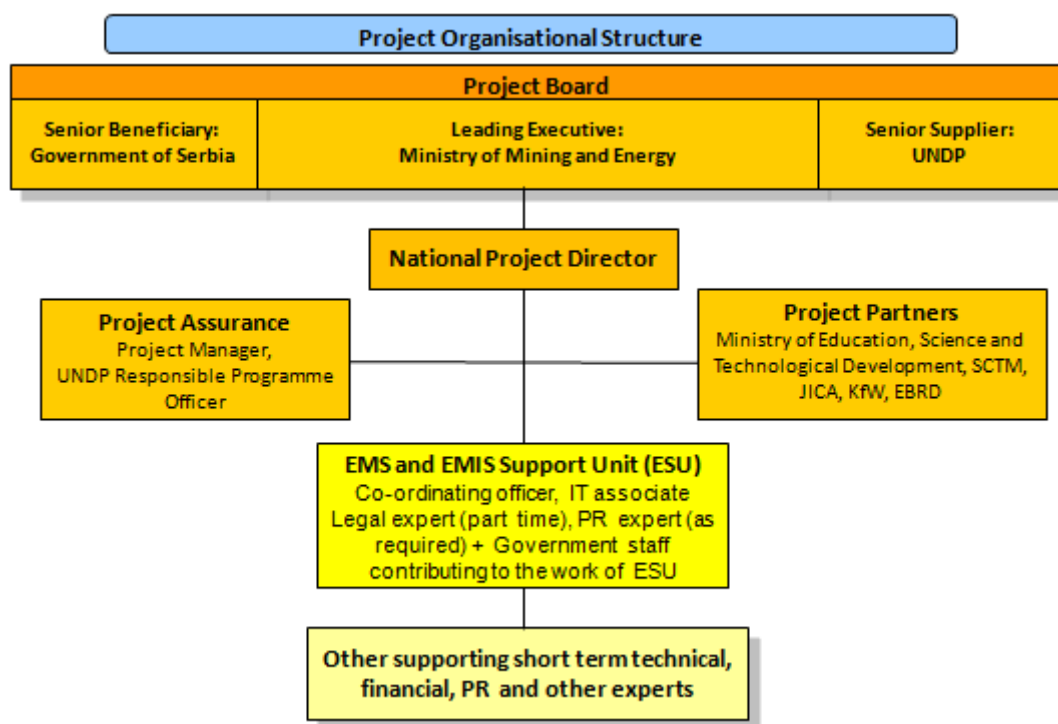


Figure 1 Project Implementation organigram

A cross-sectoral Project Board, chaired by the National Project Director and consisting of the representatives of the relevant ministries and the other project partners was envisaged to be established to guide, provide advice and input for the implementation of the project.

### 3.4. Project stakeholders

The project has successfully engaged large number of stakeholders as follows:

- 1 The Ministry of Mining and Energy
- 2 Local self-governments
- 3 The Institute for Standardization of Serbia (ISS)
- 4 Serbian Chamber of Commerce and Industry (CCIS)
- 5 Standing Conference of Towns and Municipalities (SCTM)

The Chamber of Commerce and Industry of Serbia in letter to Project Board expressed the interest to become a project partner and to provide additional in-kind co-financing (200,000 USD) Project Board approved the new project partner in April 2016.

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## 4 KEY FINDINGS

### 4.1. Changes in implementing environment

The project idea was approved by the GEF Secretariat in January 2014, and the full-size Project proposal was approved in June 2015. The Project Document was signed in October 21<sup>st</sup> 2015.

The time elapsed between the project idea and Project Document signing was less than 2 years, which was a remarkably fast approval process.

Consequently, the Inception report which was prepared in February 2016, didn't report on significant changes in implementing environment, and consequently no significant changes were made related to the original Project Document.

### 4.2 Project Strategy

#### 4.2.1 Project Design

To meet the objective of supporting implementation of municipal Energy Management System and a national Energy Management Information System the ProDoc has proposed a strategy that was well balanced in addressing identified barriers on one end, and legal requirement by the Law on Efficient Use of Energy on the other end.

The Law defines the Energy Management System as a broadest set of regulatory, organizational, incentive, technical and other measures and activities, as well as organized monitoring and analysis of energy generation, transmission, distribution and consumption, which are defined and implemented by state administration bodies, local self-governments (municipalities) and designated organizations of the energy management system within their respective remits. The Ministry in charge of energy shall implement and monitor the system and the reaching of targets defined within energy management system in particular:

- Collecting annual reports prepared by the designated organizations;
- Maintaining relevant database for monitoring of energy management system implementation;
- Planning and scheduling theoretical and practical training courses on energy management and energy auditing for natural persons, and designing the application system for candidates interested in these training courses;
- Organizing training courses for Energy Managers and Energy Auditors;
- Organizing exams for Energy Managers and Energy Auditors and issuing certificates on exams passed;
- Issuing relevant licences for Energy Managers and Energy Auditors;
- Maintaining Registers of Licensed Energy Managers and Authorised Energy Auditors;
- Publishing the Register containing information on Authorised Energy Auditors on the Ministry webpage;
- Maintaining consolidated statistical data on energy supplied to energy buyers;
- Providing financing for efficient energy use related activities and managing the Energy Efficiency Budget Fund;
- Implementing public campaigns and other educational activities to raise awareness on energy efficiency and support other parties carrying out such campaigns and activities.

The municipalities are obliged to report about actual energy consumption in the prescribed form within 60 days after the Government has enacted the document which defines their energy saving targets.

Municipalities are obliged in particular to:

- Reach energy savings targets prescribed by the Government;
- Appoint the required number of Energy Managers;
- Pass an Energy Efficiency Program and Plan and deliver these to the Ministry, upon request;
- Implement measures for efficient energy use specified in the Program, i.e. in the Plan;

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- Inform the Ministry about the identity of persons appointed as Energy Managers and about persons authorized to sign Reports on behalf of designated organisations, in addition to the Energy Managers;
  - Deliver annual Reports to the Ministry on the achievement of targets identified in the Program and Plan;
  - Implement energy audits at least once in a five-year period;

Municipalities shall appoint Energy Managers out of their permanent employees or outsourced.

The Law also defines the category of Energy Managers. An Energy Manager is the natural person appointed by the designated organisation, which shall be obliged in particular to:

- Collect and analyse data on energy consumption by the designated organisation;
- Prepare Programs and Plans;
- Propose energy efficiency measures and take part in the implementation of these measures;
- Take care of preparation of Annual Report, etc.

The Energy Manager's tasks may only be performed by the person holding an energy manager licence which shall be issued by the Minister according to the type of the designated organisation. Energy manager certificate is a condition for a person to get an energy manager licence. The condition for a person to obtain energy manager certificate is to attend the training course and pass the energy manager exam. Training for exams for energy managers shall be carried out by an organization that fulfils requirements prescribed in accordance with the Law and authorized by the Minister.

The Project's components as designed, include necessary activities to provide support in addressing legal requirements that municipalities have to comply with.

#### **4.4. Progress towards Results**

Project team is composed of competent professionals with previous experience in managing UNDP projects, which has clearly helped achieving a swift progress towards results. The Project has archived a number of end-of-the-Project targets already at the time of MTR, while it is on the way to achieve the other targets within the remaining project life time.

**Table 4 Progress Towards Results Matrix**

Project Strategy	Indicator	Baseline Level	Level in 1 <sup>st</sup> PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment <sup>2</sup>	Achievement Rating <sup>3</sup>	Justification for Rating
<b>Objective:</b> Promote greater investment in energy-efficiency in public buildings and services in the municipal sector in Serbia	<b>Indicator 1.</b> Tonnes of incremental CO <sub>2</sub> equivalent avoided as a direct result of project activities	0	<b>Relevant Project activities are in progress</b>  <b>Number of investments in energy efficiency in municipalities have been initiated and implementation process (tendering, construction works, etc.) is in course</b>		Direct GHG emission reduction: 150 ktons of CO <sub>2eq</sub> calculated over the default lifetime of 15 years of the investments or other EE measures implemented	<b>6.65 ktons of CO<sub>2eq</sub> annually</b>		Provided in chapter 4.4.

<sup>2</sup> Colour coded according to Indicator Assessment Keys:

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved
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<sup>3</sup> 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

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	<b>Indicator 2.</b> Incremental energy savings as a direct result of project activities	0	Relevant Project activities are in progress. Number of investments in energy efficiency in municipalities have been initiated and implementation in progress (tendering, construction works, etc.) is in course.		Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.	<b>47.88 TJ annually</b>		Provided in chapter 4.4.
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	<b>Indicator 3.</b> Amount of investment in energy-efficiency in public buildings and services in the municipal sector directly facilitated by the project	0	Relevant Project activities are in progress. Number of investments in energy efficiency in municipalities have been initiated and implementation in progress (tendering, construction works, etc.) is in course.		15 mln US\$ by the end of the project	<b>6.0 mil US\$</b>		Provided in chapter 4.4.
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	<b>Indicator 4.</b> Number of new development partnerships with funding for improved energy efficiency (IRRF Indicator 1.5.1.A)	0	Relevant Project activities are in progress. Public call for municipalities to cooperate in the introduction of an EMS in and in the enhanced use of locally available biomass for energy generation is about to be launched.		30 new partnerships (i.e. 30 municipalities have formally adopted and started the implementation of EMS and EMIS)	31 municipalities have formally adopted and started the implementation of EMS and EMIS – signed MoU		Provided in chapter 4.4.
	<b>Indicator 5.</b> Number of people benefitting from improved public services	0	Relevant Project activities are in progress. Introduction of EMS and EMIS as well as energy efficiency investment projects are in progress.		To be specified at the inception phase	2000		Provided in chapter 4.4.

<b>Outcome 1:</b> An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.	Extent to which the required new EE policies and regulations (or those be updated) are adopted.	0	Three members of UNDP Project team and two technical experts engaged by the Project in their capacity as experts have been officially appointed as members of 11 working groups established by the competent ministry (Ministry of Mining and Energy) for the preparation of different pieces of legislation related to energy efficiency and energy management.		Formal adoption of at least 5 new/updated Government regulations, rulebooks and/or municipal ordinances directly supported by the project to enable effective implementation of municipal energy management and energy management information systems	1 Govt. decree, 15 rulebooks and 3 decisions of the Ministry have been adopted.		Provided in chapter 4.4.
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			So far 1 Govt. decree, 10 rulebooks and 3 decisions of the Ministry have been adopted.					
<b>Outcome 2:</b> Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS)	Status of the central EE Support Unit and the number of new, adequately staffed and capacitated municipal EE support units established	0	1. The Central EE support unit (so. called Energy Efficiency Unit) within the competent ministry (Ministry of Mining and Energy) is established and in operation. The group for EMS operates		The central EE support unit either within the Ministry responsible for energy or as an independent entity established, adequately staffed and capacitated and with adequate financial allocations by the Government budget to continue its operation also after the end of the project.	The Central EE support unit is established and in operation. Financing of the Unit is provided through the relevant budget line of the Ministry.  In addition, the special Project Implementation Group comprising 8 people was formed in 2016 to support the		Provided in chapter 4.4.

at the municipal level		0	<p>within the EE Unit. Financing of the Unit is provided through the relevant budget line of the Ministry. In addition, the special Project Implementation Group comprising 8 people was formed in 2016 to support the implementation of UNDP/GEF Project.</p> <p>2. The implementation of Energy Management System (EMS) as defined by the Law on Efficient Use of Energy</p>		<p>At least 30 municipalities have formally adopted and started the implementation of EMS and EMIS with: 1) appointed energy managers and EE support units established; 2) EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors; 3) completed EE strategies and action plans with concrete time-bound EE targets; and 4) monthly/annual energy monitoring reports published using data from EMIS</p>	<p>implementation of UNDP/GEF Project.</p> <p>31 municipalities have formally adopted and started the implementation of EMS and EMIS by signing MoU with UNDP.</p> <p>26 managers have been appointed as licensed municipal energy managers.</p> <p>Data entry into EMIS has started in some 45 municipalities. Elaboration of mandatory annual energy report (for baseline year 2016) and energy efficiency programmes and plans is in progress in 45 of municipalities.</p>		
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			started officially in June 2016 after adoption of necessary bylaws. Since then 2 official training courses and 2 examinations for energy managers in municipalities and one training course and one examination for energy management in buildings have been conducted. EMIS is included in the official training curriculum, which is stipulated by the relevant rulebook. The Project has supported the					
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			<p>elaboration of a Guidebook for Energy managers in Municipalities and the Guidebook for Energy Managers in Buildings.</p> <p>1) So far 63 trainees have passed the examination and 12 managers have been appointed as licensed municipal energy managers meaning that 12 municipalities have formally adopted and started the implementation of EMS and EMIS.</p>					
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			<p>2) Data entry into EMIS has just started in some 40 municipalities some of which still don't have energy managers and data entry is facilitated by UNDP.</p> <p>3) Elaboration of mandatory annual energy report (for baseline year 2016) and energy efficiency programmes and plans is in progress in a number of municipalities.</p> <p>4) Will be possible upon completion of item 3)</p>					
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<b>Outcome 3:</b> At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying,	Number of successfully completed demonstration project and volume of investment leveraged by the project	0	1. The main focus of the Project is on the implementation of the Public Call which is foreseen under this		At least 10 demonstration projects completed with at least one year verifiable monitoring data on the saved energy and GHG emissions reduced.	Ministry of Mining and Energy announced the Public Call for financing energy efficiency projects in municipalities. As many as 35 municipalities		Provided in chapter 4.4.
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prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.		0	output. In October 2016 the Ministry of Mining and Energy announced the Public Call for financing energy efficiency projects in municipalities. The Call was opened until November 24th 2016. As many as 35 municipalities responded to the call, out of which 17 were fully eligible and accepted for evaluation. Evaluation commission comprised several members including representative s of the		At least USD 15 million leveraged for new EE investments facilitated by the project.	responded to the call, out of which 17 were fully eligible and accepted for evaluation.  The 13 municipalities have been selected.  7 municipalities completed projects.		
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			Ministry of Mining and Energy and UNDP, chaired by the State Secretary, which worked with technical support of an expert provided by UNDP, evaluated the submitted project proposals according to set criteria, the most important one of which was the reduction of CO2 emissions upon completion of the project. The following 13 municipalities have been selected:					
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			<p>Žagubica, Raška, Knjaževac, Lapovo, Šabac, Medveđa, Ljubovija, Lučani, Pećinci, Svilajnac, Žabari, Kruševac, and Velika Plana. On 20 April 2017, Aleksandar Antić, Minister of Mining and Energy signed contracts with selected municipalities. The total funds appropriated for funding the energy efficiency projects under the Public Call include grant totaling 0.5 mil USD, provided</p>					
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			by the UNDP and funds from the Budget Fund for Energy Efficiency in the public sector totaling 25.000.000 mil USD. The maximum amount to be disbursed per project shall be up to 22% (including VAT) of the total project cost, or maximum up to RSD 2,500,000 from the Budget of the Republic of Serbia and up to 50% of the project net cost (VAT exempt), or up to USD 50,000 from the					
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			UNDP. The remainder of min 55% per project (including VAT) will be provided by municipalities. UNDP has contracted technical assistance to the Ministry in terms of reviewing of technical documents and public procurement documents prepared by each municipality. Public procurement process is about to start in selected municipalities. 2. Implementation of new EE					
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			investments (municipal energy efficiency projects) facilitated by the Project and financed from other funds is well on track. The following projects have been contracted: 1. 11 projects totaling 1.1 mil USD and financed by Energy Efficiency Budgetary Fund of the Republic of Serbia for the year 2016. 2. 5 projects totaling 1.1 mil USD and financed by KfW MEGLIP credit line					
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			3. 7 projects totaling 3.8 mil USD and financed by KfW credit line for rehabilitation of schools.					
<b>Outcome 4:</b> Municipal Energy-Efficiency Charter signed by over 80% of all	Number of municipalities signing the Energy Efficiency Charter	0	104 (62%) out of 169 municipalities have signed the Energy Charter		At least 80% of all Serbian municipalities have signed the Energy Charter with a stated intention to adopt the EMIS.	109 (65%) out of 169 municipalities have signed the Energy Charter		Provided in chapter 4.4.

municipalities in Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.	Number of trained energy managers	0	<p>1. 85 trainees for energy management in municipalities have been trained, 63 trainees have passed the exam. 53 trainees have got the en. manager license. So far 12 municipalities have appointed en. managers.</p> <p>2. 35 trainees for energy managers in buildings have been trained. 21 have passed the exam. 7 trainees have got the en.</p>		Training of at least 100 municipal energy managers.	101 people have been trained for energy management in municipalities and 51 for energy management in buildings		
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			manager license.					
	Number of professional/vocational schools having adopted curricula with greater emphasis on state of the art energy efficient technologies and approaches.	No curricula with adequate emphasis on EE	Activities under this indicator are planned for 2018		The curricula of all professional and vocational schools dealing with energy efficiency related professional disciplines (electricians, plumbers, construction workers etc.) and located in the municipalities that have adopted EMIS have been strengthened with state of the art energy efficient technologies and approaches.			

