TERMINAL EVALUATION REPORT

of the

UNDP-GEF Full Size Project

Croatia: Removing Barriers to Improving Energy Efficiency of the Residential and Service Sectors

Project number: CRO/00/G31/A/1G/99

PIMS: 715

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Table of content

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The terminal evaluation was performed by an international evaluator Jiří Zeman. The UNDP Croatia did not hire a local evaluator "due to lack of local experts who were not involved with the project".

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Abbreviations and acronyms

APR	Annual Project Review
AWP	Annual Work Plan
CEE	Central and Eastern Europe
CEO	Chief Executive Officer
CFL	Compact Fluorescent Lamp
CO	Country Office
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EIHP	Energy Institute Hrvoje Požar
EMS	Energy Management System
EMIS	Energy Management Information System, software solution for EMS
EPC	Energy Performance Contracting
EPEEF	Environmental Protection and Energy Efficiency Fund (FZOEU)
ESCo	Energy Service Company
FSP	Full Size Project
FZOEU	Environmental Protection and Energy Efficiency Fund
GEF	Global Environment Facility
HBOR	Croatian Bank for Reconstruction and Development
IFC	International Finance Corporation
MELE	Ministry of Economy, Labour and Entrepreneurship (MINGORP)
MINGORP	Ministry of Economy, Labour and Entrepreneurship
NGO	Non-Government Organization
PBM	Project Board Meeting
PDF	Project Development Facility
PGF	Partial Guarantee Facility
PIMS	Project Information Management System (UNDP GEF)
PIR	Project Implementation Review
PMVP	Project Monitoring and Verification Protocol
RTA	Regional Technical Advisor
SCM	Steering Committee Meeting
SME	Small and Medium Enterprises
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WB	World Bank

1. Executive summary

1.1 Brief description of project

This full-size project has been developed over an extensive period of eight years (1997 – 2004). The project development phase consumed a total budget of 375 880 USD, of which 200 880 USD was a GEF cash contribution in the form of a PDF-B grant.

The project development objective was defined to "reduce Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors", and project immediate objectives were defined to overcome general institutional barriers to the promotion of energy efficiency, to overcome barriers to improving energy efficiency in residential and service sectors, and to facilitate effective replication and utilization of project results and lessons learned.

The GEF project budget of 4.39 mil USD was designed to be supplemented by 0.67 mil USD of in-kind co-financing from the Croatian government, and by 7.99 mil USD of private sector co-financing (equity, credits, and loans) to be mobilized by the Partial Guarantee Facility.

2.47 mil USD, ie. 56% of the GEF 4.39 mil USD project budget, were originally planned for financing of the Partial Guarantee Facility – PGF (2 mil USD), and 0.47 mil USD for CFLs sales guarantees and marketing campaign.

The project document was approved and signed in December 2004. The project implementation was originally planned to last 4 years. No-cost extensions were approved, and the GEF project will be terminated by June 30, 2011, six and half years after project approval.

The project focus and activities have been revised and significantly updated in the Inception Report at the very beginning of project implementation, and also based on the recommendations of the mid-term evaluation to better address actual local needs and changed national context/project implementation environment.

The Inception Report reviewed the market conditions in 2005 and found that price of CFLs has significantly dropped (from 7.5 USD to 1.3 – 6.6 USD) since early years of project development phase, CFLs were widely available on the market, and also utilized both in residential and service sectors. The Inception Report correctly evaluated that there is no need any more to support specifically the CFL technology only.

Partial Guarantee Facility was implemented at the HBOR - Croatian Bank for Reconstruction and Development together with another World Bank project financed by GEF. Although UNDP joined its efforts with the World Bank which provided its know-how, the Partial Guarantee Facility did not witness any demand. UNDP thus suggested and national Project Steering Committee then decided to withdraw 0.6 mil USD already provided to the PGF at HBOR, and to use it for other project activities. The World Bank continued this activity and finally, after several years, the HBOR was able to implement the guarantee facility financed by the World Bank/GEF at two projects in the industrial sector.

The UNDP/GEF energy efficiency project focused on residential and service/public sectors. It raised the awareness in energy efficiency by nation-wide information campaign, established energy efficiency information offices, centers, and galleries, developed and disseminated targeted information on typical energy efficiency measures and their benefits, provided free energy advice and energy

audits, trained energy auditors, delivered training on energy efficiency and green office to public authorities employees, established and trained energy efficiency teams and advisors at public authorities, developed Energy Management Information System and implemented Energy Management System including building registry and regular energy meter readings in public authorities, trained facility managers in energy management, identified and developed energy efficiency projects for financing from EPEEF, implemented remote energy metering solutions in governmental facilities and a pilot smart metering system in Sisak municipality, developed National Energy Efficiency Program for Croatia 2008-2016 (NEEP), and The First National Energy Efficiency Action Plan 2008-2010 of the Republic of Croatia (1st NEEAP), organized national and international conferences on energy efficiency.

The project has attracted substantial amount of local cash co-financing in the total amount of 17 mil USD, which allowed a nation-wide roll-out of the Energy Management System into almost all public authorities in the country. This is a unique achievement not only compared to other countries in the region, but compared Europe-wide as well.

1.2 Context and purpose of the evaluation

The terminal evaluation has been performed on a request of the UNDP country office in Croatia, as a standard mandatory requirement of all UNDP/GEF projects. The terminal evaluation mission took place in March 2011, three months before the final completion of the project which is scheduled to finish at the end of June 2011.

The objective of this evaluation is to assess the achievement of project's objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy. The terminal evaluation focuses specifically also on recommendations and lessons learned that could be utilized in similar projects in other countries of UNDP/GEF operation.

1.3 Main conclusions, recommendations and lessons learned

The project has delivered remarkable results that are unique not only compared to other countries in the region, but Europe-wide.

It introduced and established energy efficiency as a policy priority and as a practical tool for effective housekeeping in the whole public sector in the country, including local and county authorities, as well as central government ministries and agencies. The project has implemented Energy Management System covering practically all public facilities in Croatia. The country became a leader in EMS in public sector in Europe.

During project implementation and based on results in pilot cities, the project has attracted exceptionally high local cash co-financing that was fourfold of the GEF budget. The GEF funds served as seed money, but it was the local funding that actually allowed country wide roll-out and implementation of EMS in the whole public sector.

The project has completely changed the perception and the business-as-usual practice concerning energy efficiency in public sector. But it also changed the awareness and attitude towards energy

efficiency in the whole society by its information campaigns, outreach activities and free energy efficiency advisory services, targeting primarily the residential sector.

More than 5 500 public authority officers, energy experts, including auditors, have been trained in energy efficiency.

The results achieved and the impact the project had delivered are evaluated more than Highly Satisfactory.

These results would not materialize without the strong leadership and drive of the Project Manager who combined international best-practice experience with a detailed knowledge of the local market. It was the newly appointed Project Manager who redefined project activities and included the EMS component and focus on public sector in his Inception Report already in reaction to partly outdated Project Document.

However, there still remain challenges and barriers to energy efficiency in the country.

In response to the financial crisis, the Ministry of Finance has introduced an effective ban on new loans in public sector. This ban even covers third-party financed EPC projects, despite the fact that this out-of-budget financing is particularly beneficial during the period of public budget restrictions, because it has no negative impact on public budgets. This ban on EPC projects in public sector is unfortunate especially in a country where operates one of the most successful ESCo companies whose establishment and operation was assisted by the World Bank – the HEP ESCO. In response to these restrictions, HEP ESCO had to cancel its activities in public sector and to focus on customers in other commercial and industrial sectors. The only source for financing energy efficiency projects in public sector in Croatia is thus nowadays Environmental Protection and Energy Efficiency Fund – EPEEF, which provides up to 40% subsidies for energy efficiency projects in public sector. (The remaining investment is financed directly from budgets of public authorities, and thus increasing their debt.)

In the residential sector there still exist key barriers that prevent practically any building level investment in multiapartment buildings. There is a 100% quorum required for any building level investment decision, including energy efficiency. In existing buildings, district heating bills are based on floor area of apartments and do not reflect actual energy consumption, and building level heat meters and individual heat cost allocators are not installed (with some exceptions). The legislation has been harmonized with the EU Directive 2006/32/EC on energy end-use efficiency and energy services which requires “energy billing based on metering” only concerning new buildings built after III/2005, but not concerning the existing multiapartment building stock.

A policy action is needed to remove these barriers.

The project implementation suffered from poorly defined LogFrame, indicators and targets that actually have been defined only after the mid-term evaluation. GHG emission monitoring and evaluation plan and methodology has not been prepared and established in time. Financial planning followed the Atlas budget lines structure which does not allow monitoring budget and expenditures per project activities; it was used for regular project reporting, but not as much for frequent operational project control. This all means that the daily project management was not as effective and flexible as it could have been if standard project management and financial planning tools would be utilized. Without utilization of such standard tools, it is too much time-demanding and practically impossible to have operational frequent control over the details of project implementation and its status.

These negative factors bring down the overall project evaluation to Satisfactory only despite the great results the project has generated.

Highly Satisfactory	**SATISFACTORY**	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

1.3.1 Recommendations and lessons learned

- CO2 emission reductions should be evaluated on a regular basis and based on actual metered energy savings data at least annually over the next period when the project will continue with local financing after the GEF project will be terminated.

- Good quality project identification and specification requires top-level expertise: knowledge of international best practices, hands-on experience with similar projects in countries facing similar development challenges combined with a detailed knowledge of local market situation and understanding of specific local needs. This expertise cannot be offset by an extensively long project development period. Top level international experts, not only experienced project administrators should be involved in early stages of project identification and formulation. Or at least they should review these early brief project ideas before the costly process of full project design is committed.

- Project indicators and targets must be SMART: Specific, Measurable/monitorable, Achievable/attainable/attributable, Relevant/realistic and Trackable/time-bound. If they are not, they have no practical use and create just an administrative burden. Use experienced external consultant if needed to define/review project indicators and targets. Avoid vague indicators and indicators that are not measurable within the project implementation period and that indicate what should potentially happen in the future. Define indicators and targets in required detail in a separate section of the Project Document if needed, do not rely only on the limited space available in the LogFrame matrix. Specify in detail the methodology how to monitor and evaluate/enumerate indicator achievements at the same time when indicators and targets are defined. Define alternative indicators if necessary. Use indicators and targets (including additional indicators for specific sub-activities) in daily project management – as in any standard business, not only for formal reporting.

- Clearly decouple the two LogFrame roles: project planning, approval, and reporting from project daily management. Do not hesitate to use much wider and more detailed activities (and indicators and targets) description for project daily management. Do not stay stuck to the general level of detail used in the Project Document LogFrame matrix only.

- When selecting a Project Manager, focus on key critical success factor: combination of experience, qualification, hands-on knowledge of best international practices, deep understanding of local market and conditions, and a dynamism and drive. Focus on leadership, not only on project administration.

- Keep the position of the Project Manager filled over the whole period of project implementation, avoid situation when there is no single formal head responsible for the whole project implementation.

- Structure financial plans and reports per individual project activities. Do not use primarily the Atlas structure for financial planning and daily project financial management.

- Utilize standard project management and financial planning tools when implementing GEF/UNDP projects. Identify or develop suitable software tools customized to specific UNDP reporting needs, prepare and make available a handbook on GEF/UNDP project management and develop a web-based training application in project management and financial planning.

- Consider potential strengthening of EPEEF energy efficiency financing capacity and/or establishment of a dedicated financial facility that would provide preferential energy efficiency financing (subsidized loans and technical assistance).

- Avoid supply-driven approach and mechanical replication of projects successful in one country to other countries. Focus on detail analysis of local demand and needs, as well as on specifics of local markets and their maturity.

- When considering replication of the EMS project elsewhere, analyze in detail if the local financial market is matured enough, if there is a capacity in place to provide and absorb commercial debt financing in public sector including EPC, and if potentially available local preferential financial instruments supporting EE investment have sufficient capacity for the scope of the EMS project.

- Prepare a brief policy paper with strong policy recommendations addressing critical barriers to energy efficiency in multiapartment buildings and public sector. Advocate compulsory decrease of the 100% quorum requirement on EE investment decisions and compulsory installation of building level heat meters and individual heat cost allocators that are in line with ‘energy billing based on metering’ principle of the EU Directive 2006/32/EC on energy end-use efficiency and energy services. Advocate removal of the Ministry of Finance ban on EPC projects in public sector and explain benefits of this out-of-budget financing scheme with third-party performance guarantees especially in period of public budget cuts.

- Plan in a project design for an adequate inauguration period between the official start of project implementation (by a signature of the project document) and its effective start which is usually several months delayed.

- Provide a feedback to evaluators and make the global internal evaluation of GEF/UNDP mid-term and terminal project evaluations available to them.

Lessons learned are described in more detail in Chapter 9.

2. Introduction

2.1 Project history and background

The project idea has been initiated in mid 1990s by a local state owned Energy Institute Hrvoje Požar, which led a national stakeholder group, including relevant institutions and NGOs. A Project Development Facility PDF-B proposal has been approved in 1998 for a development of a full project document and financed by GEF. The Project Brief has been submitted to GEF in 2000. The full Project Document was endorsed by GEF CEO in August 2004, and signed by the UNDP and by the Ministry of Economy, Labour and Enterpreneurship as an Executing Agency on December 17, 2004. The national Energy Institute Hrvoje Požar was originally designed to serve as an Implementing Agency, however this was changed after the approval of Project Document and UNDP acted as the Implementing Agency.

In February 2005 UNDP announced a vacancy for a project manager position, who took his office in July 2005, when the project implementation effectively started. The first disbursement of funds took place on August 1, 2005. The project was originally designed to last four years from December 2004 till December 2008. The Steering Committee Meeting (SCM) held on November 2, 2005 approved a no-cost extension till the end of June 2009, so that a full four-year operational period for project implementation would be secured (July 2005-June 2009). In the 2008, the Steering Committee Meeting held on July 21, 2008, approved a one-year no-cost extension of the project till June 30, 2010. The final additional one-year no-cost extension till June 30, 2011 was approved by John O'Brien, Regional Technical Advisor, UNDP BRC in January 2010. The total project implementation period is thus 6.5 years (including a half year period between official and actual project start). The extended implementation period reflected expanded scale of the project covering implementation of the EMS in practically whole public sector in Croatia.

The project development objective has been designed to *"reduce Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors"*. Immediate project objectives were defined to ***overcome general institutional barriers*** *at local/regional level to promote energy efficiency*, to *overcome barriers to improving energy efficiency in* ***residential*** *and* ***service*** *sectors*, and to ***facilitate effective replication*** *and utilization of project results*.

Specifically, the original project document planned for the following key project components and activities:

1. General institutional barriers at the local/regional level

    1.1 Training of local energy experts to serve as energy advisors
    1.2 Strengthening local authorities to promote energy efficiency and to help later establishment of regional energy centers

2. Residential sector

    2.1 Increase public awareness of energy efficiency technologies and measures by information campaigns
    2.2 Implement pilot Compact Fluorescent Lamps (CFL) marketing campaign and large-scale sale of subsidized CFLs in Istria region (100 000 pieces)
    2.3 Replicate the CFLs campaign in other regions of the country

3. Service sector

- 3.1 Information dissemination, marketing campaigns and energy audits to raise awareness of public and commercial building owners/managers
- 3.2 Training and support of local energy experts and banks to develop, implement and operate bankable energy efficiency projects, with initial focus on hotels
- 3.3 Develop a pipeline of bankable energy efficiency projects; provide technical assistance and financial incentives for energy audits and feasibility studies (Project Development Fund – PDF)
- 3.4 Implement Partial Guarantee Facility (PGF) to facilitate financing of energy efficiency projects by risk sharing

4. Replication of project results

- 4.1 Development of Project Monitoring and Verification Protocol (PMVP) and monitoring of GHG emissions reductions of implemented projects, including training and meter installation if needed
- 4.2 Project evaluation, GHG emission reduction analysis, development of a final project report on project results, experience and lessons learned, and information dissemination seminars

The original focus of the project was very much on promoting CFLs , developing a pipeline of EE projects for investment, and on implementing the Project Development Fund and the Partial Guarantee Facility. The original project logical frame (ie. the list of project objectives, outputs and activities) is shown in Annex 1.

The project was designed in the Project Document to have a total budget of 13.05 million USD (without PDF-B), which combined a GEF cash contribution of 4.39 mil USD, private sector cash contribution of 7.99 mil USD (in a form of equity, credits, and loans), and 0.67 mil USD in-kind contribution from the Government of Croatia.

The PDF-B facility used for development of the project document had a total budget of 375,880 USD, of which GEF cash contribution was 200,880 USD, and in-kind contribution the Government of Croatia was 175,000 USD.

Associated financing was designed to be provided from the Government of Norway in an amount of 150,000 USD.

2.97 mil USD, ie. 68% of the 4.39 mil USD GEF budget, have been originally designed to support three project components, of which: 2 mil USD were designed for Partial Guarantee Facility, 0.5 mil USD for a Project Development Facility, and 0.47 mil USD were designed for CFL sales guarantees and marketing campaign.

2.1.1 Changes in the project design

2.1.1.1 Inception Report

Shortly after the project signature, the Ministry of Economy decided to change the Implementing Agency, and instead of the Energy Institute Hrvoje Požar, the UNDP office in Croatia was designated to serve as the project Implementing Agency. A project manager was hired, who authored an Inception

Report in mid 2005. The Inception Report specified in detail the planned implementation activities and changed considerably the project implementation plan. The Inception Report includes updated list of outputs and activities, revised budget allocation, and a revised LogFrame including success indicators and intermediate benchmarks (targets). The following main changes to the original Project Document were approved by approving the Inception Report at the Steering Committee Meeting (SCM) held on November 2, 2005:

1. The subsidized CFL marketing and sales project component was removed, due to already significant decrease of CFL price on market in Croatia (The ProDoc stated its goal ".. if the price of CFL could be reduced from current US$ 7.5 to approximately US$ 4-5, … than people will be willing and able to pay..". The 2005 market survey showed CFLs from different producers are widely available on the market with already significantly reduced price of USD 1.3 – 6.6.)
2. Instead of focusing on CFL technology primarily, the focus of project activities was redirected to an integrated approach towards higher energy efficiency in buildings according to recent EU legislation. The budgeted 0.3 mil USD sales subsidy for CFLs was suggested to be frozen until the mid-term evaluation and potentially to be reallocated to other project activities.
3. In the service sector, the focus of the project was changed to public buildings mainly, but not excluding commercial sector and hotels
4. The geographical focus of the project on Istria and Rijeka regions as demonstration zones was extended to the whole country, including the continental regions with colder winters.
5. The focus of Partial Guarantee Facility was extended from service sector also to residential sector, due to its higher share on total energy consumption

A new facility energy management project component was designed, covering state owned and municipally owned public buildings, whereby the Government will take initiative to improve efficiency of its own building stock ("House in Order" and "SGE" projects).

A new revised project LogFrame (ie. list of objectives, outputs and activities) as approved in the Inception Report is shown in Annex 2. It redefined project outputs and activities, the project development and immediate objectives remained unchanged.

2.1.1.2 Mid-Term Evaluation

A LogFrame has been defined including revised outputs and activities and newly defined indicators and targets based on recommendations of the 2007 Mid-Term Evaluation report, and was approved by a Steering Committee. The LogFrame is shown in Annex 3. In terms of activities, the main following changes were approved:

- Creation of the Energy Management System for public buildings (of both local and central government)
- Development of local Energy Plans (energy efficiency investment plans)
- Instead of tender for EE technologies, installation of Energy Corners, exhibits of energy efficiency solutions in Do-It-Yourself retail chains, including marketing campaign
- Development and distribution of information on typical/model EE measures/projects, instead of results of pilot CFL projects only
- Provision of advisory service for residential sector to facilitate development of a project pipeline
- Extension of the Partial Guarantee Facility also for residential projects
- Provision of technical assistance to commercial banks

The original budget, including the unused CFL sales subsidy, was reallocated accordingly to new revised project activities.

2.1.1.3 Annual Work Plans

Annual Work Plans (AWP) approved by the SCM specified some activities in more detail and designed also several new activities as well as new outputs.