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#### 4.4.1 Progress towards Outcomes Analysis

Assessment of project results have been conducted against key performance indicators in the GEF Climate Change Mitigation (CCM) Tracking Tool, see Table 5. Overall, the project has already achieved its key indicators in relation to number of participating municipalities and trained people. With regard to energy savings, GHG emission reduction, and co-financing, the project is on-track to achieve targets by the end-of-the-project.

**Table 5 Progress against key indicators in the CCM Mitigation Tracking Tool**

Indicator	End-of-Project Target	Status at mid-term
Tonnes of incremental CO2 equivalent avoided as a direct result of project activities	150 ktons of CO2eq calculated over the default lifetime of 15 years of the investments or other EE measures implemented.	6.65 ktons of CO2eq per year of the investments or other EE measures implemented.
Incremental energy savings as a direct result of project activities	Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.	Energy savings of 47.88 TJ per year from the investments and other measures facilitated by the project.
Amount of investment in energy-efficiency in public buildings and services in the municipal sector directly facilitated by the project	15 mln US\$ co-financing by the end of the project.	6.0 mln USD co-financing.
Number of new development partnerships with funding for improved energy efficiency (IRRF Indicator 1.5.1.A)	30 new partnerships (i.e. 30 municipalities have formally adopted and started the implementation of EMS and EMIS).	31 municipalities have formally adopted and started the implementation of EMS and EMIS – signed MoU with UNDP.
Number of people benefitting from improved public services	1000 persons benefitting from improved public services.	2000

The achievement of Project goals, objectives and outcomes has been defined by the end-of-project targets in Revised Project Results Framework from the Inception report. Progress towards meeting these targets is discussed in the following text.

##### **Project objectives:**

Promote greater investment in energy-efficiency in public buildings and services in the municipal sector in Republic of Serbia. The end-of-project targets are:

- Direct GHG emission reduction of 150 ktons of CO<sub>2</sub>eq calculated over the default lifetime of 15 years of the investments or other EE measures implemented
- Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.
- Amount of investment in energy-efficiency in public buildings and services in the municipal sector directly facilitated by the project: 15 mln US\$ by the end of the project



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### **Progress**

The results achieved so far are as follows

- 6.65 ktons of CO<sub>2</sub>eq annually
- 47.88 TJ annually
- 6.0 mil US\$

### **Comments**

Project is on track to achieve end-of-the-project targets.

### **Outcome 1:**

An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.

### **Target**

Formal adoption of at least 5 new/updated Government regulations, rulebooks and/or municipal ordinances directly supported by the project to enable effective implementation of municipal energy management and energy management information systems

### **Progress**

Three members of UNDP Project team and two technical experts engaged by the Project in their capacity as experts have been officially appointed as members of 18 working groups established by the competent ministry (Ministry of Mining and Energy) for the preparation of different pieces of legislation related to energy efficiency and energy management.

So far 1 Government decree, 15 rulebooks and 3 decisions of the Ministry have been adopted.

### **Comments**

Project has already achieved end-of-the-project targets related to the outcome 1.

**Output 1.1:** Review of the remaining legal and regulatory barriers to effectively promote energy efficiency in Serbian municipalities addressing areas such as minimum energy performance standards, tariff setting for public utility services, laws and regulations guiding public procurement, allocation of eventual financial savings from EE measures implemented in public entities etc.

### **Progress**

The review has been performed in 2016. Priorities have been set and plan has been adopted by the Ministry of Mining and Energy.

**Output 1.2:** By building on the conclusions of output 1.1, draft recommendations for the required legal and regulatory changes to better promote energy efficiency in Serbian municipalities.

### **Progress**

Three members of UNDP Project team participate in the working groups established by the MEM) for the preparation of related legal changes for promotion of energy efficiency and energy management in municipalities.

**Output 1.3:** An updated assessment of the level of enforcement of the adopted laws and regulations, identified barriers and recommendations to remove those barriers

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### **Progress**

The assessment is performed regularly by MEM on an annual basis within scope of reporting to Energy Community Secretariat.

**Output 1.4** Developing and facilitating the adoption of voluntary norms and minimum energy performance and environment standards for public administration and services with links to “green public procurement”, “green office” and “smart city” initiatives exceeding the minimum legal and regulatory requirements.

### **Progress**

Members of UNDP Project team have been appointed as a member of the Commission A301 of the Institute for Standardization of Republic of Serbia. The Commission is tasked for adoption of ISO and CEN standards related to energy management (ISO 50001, etc.). Implementation of these standards in various organizations, including municipalities, is voluntary unless specified other by the law.

### **Outcome 2:**

Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at the municipal level

### **Targets**

The central EE support unit either within the Ministry responsible for energy or as an independent entity established, adequately staffed and capacitated and with adequate financial allocations by the Government budget to continue its operation also after the end of the project.

At least 30 municipalities have formally adopted and started the implementation of EMS and EMIS with:

- 1) appointed energy managers and EE support units established;
- 2) EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors;
- 3) completed EE strategies and action plans with concrete time-bound EE targets; and
- 4) monthly/annual energy monitoring reports published using data from EMIS

### **Progress**

The Central EE support unit (so. called Energy Efficiency Unit) is established and operational within MEM. The EE Unit employs 5 people and for temporary staff. Financing of the Unit is provided through the relevant budget line of the Ministry.

In addition, the special Project Implementation Group comprising 8 people was formed in 2016 to support the implementation of UNDP/GEF Project.

31 municipalities have formally adopted and started the implementation of EMS and EMIS by signing MoU with UNDP. Other 14 municipalities have formally adopted and started the implementation of EMS and EMIS by their own capacity.

26 managers have been appointed as licensed municipal energy managers.

Data entry into EMIS has started in some 45 municipalities. EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors in 16 municipalities.

Elaboration of mandatory annual energy report (for baseline year 2016) and energy efficiency programmes and plans is in progress in a number of municipalities.

### **Comments**

The Project is making good progress in meeting its targets under the outcome 2. However, key concern with the outcome 2 is related to future activities which should be focused on sustainability and continuation of EMS and EMIS operations after the project completion. Furthermore, the Project has

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to focus on transition from energy consumption data collection to actual implementation of energy management and to provide support to municipal energy managers.

The sustainability concern is also related to functioning of EE support unit which is now staffed by people with temporary contracts. It is also critical that the MEM takes over ownership of EMIS software, which should be installed on Government servers as soon as possible.

**Output 2.1:** Central Energy Management Support Unit (+ a hotline, as applicable) established within the Ministry of Mining and Energy and its capacity and competence built.

**Progress**

Central Energy Management Support Unit and energy management help desk established and operational.

**Comments**

As said above, it is important that adequate provisions are made in order to secure sustainability of the central support unit, which includes provisions for owning and hosting EMIS software.

**Output 2.2** A municipal EE/EMS website hosted by MoME or another entity such as SCTM with compiled, consolidated and regularly updated information, experiences, available training materials and lessons learnt from implementing municipal EMS and EMIS both in Republic of Serbia and abroad.

**Progress**

EMS website has been hosted by the Chamber of Commerce and Industry of Serbia <http://ems-undp.rs/en-us>

SCTM has been regularly engaged in project activities related to information dissemination and awareness raising.

**Comments**

As a preparation for exit strategy, the Project should make arrangements for permanent hosting of the website, at some of the partner institutions.

**Output 2.3:** Upgraded EMIS software to include also public utility services (street lighting, district heating, sanitary water supply and public transport) in addition to public buildings and to facilitate interchange of data with other databases.

**Progress**

The new module of EMIS aimed at street lighting was developed and now is in trial phase. Extensive work related to automatic data transfer from energy suppliers to EMIS is in course.

**Comments**

It is important that all software upgrades are well documented and supported with prepared users' guidelines.

**Output 2.4** Awareness raising, public outreach and direct consultations with municipal decision makers to present EMS and EMIS and their benefits to municipalities + awareness raising of the general public on EE by building on the existing materials and co-operation with other ongoing EE related initiatives in Republic of Serbia.

**Progress**

Energy management and EMIS have been frequently presented on various occasions (workshops, trainings, national and regional TVs, meetings, international events, etc.)

**Comments**

Project was doing an extensive work on general information dissemination, communication and public awareness. In the upcoming period, the project has to focus on direct communication to Mayors in order to increase their understanding of importance of EMS practice, and of the work energy managers are doing. The Project also needs to provide direct support to energy managers strengthen their role in municipalities management structure, to safeguard the progress made, and to secure continuation of EMS and EMIS practices.

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**Output 2.5** Concluded co-operation agreements with at least 30 municipalities to adopt EMS and EMIS and to establish municipal energy management offices/ support units.

**Progress**

UNDP has signed an MoU with 29 municipalities and 2 cities (Pancevo and Kragujevac) to introduce the Energy Management System and the use of locally available biomass for energy generation. Implementation of the tasks envisaged by the MoU is in progress.

**Comments**

The Project has to aim at supporting municipalities at making changes in municipalities' organigrams and staff jobs description, so that a position of dedicated energy managers is firmly integrated into the municipalities' management structure.

**Output 2.6:** EMS and EMIS formally taken into use with appointed energy managers and energy management offices / support units established in at least 30 municipalities, followed up by related on-the-job training and capacity building.

**Progress**

26 managers have been appointed as licensed municipal energy managers. Data entry into EMIS has started in some 45 municipalities.

Elaboration of mandatory annual energy report (for baseline year 2016) and energy efficiency programmes and plans is in progress in 45 of municipalities

**Comments**

The key challenge for the Project that lies ahead is to make energy managers aware that data entry is only the first step at introducing energy management in municipality, and then to make them able to move from energy consumption data entry towards implementing energy management practice.

**Output 2.7** In co-operation with the SCTM, establish a network of energy managers, together with the organisation of related joint training and networking events

**Progress**

The Project has good cooperation with SCTM. A number of events have been organized jointly so far.

**Comments**

However, the Project must move towards formalizing arrangements with SCTM and defining the role of SCTM in supporting energy managers after the Project's completion.

**Output 2.8** Completion and filling of the EMIS database with the agreed data from all the co-operating municipalities, including installation of new meters and conducting energy audits, when necessary.

**Progress**

Some 5900 buildings, some 2250 PL transformer units and some 98000 energy invoices have been entered into EMIS. On-line metering system connected to EMIS along with public presentation of measured values has been installed in three large buildings.

**Comments**

The project should prepare technical guidelines for installation of energy meters at a time of doing energy audits and implementing retrofit measures, which would be connected to EMIS and used for monitoring and verifying energy savings.

**Output 2.9** Analysis of the data obtained and defining the indicators and benchmark values to be included into EMIS, on the basis of which the municipalities can assess their energy performance

**Progress**

Excessive water and energy consumption have been identified in number of buildings and corrective actions taken.

**Comments**

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As commented earlier, the key challenge for the Project would be to support energy managers in moving from energy data entry towards actually implementing energy management practices.

**Output 2.10** Completed municipal EE strategies and action plans published by at least 30 municipalities with clearly defined EE targets

**Progress**

Energy efficiency action plan has been developed in two cities: Pancevo and Kragujevac.

**Comments**

Pancevo and Kragujevac are apparently the most advanced municipalities in the group that the Project is working with. To help other municipalities achieving faster progress, it would be useful to organize number of workshops in Pancevo and Kragujevac, and present their results, practices and approaches to other mayors and energy managers. These events should be co-organized with MEM and SCTM for the sake of continuity and sustainability.

**Output 2.11** Completed and implemented public visibility plan and actions to present the EE strategies and action plans and the results achieved to the general public

**Progress**

To be implemented over the coming period.

**Output 2.12** Monthly/annual energy monitoring reports published by at least 30 municipalities

**Progress**

To be implemented over the coming period.

**Outcome 3:**

At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.

**Target**

At least 10 demonstration projects completed with at least one-year verifiable monitoring data on the saved energy and GHG emissions reduced.

At least USD 15 million leveraged for new EE investments facilitated by the project.

**Progress**

13 demonstration projects have been selected and 7 are already completed. The Project is on the track to achieve co-financing target by the end-of-the project.

**Comments**

The Project should focus on ‘one-year verifiable monitoring data’ collection and analysis. Adequate methodology has to be proposed and documented. It could be either calculation based, or based on installation of dedicated meters which should be connected to EMIS

**Output 3.1:** At least 10 demonstration projects from different municipalities, selected based on a public call for proposals.

**Progress**

In October 2016 the Ministry of Mining and Energy announced the Public Call for financing energy efficiency projects in municipalities. The Call was opened until November 24th 2016. As many as 35 municipalities responded to the call, out of which 17 were fully eligible and accepted for evaluation. Evaluation commission comprised several members including representatives of the Ministry of Mining and Energy and UNDP, chaired by the State Secretary, which worked with technical support of an expert provided by UNDP, evaluated the submitted project proposals according to set criteria, the most important one of which was the reduction of CO2 emissions upon completion of the project.

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The following 13 municipalities have been selected: Žagubica, Raška, Knjaževac, Lapovo, Šabac, Medveđa, Ljubovija, Lučani, Pećinci, Svilajnac, Žabari, Kruševac, and Velika Plana. On 20th April 2017, Aleksandar Antić, Minister of Mining and Energy signed contracts with selected municipalities. 7 municipalities (Žagubica, Raška, Knjaževac, Lapovo, Svilajnac, Žabari and Velika Plana) have completed their projects.

#### **Comments**

The Project has followed the due process in selecting demonstration projects.

**Output 3.2:** Technical assistance for completing the design, financial structuring and implementation of the demonstration projects

#### **Progress**

Technical assistance has been provided both in course of project evaluation, as well as in course of project implementation.

**Output 3.3:** Documenting and publishing of the demonstration project results and lessons learnt, including their monitored and verified energy savings and GHG emission reduction impact

#### **Progress**

The technical work is ongoing. For communication and dissemination purposes, a film crew has been engaged to film and document implementation of the selected projects.

#### **Comments**

**As commented earlier**, the Project should focus on 'one-year verifiable monitoring data' collection and analysis. Adequate methodology has to be proposed and documented. It could be either calculation based, or based on installation of dedicated meters which should be connected to EMIS

**Output 3.4:** Supporting the cost-benefit analysis, preparation of initial investment proposals and structuring financing for EE and RE projects in other municipalities

#### **Progress**

This work is ongoing

#### **Comments**

As a part of preparation of new investment proposal, monitoring and verification solution has to be an integral part of a project, and provisions for specific metering arrangements have to be included into the overall investment costs.

#### **Outcome 4:**

Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.

#### **Target**

Training of at least 100 municipal energy managers.

The curricula of all professional and vocational schools dealing with energy efficiency related professional disciplines (electricians, plumbers, construction workers etc.) and located in the municipalities that have adopted EMIS have been strengthened with state of the art energy efficient technologies and approaches.

#### **Progress**

109 (65%) out of 169 municipalities have signed the Energy Charter.

101 trainees for energy management in municipalities have been trained, 99 trainees have passed the exam. 66 trainees have got the energy manager license.

51 trainees for energy management in buildings have been trained, 44 trainees have passed the exam. 37 trainees have got the energy manager license.

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340 EMIS end-users have been trained to enter data into EMIS

**Output 4.1:** By building on results, experiences and lessons learnt from introducing EMIS in the first 30 municipalities in Republic of Serbia as well as in other countries, preparing and delivering a “road show” for presenting to and expanding the adoption of EMS and EMIS at a coherent, high quality level also in other Serbian municipalities

**Progress**

Work to be done in the next period.

**Comments**

As a part of formalization of relationships with SCTM, the Project should reach an agreement with SCTM to include information sessions on EMS and EMIS in regular SCTM events. Towards the end of the project life time, a Conference of Mayors of Serbia could be organized to promote results and set the stage for scaling up and roll out the EMS and EMIS practices.