Main additional activities/outputs described in AWPs include:

- Energy Strategy for Croatia – AWP 2007 (50 kUSD UNDP+450 kUSD)
- Project proposal on the Mechanisms for Croatia to comply with Kyoto protocol targets and to participate in voluntary Carbon trading developed – AWP 2007 (UNDP 25 kUSD) – financed from a separate UNDP fund
- National Human development report (NHDR) "Socio-economic impacts of Climate Change in Croatia" - AWP 2008, 2009 (UNDP 100+37 kUSD) – financed from a separate UNDP fund
- Implementation of the House in Order program, covering practically all state-owned buildings in the country, and creation of the country-wide register of public buildings, and design, implementation and operation of the Energy Management System in cities and counties (incl. frequent energy meter data reading) – AWP 2009, 2010
- National 3-year information and education campaign targeted to residential sector financed from local co-financing
- Assistance to the national Government in preparation energy efficiency by-laws and regulations – AWP 2010 (GEF 150 kUSD)

2.1.2 Country development context

The 15 year period from the formulation of the first project idea in 1997 till the completion of project implementation in 2011 witnessed enormous changes in Croatian policy and economy. In early 1990s the country was heavily affected by the break-up of the former socialist Yugoslavia and the following Balkan war. Thus in 1990s, energy efficiency was not on a political agenda at all.

At the time of the project approval in 2004, the situation in energy efficiency in Croatia was still very immature. Simple and common energy efficient technologies and appliances were available on the market, and especially the inexpensive ones were also implemented (such as CFLs), however more complex and specifically building-level energy efficiency measures have not been typically implemented, especially in the residential and service/public sectors. The state fund EPEEF has been just established and started to provide preferential financing and subsidies for projects, including energy efficiency projects, in 2004. Commercial debt financing in residential and service/public sectors was still rather immature, and rarely covered energy efficiency projects. Local knowledge and experience with developing bankable energy efficiency projects was still very limited/non-existent.

Today, the country is an advanced EU candidate expecting to become a full EU member in a near future. Also the situation in energy and energy efficiency sector has changed significantly over this period, and it is no surprise that these changes influenced also the actual project implementation. During the project implementation the project activities have been actively redefined and adjusted to better reflect actual needs of the country. A flexible and truly adaptive project management helped the project to work effectively towards original project goals and objectives, although some of the originally planned key project components (CFLs, PGF) turned out not to be relevant and usable, since

the situation in the country and the project context has changed significantly compared to the first formulation of the project idea in 1997.

2.2 Purpose of the evaluation

This terminal evaluation has been performed on a request of the UNDP country office in Croatia, which served also as a project Implementing Agency. It is a mandatory requirement of all UNDP projects. The terminal evaluation mission took place in March 2011, three months before the final completion of the project which is scheduled to finish at the end of June 2011.

The objective of this evaluation is to assess the achievement of project's objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy. It also provides the basis for learning and accountability for managers and stakeholders and for providing important lessons learned which can be applied to the design of future UNDP projects which aim to remove barriers to energy-efficiency.

According to the GEF and UNDP/GEF Monitoring & Evaluation Policies, the 2009 Handbook on Planning, Monitoring and Evaluating for Development Results, the terminal evaluation has four objectives:

i. Monitor and evaluate results and impacts;
   Analyze and evaluate effectiveness of the results and impacts that the project has been able to achieve against the objectives, targets and indicators stated in the project document;

ii. Provide a basis for decision making on necessary amendments and improvements;
   Assess effectiveness of the work and processes undertaken by the project as well as the performance of all the partners involved in the project implementation;

iii. Promote accountability for resource use;
   Provide feedback and recommendations for subsequent decision making and necessary steps that need to be taken by the national stakeholders in order to ensure sustainability of the project's outcomes/results; and

iv. Document, provide feedback on, and disseminate lessons learned.
   Reflect on effectiveness of the available resource use; and document and provide feedback on lessons learned and best practices generated by the project during its implementation.

2.3 Key issues addressed

The following key issues have been addressed in the terminal evaluation:

Relevance of the project with national development priorities, and its appropriateness,
Effectiveness of the development project and partnership strategies,
Contribution and worth of the project to national development priorities
Key drivers and success factors enabling successful, sustained and scaled-up development initiatives, alternative options and comparative advantages of UNDP

Efficiency – cost-effectiveness of funds spent to reach project objectives and results
Risk factors and risk management strategies
Sustainability - level of national ownership and measures to enhance national capacity for sustainability of results
Impact of the project implemented on human development

2.4 Methodology of the evaluation

The methodology used for the project terminal evaluation was based on the UNDP/GEF Monitoring & Evaluation Policies, key evaluation objectives and issues addressed as described above.

The actual evaluation consisted of the following key parts:

I. Project documents review

Prior to the evaluation mission to Croatia key project documents were sent to the evaluator for home-based review. The reviewed documents included the original project document, inception report, mid-term evaluation report, Project Implementation Reports, minutes from the Project Steering Committee and Project Board meetings, project web-site and documents concerning three particular project activities: PGF at the HBOR, and HiO and SGE programs.

II. Evaluation mission and on-site visits

During the actual evaluation mission in Croatia the evaluator has interviewed project management team and other project stakeholders.

- Project management presented the project context, project activities and achievements, main issues that have been addressed, changes in project design, problems with implementation and ways how such issues were addressed. All project deliverables were presented for review.
- Additional information was collected ad hoc and reviewed, including AWPs, budget forms, consumer surveys, marketing strategy, energy audits, all project publications and handbooks, additional details on the EMS and HiO and SGE programs, and on Project Development Facility – PDF, EE Strategy and Master Plan, review of energy prices.
- Interviews with key project stakeholders.
- Interviews with representatives of entities that provided co-financing and which directly and indirectly interacted with the project.
- Site visits to three municipalities in the country and several governmental institutions/ministries that implemented project.

III. Ex-post collection and clarification of additional information

During drafting the report the evaluator collected additional information and clarification from the project management team.

IV. Circulation of the draft evaluation report for comments

V. Finalizing the report, incorporation of comments

2.5 Structure of the evaluation

This terminal evaluation follows the structure of the terminal evaluation report as specified in its Terms of Reference and according to the evaluation template of the 2009 Handbook on Planning, Monitoring and Evaluating for Development Results.

A specific attention and focus have been paid to the evaluation of an implementation of recommendations of the mid-term evaluation, and to lessons learned and recommendations applicable also for other GEF/UNDP energy efficiency projects in other countries and regions of operation dealing with energy efficiency.

3. The Project and its development context

3.1 Project start and its duration

The *project development phase* lasted more than 8 years until the project document was signed – an exceptionally long period, especially for a project that was originally planned to last 4 years.

1997 The project idea has been initiated in mid 1990s, a first project concept was prepared in May 1997.

1998 PDF-B proposal approved in May.

2000 The Project Brief has been submitted to GEF and approved in November.

2001 Preparation of the Project Document started in February

2004 The full Project Document was endorsed by GEF CEO in August 2004, and signed by the UNDP and by the Ministry of Economy, Labour and Enterpreneurship as an Executing Agency on December 17, 2004. The project officially started by the signature of Project Document.

Project implementation, originally planned to last 4 years, has been extended due to the expanded scale of the project, and lasted in total 6.5 years; the total GEF budget remained unchanged.

2004 December 17 – formal beginning of project implementation

2005 Project implementation operational kick-off. In July 2005 the project manager was hired and project implementation factually started by developing an Inception Report. In October 2005 the project became fully operational. The first disbursement of funds took place on August 1, 2005. The first meeting of the Steering Committee took place in November 2005 and approved the Inception Report.

2007 Project Mid-Term Evaluation took place.

2008 December 2008 was originally designed as an end of project implementation.

2011 After three no-cost extensions for additional two and half years, the June 30, 2011 is the final date of completion of UNDP/GEF project implementation. March 2011 – terminal evaluation mission in Croatia.

3.2 Implementation status

The GEF project is scheduled to be terminated by June 30, 2011.

The project has attracted substantial amount of local co-financing which is planned to be disbursed by 2013. The overall, full implementation of two project components – House in Order and SGE which will be 100% locally financed – is thus planned to be fully accomplished by 2013.

During the terminal evaluation mission, held in March 2011, several GEF project activities (project results monitoring based on the updated EMIS software, project final report) were still under implementation and were planned to be finalized by the end of the project at the end of June 2011. For example a new version of the EMIS software was under development and it was finalized and put on-line and implemented in May 2011; on June 1st was held a public presentation of the new version of the EMIS software and its functionalities at the Ministry of Economy.

Implementation of EMS will continue even after GEF project termination and will be fully financed from local sources of EPEEF.

3.3 Problems that the project seeks to address

The problems to be addressed by the project were identified in the Project Document and were specified as follows:

(a) lack of awareness and information of the different end user groups on the available energy saving technologies and measures and their financial benefits;

(b) weak institutional framework to initiate and support projects, public outreach and other activities related to energy efficiency and environmental protection;

(c) high up-front costs of energy efficiency investments, combined with the limited financial resources of the targeted end user groups to invest on energy efficiency on their own;

(d) lack of experience and capacity of the local stakeholder to develop "bankable" EE projects and to take energy efficiency (EE) aspects otherwise into account in planning;

(e) lack of capacity and resources of the owners/operators of the public and commercial buildings to work on energy efficiency in addition to running their core business;

(f) lack of local capacity, information and experience in establishing and operating new institutional and financial mechanisms such as Energy Service Companies (ESCOs) or utility driven demand side programs to develop, finance and implement energy efficiency projects;

(g) lack of local experience and capacity to successfully implement EE projects; and

(h) lack of experience and high perceived risks of the local financing institutions to finance energy efficiency projects, which in combination with the conservative lending practices of the Croatian banks in general effectively hamper the possibilities to obtain financing for EE projects;

3.4 Immediate and development objectives of the project

The project was designed to remove key barriers to implementing energy efficiency in residential and service sectors in Croatia.

The definitions of development objective in the original project document were not fully consistent, and the wording was slightly different in different parts of the project document.

The development objective was defined as:

> *"Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors" (page 27, ProDoc)*
>
> *"Reducing Croatia's greenhouse gas emissions by removing barriers to and leveraging financing for the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors"(Annex VIII, Planning Matrix, page 70, ProDoc)*

The Project Document defined four immediate objectives (Renamed to Outcomes after MTE based on its recommendations):

Immediate Objective 1:

"Overcoming the general institutional barriers to the promotion of energy efficiency"

Immediate Objective (Outcome) 2:

"Overcoming the barriers to improving the energy efficiency of the residential sector"

Immediate Objective (Outcome) 3:

"Overcoming the barriers to improving the energy efficiency within the service sector"

Immediate Objective 4:

"Facilitating the effective replication/utilization of the project results and lessons learnt"

Based on recommendations of the MTE, the project LogFrame has been reconstructed. The Project Goal has been formulated and included also a CO_2 reduction target from the Project Brief:

Project Goal:

"*Removing key barriers to the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors in Croatia, thereby reducing their energy consumption and associated greenhouse gas emissions by 2 Mton CO_2 cumulatively by 2020"*

Development Objective was specified to focus on buildings:

"*Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficient technologies and measures in residential and service sector buildings"*

The four original project Immediate Objectives were renamed to Outcomes and remained unchanged.