**Output 4.2:** Municipal Energy Efficiency Charter developed and signed by at least 80% of all Serbian municipalities by building on the Croatian model

**Progress**

109 (65%) out of 169 municipalities have signed the Energy Charter

**Comments**

The end-of-project target will be achieved within the remaining project life time.

**Output 4.3:** Updated curricula with related training materials on the state of the art EE technologies and approaches developed for at least 3 different professional fields (electricians, plumbers, construction workers) and taken into use in at least 10 different professional/ vocational schools

**Comments**

Updating curricula of schools is highly structured and time-consuming process which may happen only with Ministry of Education strong involvement. It is therefore unrealistic to expect that the Project may be able to achieve this target by the end of the project life time.

It is therefore proposed to modify this particular activity, which still should be focused on capacity buildings, but instead of the vocational school, the target could be to develop a course for installer and maintenance staff related to EE and RES measures. The partner for that could be the Centre for Training of Energy Managers at the Faculty of Mechanical Engineering, which was originally supported by JICA. Maybe JICA could be interested of extending its support for setting up training program for EE and RES professionals.

The legal background for that kind of capacity building is provide by the EU directive on Energy Performance of Buildings, which is already transposed into the Serbian Law.

**Output 4.4** Regularly updated web-based energy managers’ “handbook” providing guidance on implementing EMS and EMIS typical no or low-cost EE improvements of public buildings and services, project financing, design and implementation of public awareness raising campaigns, green public procurement and criteria for assessing the quality of the services received, such as energy audits.

**Progress**

The work is progressing in line with overall workplan.

**Output 4.5** Public outreach campaigns, events and facilities (such as EE info offices and stands), including possibilities for the potential clients (including both private and public sector) and suppliers of EE equipment and services to meet.

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### **Progress**

As described in the Communication section of the report, Energy management and EMIS have been frequently presented on various occasions (workshops, trainings, national and regional TVs, meetings, international events, etc.).

Setting up EE info offices and stands across Serbia, requires resources beyond the means of the project.

### **Comments**

The Project could advise municipalities that as a part of their EE action plan, they should plan local promotion and awareness campaigns aiming at providing citizens with information on how they could use energy more efficiently at their homes. The municipalities may decide to set up their own EE info centre.

The project should invite providers of EE and RES equipment and services to the events that Project is organizing.

On the other hand, the Project may arrange with SCTM and Chamber of Commerce that an info session of EMS and EMIS is included in events organized by these partner institutions.

## **4.5. Project Implementation and Adaptive Management**

### **4.5.1 Implementation arrangements**

The implementation approach uses the National Implementation Modality (NIM) modality. This was realised in a competent manner, with the appointment of staff to create a Project Management Unit (PMU) that was independent of but answerable to the client (MoME) and both supported and overseen by the GEF implementing agency (UNDP Serbia). Letter of Agreement was signed between UNDP and the Ministry of Mining and Energy.

Project Board held the first meeting on 18<sup>th</sup> April 2016 and have regular semi-annual meetings which are minuted. So far 4 meetings were held.

The support of UNDP, as the Implementing Agency through its Country Office, has been sustained and effective throughout current project implementation, undoubtedly contributing significantly to the achievements. Its support has been particularly beneficial on a number of occasions, including the Inception phase and regular meetings with the Project Manager to formally review project achievements and project implementation strategy.

### **4.5.2 Co-ordination**

The Project coordinates closely its activities with MoME and SCTM. It has also regular communication with other donors, embassies and IFIs, such as JICA, Swiss development agency, KFW and GIZ.

The outputs of the project are encompassing the rehabilitated public buildings in the 4 municipalities (Kruševac, Paraćin, Užice and Vrbas), in terms of EE, municipality experts trained and operational and maintenance practices improved and elaborated. the Swiss State Secretariat for Economic Affairs (SECO), Department for Economic Cooperation and Development Infrastructure Financing approved the project "Municipal Energy Efficiency and Management" aimed at four municipalities in Serbia. The overall objective of the project is to support the municipal energy management and the EE of public buildings in the 4 selected municipalities. The project also includes energy retrofitting of a number of public buildings. UNDP and SECO agreed to cooperate in order to avoid overlapping and exploit synergies of both projects. SECO Project will use EMIS as a main tool for energy management and investment appraisal. The cooperation will be formalised through the MoU between the parties.



In May 2017 the Project and the Embassy of the Slovak Republic in Serbia and the Slovakian Innovation and Energy Agency organized a study tour to Slovakia on the topic of financing energy efficiency projects. The aim of the visit was to familiarize the experts from the institutions of the Republic of Serbia with Slovak experience in relation to the work of the national fund for energy rehabilitation of buildings and the use of EU structural funds for financing energy efficiency and the use of renewable energy sources. On that occasion experts from Serbia visited the Slovakian Innovation and Energy Agency, Ministry of Economy of the Slovak Republic, the line ministry for energy, the office of the State Housing Fund Development, and the Building Testing and Research Institute.

In November 2016 the UNDP Project signed and MoU with the GIZ Project “Energy Efficiency in Public Buildings”. The two parties have agreed to harmonize and coordinate relevant activities taking into consideration that it is necessary to have technical preparation of a large number of projects, which implies the existence of a developed system for data collection on public buildings and energy consumption in them, for the achievement of this objective. Both sides expect to maximize the synergy of the two projects through effective coordination, information exchange and coordination of their activities.

The UNDP Project is an extension and continuation of the activities within the JICA Project „Introducing energy management systems in consumption sectors (industry and commercial services)“. The project started in 2009 and was finalised in 2017. The Project partner was the Ministry of Mining and Energy, and the technical consultant is the Japanese company TEPCO (Tokyo Electric Power Company). In cooperation with experts from Japan, the Project has developed the legal and institutional framework for the implementation of the energy management system in Serbia modelled after the Japanese framework. JICA also financed the procurement of devices and measuring technology for a specialized laboratory intended to be used for training of energy managers. This laboratory is operating within the Faculty of Mechanical Engineering (FME) as this institution has been authorized by the Ministry of Mining and Energy, in line with the law and bylaws relevant to this field, to deliver practical training for energy managers and energy advisors. The training of energy managers in which UNDP Project actively participates is now taking place at the FME.

#### 4.5.3 Adaptive Management

An International consultant has been engaged to advise on adaptive management process and the Project team have developed good working relationships with the consultant.

The work plan for the next period should reflect the updated project implementation strategy that is going to be prepared by the project team following accepted/approved MTR recommendations.

#### 4.6. Finance and Co-Finance

For the activities that have been funded by the Project to date, the financial management of Project funds has been satisfactory. Moreover, the Project has appropriate financial controls, which include regular reporting. Project expenditures to date by components are shown on Table 6.

The targeted co-financing amount should be related to implementation of energy efficiency retrofit projects in public buildings. The Project intends to achieve targeted amount of co-financing by linking its activities with these of KfW, Council of Europe Development Bank (CEB), Energy Efficiency fund of Republic of Serbia, JICA, and Swiss Development Agency.

**Table 6: Project Budget and Expenditures (in USD)**

Outcomes	2015	2016	2017	Total disbursed	Total planned for the projects	Total remaining
Outcome 1	0	2,210	29,539	31,749	150,000	118,251
Outcome 2	8,535	121,095	238,531	368,161	1,110,000	741,839

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Outcome 3	0	21,333	329,186	350,519	675,000	324,481
Outcome 4	0	13,136	33,649	46,786	275,500	228,714
Outcome 5 M&E	0	363	344	707	80,000	79,293
Outcome 6 Project Management	0	53,766	42,280	96,046	209,500	113,454
Annual planned disbursement	10,000	333,955	658,100	1,002,055	2,500,000	1,497,945
% expended of planned disbursement	85.35%	63.45%	102.34%	89.21%	100.00%	59.91%

**Table 7: Details of Project Co-Financing**

Sources & type of co-financing	Name of co-financer	Amount confirmed at CEO Endorsement	Actual amount Contributed at stage of Mid-term Review (April 1st 2018)	Actual % of expected amount
		USD	USD	
CASH				
IA	UNDP	200,000	92,000	46%
OTHERS	Government of Serbia Municipalities JICA KfW	17,200,000	7,327,000	42.6%
IN- KIND				
IA	UNDP	300,000	190,000	63.3%
GOVERNMENT	Government of Serbia	1,500,000	1,020,00	68.0%
OTHERS	Standing Conference of Towns and Municipalities	400,000	270.000	67.5%
	<b>TOTAL</b>			
Additional co-financing leveraged				
IN- KIND				
OTHERS	Chamber of Commerce and Industry	200,000	110,000	55%

#### 4.7. Project-Level Monitoring and Evaluation Systems

The elements of the project level monitoring and evaluation system have been defined in the project design as follows:

- Project Inception Workshop: to assist all partners to fully understand and take ownership of the project, and agree on possible revisions of the indicators, targets and their means of verification, while rechecking assumptions and risks.
- Quarterly monitoring of project progress (UNDP Enhanced Results Based Management Platform), update of risk logs in ATLAS from which Project Progress Reports can be generated.
- Annual Project Review / Project Implementation Report (APR/PIR) to monitor progress made since project start and in particular for the previous reporting period (1 July to 30 June).
- Periodic Monitoring site visits.
- Mid-Term Review and Final Terminal Evaluation in accordance with UNDP and GEF requirements.

In order to standardize project monitoring practices and align its work with revised UNDP Monitoring Policy and Procedures (Ref. Launch of the Programme and Project Management Reforms, 8 March 2016), UNDP CO Serbia

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has developed Standard Operating Procedures for project cycle management including general M&E framework ensure quality of project implementation in accordance with corporate requirements. The SoP became effective as of 21 November 2016.

The Project has harmonised the UNDP general M&E framework with GEF Project Results Framework.

The Project's should intensify M&E activities not only related to monitoring and verifying energy savings at demonstration projects which were awarded grants, but also for keeping an eye on progress with implementation of energy management practices by municipalities.

It should be coordinated with budget control so that budget over- or under- utilization is promptly detected and addressed.

#### **4.7.1 Stakeholder Engagement**

The project has successfully engaged large number of stakeholders as follows:

- 1 The Ministry of Mining and Energy
- 2 Local self-governments
- 3 The Institute for Standardization of Serbia (ISS)
- 4 Serbian Chamber of Commerce and Industry (CCIS)
- 5 Standing Conference of Towns and Municipalities (SCTM)

The Chamber of Commerce and Industry of Serbia in letter to Project Board expressed the interest to become a project partner and to provide additional in-kind co-financing (200,000 USD) Project Board approved the new project partner in April 2016.

The Project has made an excellent job in developing partnerships with direct and indirect stakeholders, which is increasing impacts and visibility of projects interventions.

#### **4.7.2. Reporting and communication**

Progress reporting and internal communication have been undertaken through quarterly and annual reporting to UNDP CO and MoME. Annual Work Plans (AWPs) were prepared by the Project team, with inputs from UNDP CO, and submitted to the Project Board for formal approval. Meetings of the Project Board were usually twice a year (the first PB meeting was held 18<sup>th</sup> April 2016 followed by others on 21st December 2016, 29<sup>th</sup> June 2017 and 8<sup>th</sup> November 2017).

UNDP CO generated its own quarterly financial reports from Atlas. These expenditure records, together with Atlas disbursement records of direct payments, served as a basis for monitoring expenditure and revisions to the budget. The latter took place annually, based on progress in disbursing funds and changes in the operational work plan, and also on an *ad hoc* basis depending upon the rate of delivery. UNDP CO has also required quarterly delivery projections, along with work plans (derived from the AWPs) and procurement tables, all of which have served as an additional reporting tool, especially to quantify Project progress.

Two Project Implementation Reports (PIRs), covering the period July to June, have been prepared and submitted by the Project team to the UNDP CO, UNDP Regional Coordination Unit in Istanbul, and UNDP HQ for review and official comments, prior to final submission to GEF. Annual Project Reports (APRs), covering calendar years (January - December), were also prepared as part of the AWP monitoring protocol in accordance with UNDP's regulations.

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## Communication

From the late 2015 to April 2018, many communication activities were conducted such as:

1. Communication activities related to Public Call with MoME and self-government units regarding grant funds:

<http://www.rts.rs/page/stories/ci/story/5/ekonomija/2281317/kako-opstine-stede-energiju.html>

<http://www.palo.rs/privreda-energija/kako-opstine-stede-energiju/1708326/>

<https://www.energetskiportal.rs/prvi-put-izdvojena-sredstva-za-energetsku-efikasnost-i-obnovljive-izvore-energije/>

- a. Four public presentations of Public Call were performed through Serbia in the cities of Cacak, Novi Sad, Nis and Belgrade. All presentations were covered by local electronic media. The Project Manager gave a number of statements for local TV and radio stations, some of which are available on the internet:

<https://www.youtube.com/watch?v=FK7ngc8jSOM>

<https://www.youtube.com/watch?v=uSPJZkZ1tjQ>

<https://www.youtube.com/watch?v=CDyTwEFmsF0>

<http://www.ems-undp.rs/sr-Latn-RS/Blog/Post?id=31>

<http://www.mre.gov.rs/javni-pozivi.php>

<http://www.blic.rs/vesti/ekonomija/konkurs-za-dodelu-bespovratnih-sredstava-za-unapredenje-energetske-efikasnosti/yjfcsh>

[http://www.rasrem.rs/?page\\_id=21](http://www.rasrem.rs/?page_id=21)

<http://www.tanjug.rs/full-view.aspx?izb=278939>

<http://www.ekonomski.net/bespovratna-sredstva-za-projekte-efikasnog-koriscenja-energije>

<http://www.naslovi.net/2016-10-24/ekapija/raspisan-poziv-za-dodelu-bespovratnih-sredstava-u-oblasti-efikasnog-koriscenja-energije/19132235>

<http://www.ekapija.com/website/sr/page/1579180>

<http://balkangreenenergynews.com/rs/ministarstvo-energetike-gef-finansiraju-projekte-energetske-efikasnosti/>

<http://www.ekolist.org/vesti%20-%20raspisan%20poziv%20za%20dodelu%20bespovratnih%20sredstava%20u%20oblasti%20ef>

<ikasnog%20koriscenja%20energije.php>

- b. Ceremonial signing of contracts between the Ministry of Mining and Energy and local self-government units selected under the Public Call was broadcasted by a number of media:

<https://www.youtube.com/watch?v=7y4HNDLsvnA>

[http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/25/4FD6C2A5-2309-4094-A463-583CF24AB898&dst=24\\_04\\_2017\\_TV\\_Protokol\\_K\\_-1\\_Vesti\\_TV\\_Protokol\\_K\\_-1\\_19\\_00\\_00](http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/25/4FD6C2A5-2309-4094-A463-583CF24AB898&dst=24_04_2017_TV_Protokol_K_-1_Vesti_TV_Protokol_K_-1_19_00_00)

[http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/20/41B11DDB-E83E-4BEC-BBBA-3F2ADBFA6C59&dst=20\\_04\\_2017\\_Happy\\_Telemaster\\_1830\\_18\\_16\\_00](http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/20/41B11DDB-E83E-4BEC-BBBA-3F2ADBFA6C59&dst=20_04_2017_Happy_Telemaster_1830_18_16_00)

[http://streaming.ninamedia.rs/uploads/download.php?src=/2017/05/10/A5670B37-E270-4757-9C27-B97B40BA2D83&dst=21\\_04\\_2017\\_RTV\\_Jefimija\\_Krusevac\\_Vesti\\_RTV\\_Jefimija\\_Krusevac\\_21\\_55\\_00](http://streaming.ninamedia.rs/uploads/download.php?src=/2017/05/10/A5670B37-E270-4757-9C27-B97B40BA2D83&dst=21_04_2017_RTV_Jefimija_Krusevac_Vesti_RTV_Jefimija_Krusevac_21_55_00)

[http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/20/D99E1EBD-6F31-487A-A5C8-3DD4FC88A51E&dst=20\\_04\\_2017\\_TV\\_Studio\\_B\\_Vesti\\_u\\_7\\_19\\_24\\_00](http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/20/D99E1EBD-6F31-487A-A5C8-3DD4FC88A51E&dst=20_04_2017_TV_Studio_B_Vesti_u_7_19_24_00)

[http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/20/FF1C8298-1EAF-4710-B3FC-4B1546B826EC&dst=20\\_04\\_2017\\_Kopernikus\\_Srbija\\_On\\_Line\\_15\\_20\\_00](http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/20/FF1C8298-1EAF-4710-B3FC-4B1546B826EC&dst=20_04_2017_Kopernikus_Srbija_On_Line_15_20_00)