3.5 Main stakeholders

The project involved an extensive range of local stakeholders and beneficiaries, including:

1. Ministry of Economy (MINGORP)
2. Croatian Bank for Reconstruction and Development (HBOR)
3. Local commercial banks
4. Environmental Protection and Energy Efficiency Fund (EPEEF)

5. World Bank
6. HEP ESCO
7. Chamber of Commerce
8. All of 127 Croatian municipalities
9. All of 20 Croatian counties
10. Practically all Croatian central government Ministries and state-owned facilities
11. Local NGOs
12. Vendors of energy efficient technologies and materials
13. Local energy service providers, engineering and energy consulting companies and experts – energy auditors
14. Local media
15. Residential apartment and house owners
16. Commercial and public buildings owners and managers
17. Training providers – Universities of Zagreb, Split, Rijeka, and Osijek, and Energy Institute Hrvoje Požar experts

3.6 Results expected

The main expected end-of-project results, as specified by objective and outcomes indicators in the original project document, were defined in a vague way and were rather soft, with no specific targets and baselines. These original indicators included:

- The demand for energy efficient equipment and projects show an increasing trend
- Increasing leveraging of financing for EE investments
- Regional and other public authorities taking an active role in promoting the energy efficiency investments
- The demand for energy efficient equipment and projects show an increasing trend in the residential sector
- The demand for energy efficient equipment and projects show an increasing trend in the service sector
- The activities are replicated at the national and, as applicable, regional level

Indicators for several specific outputs were accompanied with measurable targets:

- Increased awareness of available energy efficient technologies and measures applicable in residential and service/public sectors
- A successfully conducted pilot marketing and subsidized sales campaign to promote the purchase of the CFLs in residential sector (at least 100 00 CFLs sold during the pilot campaign), and the campaign replicated to other regions and technologies
- A pipeline of at least 10 “bankable” energy efficiency proposals fully developed for submission for financing
- The 2 mil USD Partial Guarantee Facility established and in operation. At least USD 7,500,000 worth of additional resources leveraged for energy efficiency investments.
- A system with trained personnel for monitoring GHG emission reductions of demonstration projects in place
- Workshops and other public outreach activities organized at the national and regional level to discuss and disseminate the project results, conclusions and recommendations
- Final project report published and disseminated at the national and regional level.

The planned end-of-project results and activities specified in the original project document LogFrame were significantly updated and revised both in the Inception Report, and especially after MTE based on its recommendations.

The final revised LogFrame, updated based on recommendations of the MTE report, specified CO_2 emission reduction targets, updated and increased EE investment targets, specified targets in terms of increased awareness and penetration of EE technologies in both residential and service sectors, and defined also specific project outputs and activities.

The overall objective of the project remained the same, namely to reduce greenhouse gas emissions in Croatia by supporting the implementation of economically feasible technologies and measures to improve energy-efficiency in the residential and service sector buildings.

The final revised end-of-project results, indicators and targets as specified after the MTE were defined as follows:

Project objective: Reducing Croatia's greenhouse gas emissions

Indicator 1: Direct CO2 emission reductions as a result of project-assisted investments
Target 1: Investments leading to 15 kton CO2 emission savings by the end of project

Indicator 2: Indirect CO2 emission reductions as a result of project activities targeting a wider audience
Target 2: Indirect emission savings amounting to 1.9 Mton by 2020

Outcome 1: Overcoming the general institutional barriers to EE

Indicator 3: New investments in energy efficient end-use technologies in buildings as a result of project investment support
Target 3: Investments for project-endorsed EE measures in buildings of USD 2.5 M at mid-term and USD 7.5 M by end of project

Output 1.1: Enhanced capacity of the regional authorities to promote energy efficiency in buildings

Indicator 4: Regional and other public authorities have established an energy management system and use this to promote EE investments and measures
Target 4: Mid-term target: 1 authority; end of project target: 5 authorities

Outcome 2: Overcoming barriers to improving the energy efficiency of the residential sector

Output 2.1: Increased public awareness of the available energy efficient technologies and measures and their benefits to the consumers

Indicator 5: Household awareness of availability and benefits of EE lighting, appliances and equipment
Target 5: 95-100 % of households aware of availability of EE products and their benefits

Output 2.2: Successfully conducted marketing campaign to promote the purchase of energy efficient products

Indicator 6: Number of households that have purchased EE lighting, appliances or equipment in the last 12 months

Target 6: 54 % of households have purchased a CFL, EE appliance or insulation material in last 12 months

Output 2.3: Successfully developed and demonstrated financial and/or other mechanisms to support investments in the energy efficiency of residential buildings by their owners

Indicator 7: Number of mechanisms developed and demonstrated

Target 7: 2 mechanisms developed, 1 successful demonstration

Outcome 3: Overcoming barriers to improving the energy efficiency within the service sector

Output 3.1: Increased awareness of the owners of the public and commercial buildings on the available energy efficient technologies and measures

Indicator 8: Hotel and public building owner awareness of availability and benefits of EE lighting, appliances and equipment

Target 8: 37% of hotel owners & public building managers aware of availability of EE products and their benefits

Indicator 9: No. of hotels and public buildings that have purchased EE lighting, appliances or equipment in the last 12 months

Target 9: Y + 10 % of hotel owners & public building managers have purchased a CFL, EE appliance or insulation material in last 12 months

Note: Y corresponds to a baseline value, Y has not been enumerated though; target was designed to be increased by 10% (or by 10 pp - percentage points).

Output 3.2: Successfully developed and demonstrated financial and/or other mechanisms to support investments in the energy efficiency of service sector buildings by their owners

Indicator 10: Number of mechanisms developed and demonstrated

Target 10: 2 mechanisms developed, 1 successful demonstration

Outcome 4: Facilitating the effective replication/utilization of the project results and lessons learnt

Output 4.1: Enhanced government capacity to prioritize and implement targeted activities to promote energy efficiency

Indicator 11: National energy efficiency strategy developed and operational

Target11: Mid-term target: strategy developed; end-of-project target: operational

Output 4.2: A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects in place

Indicator 12: Energy and CO2 emission monitoring of project impact (established and operational)

Target 12: Monitoring system established and operational

Output 4.3: Project results, experiences and lessons learnt documented and disseminated at the national and regional level

Indicator 13: Project results widely disseminated and discussed with stakeholders
Target 13: see indicator – no specific target defined

4. Findings

With appointment of the Project Manager at the beginning of the project implementation, the project received a new impulse and changed significantly the project focus, several activities and outputs have been redefined and changed; however, the originally designed project goal and objective remained unchanged.

The extensive international experience and dynamism of the Project Manager, Mr. Zoran Morvaj, was crucial. As a Croatian by nationality, he was familiar with and understood well local market and its specifics, and his professional career in Western Europe and world-wide provided him with a detailed knowledge of state-of-the-art best practice in energy efficiency and market transformation. This combination of the best international experience and insider's insight was unique and critical for project successful implementation.

The revised project focus was very simple but crucial.

Public sector owns a large stake of energy consuming facilities. Public authorities are known for imposing duties and regulations, including those concerning energy efficiency, on others. But public sector, as a large owner of buildings and large energy consumer, can act also as an example for others, and lead by example.

The core of the revised project approach could be characterized by a motto: "Public sector - a leading energy efficient housekeeper".

The project developed and implemented two locally financed national energy management programs for public buildings, namely one program for municipal and county owned buildings (SGE program), and a program focused on state owned buildings (House in Order).

4.1 Project Formulation

4.1.1 Conceptualization/design

The initial project idea has been formulated 15 years ago. Since the late 1990s Croatia has experienced a substantial changes and development, both in policy and economic terms. In the meantime, the situation in the energy and energy efficiency market has changed significantly as well. In 2003 Croatia has applied for the EU membership, and since 2005 it has been harmonizing its legislation with EU acquis communautaire. Currently 29 out of 33 chapters have been closed, including Environment and Energy chapters. One could expect that the energy efficiency barriers, problems and priorities identified in the 1990s might have changed considerably since that time. From this perspective, the main project goal and objective (removing barriers to implementation of economically feasible energy efficiency measures in residential and service sectors) surprisingly did address problems that were critical for energy efficiency development in the country over this whole period - because the definition of project goal and objective has been formulated in quite a general way. Project activities and outputs have been redefined accordingly to reflect actual needs and priorities.

The project was focused to address mainly residential and service/public sector, and the main project components, as defined in the original Project Document included:

1. Information dissemination, awareness rising and capacity building to increase capacity of buildings/facility owners in residential and public/service sectors to identify and develop bankable energy efficiency projects (including training of energy auditors)
2. 0.5 mil USD Project Development Fund to finance free energy audits (potentially to be paid back after project implementation)
3. 0.3 mil USD subsidized scheme for sale of 100 000 CFLs to residential customers
4. A 2 mil USD Partial Guarantee Facility to attract commercial finance for project implementation

The CFL subsidized sale project component has been eliminated in the Inception Report already, because the CFL price has dropped significantly since the project design period, and there was no need any more to focus on CFLs only. Instead, the project focus has been redefined to include all technically proven and economically viable EE technologies.

Other project components have been implemented and the design of its specific activities have been further changed and updated during implementation.

The identified barriers to energy efficiency are listed in the Chapter 6.3 "Problems that the project seeks to address" reflect typical barriers to energy efficiency in countries with economies in transition in the CEE region, and are assumed to be fully relevant in the Croatian context in that time. However, ***the original project design did not take into account the following critical barriers and issues*** related with proposed project interventions:

1. A basic economic barrier to implementation of energy efficiency projects in residential sector are ***subsidized energy prices***. Although price (de)regulation is responsibility of the government, and it cannot be directly influenced by the project, this barrier has not been identified, nor addressed during project implementation properly (for example in a form of a clear policy recommendation). The Croatian government has adopted and started to implement a plan to increase gradually the residential energy prices and to remove (cross)subsidies; however in 2011 the residential prices of electricity and natural gas are still somewhat cross-subsidized.

2. A critical barrier for implementing any building-level energy efficiency measures in multiapartment buildings, where practically all apartments have been privatized and are owned by individual tenants, is a ***required 100% quorum for investment decision making*** in multiapartment buildings. The experience and lessons learned from other countries in the CEE region is crystal clear: ***there is practically no investment in building-level energy efficiency in countries where this 100% quorum requirement is in place***. And only in those countries, where this quorum has been decreased by a law, a building-level investment can materialize on a large scale. In the case of the Czech Republic, this quorum has been decreased by law from 100% to 75% in case of Housing Associations; in case of Housing Cooperatives or commercial entities, the situation is even simpler: simple majority decides (in some cases even the majority represented at the assembly). It is worth to note that this decision making process does not influence only building-level energy efficiency investment, but any building-level investment, including major reconstructions etc. This barrier has not been identified, nor addressed. The current situation in Croatian residential market illustrates this critical barrier: only investments on individual apartment level do materialize on a larger scale (such as replacement of windows), and only very limited and exceptional activities and investment have been made on a building-level, where all tenants would have been required to agree on the investment and financing. (No such case has been identified where the whole façade of the whole building would be retrofitted in more energy

efficient way, only one multiapartment building has been identified where the whole building façade has been repainted, however with no energy efficiency measures implemented, and only one part /one entrance/ of the multiapartment, multientrance building have been identified, where all tenants replaced windows).

3. Multiapartment buildings especially in larger cities are often supplied by district heating. As of today, building-level heat meters have not been installed in all cases yet. In some cases heat meters are installed only at the substation, which supplies heat to several multiapartment buildings. In general, no heat-cost allocators are installed (except for new buildings and several cases of existing buildings). There is ***no regulation requiring installation of heat-cost allocators*** in existing multiapartment building stock (buildings built till 2005). In other words, the heat consumed is billed based on square meters of the apartment, and does not reflect actual individual heat consumption. The experience from other CEE countries is again straightforward: without a national legislation requiring compulsory installation of heat-cost allocators (and building level heat meters) also in the existing multiapartment building stock, there is no economic motivation to implement any heat-savings measures. The same applies for water meters. Energy billing based on actual energy consumption is required also by the EU Directive 2006/32/EC on energy end-use efficiency and energy services. In article 13, it says that: "*Member States shall ensure that, in so far as it is technically possible, financially reasonable and proportionate in relation to the potential energy savings,* ***final customers*** *for electricity, natural gas,* ***district heating*** *and/or cooling and domestic hot water* ***are provided with competitively priced individual meters*** *that accurately reflect the final customer's actual energy consumption…*", and that "*Member States shall ensure that, where appropriate,* ***billing … is based on actual energy consumption***". The governmental action is required to transpose the directive into national legislation, and to impose a requirement of installation of radiator-level heat-cost allocators also for the existing building stock. It is worth to say, that even before this "Smart Metering" Directive was implemented, the billing based on individual energy metering (or radiator level heat-cost allocators) was not only a best practice, but in most cases in most EU countries typically a common, business-as-usual practice.

4. The original project scope was rather ambitious in terms of timeframe available (4 years) for implementation of all its goals; this relatively short period would not provide enough time to first develop sufficient awareness and demand for energy efficiency projects, capacities to develop bankable projects, and subsequently to train and develop capacities of local banks to finance energy efficiency projects. Each of these activities is rather time-demanding and would require multiple consecutive years for successful implementation. Parallel implementation of these activities would still have limited impact within four years as originally planned. Also it took about a half year period between the Project Document was signed and Project Manager hired. From this perspective it has been beneficial for the project that the project implementation period has been extended for another two and half years making it a six and half project from the outset. But still the Partial Guarantee Facility was not successful and did not provide the expected results in terms of leveraging commercial financing. A more proper timing for establishment and operation of such or similar financial facility might be more suitable. It might be more suitable if PGF were operational only as "late" as this year or during next coming years, when there is already an energy management system in place generating EE investment project proposals in public sector. In the design phase, it was not planned for a ***proper subsequence of key activities***, nor did the original time-frame provide ***sufficient time for development and implementation of***

all key activities. The original project proposal was rather ***supply driven***: the focus was on technology (CFLs) supply, and on supply and delivery of financial sources, however not sufficient time was planned to develop the demand first – the ability and competence to identify and develop bankable EE projects. Any advanced financial facility (such as guarantee facility) also requires the financial market (banks and clients) to be developed enough so that debt financing would be a standard financing tool in the country. The primary problem of the countries in the region with economy in transition is often not a lack of financing, which is often reported as a key problem, but lack of bankable EE projects and hesitancy to use commercial debt financing.

5. The subsidized scheme for dissemination of 100 000 CFLs reflected the situation in mid 1990s, when this technology was new and expensive. By the actual start of project implementation in 2005 (but also by the time of GEF approval of the project in 2004 already) the price of CFLs has already decreased significantly (from 7.5 USD to 1.3 – 6.6 USD) and became fully affordable. It was only appropriate that the Inception Report recognized this market development and suggested to refocus the project activities and to eliminate the CFL campaign. It should be noted that the CFL technology today does not represent the state-of-the-art technology anymore and more energy efficient lighting technologies are available on the market (such as LED lamps, etc.) This illustrates the risk and limited sustainable impact of technology supply driven approach.

6. During the project document approval process, the Swiss GEF Council member raised a concern that "***the supply driven approach, mainly product based (efficient lighting, efficient burners, etc.) is likely to be of limited impact***". This concern proved to be fully valid, however, it was not properly reflected in the revision of the original project document, nor was it taken into account when endorsing the project by the GEF CEO. In general, supply driven projects (including supply of financial services) have typically limited success if they do not meet with sufficiently developed demand based on detailed knowledge of local market, developed awareness and capacity to develop bankable EE projects, and capacity to utilize debt financing. An integrated approach, should it be successful, requires also multiple years for proper development and establishment of financial tools, and it requires also right timing for implementation according to the level of market development. Financial support mechanism should be tailored to specifics of selected market segment and its readiness to absorb debt financing. Guarantee fund is suitable perhaps for industrial customers, small commercial business, SMEs, but not so much for public and residential sectors. The financial support mechanisms should require also as little additional paper work for clients as possible.

7. The Project Development Fund originally designed to cover 50% of up-front costs of energy audits seemed to be an effective tool motivating facility owners to develop energy efficiency projects. Facility owners are typically very reluctant to pay for (relatively small) project development costs. However, the envisaged revolving PDF fund would require certain amount of additional paper work, and the grant provided would have to be repaid back in case of securing financing for project implementation. Based on my experience from other countries, this scheme would attract little interest of potential investors. This was recognized also during the project implementation and the PDF facility was transformed to grant 100% financing for energy audits in public sector, while energy audits in residential sector were replaced – due to lack of interest - by less costly advisory services.

8. The 2 mil USD Partial Guarantee Facility PGF was designed as a major component of the whole project, it was supposed to consume almost 50% of the whole GEF budget. In addition to this, the UNDP/GEF part of PGF was designed to be implemented and financed jointly with another GEF financed project implemented in Croatia by the World Bank (WB project name and ID: *Croatia – Energy Efficiency Project, P071461*). The Partial Credit Guarantee (PCG) component of the World Bank/GEF project was designed to provide 1.2 mil USD for financing of the Credit Guarantee (of total 7 mil USD GEF grant) and to provide technical assistance. Although the PGF facility was designed in consultation with the World Bank and the local development bank HBOR, in my opinion it did not reflect the up-to-date experience with financial facilities available in that time (early/mid 2000s). Guarantee facilities require rather advanced credit markets, where there is already a sufficient demand for debt financing, experience with project financing, and sufficient capacity to identify and develop EE bankable projects (energy audits, feasibility studies), in another words timing is critical and the level of development of local credit market. Sufficient time for preparation of the facility is also critical, as time is needed for its marketing, information dissemination and for the training of market stakeholders, banks and potential clients. ***Guarantee facilities in general do not attract the interest of residential customers, nor of public sector customers, and limited interest of commercial service sector.*** More appropriate clients of guarantee facilities can be to some extent industrial companies, SMEs and ESCo companies, if the EPC market is already developed. A critical mass of EE project pipeline is important as well, since only some 10% or so of potential projects do materialize in subscribing for the guarantee. For public and residential sector, in general much more attractive financing option is a facility that provides preferential terms of financing (lower than market level interest, longer maturity etc.), and limited paper work. So it was no surprise that the PGF, as it was designed and when it was implemented, did not attract enough interest.

   This conclusion is supported by the 2010 evaluation report of the World Bank which stated that *"… the PCG's (PCG - Partial Credit Guarantee corresponds to PGF) performance is extremely dependent on prevailing conditions in the credit market. Although success stories can be found, experiences with PCGs in several emerging economies have been disappointing. In countries where banks do not practice project financing, the main constraint is their borrowers' lack of creditworthiness (collateral), not the novelty of energy efficiency. This was the case in the Croatian finance community…"*.

   Source:
   Document of The World Bank, Report No: ICR00001557, Implementation Completion and Results Report (IBRD-71980 TF-52141) on a Loan in the Amount of EUR4.4 million (US$5 million equivalent) to Hrvatska Elektroprivreda D.D. (the National Power Utility) with the Guarantee of the Republic of Croatia and a Grant from the Global Environmental Facility in the Amount of US$7.0 million to the Republic of Croatia for an Energy Efficiency Project, December 28, 2010

Logical Framework

As discussed in the Chapter 6.6 Results expected, the original planning matrix did not define specific end-of-project results, quantifiable and objectively verifiable indicators and concrete targets. The LogFrame, which was reconstructed based on the recommendations of the MTE and experience from project implementation so far, did specify concrete indicators, baselines and targets for the project objective, three out of four project outcomes and several outputs. No indicators and targets were specified for Outcome 4. However, even the revised set of indicators and targets does not still reflect appropriate project achievements in a clear and transparent way.

Even those indicators and targets which seem to be clear at the first sight need clear and detailed explanation. The name, the headline of the indicator is not sufficient. In case of Indicator 1 and 2 it is not clear if emission reductions are annual at a certain year, or cumulative. Clear definition of indicators/targets should be described in an explicit way. The way the targets were calculated was taken into account for clarification. Indicator 1 refers to annual emission reduction at the end of the project implementation; indicator 2 refers to cumulative emission reductions.

Target 2: "Indirect emission savings amounting to 1.9 Mton by 2020" is not measurable. Achievement of the target cannot be evaluated until 2020, since it includes (cumulative) emission reductions from projects that would be implemented in the future. In principle any indicator and target that relies on estimation of what would happen in the future is not measurable and thus should not be used. Even the best estimates and assumptions on future development cannot be verified in present.