[http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/21/8CD1FE70-2618-40CE-9CEE-212034A6E36E&dst=21\\_04\\_2017\\_Kopernikus\\_Jutro\\_on\\_line\\_10\\_12\\_00](http://streaming.ninamedia.rs/uploads/download.php?src=/2017/04/21/8CD1FE70-2618-40CE-9CEE-212034A6E36E&dst=21_04_2017_Kopernikus_Jutro_on_line_10_12_00)

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<http://www.ekapija.com/website/sr/page/1735643/Dodeljeno-vi%C5%A1e-od-80-miliona-dinara-za-projekte-unapre%C4%91enja-energetske-efikasnosti-u-13-op%C5%A1tina-u-Srbiji>  
<http://www.poslovnijutro.com/details?id=98894>  
<http://studiob.rs/opstinama-vise-od-80-mln-dinara-za-energetsku-efikasnost/>  
<http://www.kamatica.com/vest/opstinama-vise-od-80-mln-rsd-za-energetsku-efikasnost/53079>  
<http://beta.rs/zeleni-srbija/zs-srbija/60738-lokalnim-vlastima-srbije-82-5-miliona-dinara-za-energetsku-efikasnost>  
<http://objektivno1.rs/vesti-obj1/12113/opstinama-vise-od-80-miliona-dinara-za-energetsku-efikasnost.html>  
<http://dnevnikjuga.rs/politika/item/5977-opstina-medvedja-unapredjuje-energetsku-efikasnost-uz-podrsku-undp-i-ministarstva-energetike>  
<http://www.poslovnijutro.com/details?id=98894>  
<http://www.ekapija.com/website/sr/page/1735643/Dodeljeno-vi%C5%A1e-od-80-miliona-dinara-za-projekte-unapre%C4%91enja-energetske-efikasnosti-u-13-op%C5%A1tina-u-Srbiji>  
<http://jugmedia.rs/milioni-za-sprovođenje-energetske-efikasnosti-u-medvedji/>  
<https://rtvbor.rs/vesti/5492-sanacija-tehni%C4%8Dke-%C5%A1kole-i-rekonstrukcija-kotlarnice>  
<https://www.youtube.com/watch?v=cMb4JIN3eS4>  
<http://www.kt.gov.rs/sr/news/arhiva-vesti/za-medvedju-i-jos-12-opstina-u-srbiji-ukupno-80-miliona-dinara-za-energetsku-efikasnost.html>  
<http://vesti.knjazevac.org.rs/vesti-iz-knjazevca/knjazevac-potpisan-ugovor-za-sufinansiranje-projekat-energetske-efikasnosti-foto/>  
<http://www.knjazevacke.rs/za-knjazevac-jos-12-opstina-u-srbiji-80-miliona-za-energetsku-efikasnost/>  
<http://balkangreenenergynews.com/rs/13-lokalnih-samouprava-u-srbiji-dobilo-grant-za-unarpedenje-energetske-efikasnosti/>  
<http://sremskevesti.rs/opstini-pecinci-dodeljeno-49-miliona-za-unapredjenje-energetske-efikasnosti/>  
<http://boom93.com/info/lokalne-vesti/38845/uskoro-pocetak-radova-na-energetskoj-sanaciji-tehnicke-skole.html>

c) The inception seminar titled “Establishment of the energy management system in units of local self-governments”, organized by the Ministry of Mining and Energy along with the UNDP was held in April 2016. National TV was present and video coverage and articles were produced:

<https://www.youtube.com/watch?v=QytpLgWoRjc>  
<http://www.rts.rs/page/stories/ci/story/5/ekonomija/2281317/kako-opstine-stede-energiju.html>  
<http://www.rts.rs/upload/storyBoxFileData/2016/04/13/7789621/Energetske%20obaveze%20130416.mp4>

2. Production of thirteen tutorials for EMIS end users. They can be found at:

<https://isem.undp.org.rs/video/>

- a) EMIS Introduction
- b) What is the purpose of EMIS
- c) Data entry
- d) Forming the building
- e) EMIS users and their hierarchy
- f) Energy costs centres
- g) Defining the building in EMIS
- h) Defining the principal building user and the user of the building
- i) Energy administration
- j) Supplier selection and invoice definition

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- k) Defining the building user
  - l) Forming the building
  - m) Forming the counter or meter and invoice entry
  - n) Forming system user at building level
3. Communication and information activities related to capacity building of Project partners
- a. The Project supported the Chamber of Commerce and Industry of Serbia (CCIS) in 2016 by financing the installation of a data metering system in the CCIS building.  
<https://www.youtube.com/watch?v=vlfFc740VKM>
  - b. MoU between UNDP and GIZ (German Agency for International Cooperation) was signed in December 2016 on cooperation in the field of energy efficiency. This cooperation shall in particular include, but shall not be limited to projects in the field of energy efficiency implemented by both sides in accordance with their programme objectives and in cooperation with the competent institutions of the Republic of Serbia, primarily with the Ministry of Mining and Energy.  
<http://www.ekapija.com/website/sr/page/1621380/Srbija-do-sada-u%C5%9C20%A1tedela-4-4-energije-UNDP-obezbedio-softver-za-merenje-potro%C5%A1nje-u-javnim-objektima>  
<http://www.krstarica.com/vesti/ekonomija/srbija-je-sada-ustedela-44-odsto-energije/>  
[http://www.b92.net/biz/vesti/srbija.php?yyyy=2016&mm=12&dd=13&nav\\_id=1209725](http://www.b92.net/biz/vesti/srbija.php?yyyy=2016&mm=12&dd=13&nav_id=1209725)  
<http://www.blic.rs/vesti/ekonomija/srbija-je-ustedela-44-odsto-energije/fmjr5k5>  
<http://scradar.com/ekonomija-vesti/srbija-je-ustedela-44-odsto-energije/>
  - c. In May 2017, a study visit to Slovakia was organised by the Project and the Slovak Embassy in Serbia for the representatives of relevant ministries, MoME, Ministry of Finance and Provincial Secretariat for Energy and Mineral Resources. The aim of the visit was to familiarize the experts from the institutions of the Republic of Serbia with Slovak experience in relation to the work of the national fund for energy rehabilitation of buildings and the use of EU structural funds for financing energy efficiency and the use of renewable energy sources.
4. Communication activities related to stakeholders and professional community:
- a. The NPD and the Project manager have presented the Project and its results in a number of conferences, both in Serbia and abroad.
  - b. Information centre for designated organisations of the energy management system from local self-government units, public services, state administration bodies, and institutions of autonomous province and industry which have recently started introducing energy management system (EMS), has been opened in the Ministry of Mining and Energy. The opening was supported by the Project.
  - c. The training for the first group of energy managers in units of local self-governments was initiated at the Faculty of Mechanical Engineering in Belgrade in the middle of June 2016. Project supported this training by financing elaboration of two textbooks for energy managers in municipalities and in buildings. Members of the UNDP Project team have actively participated in training courses in their capacity as lecturers for Energy Management Information System.  
<http://www.ems-undp.rs/en-US/Blog/Post?id=21>
5. Communication activities related to general public.
- a. The web site of the project has been operational since March 2015.

Leaflets about the Project were produced in Serbian and English.

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## 4.8. Sustainability

### 4.8.1 Exit strategy

The Project made a good start and has continued building up activities in scope and volume, achieving overall very good progress by the mid-term. Now, however, is the right time to start preparing an exit strategy focused on strengthening position of energy managers towards the end of the project and assuring continuation of activities at MoME and municipalities beyond the Project life-time.

The aim of the exit strategy is to make sure that energy management practices at municipalities will be firmly embedded into the daily operations, that municipal energy efficiency action plans are updated, EE projects implemented, energy savings verified and reported, and that EMIS is institutionalized into municipalities and at the central level, regularly used, maintained and upgraded.

The areas to address by the exit strategy are identified as follows:

- Handover of the EMIS software to the MoME
- Strengthening MoME capacity to handle EMIS and support energy managers
- Provisions for continuous operation of central EE support unit
- Strengthening the role of energy managers in municipal administration
- Supporting energy managers to progress from energy data collection to energy management
- Establishing a practice for energy savings monitoring, verification and reporting, including remote energy consumption data transfer/collection
- Institutionalizing EMIS at municipalities through arrangements with SCTM
- Capacity building and promotion activities

The key recommendations of the MTR will address the issues of sustainability and exit strategy.

The risk to the project sustainability in an absence of prepared and implemented exit strategy, is rated as medium to high.

### 4.8.2 Financial Risks to Sustainability

Financial risks to the Project sustainability are related to availability of funds in the Energy Efficiency Fund of Republic Serbia for financing implementation of EE projects. If municipalities would face the situation when there are no funds for implementing EE projects from their Action plans, they may lose interests and motivation to carry out EMS and EMIS activities.

The EE Fund at present operates as a budgetary fund with modest amount of money available on yearly basis. An effective solution would be to set up the EE Fund as an extra-budgetary facility, like in a number of other states in the EU. This would enable the Fund to operate on a programmatic basis and provide support for implementation of Municipal Energy Efficiency Action Plans on a multi-annual basis.

### 4.8.3 Socio-Economic Risks to Sustainability

The socio-economic risks to the Project sustainability are rated as low or none, because energy efficiency is not a controversial issue, it has clear social and economic benefits, and it improves comfort levels in public buildings such as school, hospitals, kindergartens, etc., therefore public perception is always positive. To further substantiate this claim with evidence, the project shall conduct rigorous monitoring of benefits of the supported EE projects, how many people were affected, and present the findings to wide range of stakeholders in the form of a case study presentation.



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#### 4.8.4 Institutional Framework and Governance Risks to Sustainability

Institutional risks to the Project sustainability are related to:

- i) MoME securing funds to support central EE unit;
- ii) MoME securing funds to support hosting and administration of EMIS;

The risk to project sustainability in a case the issues i) and ii) are not sorted out, is rated as high.

Therefore, the Project should support the MoME to the extent possible in addressing these issues in a timely manner.

#### 4.8.5 Environmental Risks to Sustainability

There should be no environmental risks to the Project sustainability since Project was designed to promote energy efficiency thus reducing GHG emissions, an objective consistent with the Government of Serbia (GoS)'s policy direction to consume resources in a sustainable manner.

#### 4.8.6 Gender issues

Serbia has low economic activity rates of women with only 38.1%<sup>4</sup> of the working age women being economically active which is 14.7 pp less than man. According to the official statistics, unemployment rate for women is at 31,2% (compared to 25,2% for men). Furthermore, 62 % of working age women do not participate in the labour force, which increases their economic dependency and diminishes their role in public life. Often, women bear the "double burden" of unpaid housework and caring for children and the elderly as well as paid work.

UNDP project contributed to women economic empowerment and gender equality in several ways. First, women are the largest category of users and occupants of public buildings and therefore have benefitted the most from the health and well-being improvements brought about by grants (Component 3) for the investment in EE infrastructure measures: out of the total of 2000 *direct beneficiaries*, 1,200 (60%) - women.

Further, under Component 4 through its extensive training and capacity building activities the project has built essential technical skills and knowledge among women buildings end-users (who formed the majority of the target audience), i.e. *an estimated 206 female end-users trained in EMIS data management (out of the total 340 people trained)*. According to interviews with selected female EMIS end-users in the course of project evaluation, such training and direct exposure to EMIS has been very beneficial and enhanced their professional competence, helped develop new technical skills and expanded knowledge to new domains, such as energy and environmental management. It also prompted some of the interviewees to put more emphasis on energy management in their daily household life and/or think of identifying new areas for improvement in the buildings under their direct responsibilities.

Finally, the project has significantly increased participation of women, energy sector professionals in technical training: *253 or 52% of all trainees were women*. This is an exceptional achievement, because the employment gap in industry in Serbia is particularly high: the sector employs almost three times more men than women<sup>5</sup>.

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<sup>4</sup> Women and men in the Republic of Serbia, Belgrade 2017

<sup>5</sup> Ibid.

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## 5 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

#### 5.1.1. Relevance of Project Strategy

The Project strategy correctly accounted for the wider context given by policy framework in Serbia on one end, and barriers for implementing the policies by MoME at municipalities, on the other end. The Strategy also recognized previous relevant activities in Serbia, such as JICA project, and in the region (such as UNDP project in Croatia). Based on that, an adequate mix of project interventions was designed. Because of the swift approval process of the full Project document, there was almost no need to adjusting the ProDoc during the inception phase.

Consequently, the Project team was able to progress quickly with the implementation activities.

#### 5.1.2. Extent of Attainment of Planned Project Outputs and Outcomes.

##### **Project objectives:**

Promote greater investment in energy-efficiency in public buildings and services in the municipal sector in Republic of Serbia. The end-of-project targets are:

- Direct GHG emission reduction of 150 ktons of CO<sub>2eq</sub> calculated over the default lifetime of 15 years of the investments or other EE measures implemented
- Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.
- Amount of investment in energy-efficiency in public buildings and services in the municipal sector directly facilitated by the project: 15 mln US\$ by the end of the project

##### **Progress**

The results achieved so far are as follows

- 6.65 ktons of CO<sub>2eq</sub> annually
- 47.88 TJ annually
- 6.0 mil US\$

**Rating: Satisfactory**

##### **Outcome 1:**

An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.

##### **Target**

Formal adoption of at least 5 new/updated Government regulations, rulebooks and/or municipal ordinances directly supported by the project to enable effective implementation of municipal energy management and energy management information systems

##### **Progress**

Three members of UNDP Project team and two technical experts engaged by the Project in their capacity as experts have been officially appointed as members of 18 working groups established by the MoME for the preparation of different pieces of legislation related to energy efficiency and energy management.

So far 1 Government decree, 15 rulebooks and 3 decisions of the Ministry have been adopted.

**Rating: Highly Satisfactory**

##### **Outcome 2:**

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Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at the municipal level

#### **Targets**

The central EE support unit either within the Ministry responsible for energy or as an independent entity established, adequately staffed and capacitated and with adequate financial allocations by the Government budget to continue its operation also after the end of the project.

At least 30 municipalities have formally adopted and started the implementation of EMS and EMIS with:

- 1) appointed energy managers and EE support units established;
- 2) EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors;
- 3) completed EE strategies and action plans with concrete time-bound EE targets; and
- 4) monthly/annual energy monitoring reports published using data from EMIS

#### **Progress**

The Central EE support unit (so. called Energy Efficiency Unit) is established and operational within MEM. The EE Unit employs 5 people and 4 temporary staff. Financing of the Unit is provided through the relevant budget line of the Ministry.

In addition, the special Project Implementation Group comprising 8 people was formed in 2016 to support the implementation of UNDP/GEF Project.

31 municipalities have formally adopted and started the implementation of EMS and EMIS by signing MoU with UNDP. Other 4 municipalities have formally adopted and started the implementation of EMS and EMIS by their own capacity.

26 managers have been appointed as licensed municipal energy managers.

Data entry into EMIS has started in some 45 municipalities. EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors in 16 municipalities.

Elaboration of mandatory annual energy report (for baseline year 2016) and energy efficiency programmes and plans is in progress in a number of municipalities.

**Rating: Highly Satisfactory**

#### **Outcome 3:**

At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.

#### **Target**

At least 10 demonstration projects completed with at least one-year verifiable monitoring data on the saved energy and GHG emissions reduced.

At least USD 15 million leveraged for new EE investments facilitated by the project.

#### **Progress**

13 demonstration projects have been selected and 7 are already completed. The Project is on the track to achieve co-financing target by the end-of-the project.

**Rating: Satisfactory**

#### **Outcome 4:**

Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.

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**Target**

Training of at least 100 municipal energy managers.

The curricula of all professional and vocational schools dealing with energy efficiency related professional disciplines (electricians, plumbers, construction workers etc.) and located in the municipalities that have adopted EMIS have been strengthened with state of the art energy efficient technologies and approaches.

**Progress**

109 (65%) out of 169 municipalities have signed the Energy Charter.

101 trainees for energy management in municipalities have been trained, 99 trainees have passed the exam. 66 trainees have got the energy manager license.

51 trainees for energy management in buildings have been trained, 44 trainees have passed the exam.

37 trainees have got the energy manager license.

340 EMIS end-users have been trained to enter data into EMIS

**Rating: Satisfactory**

### 5.1.3. Quality of Project Implementation and adaptive management

The Project had a quick start and has initiated number of activities in parallel. The project team was able to mobilize more than 30 municipalities for adoption of energy management practices, start large scale training program, establish Central EE support unit, select demonstration project for implementation under the grant scheme, and start data entry into the EMIS, all within a relatively short time frame. At the same time a number of end-of-project targets have been achieved already at the mid-term.