The definition of indicators 5 and 8 "*Household (and hotel/public buildings) owners awareness of availability and benefits of EE lighting, appliances and equipment*" is vague. The indicator could be understood either as if respondents have heard of any technology that could save energy, or it could mean more demanding knowledge and deeper understanding of specific technology and their concrete EE benefits. What specifically "availability" should mean, and what "benefits"? In the first case almost 100% target would be an expected result, regardless of project impact. Practically everybody who is literate knows that insulation saves energy, for example. In the second case a much lower percentage could be expected, depending on the required level of detail of understanding the technology and benefits. Because of the vague definition of awareness indicators 5 and 8, their evaluation does not in fact say much about actual project achievements.

Baselines for the awareness indicator 5 and 8 are approximately the same both for households and hotel and public building owners/managers (24.5% for households and 26.5% for facility managers). The targets 5 and 8 differ significantly: target for households is 95-100%, and a target for facility managers is 37%. This is very surprising and in my understanding it does not make much sense: why should the general public be much more aware of EE products and their benefits than professional facility managers? The common sense would suggest the very opposite: more demanding target for professionals than for general public. The significant difference in targets and much lower values of awareness expected from professionals rather than from households can be explained by different understanding of "awareness" in both cases.

"Awareness" indicators in general are not very credible for indicating project results and achievements, unless their definition (and method of evaluation) is very specific and transparent.

Indicators 6 and 9 are defined as a "*number of households (hotels and public buildings) that have purchased CFL, EE appliance or insulation material in last 12 months*". One could expect that the CFL component in this indicator would be the decisive one, since CFLs are quite affordable both for residential and public/service sector users, and a single CFL is much cheaper compared to other EE appliances and complex EE measures such as insulation. CFLs are consumables, rather than investment (as it is the case of building level insulation). Should the achievement be evaluated as a single number, it would represent just the purchase of CFLs.

Although the definition of indicators 6 and 9 clearly states "purchase in last 12 months", and the question in the market surveys did include this wording as well, the respondents and the market research company sometimes confused "purchase in the last year" and "ownership" – ie. purchase regardless of when. Thus it is not clear if these indicators illustrate EE technology penetration on the

market – what has been purchased and installed so far, or if it indeed reflects only the dynamics of the market over the last year.

The same applies for the enumeration of the baseline and target 6. The "41.9% baseline" for households indicates number of households that have purchased EE equipment over the last 12 months. However, the number 41.9% indicates rather the total number of households using CFLs in IX/2006 according to the market research, not the number of households that have purchased CFLs during the last year. The same applies for the target – the number 54%, as it was calculated, does not show the increase over last 12 month at the end of project, but an estimated usage of CFLs in households.

The targets were calculated based on actual changes between the market research data from IX/2006 and X/2007. And the annual increase was somehow adjusted to the planned 4-year period of project implementation. No adjustment has been made when the project has been extended for another two years. The CFLs penetration in households in 2006 was 41.9% (share of households that actually used CFLs), in 2007 the penetration was 48% (before the target has been calculated), and the target for the end of project was defined to be 54%. It is not an ambitious target at all, especially when a business-as-usual development would be taken into account; there is hardly any measurable impact of the project implementation. The 54% target was calculated for the estimated end of project in 2009. And the same unchanged target applies for actual end of project in 2011. The actual increase in CFLs penetration between 2006 and 2007 was 6 pp/year (percentage points), and the target of total cumulative increase is also 6 pp, however over four years between 2007 and actual end of project in 2011. However, the 2006 and 2007 data have been already influenced by the performed information campaign, and thus reflect perhaps the most dynamic period of market development.

Although the indicator/target is clearly defined in this case, its utilization is often confusing and misunderstood.

The baseline of the indicator 9 (the Y value) has not been enumerated, and thus also the target remained not enumerated and defined only relatively as "Y+10%", a 10% (or pp) increase over the baseline.

Despite the fact that the revised LogFrame indicators, targets and baselines seem formally to be improved, after more detailed analysis it is obvious that even the revised indicators and targets are not fully appropriate to measure project achievements and results. Target 2 is not measurable, and target 9 has not been enumerated at all.

The project activities redefined in the Inception Report and in the revised LogFrame after the MTE are based on the experience from the project implementation and reflect a good knowledge of the market situation and needs. However, the full scope of project activities implemented is not fully reflected even by the revised project indicators. The indicators rather tend to follow the original structure and scope of project activities.

Assessment of the Conceptualization/Design

Based on the assessment of barriers, the intervention strategy, as designed in the original project document, had only a very limited chance to deliver significant impact in a cost effective way. *2.8 mil USD of originally designated budget for PDF, PGF and CFLs, or 63% of the whole GEF budget*

needed to be reallocated and related activities redefined, should the project be successfully implemented.

The total costs of the PDF-B facility for developing full Project Document were 375,880 USD, of which GEF cash contribution was 200,880 USD, and 175,000 USD was in-kind contribution of the Government of Croatia.

The Inception Report correctly identified the changed situation and conditions on the market and redefined project activities. Based on the MTE recommendations indicators, targets and baselines were reconstructed, however the revised indicators and targets for Outcome 2 and 3 do not illustrate properly project achievements. No indicators and targets for Outcome 4 have been constructed. Target for Objective 1 – total EE investment - is rather soft and equals to only 50% of already spent project costs.

Taking into account a need to redefine the proposed activities already shortly after project signature and the amount of the budget that needed to be reallocated due to inadequate design of activities (partly due to a long time since the activities have been designed and changes that occurred on the market in the meantime), and the costs of developing the Project Document on the other hand, and the unsatisfactory definition of indicators and targets also in the revised LogFrame after the MTE, the rating of the conceptualization/design of the original Project Document is evaluated to be *UNSATISFACTORY*.

Highly Satisfactory	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	**UNSATISFACTORY**

4.1.2 Country ownership/driveness

The original project idea has been initiated and developed by local Croatian experts lead by the Energy Institute Hrvoje Požar, which also developed the Project Document with assistance of UNDP international consultants. The project goal and objectives properly addressed the country needs and were fully in-line with country priorities and policies.

The appropriate general focus of the project is highlighted by the exceptional long period between the time of original project concept and final project implementation, which cover a period of 15 years, on one hand – and the fact that the project goal, focus, and approach is still up-to-date and very relevant, even when the country has witnessed major development over those last 15 years, and is today a leading EU candidate country approaching the full membership, on the other hand.

The original locally developed project idea reflected very well the policies and needs in mid 1990s, but also estimated well the future convergence with EU policies, which materialized a decade later.

The overall assessment of country ownership/driveness is Highly Satisfactory.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.1.3 Stakeholder participation in the design phase

The project design was lead by the local Energy Institute which had, especially in that time unique position on the energy market in Croatia, and covered most of the expertise available in the country in that time. The project developers used their unique position on the market and approached governmental bodies and other potential stakeholders for consultations, namely the Ministry of Economy, Ministry for Environmental Protection, Chamber of Commerce, the World Bank, HBOR, and other stakeholders. A Steering Committee had an oversight on the project development. The close cooperation with responsible stakeholders translated into a strong ownership of the project by the Ministry of Economy, which served during the implementation phase as a project Executing Agency.

The overall assessment of stakeholder participation in the design phase is Highly Satisfactory.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.1.4 Replication approach

The implementation focus of the project on public sector and motivation of public authorities to become a leader in energy efficiency housekeeping represent a state-of-the-art best practice in energy efficiency. Energy Management Systems and Monitoring and Targeting schemes have been applied in industrial, commercial and public sectors in several countries. What is quite unique in this project, and especially in the region of Central and Eastern Europe, is its scope targeting practically all public facilities (state, municipal, county owned) supplemented by a robust training scheme in energy efficiency of majority of all employees of central government ministries, staff of local authorities, and local energy advisors.

Already during the GEF/UNDP project implementation phase the actual project results and activities attracted unexpectedly high interest both locally and internationally. In particular, there was interest in the Energy Charter which was developed by the project as a policy commitment towards energy-efficiency in the public sector and it was signed by every single Mayor in Croatia.

Implementation of the Energy Management System originally developed and implemented in pilot cities has been disseminated across the whole country. This full-scale dissemination of the House in Order (HiO) program (covering state-owned facilities) and SGE program (Energy Management System in municipalities and counties) across all public authorities was quite unique achievement of the project thanks to the massive local financing provided by the Environmental Protection and Energy Efficiency Fund and from the Ministry of Economy. The total funding provided so far by the EPEEF Fund exceeded 10.7 mil USD in cash contribution, and the financing from the Ministry of Economy exceeded 0.5 mil USD. Another 5 mil USD have been pledged by the EPEEF fund until 2013. This mobilization of massive local cash co-financing for nation-wide roll-out of the EMS implementation across all public sector in Croatia is also a quite unique success of the project.

During the workshops organized around the country and designed to focus on local participants, participants from other Balkan countries (Bosnia and Herzegovina, Serbia) sent in applications for participation, paid the workshop fees and attended the training.

The project has also raised interest in other countries of the region (Bosnia and Herzegovina, Macedonia, Serbia) to replicate similar project activities. Project managers deliver speeches and participate at meetings in these countries presenting their experience from the project. UNDP country offices in these countries are actively involved in organizing and supporting such information dissemination and experience sharing events. UNDP currently has 16 ongoing projects in the region (Europe and CIS) which deal with removing barriers to energy-efficiency.

The concept of public sector serving as a leader in energy efficient housekeeping is worth replication. EMS constitutes a modern tool that is being utilized in industrial, commercial and public sectors. Implementation of EMS generates immediate energy and emission savings as well as reductions of energy bills. However its main purpose is to serve as a good management technique that allows identification of potentially most suitable facilities for implementing energy savings investment projects with even a bigger impact. This illustrates that implementation of EMS is not a goal per se, but just a first systematic step towards more energy efficient facility management. Should the EMS generate all its potential benefits, facility owners must be capable of developing and financing their energy efficiency investment projects. Financial market must be matured enough to provide and accommodate commercial debt financing. If considering potential EMS project replication in other countries, the local situation on the financial market and its maturity and specific needs should be properly evaluated.

One should consider as well that EMS is a useful tool, however there are examples from lots of other countries where EMS is still not utilized on such a broad scale, but where are many other activities implemented in improving energy efficiency.

The full scale EMS implementation in the whole public sector was very successful in Croatia. However, it should be analyzed if the same approach would be also appropriate and affordable in other countries, or if a step-by-step approach would not be in that special case more suitable.

When considering potential replication of an energy efficiency project in other countries, local needs and priorities should be analyzed and evaluated first, as well as other opportunities and alternatives.

Supply driven approach if local needs would not be properly reflected might turn into a too risky and expensive experiment when replicating successful project in other countries.

The overall assessment of replication approach is Highly Satisfactory.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2 Project Implementation

4.2.1 Implementation approach

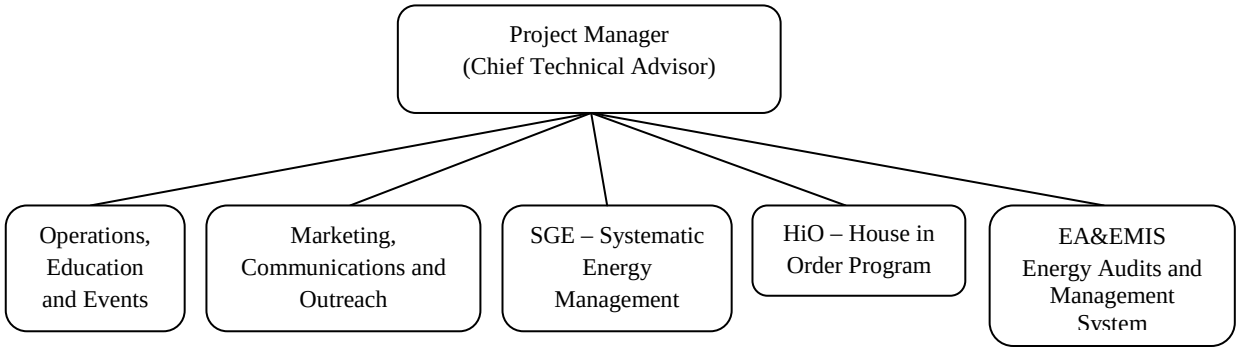
4.2.1.1 General management

Shortly after the project signature the Ministry of Economy, as an Executing Agency, proposed the Implementing Agency to be UNDP instead of the local Energy Institute Hrvoje Požar. The transfer of

the role of Implementing Agency from a recognized local energy institute to the UNDP Country Office with limited expertise in energy efficiency in that time might have been a risky factor. However, it turned to be one of the key success factors. The motivation to assign UNDP as an Implementing Agency was driven by the aim to utilize the project funds in an effective way – after the experience from costly and lengthy project development phase.

The unique experience of the appointed Project Manager, combining international know-how and insider's knowledge of the local market with a dynamic work approach, was definitely critical for the overall project success. Also the project benefitted from the high quality, well educated and dedicated project team – including five project segment managers as well as task managers and the staff of the central and regional teams.

Chart 1: Project organizational chart



The Project Manager changed his position in 2010 to become a part-time Chief Technical Advisor, having in place five Project Managers responsible for key project segments: Operations, Education and Events; Marketing Communication and Outreach; SGE program; HiO program; and Energy Auditing and Energy Management Information System (in 2011 joined with SGE).

During project implementation the total project staff peaked to some 200 people (of which maximum of 19 full- and part-time staff and 36 consultants were paid from the GEF budget). Most of this 200 staff was working for limited time period on a part-time basis, including university students helping with collecting data on municipal facilities' register and facilities' energy consumption. The project staff was paid partly from the GEF budget, and partly from the budget provided locally by the EPEEF fund and Ministry of Economy (most of the project staff). As of March 2011, two project managers are paid from the GEF budget, both of them part-time, including the Chief Technical Advisor (former Project Manager).

The following table shows project staff and consultants paid from the GEF budget.

Table 1: Project staff and consultants paid from the GEF budget

GEF/UNDP budget pay-roll	2005	2006	2007	2008	2009	2010	2011
Number of staff members (FTA/ALD/SC/SSA)	1	5	12	19	12	4	2
Number of consultants	0	9	19	36	13	7	5

The fact that since 2010 the project does not have a single formal head Project Manager is unusual. It also raised some uncertainty in terms of who is responsible for the project as a whole among local stakeholders who were aware of the resignation of Mr. Morvaj from the Project Manager position. However, from the practical point of view, this fact had no impact on the daily management and implementation of the project. According to his contract, the Chief Technical Advisor is still responsible for the GEF budget and overall strategic management of the whole project, including overall co-ordination, management and supervision of the project implementation, and supervision and co-ordination of the work of the national project management and technical support unit (PMTSU), national experts and subcontractors. Due to the large scope of the project, the responsibility of individual project segments lies nowadays with four Project Managers, including the HiO Project Manager, SGE Project Manager, Marketing and Communication Project Manager, and Operations Project Manager. The change of the position of Mr. Morvaj is in line with his exit strategy from the project by the end of June, 2011, when the GEF financed component will conclude, while the locally financed HiO and SGE programs will be operational for next two years.

Each of the Project Managers is responsible for his/her project segment, including budget and activities' planning and implementation, coordination with other project segments, and management of their staff.

The impression of the evaluator is that the project is professionally managed, with a clear division of responsibilities, and good coordination in place. All Project Managers have a good overview of the status of the project, in terms of activities and budget, and remaining tasks to be implemented.

Since the project relies heavily on the UNDP financial system Atlas to track project expenditures, it is difficult and time-consuming, and practically impossible to track expenditures by individual activities, since the Atlas system does not use the budget lines according to the project activities, but in a different structure.

The status and progress of the implementation, planned vs. implemented activities, budget vs. expenditures is tracked in detail by individual project managers in their "private" notes and sheets. The UNDP Atlas and PIR systems do not provide detail necessary and suitable for daily project management. No other Project Management or Management Accounting software tools are used to support daily project management and supervision, which is thus performed on an ad hoc basis.

The assessment of the ***General Management*** component of the implementation approach is ***highly satisfactory*** taking into account the difficulties with the Atlas system.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.1.2 Relevance

The implemented project activities have been significantly modified and changed compared to the activities designed in the original Project Document although the overall objective and project outcomes remain the same.

The original technical and financial supply driven approach and activities have been replaced, and another, activities more suitable for specific development situation of the local market, were designed and implemented. Subsidized CFLs marketing and sales campaign has been replaced and not implemented due to general availability, decrease of CFLs price on the market, and increase of sales,

the Partial Guarantee Facility (a joint activity with HBOR co-financed from another WB/GEF project) was implemented with 0.6 mil USD UNDP/GEF funding; however, after no demand for the guarantee materialized, the PSC approved to withdraw the funding from the PGF facility and to use it for financing of other project activities – in accordance with the MTE recommendation and external PGF performance evaluation.

The key project activities included nation-wide EE information campaigns in media, series of workshops and trainings for public authorities' employees, energy advisors, and energy auditors, Energy Management System and on-line Energy Management Information System development and implementation in public facilities, development of national EE Strategy and Master Plan, and the development of an Energy Charter which was signed by all Mayors and county Prefects in the country. All project activities and outputs are described in detail in Chapter 8.1.

There cannot be a better proof of the relevance of the project activities implemented with national and local development priorities and plans than a local cash co-financing provided by the EPEEF fund and Ministry of Economy in a magnitude almost 4 times exceeding the GEF budget. Local authorities provided additional in-kind co-financing for these activities.

The EPEEF and Ministry of Economy committed themselves to supplement the GEF budget of 4.39 mil USD by their cash contribution of 16.7 mil USD, of which 11.2 mil USD have been disbursed already. The local financing was targeted and used to co-finance information campaign, the HiO and SGE projects, and development of the National Energy Efficiency Program for Croatia 2008-2016 (NEEP), and The First National Energy Efficiency Action Plan 2008-2010 of the Republic of Croatia (1st NEEAP).

The assessment of the ***Relevance*** component of the implementation approach is ***highly satisfactory***.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.1.3 Logical Framework

The Logical Framework was used primarily for overall project planning and reporting. The LogFrame matrix as a whole and its description of individual activities were revised and updated in the Inception Report, and after the Mid-Term Evaluation, based on its recommendations.

Individual Annual Work Plans updated, changed and added individual activities and new outputs. However, this updated description of activities followed in general the structure and the detail of activities' description similar to those used in the original Project Document. Project indicators and targets in the LogFrame were defined for project objectives, outcomes and outputs, and not for individual activities. The LogFrame thus provides *overview and summary* of the project, not a detail description of activities for a daily management.

This approach to LogFrame is fully in line with UNDP/GEF recommendations, see for example *"The Logical Framework as an Implementation and Monitoring Tool"*, John Hough, UNDP GEF BD PTA, RBEC Environment & Energy Practice Workshop, Almaty, Kazakhstan, 6-9 October 2004, or the World Bank LogFrame Handbook.

In another words this means that LogFrame matrix is suitable for overall project planning and monitoring/evaluation, but it is not that suitable for daily project implementation and management, because the detail of LogFrame description of individual activities is not sufficient for this task. It is the role of Annual Work Plans that should be used for project implementation and management. Saying this, it means that the detail of activities described in AWPs could be much deeper than of those described in the LogFrame, and that the AWPs should have Indicators and Targets for each activity. However, this methodological approach, ie. different approach to more general project activities in LogFrame, and to more detailed activities in AWPs, is not generally highlighted and shared by the LogFrame handbooks.

The AWPs included brief activity description, timeframe (quarter of the year) for which the activity is planned, budget by source of funding, and responsible party. However, from the AWPs, due to still generalized level of activity description, similar to those in LogFrame, it is not fully clear the scope and detail of all activities. For example an activity describes that workshops and seminars will be organized, but it does not provide information on the scale of those activities, such as number of workshops planned and/or expected number of trained participants etc.

AWPs for years 2005-2010 are available and have been revised during the evaluation mission. AWP for the current year 2011 has not been developed yet. Given the fact that the GEF funded project is to be closed by June 30, and that by mid March the AWP for actual year is not available, it illustrates that the AWPs, and the LogFrame in general, are not used for daily project management and implementation (at least not in the final year of the GEF project implementation), and it is understood and used rather as a formal or reporting burden.

However, this does not mean that actual project management would suffer in quality. Each project manager has its tasks and goals (activities and targets) specified for his/her project segment. But the format used for daily management is not the official UNDP/GEF LogFrame/AWP tables. A project management tool (and a management accounting tool) might be of use that would support and make more effective the daily management and link the necessary detail of daily planning with more general LogFrame overview of activities.