The key challenge for the Project team over the remaining project life time is to secure sustainability and continuity of all initiated actions and introduced practices.

**Rating: Highly Satisfactory**

### 5.1.4. Sustainability

There are three cornerstones for the sustainability of the Project:

- i) Continuing commitment of MoME to maintain the Central EE support unit and administer EMIS,
- ii) Continuing commitment of Municipalities to build-in energy management practices into their everyday operations, to progressively implement EE Action plans and report on the results,
- iii) Municipalities having access to financing for implementation of EE Action plans.

It is not a small task to address the sustainability issues, therefore number of recommendations are provided for the project team in that respect in the report.

**Rating: Likely**

**Table 8 MTR Ratings & Achievement Summary**

Measure	MTR Rating	Achievement Description
<b>Progress Towards Results</b>	Objective Achievement Rating: (rate 6 pt. scale)	<b>Satisfactory</b>
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	<b>Highly Satisfactory</b>

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	Outcome 2 Achievement Rating: (rate 6 pt. scale)	<b>Highly Satisfactory</b>
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	<b>Satisfactory</b>
	Outcome 4	<b>Satisfactory</b>
<b>Project Implementation &amp; Adaptive Management</b>	(rate 6 pt. scale)	<b>Highly Satisfactory</b>
<b>Sustainability</b>	(rate 4 pt. scale)	<b>likely</b>

## 5.2 Recommendations

The Project team has achieved very good results and progress towards meeting all the end-of-project targets. Managing project implementation was exemplary and in line with the Project strategy, hence there is not much to be recommended in that respect.

However, the key challenge at this stage for the Project team is assuring project sustainability by the project's completion time. Consequently, a number of recommendations are provided in that respect.

### **Recommendation 1: Transfer the ownership of EMIS to MoME**

After completion of the project all EMIS related administration, maintenance and support activities will need to be handled by MoME. Therefore, the sooner MoME starts preparing itself for that with the Project support - the better. The Project may prepare a 'Handover protocol' where the roles and responsibilities of both parties will be defined over a transitional period. The Handover protocol should also specify what kind of support (technical, financial, capacity strengthening, etc.) the Project will provide to MoME.

### **Recommendation 2: Determining the final status of Central EE support unit**

So far, the Unit is staffed by temporary staff. The Project should prepare a document on roles and responsibilities of Central EE support, unit inclusive of an organigram with necessary number of staff, their job description and required qualifications. It should be taken into account that number of EMIS users would increase for current 30-something municipalities towards 90 municipalities which are obliged by the Law to implement energy management practices. The biggest challenge would be limitation for new employment in government institutions.

### **Recommendation 3: Supporting transition from energy data entry to energy management**

Entering data on buildings and energy consumption into EMIS is the first step towards the introduction of energy management practice in municipalities. The second step is to start using this data to manage energy consumption on regular basis, and this is much harder. Not all of the nominated energy managers could be expected that they can master these skills easily. The Project team will need to provide continuous hands-on support to energy managers for developing necessary skills and confidence. As a part of the support mechanism, the Project may consider hiring local assistants who could maintain regular contacts with Energy managers.

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**Recommendation 4: Transfer web site hosting**

As a part of exit strategy, the Project should make arrangements for permanent hosting of the website at some of the partner institutions.

**Recommendation 5: EMIS upgrades**

It is important that all software upgrades are well documented on the software development side and supported with prepared users' guidelines.

**Recommendation 6: Strengthening outreach to participating municipalities**

Project was doing an extensive work on general information dissemination, communication and public awareness. In the upcoming period, the project has to focus on direct communication to Mayors in order to increase their understanding of importance of EMS practice, and of the work energy managers are doing. The Project needs to support energy managers at strengthening their role in municipalities management structures, to safeguard the progress made, and to secure continuation of EMS and EMIS practices.

The Project has to aim at supporting municipalities at making changes in municipalities' organigrams and staff jobs description, so that a position of dedicated energy managers is firmly integrated into the municipalities' management structure.

Further on, Pancevo and Kragujavec are apparently the most advanced municipalities in the group that the Project is working with. To help other municipalities achieving faster progress, it would be useful to organize number of workshops in Pancevo and Kragujevac, and present their results, practices and approaches to other mayors and energy managers. These events should be co-organized with MEM and SCTM for the sake of continuity and sustainability.

**Recommendation 7: Supporting networking of Energy Managers**

The Project should formalize arrangements with SCTM and defining the role of SCTM in supporting energy managers after the Project's completion. The SCTM could provide support to energy managers for annual budget planning for EE as a part of municipal budget preparation.

**Recommendation 8: Strengthening monitoring and verification of energy savings**

The project should prepare technical guidelines for installation of 'smart' energy meters at a time of doing energy audits and implementing retrofit measures, which would be connected to EMIS and used for monitoring and verifying energy savings from demonstration projects. This should be accompanying with instructions on how to calculate and verify energy savings achieved.

The Project should focus on 'one-year verifiable monitoring data' collection and analysis. Adequate methodology has to be proposed and documented. It could be either calculation based, or based on installation of dedicated meters which should be connected to EMIS

The Project should also insist that during preparation of new investment proposal, monitoring and verification solutions have to be an integral part of a project, and provisions for specific metering arrangements have to be included into the overall investment costs.

**Recommendation 9: Supporting scaling up of EMS and EMIS practice**

As a part of formalization of relationships with SCTM, the Project should reach an agreement with SCTM to include information sessions on EMS and EMIS in regular SCTM events. Towards the end of the project life time, a Conference of Mayors of Serbia could be organized to promote results and set the stage for scaling up and roll out the EMS and EMIS practices.

Additionally, the Project could also promote introduction of EMS and EMIS practice for central government buildings.

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**Recommendation 10: Modification of Output 4.3 on updating curricula**

Updating curricula of schools is highly structured and time-consuming process which may happen only with Ministry of Education strong involvement. It is therefore unrealistic to expect that the Project may be able to achieve this target by the end of the project life time.

It is therefore proposed to modify this particular activity, which still should be focused on capacity buildings, but instead of the vocational school, the target could be to develop a course for installer and maintenance staff related to EE and RES measures. The partner for that could be the Centre for Training of Energy Managers at the Faculty of Mechanical Engineering in Belgrade, which was originally supported by JICA. JICA could be approached if interested of extending its support for setting up training program for EE and RES professionals.

**Recommendation 11: Modification of Output 4.5 Public outreach campaigns, events and facilities (such as EE info offices and stands)**

As described in the Communication section of the report, Energy management and EMIS have been frequently presented on various occasions (workshops, trainings, national and regional TVs, meetings, international events, etc.). However, setting up EE info offices and stands across Serbia, requires resources beyond the means of the project.

The Project could advise municipalities that as a part of their EE action plans, they should plan local promotion and awareness campaigns aiming at providing citizens with information on how they could use energy more efficiently at their homes. The municipalities may decide to set up their own EE info centres.

The project should invite providers of EE and RES equipment and services to the events that Project is organizing.

### **5.3 Lessons Learned**

- **Project design.** Project design took into account relevant institutional and policy framework, as well as specific barriers for introducing energy management practice at municipalities. Based on that adequate project instruments and interventions were designed, which were followed by the Project team without difficulties.
- **Project approval.** The project approval process took less than two years which was exemplary. The rapid project approval is important because if the time between project design and project approval is short, there would be few changes to address during the Inception phase. This was confirmed by the Inception report which has proposed only minor adjustments.
- **Stakeholders' engagement.** The project has proven that with the right approach and efforts invested, the public and private stakeholders alike could be attracted for active participation in project activities.

### **5.4 Ratings**

The ratings are summarized with comments in Table 6.

**Table 6: Review of project progress against targets with comments**

Project component	End of project targets as defined in the Inception Report (IR)	Ratings	Comments
<b>Project Objective:</b> Promote greater investment in energy-efficiency in public buildings and services in the municipal sector in Republic of Serbia	Direct GHG emission reduction: 150 ktons of CO <sub>2</sub> eq calculated over the default lifetime of 15 years of the investments or other EE measures implemented	Highly Satisfactory	Some end-of-project targets are already achieved at the mid-term, while the other are on the way to be achieved:  The achieved GHG emission reduction at mid-term are: <b>6.65 ktons of CO<sub>2</sub>eq per year</b>  The achieved energy savings at mid-term are: <b>47.88 TJ per year.</b>  The archived co-financing at mid-term are: <b>6.0 mil US\$.</b>  Number of new partnerships at mid-term: <b>31 municipalities</b> in partnership with the project have formally adopted and started the implementation of EMS and EMIS.
	Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.		
	15 m US\$ co-financing by the end of the project		
	30 new partnerships (i.e. 30 municipalities have formally adopted and started the implementation of EMS and EMIS)		



<p><b>Outcome 1:</b> An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.</p>	<p>Formal adoption of at least 5 new/updated Government regulations, rulebooks and/or municipal ordinances directly supported by the project to enable effective implementation of municipal energy management and energy management information systems</p>	<p>Highly Satisfactory</p>	<p>Three members of UNDP Project team and two technical experts engaged by the Project in their capacity as experts have been officially appointed as members of 18 working groups established by the Ministry of Mining and Energy for the preparation of different pieces of legislation related to energy efficiency and energy management. So far 1 Govt. decree, 15 rulebooks and 3 decisions of the Ministry have been adopted.</p>
<p><b>Outcome 2:</b> Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at municipal level</p>	<p>The central EE support unit either within the Ministry responsible for energy or as an independent entity established, adequately staffed and capacitated and with adequate financial allocations by the after the end of the project. monitoring reports published using data from EMIS</p>	<p>Highly Satisfactory</p>	<p>The Central EE support unit within the Ministry of Mining and Energy is established and in operation. The Unit supports municipalities in implementing EMIS.  Financing of the Unit is provided through the relevant budget line of the Ministry.  In addition, the special Project Implementation Group comprising 8 people was formed in 2016 to support the implementation of the Project.  31 municipalities have formally adopted and started the implementation of EMS and EMIS by signing MoU with UNDP.  Additionally, 4 municipalities have formally adopted and started the implementation of EMS and EMIS by its own capacity.  28 energy managers have been appointed as licensed <b>municipal energy managers</b>.</p>

	At least 30 municipalities have formally adopted and started the implementation of EMS and EMIS with: 1) appointed energy managers and EE support units established; 2) EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors; 3) completed EE strategies and action plans with concrete time-bound EE targets; and 4) monthly/annual energy reports		Data entry into EMIS has just started in some 45 municipalities.  Elaboration of mandatory annual energy reports and energy efficiency programmes and plans are in progress in a number of municipalities (app. 45).
<b>Outcome 3:</b> At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.	At least 10 demonstration projects completed with at least one-year verifiable monitoring data on the saved energy and GHG emissions reduced. At least USD 15 million leveraged for new EE investments facilitated by the project.	Satisfactory	35 municipalities responded to the public call, out of which 17 were fully eligible and accepted for evaluation, 13 municipalities have been selected and have signed a contract with MoME.  7 municipalities completed their projects.  Total amount of UNDP grant committed: 500,000 USD  Total amount of co-financing by MoME: 500,000 USD   However, the project team has to pay attention for realisable verification and reporting of annual energy savings by implemented projects.

<b>Outcome 4:</b> Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.	At least 80% of all Serbian municipalities have signed the Energy Charter with a stated intention to adopt the EMIS.	Satisfactory	109 (65%) out of 169 municipalities have signed the Energy Charter
	Training of at least 100 municipal energy managers.		101 trainees for energy management in municipalities have been trained, 99 trainees have passed the exam. 66 trainees have got the energy manager license (40 number of man and 26 women).
	The curricula of all professional and vocational schools dealing with energy efficiency related professional disciplines (electricians, plumbers, construction workers etc.) and located in the municipalities that have adopted EMIS have been strengthened with state of the art energy efficient technologies and approaches.	Needs to be modified	<p>51 trainees for energy management in buildings have been trained, 44 trainees have passed the exam. 37 trainees have got the energy manager license. (30 number of man and 7 women).</p> <p>340 EMIS end-users have been trained to enter data into EMIS (134 man and 206 women).</p> <p>The Project is facing difficulties with changing curricula for vocational schools. MTR provides some recommendation for modifying this activity and indicator.</p>

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## 6 ABBREVIATIONS

<b>CO</b>	UNDP Country Office
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>DH</b>	District heating
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>EE</b>	Energy Efficiency
<b>EIA</b>	Environmental Impact Assessment
<b>EMS</b>	Energy Management System
<b>EMIS</b>	Energy Management Information System
<b>EPS</b>	Elektroprivreda Srbije (national power utility “Electric Power Industry of Serbia”)
<b>EU</b>	European Union
<b>EUR</b>	Euros
<b>GDP</b>	Gross Domestic Product
<b>GEF</b>	Global Environment Facility
<b>GHG</b>	Greenhouse Gas
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit
<b>GWh</b>	Gigawatthour
<b>HQ</b>	UNDP Headquarters
<b>IEA</b>	International Energy Agency
<b>ICT</b>	Information and Communication Technology
<b>ISO</b>	International Organisation for Standardization
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MoME</b>	Ministry of Mining and Energy
<b>MoF</b>	Ministry of Finance
<b>MRV</b>	Monitoring, Reporting and Verification
<b>NAMA</b>	Nationally Appropriate Mitigation Action
<b>NGO</b>	Non-Governmental Organization
<b>NEEF</b>	National Energy Efficiency Fund
<b>O&amp;M</b>	Operation & Maintenance
<b>PB</b>	Project Board
<b>PIR</b>	Project Implementation Review
<b>PMU</b>	Project Management Unit
<b>PPG</b>	Project Preparation Grant
<b>PSC</b>	Project Steering Committee
<b>PV</b>	Photovoltaic
<b>QPR</b>	Quarterly Progress Report
<b>RCU</b>	UNDP Regional Coordination Unit
<b>RE</b>	Renewable Energy
<b>RTA</b>	Regional Technical Advisor
<b>SCTM</b>	Standing Conference of Towns and Municipalities
<b>SWH</b>	Solar water heater
<b>TPR</b>	Tripartite Review
<b>TTR</b>	Terminal Tripartite Review
<b>WB</b>	World Bank
<b>UNDAF</b>	United Nations Development Assistance Framework
<b>UNDP</b>	United Nations Development Programme
<b>UNEP</b>	United Nations Environment Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change

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## **7 ANNEXES**

Annex 1: Terms of Reference

Annex 2: List of relevant documents

Annex 3: Mission agenda

Annex 4: List of meeting participants

Annex 5: Revised activity table from the Inception report

Annex 6: Revised Project Results Framework

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## Annex 1: Terms of Reference

### Terms of Reference

<b>Title:</b>	Midterm review of the GEF Project: “Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia”
<b>Programme:</b>	GEF Project:” Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia”, PIMS No 4588
<b>Reporting to:</b>	Portfolio Manager
<b>Duty Station:</b>	Home based and at least two mission to Belgrade and project locations in Serbia
<b>Type of contract:</b>	Individual Contract (IC) or Reimbursable Loan Agreement (RLA) based on Long Term Agreement (LTA)
<b>Duration:</b>	15 February 2017– 15 June 2018
<b>Estimated number of working days:</b>	25 working days

### Background

#### **a. Purpose**

To undertake the midterm review (MTR), of the GEF Project: “Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia (the Project), and to make recommendations that might improve further implementation of the Project.

#### **b. Objective**

To 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 shall also review the project’s strategy and its risks to sustainability.

#### **c. Background Information**

The United Nations Development Programme (UNDP), acting as an implementing agency of the Global Environment Facility (GEF), is implementing together with the Ministry of Mining and Energy (MME) the GEF Project titled: “Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia (EE Project)”.

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With 2.5 mill US\$ from the GEF, the EE Project will have a total volume of 22 mill US\$. Co-financing will be provided by Serbian institutions, JICA and KfW.

The objective of EE Project is to introduce and support the implementation of municipal Energy Management Systems (EMS), including Energy Management Information Systems (EMIS), throughout Serbia and to increase the EE investments in public buildings and municipal services and to facilitate their more energy efficient operation in general.

1. EE Project is fully in line with the provisions of the Law on Efficient Use of Energy which stipulates establishing of an EMS in Serbian municipalities and therefore will contribute its implementation.
2. EMIS was developed by the UNDP with the purpose of monitoring, analyzing and reporting on the energy and water consumption in public buildings. In that respect, EMIS is a powerful tool for energy management, necessary for the implementation of the Law.
3. While the minimum project target by the end of the project is to have at least 30 Serbian municipalities to formally adopt and start the implementation of EMS and EMIS, the EE Project also seeks to facilitate their replication in other Serbian municipalities.
4. Complementary activities will include preparation of EE projects in public buildings/facilities (technical identification, energy audits, elaboration of investment packages, etc.) along with the implementation of 0.5 mill US\$ grant for up to 15 EE demonstration projects in public buildings. The grant provided by GEF will be combined with the Budgetary Fund for Energy Efficiency of the Republic of Serbia and municipal co-financing. In total EE Project will mobilize 1 mil US\$ for municipal investments in EE and RE projects.
5. Further to that, EE Project will include extensive capacity building for identification, preparation and implementation of municipal EE and RE projects and will be combined with the KfW loans for municipal infrastructure.
6. In addition to the said activities the EE Project will include advocacy in the field of EE and further development of EMIS and axillary software tools of less complexity aimed at specific tasks of municipal energy management.

### **Duties and Responsibilities**

#### **a. MTR Approach and Methodology**

The MTR expert must provide evidence based information that is credible, reliable and useful. The MTR expert will review all relevant sources of information including documents prepared during the preparation phase (i.e. Project Identification Form-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 expert 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.

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The MTR expert is expected to follow a collaborative and participatory approach<sup>6</sup> 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<sup>7</sup>. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to Ministry of Mining and Energy, Ministry of Agriculture and Environmental Protection, UNDP, other Project partners, key experts and consultants in the subject area, Project Board, project stakeholders, local governments, academia, nongovernmental organizations, etc. Additionally and besides conducting the required interviews in Belgrade, the MTR expert is expected to conduct field missions to at least two locations of the supported pilot projects.

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.

#### **b. Scope of Work**

The MTR expert 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.
- 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?

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<sup>6</sup> For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see [UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results](#), 05 Nov 2013

<sup>7</sup> 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 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 1: Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Indicator <sup>8</sup>	Baseline Level <sup>9</sup>	Level in 1 <sup>st</sup> PIR (self-reported)	Midterm Target <sup>10</sup>	End-of-project Target	Midterm Level & Assessment <sup>11</sup>	Achievement Rating <sup>12</sup>	Justification for Rating
<b>Objective:</b>	Indicator (if applicable):							
<b>Outcome 1:</b>	Indicator 1:							

<sup>8</sup> Populate with data from the Logframe and scorecards

<sup>9</sup> Populate with data from the Project Document

<sup>10</sup> If available

<sup>11</sup> Colour code this column only

<sup>12</sup> Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

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	Indicator 2:							
<b>Outcome 2:</b>	Indicator 3:							
	Indicator 4:							
	Etc.							
<b>Etc.</b>								

### **Indicator Assessment Key**

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

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### **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.

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**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.

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### **Environmental risks to sustainability:**

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

### **Conclusions & Recommendations**

The MTR expert will include a section of the report setting out the MTR's evidence-based conclusions, in light of the findings.<sup>13</sup>

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 expert should make no more than 15 recommendations total.

### **Ratings**

The MTR expert 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<sup>14</sup> for ratings scales. No rating on Project Strategy and no overall project rating is required.

Table 2: MTR Ratings & Achievement Summary Table for project titled: " Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia"

Measure	MTR Rating	Achievement Description
<b>Project Strategy</b>	N/A	
<b>Progress Towards Results</b>	Objective Achievement Rating: (rate 6 pt. scale)	
	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.	
<b>Project Implementation &amp; Adaptive Management</b>	(rate 6 pt. scale)	

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<sup>13</sup> Alternatively, MTR conclusions may be integrated into the body of the report.

<sup>14</sup> [http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance\\_Midterm%20Review%20\\_EN\\_2014.pdf](http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf)

<b>Sustainability</b>	(rate 4 pt. scale)	
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b.

### **Deliverables and Timeline**

The total duration of the MTR will be approximately 25 days over a time period of four months starting on March 15, 2018, and shall not exceed three months from when the MTR expert is hired.

The tentative MTR timeframe is as follows:

<b>Time frame</b>	<b>Activity</b>
March 15, 2018	Contract with MTR expert signed
March 21, 2018	Prep. If the MTR expert (handover of Project Documents)
March 25 - March 31, 2018 (3 days)	Document review and preparing MTR Inception Report inclusive of evaluation matrix
April 10, 2018 (1 day)	Finalization and Validation of MTR Inception Report
April 15 – April 30, 2018 (6 days)	MTR mission: stakeholder meetings, interviews, field visits
April 30, 2018 (incl. above)	Mission wrap-up meeting & presentation of initial findings
May 03– May 24, 2018 (5 days)	Preparing draft report
May 24 – June 15, 2018 (1day)	Incorporating audit trail from feedback on draft report/Finalization of MTR report (with two weeks reserved for circulation and review of the draft report)
June 15 – June 25, 2018 (1day)	Preparation & Issue of Management Response
June 30, 2018	Expected date of full MTR completion

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

The MTR expert is responsible for the following deliverables:

	<b>Deliverables</b>	<b>Deadline</b>
<b>1</b>	<b>MTR Inception Report</b> (with clarified objectives, methods of Midterm Review and evaluation matrix)	10 April 2018
<b>2</b>	<b>Presentation of initial findings</b>	30 April 2018
<b>3</b>	<b>Draft Final Report</b>	24 May 2018

	Full report (using guidelines on content outlined in Annex B <sup>15</sup> ) with annexes	
<b>4</b>	<b>Final Report</b> Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final MTR report	15 May 2017

The final MTR report must be in English.

The principal responsibility for managing the MTR activities of Consultant lies with Energy Portfolio Manager.

Deliverables 1 and 2 will have to be reviewed and accepted by the Portfolio Manager and UNDP CO DRR.

Deliverables 3 and 4 will have to be reviewed and accepted by the Portfolio Manager, UNDP CO DRR, GEF Regional Technical Advisor and GEF Operational Focal Point.

### **c. MTR Arrangements**

The principal responsibility for managing this MTR resides with the Commissioning Unit. The Commissioning Unit for this project's MTR is the UNDP Country Office in Serbia.

The commissioning unit will contract MTR expert and ensure the timely provision of per diems and travel arrangements within Serbia for the MTR expert. The Project Team will be responsible for liaising with the MTR expert to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

### **d. Requirements**

The MTR expert cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

### **Skills and Competencies**

- Excellent analytical skills;
- Displays ability to synthesize research and reach empirically based conclusions on related subject;
- Strong writing skills;
- Proven capacity to produce reports;
- Displays capacity to provide experienced advice on best practices;
- Possesses knowledge of inter-disciplinary development issues;

<sup>15</sup> [http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance\\_Midterm%20Review%20\\_EN\\_2014.pdf](http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf)

- 
- Focuses on result for the client and responds positively to feedback;
  - Good application of Results-Based Management;
  - Good communication, coordination and facilitation skills;
  - Consistently ensures timeliness and quality of work;
  - Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
  - Demonstrates integrity by modeling ethical standards.

### **Qualifications and Experience**

#### *Education:*

- Advanced University degree in the fields relevant for the assignment engineering/environment/economy.

#### *Work experience:*

- a. Minimum 10 years of relevant professional experience, preferably in international/multilateral development context;
- b. Proven expert knowledge of available multilateral environmental funds (GEF, GCF, AF, etc.) project cycle.
- c. Proven experience in developing/implementing CC projects – preferably in the region
- d. Previous experience in project evaluation methodologies;
- e. Previous successful experience in the development and approval of multilateral environmental funds projects would be an asset;
- f. Previous experience with UNDP is a great advantage;
- g. Experience of work in the region is an asset;
- h. Previous assignments in the role of relevant senior expert positions would be considered as an asset.

#### *Knowledge*

- Knowledge of UNDP, evaluation policy, norms and standards;
- Knowledge of IPCC Methodologies, Guidelines, UNFCCC documents and the EU legislation and Sendai Framework;

#### *Personal qualifications*

- Ability to deliver when working under pressure and within changing circumstances;
- Consistently approaches work with energy and a positive, constructive attitude;
- Excellent interpersonal skills.

#### *Language:*

- Excellent English writing skills are essential;



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- Knowledge of Serbian/Croatian/Bosnian/Montenegrin language(s) shall be considered as an asset.

**ToR ANNEX A: List of Documents to be reviewed by the MTR Team**

1. PIF
2. UNDP Initiation Plan
3. UNDP Project Document
4. UNDP Environmental and Social Screening results
5. Project Inception Report
6. All Project Implementation Reports (PIR's)
7. Quarterly progress reports and work plans of the various implementation task teams
8. Audit reports
9. Finalized GEF Tracking Tool for Climate Change Mitigation Projects at CEO endorsement and midterm evaluation
10. Oversight mission reports
11. All monitoring reports prepared by the project
12. Financial and Administration guidelines used by Project Team

The following documents will also be available:

13. Project operational guidelines, manuals and systems
14. UNDP country/countries programme document(s)
15. Minutes of the project Board Meetings and other meetings (i.e. Project Appraisal Committee meetings)
16. Project site location maps

**ToR ANNEX B: Guidelines on Contents for the Midterm Review Report<sup>16</sup>**

- i. Basic Report Information *(for opening page or title page)*
  - Title of UNDP supported GEF financed project
  - UNDP PIMS# and GEF project ID#
  - MTR time frame and date of MTR report
  - Region and countries included in the project
  - GEF Operational Focal Area/Strategic Program
  - Executing Agency/Implementing Partner and other project partners
  - MTR team members
  - Acknowledgements
- ii. Table of Contents

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<sup>16</sup> The Report length should not exceed 40 pages in total (not including annexes).

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### iii. Acronyms and Abbreviations

#### 1. Executive Summary (3-5 pages)

- Project Information Table
- Project Description (brief)
- Project Progress Summary (between 200-500 words)
- MTR Ratings & Achievement Summary Table
- Concise summary of conclusions
- Recommendation Summary Table

#### 2. Introduction (2-3 pages)

- Purpose of the MTR and objectives
- Scope & Methodology: principles of design and execution of the MTR, MTR approach and data collection methods, limitations to the MTR
- Structure of the MTR report

#### 3. Project Description and Background Context (3-5 pages)

- Development context: environmental, socio-economic, institutional, and policy factors relevant to the project objective and scope
- Problems that the project sought to address: threats and barriers targeted
- Project Description and Strategy: objective, outcomes and expected results, description of field sites (if any)
- Project Implementation Arrangements: short description of the Project Board, key implementing partner arrangements, etc.
- Project timing and milestones
- Main stakeholders: summary list

#### 4. Findings (12-14 pages)

#### 5. Conclusions and Recommendations (4-6 pages)

##### 5.1 Conclusions

- Comprehensive and balanced statements (that are evidence-based and connected to the MTR's findings) which highlight the strengths, weaknesses and results of the project

##### 5.2 Recommendations

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives

## 6. Annexes

- MTR ToR (excluding ToR annexes)
- MTR evaluative matrix (evaluation criteria with key questions, indicators, sources of data, and methodology)
- Example Questionnaire or Interview Guide used for data collection
- Ratings Scales
- MTR mission itinerary
- List of persons interviewed
- List of documents reviewed
- Co-financing table (if not previously included in the body of the report)
- Signed UNEG Code of Conduct form
- Signed MTR final report clearance form
- *Annexed in a separate file:* Audit trail from received comments on draft MTR report
- *Annexed in a separate file:* Relevant midterm tracking tools (*METT, FSC, Capacity scorecard, etc.*)

### ToR ANNEX C: Midterm Review Evaluative Matrix Template

Evaluative Questions	Indicators	Sources	Methodology
<b>Project Strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results ? (The list of of specific questions, indicators, sources and methodology to be proposed by the MTR Team and approved by UNDP as a part of the Inception Report)</b>			
Include evaluative question(s))	(i.e. relationships established, level of coherence between project design and implementation approach, specific activities conducted, quality of risk mitigation strategies, etc.)	(i.e. project documents, national policies or strategies, websites, project staff, project partners, data collected throughout the MTR mission, etc.)	(i.e. document analysis, data analysis, interviews with project staff, interviews with stakeholders, etc.)
<b>Progress Towards Results: To what extent have the expected outcomes and objectives of the project been achieved thus far?</b>			

<b>Project Implementation and Adaptive Management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?</b>			
<b>Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?</b>			

**ToR ANNEX D: UNEG Code of Conduct for Evaluators/Midterm Review Consultants<sup>17</sup>**

**Evaluators/Consultants:**

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

**MTR Consultant Agreement Form**

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

Name of Consultant: ZORAN MORVAJ

Name of Consultancy Organization (where relevant): \_\_\_\_\_

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

Signed at ZAGREB (Place) on 25.06.2018  
(Date)

Signature: [Signature]

## ToR ANNEX E: MTR Ratings

Ratings for Progress Towards Results: (one rating for each outcome and for the objective)		
6	Highly Satisfactory (HS)	The objective/outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/outcome can be presented as “good practice”.
5	Satisfactory (S)	The objective/outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings.
4	Moderately Satisfactory (MS)	The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
3	Moderately Unsatisfactory (HU)	The objective/outcome is expected to achieve its end-of-project targets with major shortcomings.
2	Unsatisfactory (U)	The objective/outcome is expected not to achieve most of its end-of-project targets.
1	Highly Unsatisfactory (HU)	The objective/outcome has failed to achieve its midterm targets, and is not expected to achieve any of its end-of-project targets.

Ratings for Project Implementation & Adaptive Management: (one overall rating)		
6	Highly Satisfactory (HS)	Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as “good practice”.
5	Satisfactory (S)	Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action.
4	Moderately Satisfactory (MS)	Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action.
3	Moderately Unsatisfactory (MU)	Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action.
2	Unsatisfactory (U)	Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management.
1	Highly Unsatisfactory (HU)	Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management.

Ratings for Sustainability: (one overall rating)		
4	Likely (L)	Negligible risks to sustainability, with key outcomes on track to be achieved by the project's closure and expected to continue into the foreseeable future
3	Moderately Likely (ML)	Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review
2	Moderately Unlikely (MU)	Significant risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on
1	Unlikely (U)	Severe risks that project outcomes as well as key outputs will not be sustained

#### ToR ANNEX F: MTR Report Clearance Form

*(to be completed by the Commissioning Unit and UNDP-GEF RTA and included in the final document)*

<b>Midterm Review Report Reviewed and Cleared By:</b>	
<b>Commissioning Unit</b>	
Name: <u>Steliana Nedra</u>	
Signature: <u>[Signature]</u>	Date: <u>29/06/2018</u>
<b>UNDP-GEF Regional Technical Advisor</b>	
Name: _____	
Signature: _____	Date: _____

## Annex 2: List of relevant documents

No	TYPES OF DOCUMENTS	DOCUMENT(S)
1	LPAC minutes	1. 2015 07 LPAC meeting minutes
2	Inception Workshop	1. 20151214 AGENDA-SERB 2. 20151412 AGENDA -ENGL 3. IW_List of Participants phone_position 4. ANNOUNCEMENT INCEPTION WORKSHOP 5. ANNOUNCEMENT INCEPTION WORKSHOP_SRB 6. Event Scenario 12 09 2015 7. 20151214 Attendance Sheet IW 8. 2016 05 PB aproval of Inception report
3	Project Board Meetings	1. 20160418_ PB meeting_ minutes 94643 2. 20160422_ PB meeting_ minutes 94643 3. 20160516 PB aproval of Inception report_ minutes 94643 4. 20161221 PB meeting_ minutes 94643 5. 20170629 PB meeting_ minutes 94643 signed 6. 20171108 PB meeting minutes 94643
4	Public Call 2/16	1. Public Call final srb eng with attachments 2. Presentations PC 2.16 3. Signing ceremony 4. Contracts 5. Grants docs
5	Public Call 1/17	1. Public Call 1/17 Final SRP 2. Public Call 1/17 ENG 3. 20171011 Evaluation of applications 4. Signing ceremony of MoU 5. Signed MoU 6. 2017_MoU_ press clipping
6	Study Visit to Slovakia	1. 2017 24 26 05 Agenda SRB 2. List of participants
7	Leaflet	20170731 Leaflet EMIS for printing final
8	Kragujevac	MoU
9	Pancevo	MoU
10	UNDP-GIZ	MoU
11	Relevant Laws, Strategic Documents, Plans and Bylaws	<b>Laws</b> <ol style="list-style-type: none"> <li>1. <a href="#">Energy Law ("Official Gazette of the RS", No. 145/2014)</a></li> <li>2. <a href="#">Zakon o efikasnom korišćenju energije ("Službeni glasnik RS", br. 25/2013)</a></li> <li>3. <a href="#">The Law on Ratification of Treaty on Establishing Energy Community Between the EU and the Republic of Albania, the Republic of Bulgaria, the Republic of Bosnia and Hercegovina, the Republic of Croatia, the former Yugoslav Republic of Macedonia, the Republic of Montenegro, Romania, Republic of Serbia and The United Nations Interim Administration Mission in Kosovo pursuant to the United Nations Security Council Resolution 1244, ("Official Gazette of RS", No 62/06)</a></li> </ol>



	<ol style="list-style-type: none"> <li>4. <a href="#">Zakon o planiranju i izgradnji, ("Službeni glasnik RS", br. 132/2014 i 145/2014)</a></li> <li>5. <a href="#">Zakon o šumama ("Službeni glasnik RS", br. 30/10)</a></li> <li>6. <a href="#">Zakon o poljoprivredi i ruralnom razvoju, ("Službeni glasnik RS", br. 41/2009)</a></li> <li>7. <a href="#">Zakon o poljoprivrednom zemljištu, ("Službeni glasnik RS", br. 62/2006 i 41/2009)</a></li> <li>8. <a href="#">Zakon o izmenama zakona o poljoprivrednom zemljištu, ("Službeni glasnik RS", br. 62/06)</a></li> <li>9. <a href="#">Zakon o vodama ("Službeni glasnik RS", br. 30/10)</a></li> <li>10. <a href="#">Zakon o izmenama zakona o vodama ("Službeni glasnik RS", br. 93/12)</a></li> <li>11. <a href="#">Zakon o zaštiti prirode ("Službeni glasnik RS", br. 36/2009 i 88/2010)</a></li> <li>12. <a href="#">Zakon o zaštiti vazduha, ("Službeni glasnik RS", br. 36/2009 i 10/2013)</a></li> <li>13. <a href="#">Zakon o izmenama i dopunama zakona o zaštiti vazduha ("Službeni glasnik RS", br. 36/2009)</a></li> <li>14. <a href="#">Zakon o proceni uticaja na životnu sredinu, ("Službeni glasnik RS", br. 135/2004 i 36/2009)</a></li> <li>15. <a href="#">Zakon o strateškoj proceni uticaja na životnu sredinu, ("Službeni glasnik RS", br. 135/2004 i 88/2010)</a></li> <li>16. <a href="#">Zakon o nacionalnim parkovima, ("Službeni glasnik RS", br. 39/93 i 44/93)</a></li> <li>17. <a href="#">Zakon o upravljanju otpadom, ("Službeni glasnik RS", br. 36/2009 i 88/2010)</a></li> <li>18. <a href="#">Zakon o potvrđivanju protokola o zaštiti i korišćenju biološke i predeone raznolikosti, ("Službeni glasnik RS" – Međunarodni ugovori 1/2013)</a></li> <li>19. <b>Decrees:</b></li> <li>20. <a href="#">Uredba o uslovima i postupku sticanja statusa povlašćenog proizvođača električne energije ("Službeni glasnik RS", br. 8/2013, 70/2014)</a></li> <li>21. <a href="#">Obrazac 01</a></li> <li>22. <a href="#">Obrazac 02</a></li> <li>23. <a href="#">Decree on conditions and procedure for acquiring the status of privileged power producer (Official Gazette of the Republic of Serbia No. 8/13)</a></li> <li>24. <a href="#">Uredba o merama podsticaja za povlašćene proizvođače električne energije ("Službeni glasnik RS", broj 8/2013)</a></li> <li>25. <a href="#">Decree on incentive measures for privileged power producers (Official Gazette of the Republic of Serbia No. 8/13)</a></li> <li>26. <a href="#">Uredba o načinu obračuna i načinu raspodele prikupljenih sredstava po osnovu naknade za podsticaj povlašćenih proizvođača električne energije ("Službeni glasnik RS", broj 8/2013)</a></li> <li>27. <a href="#">Uredba o visini posebne naknade za podsticaj u 2014. godini ("Službeni glasnik RS", broj 3/2014)</a></li> <li>28. <a href="#">Uredba o određivanju cena toplotne energije ("Službeni glasnik RS", br. 125/2014)</a></li> <li><b>Technical Rulebooks:</b></li> <li>29. <a href="#">Pravilnik o bližim uslovima za izdavanje energetske dozvole, sadržini zahteva i načinu izdavanja</a></li> </ol>
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	<p><a href="#">energetske dozvole, kao i o uslovima za davanje saglasnosti za energetske objekte za koje se ne izdaje energetska dozvola ("Službeni glasnik RS", broj 60/2013)</a></p> <p>30. <a href="#">Obrazac 01</a></p> <p>31. <a href="#">Pravilnik o garanciji porekla električne energije proizvedene iz OIE ("Službeni glasnik RS", broj 24/2014)</a></p> <p>32. <a href="#">Pravilnik o utvrđivanju standardnih modela ugovora i predugovora o otkupu ukupnog iznosa proizvedene električne energije ("Službeni glasnik RS", br. 62/2013, 10/2014)</a></p> <p>33. <a href="#">Pravilnik o energetske dozvoli ("Službeni glasnik RS". Broj 15/2015)</a></p> <p>34. <a href="#">Pravilnik o energetske dozvoli ("Službeni glasnik RS", br. 15/2015) na engleskom jeziku – The rulebook on energy permits (Official Gazette of the RS", No. 15/2015)</a></p> <p>35. <a href="#">Pravilnik o utvrđivanju slobodnog kapaciteta uvećanog za vrednost instalisane snage elektrana za koje je prestao privremeni status povlašćenog proizvođača ("Službeni glasnik RS", broj 24/2015)</a></p> <p><b>Strategic Documents:</b></p> <p>36. <a href="#">Strategija razvoja energetike Republike Srbije do 2015. godine ("Službeni glasnik RS", broj 44/2005)</a></p> <p>37. <a href="#">Nacionalni akcioni plan za korišćenje obnovljivih izvora energije (NAPOIE) ("Službeni glasnik RS", broj 53/2013)</a></p> <p>38. <a href="#">Izmena Energetskog bilansa Republike Srbije za 2014. godinu</a></p> <p><b>International Documents:</b></p> <p>39. <a href="#">Direktiva 2009/28/EC</a></p> <p>40. <a href="#">Odluka Ministarskog saveta (Decision 2012/04/MC – EnC on the implementation of Directive 2009/28/EC and amending Article 20 of the Energy Community Treaty)</a></p> <p>41. <a href="#">Regionalna energetska strategija – Dokument na engleskom jeziku</a></p>
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## **Annex 3: Mission agenda**

**April 16-20, 2018**

### **Monday 16<sup>th</sup>**

#### **9.00-10.00: Meeting with the NPD prof Milos Banjac, Assistant Minister**

Topics: Project implementation and monitoring

Participants: Zoran Morvaj, Maja Matejić, Milos Banjac

Venue: Faculty of Mechanical Engineering University of Belgrade

#### **10.00-11.30: Visit to the Energy Efficiency Training Centre at the at the Faculty of Mechanical Engineering in Belgrade (FME)**

Topics: Training and licensing of energy managers in Serbia and Walk through the Energy Efficiency Training Centre

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejić, Dragan Urošević, Dejan Djukanovic, Vesna Gajić.

Venue: Faculty of Mechanical Engineering University of Belgrade

#### **13.15-15.00: Meeting with the EE Project Team**

Topics: Mid-term evaluation, upcoming activities, reporting

Participants: Zoran Morvaj, Maja Matejić, Dragan Urošević, Nataša Čakarmiš, Srđan Kostić, Vesna Gajić

Venue: Ministry of Mining and Energy

#### **15.00-16.00: Meeting with the Energy Management Helpdesk Team**

Topics: Helpdesk's tasks

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejić, Dragan Urošević, Helpdesk team, Nataša Čakarmiš, Vesna Gajić, Biljana Mlinar, Antonela Solujić

Venue: Ministry of Mining and Energy

### **Tuesday 17<sup>th</sup>**

09.00-10.00: Transfer to Pančevo, Departure from Admirala Geprata 19

#### **10.00-11.00: Meeting with Biljana Đordan, Energy Manager of Pančevo**

Topics: Energy Management System in City of Pančevo

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejić, Dragan Urošević, Nataša Čakarmiš, Biljana Đordan, Vesna Gajić.

Venue: City hall of Pančevo

#### **11.15-12.00: Meeting in DH plant in Pančevo with Mr. Zoran Božanić, Technical Director**

Topics: DH Automatic data exchange btw. DH system in Pančevo and EMIS,

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejic, Dragan Urošević, Nataša Čakarmiš, Biljana Đordan, Zoran Božanić, Vesna Gajić

Venue: DH plant in Pančevo

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**12.00-13.00: Visit to the boiler plant Kotež and walk through the plant including presentation of solar heating system and automatic control system.**

**13.00-13.30: Visit to one of the fully automated DH substations**

13.30-14.30: Transfer to Belgrade

**15:30 Meeting with Project Manager**

Participants: Zoran Morvaj, Maja Matejic.

Venue: Chamber of Commerce and Industry

**Wednesday 18<sup>th</sup>**

**09.00- 10.15: Meeting with Zoran Kapor GFA**

Topics: Cooperation with the SECO funded project

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejic, Dragan Urošević.

Venue: Chamber of Commerce and Industry

**11.00- 12.00: Meeting with JICA**

Topics: Current status of EMS in Serbia, cooperation between the UNDP and JICA

Participants:

JICA: Mr. Kobayashi Hideya, Chief Representative; Irena Popović, Program Officer,

UNDP: Zoran Morvaj, Vesa Rutanen, Maja Matejic, Dragan Urošević.

Venue: JICA office, Business centre Ušće

**13.00- 14.00: Meeting with the Steliana Nedera and Zarko Petrovic, TBC**

Participants: Steliana Nedera, Zarko Petrovic, Zoran Morvaj, Maja Matejic.

Venue: UN, Bulevar Zorana Djindjica 64

**15.00- 16.00: Meeting with the Ljubinko Savic**

Topics: Cooperation with the PKS

Participants: Zoran Morvaj, Maja Matejic, Ljubinko Savić, Vesna Gajić.

Venue: Chamber of Commerce and Industry

**Thursday 19<sup>th</sup>**

08.00-10.00: Transfer to Kragujevac, Departure from Admirala Geprata 19

**10.00-11.30: Meeting with the Ana Radojevic Energy Manager of Kragujevac**

Topics: Energy Management System in City of Kragujevac

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejic, Dragan Urošević, Ana Radojević, Kg EE Team, Nataša Čakarmiš, Vesna Gajić

Venue: City hall of Kragujevac

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12.00 – 13.00 – Early lunch, restoran Panorama

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejic, Dragan Urošević, Ana Radojević, Kg EE Team, Nataša Čakarmiš, Vesna Gajić

13.00 -14:00 Transfer to Žabari

**14.00-14.15: Meeting with the mayor of municipality Zabari**

**14.15-15.00: Visit to the primary school “Heroj Rosa Trifunovic” - Public Call (co-financing energy efficiency projects in local self-governments)**

Participants: Zoran Morvaj, Vesa Rutanen, Maja Matejic, Dragan Urošević, Nataša Čakarmiš, Vesna Gajić, Vesna Nikolic project manager of municipality Zabari, Dejan Zivotic school principal

15.00-17.00: Transfer to Belgrade

### **Friday 20<sup>th</sup>**

**09.15- 10:00 Meeting with Antonela Solujić**

Participants: Zoran Morvaj, Antonela Solujić, Maja Matejic

Venue: Ministry of Mining and Energy

**10.00- 11:00 Meeting with the /NPD Miloš Banjac**

Topics: Mid-term evaluation, upcoming activities, reporting, wrap-up

Participants: Zoran Morvaj, Miloš Banjac, Maja Matejic

Venue: Ministry of Mining and Energy

**11.15- 12.00: Meeting with SKGO, Mile Gluscevic**

Participants: Zoran Morvaj, Maja Matejic, Dragan Urošević, Nataša Čakarmiš,

Venue: Chamber of Commerce and Industry, office 410

**12.00 -13:30 Meeting with the EE Project Team**

Topics: Mid-term evaluation, upcoming activities, reporting, wrap-up

Participants: Zoran Morvaj, Maja Matejic, Dragan Urošević, Nataša Čakarmiš

Venue: Chamber of Commerce and Industry, office 410

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## Annex 4: List of meeting participants

1. Ljubinko Savic, Deputy Secretary in the Association of Energy and Coal Mining, Chamber of Commerce and Industry of Serbia. [ljubinko.savic@pks.rs](mailto:ljubinko.savic@pks.rs)
2. Milos Banjac, NPD and Assistant Minister in the Ministry of Mining and Energy. [milos.banjac@mre.gov.rs](mailto:milos.banjac@mre.gov.rs)
3. Dejan Djukanovic, Faculty of Mechanical Engineering University of Belgrade, [ddjukanovic@mas.bg.ac.rs](mailto:ddjukanovic@mas.bg.ac.rs)
4. Vesa Rutanen, Adaptive management expert, [vrutanen@kolumbus.fi](mailto:vrutanen@kolumbus.fi)
5. Srdjan Kostic, Energy Efficiency Expert, Ministry of Mining and Energy, [srdjan.kostic@mre.gov.rs](mailto:srdjan.kostic@mre.gov.rs)
6. Biljana Mlinar, Legal Expert, Ministry of Mining and Energy, [biljana.mlinar@mre.gov.rs](mailto:biljana.mlinar@mre.gov.rs)
7. Antonela Solujic, Head of the Energy Efficiency Department, Ministry of Mining and Energy, [antonela.solujic@mre.gov.rs](mailto:antonela.solujic@mre.gov.rs)
8. Helpdesk team (Andjela Mijovic, Teodora Savanovic, Milena Radovanovic, Marija Orlovic) [sem@mre.gov.rs](mailto:sem@mre.gov.rs)
9. Biljana Djordan, Energy Manager of the city of Pancevo, [biljana.djordan@pancevo.rs](mailto:biljana.djordan@pancevo.rs)
10. Zoran Bozanic, technical Director of the DH Plant in Pancevo, [zoran.bozanic@grejanje-pancevo.co.rs](mailto:zoran.bozanic@grejanje-pancevo.co.rs)
11. Ana Radojevic, Energy Manager of the city of Kragujevac, [radojevic.ana.kg@gmail.com](mailto:radojevic.ana.kg@gmail.com)
12. Vesna Nikolic, Project Manager of municipality of Zabari, [ouzabari.investicije@gmail.com](mailto:ouzabari.investicije@gmail.com)
13. Dejan Zivotic, School Principal Heroj Rosa Trifunovic [rosatrifunovic@gmail.com](mailto:rosatrifunovic@gmail.com)
14. Steliana Nedera, Project Board Member and UNDP DRR. Email: [steliana.nedera@undp.org](mailto:steliana.nedera@undp.org)
15. Zarko Petrovic, Programme Analyst Resilient Development UNDP, [zarko.petrovic@undp.org](mailto:zarko.petrovic@undp.org)
16. Kobayashi Hideya, Chief Representative JICA, [Kobayashi.Hideya@jica.go.jp](mailto:Kobayashi.Hideya@jica.go.jp)
17. Irena Popovic, Program Officer JICA, [PopovicIrena.BK@jica.go.jp](mailto:PopovicIrena.BK@jica.go.jp)
18. Miodrag Gluscevic, Standing Conference of Towns and Municipalities representative. Email: [Miodrag.Gluscevic@skgo.org](mailto:Miodrag.Gluscevic@skgo.org)
19. Zoran Kapor, Managing Director GFA SothEast Europe, [Zoran.kapor@gfa-group.de](mailto:Zoran.kapor@gfa-group.de)
20. UNDP EMIS team: Maja Matejic, Project manager - [maja.matejic@undp.org](mailto:maja.matejic@undp.org); Dragan Urosevic, Project Coordinator [dragan.urosevic@undp.org](mailto:dragan.urosevic@undp.org), Lazar Divjak, Project Coordinator [lazar.divjak@undp.org](mailto:lazar.divjak@undp.org), Natasa Cakarmis, Senior Project Assistant [natasa.cakarmis@undp.org](mailto:natasa.cakarmis@undp.org). Vesna Gajic, Senior Project Assistant [vesna.gajic@undp.org](mailto:vesna.gajic@undp.org)

## Annex 5: Revised activity table from the Inception report

Outputs as per Project Document	Clarification/Outputs Revised
<b>Implementation arrangements and Project inception:</b>	
Organize Inception Workshop with key stakeholders	
Elaborate Inception Report	
<b>Outcome 1:</b> An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.	
<b>Output 1.1:</b> Review of the remaining legal and regulatory barriers to effectively promote energy efficiency in Serbian municipalities addressing areas such as minimum energy performance standards, tariff setting for public utility services, laws and regulations guiding public procurement, allocation of eventual financial savings from EE measures implemented in public entities etc.	<ol style="list-style-type: none"> <li>1. Activities under this output shall be aligned with Decisions of Ministerial Council of Energy Community in particular in regards to energy efficiency and achieving energy saving targets;</li> <li>2. Activities under this output shall be aligned with JICA Project "Enhancement of Energy Management System in Energy Consumption Sectors in the Republic of Serbia";</li> <li>3. Activities under this output shall be repeated since the development of the legal frameworks is a continuous process.</li> </ol>
<b>Output 1.2:</b> By building on the conclusions of output 1.1, draft recommendations for the required legal and regulatory changes to better promote energy efficiency in Serbian municipalities.	<ol style="list-style-type: none"> <li>1. Activities under this output shall be directed towards revision of the Law on Efficient Use of Energy and already adopted by-laws, elaboration of the remaining by-laws that complement the Law on Efficient Use of Energy and legal support to municipalities to implement provisions of the Law on Energy and of the Law on Efficient Use of Energy which are in their competence;</li> <li>2. Activities under this output shall be repeated since the development of the legal frameworks is a continuous process.</li> </ol>
<b>Output 1.3:</b> An updated assessment of the level of enforcement of the adopted laws and regulations, identified barriers and recommendations to remove those barriers	<ol style="list-style-type: none"> <li>1. Activities under this output shall be repeated since the law enforcement is a continuous process.</li> </ol>
<b>Output 1.4</b> Developing and facilitating the adoption of voluntary norms and minimum energy performance and environment standards for public administration and services with links to "green public procurement", "green	<ol style="list-style-type: none"> <li>1. This output shall encompass precursory activity on identifying voluntary norms and minimum energy performance and environment standards for public administration and services that are applicable in Serbia.</li> </ol>

office” and “smart city” initiatives exceeding the minimum legal and regulatory requirements.	
<b>Outcome 2:</b> Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at the municipal level	
<b>Output 2.1:</b> Central Energy Management Support Unit (+ a hotline, as applicable) established within the Ministry of Mining and Energy and its capacity and competence built.	<b>Output 2.1:</b> Central Energy Management Support Unit established within the Ministry of Mining and Energy and its capacity and competence built. Remark: Establishing the hotline in the ministry is not applicable. Other means of communication with municipalities will be used instead.
<b>Output 2.2</b> A municipal EE/EMS website hosted by MoME or another entity such as SCTM with compiled, consolidated and regularly updated information, experiences, available training materials and lessons learnt from implementing municipal EMS and EMIS both in Republic of Serbia and abroad.	<ol style="list-style-type: none"> <li>1. EE website will be hosted by the Chamber of Commerce and Industry of Serbia. It will be a part of the comprehensive web platform “Green Energy”.</li> <li>2. Until the end of the Project EMIS web platform will be hosted by the UNDP CO Serbia. During the period of Project implementation MoME will be capacitated (both in terms of IT facilities (servers) and IT knowledge) to provide hosting and operation of EMIS after the termination of the project.</li> </ol>
<b>Output 2.3:</b> Upgraded EMIS software to include also public utility services (street lighting, district heating, sanitary water supply and public transport) in addition to public buildings and to facilitate interchange of data with other databases.	<ol style="list-style-type: none"> <li>1. The most significant and urgent need for EMIS upgrade is related to development of application programming interface, a software component that comprises protocols and tools for integration of EMIS and other softwares which are currently in use or will be in use in MoME. It is especially important to integrate EMIS with the software tool for integrated energy management reporting and audits which is currently under development;</li> <li>2. EMIS upgrade shall also include development and integration of software modules that will enable automatic data exchange between the EMIS and energy suppliers (public utilities);</li> <li>3. Upgrade of EMIS in terms of including other public services shall be harmonised with upgrade of Croatian EMIS. If feasible Croatian upgrades shall be included in Serbian EMIS.</li> <li>4. UNDP shall initiate cooperation with company “EPS Snabdevanje” (Public Power Provider) in order to integrate remote reading of meters in public buildings and the Energy Management Information System. It is necessary also to consider similar cooperation and possibly establish such functions with major water supply, gas and heat suppliers.</li> </ol>



<b>Output 2.4</b> Awareness raising, public outreach and direct consultations with municipal decision makers to present EMS and EMIS and their benefits to municipalities + awareness raising of the general public on EE by building on the existing materials and co-operation with other ongoing EE related initiatives in Republic of Serbia.	1. Activities under this output shall focus on awareness raising activities related to implementation of demonstration projects. Such projects shall include monitoring of energy and water consumption in real time through the use of the Energy Management Information System and the so-called EE Panel along with parallel web presentations. The installation of such systems shall be performed predominantly in representative and frequently visited public buildings.
<b>Output 2.5</b> Concluded co-operation agreements with at least 30 municipalities to adopt EMS and EMIS and to establish municipal energy management offices/ support units.	<ol style="list-style-type: none"> <li>1. Municipalities shall be selected on the basis of public call for municipalities.</li> <li>2. Timing of the public call shall be adjusted to the start of implementation of energy management system on the national level.</li> <li>3. Cooperation agreement with municipalities shall stipulate fulfilment of a set of requirements which will ensure that municipality is indeed committed to EMS.</li> </ol>
<b>Output 2.6:</b> EMS and EMIS formally taken into use with appointed energy managers and energy management offices / support units established in at least 30 municipalities, followed up by related on-the-job training and capacity building.	1. Given the hierarchical structure of EMIS, activities under this output shall also include capacity building of EMIS end-users on the level of public building/facility.
<b>Output 2.7</b> In co-operation with the SCTM, establish a network of energy managers, together with the organisation of related joint training and networking events	
<b>Output 2.8</b> Completion and filling of the EMIS database with the agreed data from all the co-operating municipalities, including installation of new meters and conducting energy audits, when necessary.	<ol style="list-style-type: none"> <li>1. Activities under this output shall be aligned with energy audit system which shall be in place as of 2017;</li> <li>2. Data collection activities shall include intensive cooperation with universities;</li> <li>3. Smart metering along with integration with EMIS shall be emphasized.</li> </ol>
<b>Output 2.9</b> Analysis of the data obtained and defining the indicators and benchmark values to be included into EMIS, on the basis of which the municipalities can assess their energy performance	1. Activities under this output shall include elaboration of Guidebook for Energy Managers in Buildings in line with The Rulebook on Method and Curriculum for Training Programme for Energy Managers, Expenditures for Attending the Training Courses, and Detailed Conditions, Curriculum and Taking the Examination for Energy Managers.
<b>Output 2.10</b> Completed municipal EE strategies and action plans published by at least 30 municipalities with clearly defined EE targets	1. Activities under this output shall be aligned with the requirements of the Law on the Rational Use of Energy and accompanying bylaws.

<b>Output 2.11</b> Completed and implemented public visibility plan and actions to present the EE strategies and action plans and the results achieved to the general public	1. Activities under this output shall be continuous.
<b>Output 2.12</b> Monthly/annual energy monitoring reports published by at least 30 municipalities	1. Activities under this output shall be aligned with the Decree on Determining Threshold Values of Annual Energy Consumption Defining which Companies Act in the capacity of Designated Organizations of Energy Management System, Annual Targets for Energy Savings and Application Form for Realized Energy Consumption
<b>Outcome 3:</b> At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.	
<b>Output 3.1:</b> At least 10 demonstration projects from different municipalities, selected based on a public call for proposals.	1. Activities under this output shall be aligned with the LoA, the Law on Budgetary System and the Decree on Programmes for Financing Energy Efficiency Measures in 2016; 2. Typology of the eligible projects shall ensure highest CO <sub>2</sub> savings.
<b>Output 3.2:</b> Technical assistance for completing the design, financial structuring and implementation of the demonstration projects	1. Activities under this output shall be aligned with the Rulebook on Conditions for Allocation and Use of Energy Efficiency Budgetary Fund and Criteria for Exemption of Performing Energy Audit; 2. Technical assistance shall include evaluation of energy and CO <sub>2</sub> savings.
<b>Output 3.3:</b> Documenting and publishing of the demonstration project results and lessons learnt, including their monitored and verified energy savings and GHG emission reduction impact	
<b>Output 3.4:</b> Supporting the cost-benefit analysis, preparation of initial investment proposals and structuring financing for EE and RE projects in other municipalities	1. Activities under this output shall be aligned with the approach of KfW’s TA; 2. UNDP is encouraged to formalize cooperation with KfW.
<b>Outcome 4:</b> Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.	
<b>Output 4.1:</b> By building on results, experiences and lessons learnt from introducing EMIS in the first 30 municipalities in Republic of Serbia as well as in other countries, preparing and delivering a “road show” for presenting to and	

expanding the adoption of EMS and EMIS at a coherent, high quality level also in other Serbian municipalities	
<b>Output 4.2:</b> Municipal Energy Efficiency Charter developed and signed by at least 80% of all Serbian municipalities by building on the Croatian model	Each municipality supported by the Project shall sign the Energy Efficiency Charter.
<b>Output 4.3:</b> Updated curricula with related training materials on the state of the art EE technologies and approaches developed for at least 3 different professional fields (electricians, plumbers, construction workers) and taken into use in at least 10 different professional/ vocational schools	<ol style="list-style-type: none"> <li>1. Activities under this output shall be implemented jointly with the Ministry of Education;</li> <li>2. Due to the forthcoming elections activities under this output shall be postponed until school year 2018/2019;</li> <li>3. Preferably schools shall be selected from 30 municipalities which participate in the project.</li> </ol>
<b>Output 4.4</b> Regularly updated web-based energy managers' "handbook" providing guidance on implementing EMS and EMIS typical no or low cost EE improvements of public buildings and services, project financing, design and implementation of public awareness raising campaigns, green public procurement and criteria for assessing the quality of the services received, such as energy audits.	
<b>Output 4.5</b> Public outreach campaigns, events and facilities (such as EE info offices and stands), including possibilities for the potential clients (including both private and public sector) and suppliers of EE equipment and services to meet.	<ol style="list-style-type: none"> <li>1. Activities under this output shall include organization of annual conference of municipal energy managers. First such conference shall be held in 2017;</li> <li>2. Awareness raising activities shall include national companies engaged in providing services integrating the use of information technologies and measurements (the so-called „smart metering“).</li> </ol>
<b>Output 4.6</b> Updated project exit strategy	
<b>Output 4.7</b> End-of-the project workshop	
<b>Evaluation and Monitoring</b>	
<b>Output 5.1</b> Monitoring, reporting, and preparing of financial audits	<ol style="list-style-type: none"> <li>1. Activities under this output shall include regular elaboration and submission of the Project Implementation Report (PIR) in the format required by GEF;</li> <li>2. Activities under this output shall include mid-term and final evaluation of the project.</li> </ol>

## Annex 6: Revised Project Results Framework

<b>This project will contribute to achieving the following Country Programme Output as defined in CPAP:</b> Improved energy sector performance through enhanced market mechanisms, renewables and demand-side initiatives					
<b>Country Programme Outcome Indicators:</b> Level of Greenhouse Gas Emissions					
<b>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</b>					
<b>1. Mainstreaming environment and energy</b> 2. Catalyzing environmental finance 3. Promote climate change adaptation 4. Expanding access to environmental and energy services for the poor.					
<b>Applicable GEF Focal Area Objective:</b> CCM-2: Promote Market Transformation for Energy-Efficiency in Industry and the Building Sector					
	Indicator	Baseline	Targets - End of Project	Source of verification	Risks and Assumptions
<b>Project Objective<sup>17</sup>:</b> Promote greater investment in energy-efficiency in public buildings and services in the municipal sector in Republic of Serbia	Tonnes of incremental CO <sub>2</sub> equivalent avoided as a direct result of project activities	0	Direct GHG emission reduction: 150 ktons of CO <sub>2eq</sub> calculated over the default lifetime of 15 years of the investments or other EE measures implemented	Project's verified energy saving and GHG monitoring reports	The necessary legal, regulatory, institutional and financial prerequisites to proceed with the planned investments and other EE (operational) improvements exist
	Incremental energy savings as a direct result of project activities	0	Energy savings of at least 94 TJ per year or 1,400 TJ over the default lifetime of 15 years from the investments and other measures facilitated by the project.	See above	See above

<sup>17</sup> Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

	Amount of investment in energy-efficiency in public buildings and services in the municipal sector directly facilitated by the project	0	15 mln US\$ by the end of the project	Final evaluation	Partners maintain their financial commitments
	Number of new development partnerships with funding for improved energy efficiency (IRRF Indicator 1.5.1.A)	0	30 new partnerships (i.e. 30 municipalities have formally adopted and started the implementation of EMS and EMIS)	Final evaluation	Political will and commitment at municipal level exist
	Number of people benefitting from improved public services	0	1000 men benefitting from improved public services	Final evaluation	See above
<b>Outcome 1<sup>18</sup>:</b> An enabling legal and regulatory framework to support adoption and effective implementation of municipal energy management systems and related energy efficiency measures.	Extent to which the required new EE policies and regulations (or those be updated) are adopted.	0	Formal adoption of at least 5 new/updated Government regulations, rulebooks and/or municipal ordinances directly supported by the project to enable effective implementation of municipal energy management and energy management information systems	Official Gazette of Serbia	Continuing political support to the suggested legal and regulatory changes
<b>Outcome 2:</b> Central and municipal energy efficiency support units are established and operational and their capacity is built to establish energy management and information systems (EMIS) at the municipal level	Status of the central EE Support Unit and the number of new, adequately staffed and capacitated municipal EE support units established	0	The central EE support unit either within the Ministry responsible for energy or as an independent entity established, adequately staffed and capacitated and with adequate financial allocations by the Government budget to continue its operation also after the end of the project. At least 30 municipalities have formally adopted and started the implementation of	Project monitoring and evaluation reports	Continuing political support both at the central government and municipal level, allocations of adequate budget and/or other financial resources to support continuous operation of the centers

<sup>18</sup>All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

			EMS and EMIS with: 1) appointed energy managers and EE support units established; 2) EMIS data coverage of at least 80% of the energy consumption and other agreed information from the targeted municipal subsectors; 3) completed EE strategies and action plans with concrete time-bound EE targets; and 4) monthly/annual energy monitoring reports published using data from EMIS	Project monitoring and evaluation reports	and success in overcoming the identified institutional barriers.
<b>Outcome 3:</b> At least 10 “best practice” demonstration projects demonstrating the use of EMS and EMIS for identifying, prioritizing and leveraging financing for municipal EE investments and other related EE measures are successfully implemented with reported results for their first year of operation.	Number of successfully completed demonstration project and volume of investment leveraged by the project	0	At least 10 demonstration projects completed with at least one year verifiable monitoring data on the saved energy and GHG emissions reduced. At least USD 15 million leveraged for new EE investments facilitated by the project.	Project monitoring and evaluation reports	Continuing political support both at the central government and municipal level and availability of adequate co-financing to proceed with the suggested investments.

<b>Outcome 4:</b> Municipal Energy-Efficiency Charter signed by over 80% of all municipalities in Republic of Serbia, enhanced public awareness and improved local capacity to implement and manage investments in energy efficiency.	Number of municipalities signing the Energy Efficiency Charter	0	At least 80% of all Serbian municipalities have signed the Energy Charter with a stated intention to adopt the EMIS.	Project monitoring and evaluation reports	Continuing political support both at the central government and municipal level for the adoption of EMIS and required financial support to facilitate the required investments (e.g. on remote controlled metering)
	Number of trained energy managers and technicians	0	Training of at least 100 municipal energy managers and technicians.		
	Number of professional/vocational schools having adopted curricula with greater emphasis on state of the art energy efficient technologies and approaches.	No curricula with adequate emphasis on EE	The curricula of all professional and vocational schools dealing with energy efficiency related professional disciplines (electricians, plumbers, construction workers etc.) and preferably located in the municipalities that have adopted EMIS have been strengthened with state of the art energy efficient technologies and approaches.		