The assessment of the use of the ***logical framework*** as a management tool during project implementation is ***marginally satisfactory***. This reflects also the fact that the LogFrame is and should be primarily used for project summary overview, rather than as a detailed tool for daily project management.

Highly Satisfactory	Satisfactory	**MARGINALLY SATISFACTORY**	Marginally Unsatisfactory	Unsatisfactory

4.2.1.4 Adaptive management

This project is a “textbook example of adaptive management” as stated already in the MTE report. The focus of the project activities has been significantly changed during project implementation and reflected the actual situation on the local market, such as no interest for the guarantees of the PGF facility in a residential and public/service sectors, and increased sales and decreased price of CFLs on the market, and on the other hand it identified new opportunities and demand for introduction of energy management system in public facilities. Activities and Outputs of the project changed while the overall objective of the project to remove barriers to energy-efficiency in Croatia remained the same.

While historically final evaluations has shown that some UNDP projects have been slow to undertake adaptive management, and wait until the mid-term evaluation before they realize that change is needed, this project undertook the adaptive management right from the start, following the project inception workshop. This approach is to be commended.

The assessment of the ***Adaptive management*** component of the implementation approach is ***highly satisfactory***.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.1.5 Information technologies

Advanced information technologies have been widely used during project implementation.

The information campaigns used among others also electronic media (TV, internet) for information outreach, videos, DVDs, project web site (www.ee.undp.hr), toll-free telephone number, and electronic social networks (Facebook) – the project site on Facebook has more than 5000 friends.

The HiO and SGE programs developed and implemented web based Energy Management Information System, Smart Energy solutions for remote reading of electricity, gas and water meters and remote control of technical facilities (boilers), and installed TV screens at the lobby of governmental buildings with on-line information on actual energy consumption of that governmental facilities, and cumulative data from the EMIS system.

The assessment of the ***Information technologies*** component of the implementation approach is ***highly satisfactory***.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.1.6 Partnership strategy

The project set up very effective partnership with key local stakeholders, including all of 127 municipalities in the country, all of 20 counties, and all of 16 ministries which all actively participated in the project, as well as with energy efficiency technology manufactures and vendors, local energy experts, energy auditors, energy service providers, EPEEF, and local banks. All 127 municipalities and 20 counties in Croatia signed the Energy Charter which was developed by the project. The Ministry of Economy as an Executing Agency played a crucial role in effective project implementation, and in securing local financing for extended project implementation (HiO and SGE programs that are scheduled to continue for another two years). The total budget provided by the EPEEF and the Ministry for the whole project implementation exceeded more than 3 times the GEF budget of 4.39 mil USD.

The assessment of the ***Partnership strategy*** component of the implementation approach is ***highly satisfactory***.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.1.7 Technical capacities

The technical and managerial experience of the Project Manager appointed by UNDP after the project signature was crucial for the successful project implementation, as discussed above in the General Management section. Without his input, the project would definitively not be implemented in such a scope and coverage, and with focus on the whole public sector. However, the project benefitted not only from the professional capacity of this Project Manager, but the whole project team was found to be very professional, including all project managers, regional task managers and their assistants. One of the reasons that this project has had a high level of success in many of its activities must be attributed to the high technical capacities of the project team.

The project benefitted from the availability of well educated professionals in the country, although at the beginning not necessarily with hands-on experience in energy efficiency. This illustrates an example of one Regional Task Manager's assistant who studied at the Dubrovnik International University and was planning to move to Budapest, Hungary to work for Procter and Gamble. She attended one of the project EE workshops, found it very interesting and offered to volunteer for the project. After some time she was offered a paid job and works now for the project as a Regional Task Manager's assistant.

The project trained in energy efficiency a wide number of both technical experts in energy auditing, as well as facility managers, policy and decision makers, and general public, including practically all staff of central government ministries. In total more than 5 500 people were trained in energy efficiency under the project.

Assessment of Implementation Approach

Based on the analysis of the project implementation, the overall assessment of Implementation Approach is *highly satisfactory*.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.2 Monitoring and evaluation

The project has been subject to regular review of the Steering Committee that took place once or twice a year in 2005-2008, and of the Project Board, that took place up to three times a year in the period of 2006-2010. Steering Committee meetings and Project Board meetings discussed and approved among others Annual Project Reviews (APR), Performance Implementation Reports (PIR), Annual Work Plans (AWP) including budgets, revised LogFrame, as well as specific issues concerning major project activities (House in Order, SGE, PGF, …).

A Mid-Term Evaluation report has been performed in May – August 2007.

The Mid-Term Evaluation Report recommended specifically:

1. A reconstruction of targets, baseline values and indicators as part of a revision of the logical framework (LogFrame);

2. A revision of the investment-support mechanisms used in this project and the relative amount of inputs for each;
3. A fixed, secured budget for the partial credit guarantee, kept available for at least a year for HBOR;
4. A revised multi-annual budget planning, including commitments and disbursements per component and revised in yearly or half-yearly intervals in combination with project progress reviews;
5. Better tracking of co-financing;
6. UNDP and the GEF should assess their procedures for the review and approval of project documents.
7. Preparation of an overall view of the savings potentials or the potential longterm benefit of building energy efficiency in the country;
8. Yearly repetition of additional data collection work as done for this MTE;
9. Exploring if the involvement of NGOs and state organizations can provide a route towards long-term sustainability of consumer education;
10. Improve involvement of organizations of building designers and similar professionals;
11. Consideration if special sessions of the steering committee are needed to address long-term strategic issues;
12. Consideration if specific activities could facilitate the exchange of experience between projects.

The recommendations of the mid-term evaluation have been approved by the July and October 2007 Project Board Meetings. The project management prepared a Management Response to the MTE recommendations that was approved by the Project Board Meeting in January 2008.

The Management Response addressed formally all MTE recommendations, however some of them are still in progress, or have not been addressed properly.

The redefined LogFrame with new set of indicators, baselines and targets do not fully describe and evaluate the actual results and progress of the project in its full scope. Basically only the project objective indicator and targets in terms of CO_2 savings and Outcome 1 indicators and targets in terms of EE investment spent measure properly the overall project results. The indicators and targets of Outcome 2 remain rather vague and do not properly illustrate project achievements. Outcome 3 has no overall indicator, but specific indicators for each of the Output. However, these indicators do not measure the actual project achievements in all its detail, nor the main focus of the project – development and implementation of the Energy Management System in practically all public buildings, including state, municipal and county facilities.

The project monitoring and evaluation suffered from relying on “official” UNDP project reporting templates only, such as LogFrame, AWPs, PIRs, and did not utilize any standard project management software tools and management accounting systems, that would be able to track the project activities and project costs in a more flexible way and in full detail.

In my opinion, the UNDP reporting templates are primarily suitable for UNDP purpose of monitoring the general project progress, but are not flexible and detailed enough for a daily project management, nor for daily monitoring of all detailed project results – including deadlines and budget per specific activities and sub-activities. Please note also the discussion above that the detail of LogFrame activities is not sufficient for effective daily project management which requires much detailed definition of activities.

Assessment of the monitoring and evaluation

The project has adopted standard monitoring and evaluation system required by UNDP, including required periodic oversight of activities and formal evaluations. However this system of planning and reporting is not very helpful for effective daily project management. The indicators and targets used do not measure properly all project results.

The assessment of the monitoring and evaluation is thus *marginally unsatisfactory*.

Highly Satisfactory	Satisfactory	Marginally Satisfactory	**MARGINALLY UNSATISFACTORY**	Unsatisfactory

4.2.3 Stakeholder participation

4.2.3.1 Production and dissemination of information

The project produced and widely disseminated extensive amount of information to all project beneficiaries, including general public, owners of residential buildings, facility managers, local authorities, central government staff, energy auditors and architects. The information channels included project web-site www.ee.undp.hr with all written manuals available in Croatian in electronic format, series of targeted seminars and workshops, printed materials and publications, stickers advising on energy efficiency, information leaflets disseminated in national major newspapers, information programs and coverage on national TV, EE corners and exhibits operated in cooperation with EE technology manufactures and vendors, telephone hot-line with EE advisory service, information on social network (facebook), Gaspar video clips with energy savings tips etc.

The list of publications including circulation is enclosed in Annex 8.

4.2.3.2 Local resource users and NGOs participation

The project did make use also of several international consultants that were contracted for some specific tasks (development of the National Energy Efficiency Program for Croatia 2008-2016 (NEEP), revision of the LogFrame including indicators and targets); however the absolute majority of work was done locally by local experts, energy officers from local and central authorities, facility managers, and other experts (such as energy auditors), who all benefitted also from targeted training provided by local experts trained by the project (training of trainers). Local NGOs were also involved with implementation of information campaign.

The focus of the project implementation on local stakeholders developed a sustainable scheme that will be in place even after the project will be terminated.

4.2.3.3 The establishment of partnerships and collaborative relationships

The project implementation was designed to raise EE awareness in residential and public sector, and to develop EE know-how and capacity to develop EE projects of local stakeholders. Thus the project targeted and trained local experts, facility managers, policy and decision makers in public sector, and provided information and advice to general public. Effective cooperation has been established with energy experts/auditors as well with EE industry which provided its EE products for EE exhibits around the country. One of the local company, manufacture of EE windows, plans to take continue the project EE exhibits and to establish and operate on its own account a EE information centre and exhibition, including EE products of other manufacturers in their own premises in Zagreb.

4.2.3.4 Involvement of governmental institutions

The project established intensive and effective cooperation with all 16 central government ministries, as owners of state owned facilities, with all of 127 local municipalities, of which 82 actively participated and implemented already energy management system, and with all 20 counties. In April 2011 also the Office of the President signed a letter of intent to implement the House in Order program in the presidential office.

Practically all central and local/regional governments and ministries were not involved in the project as project beneficiaries only, but they all provided significant amount of in-kind co-financing (paying for the new positions of their energy officers/managers). In addition to this the central government (Ministry of Economy and the EPEEF) provided cash co-financing for the SGE and House in Order programs in the total amount of 16.7 mil USD (almost 4 times the GEF financing), of which more than 11 mil USD has been disbursed already.

Assessment of stakeholder participation

The extent of local stakeholder participation (local and county governments and central ministries), and governmental support expressed not only in formal or policy support, but in cash co-financing is truly remarkable and unique – not only in this region.

The assessment of stakeholder participation is more than *highly satisfactory*.

HIGHLY SATISFACTORY	Satisfactory	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

4.2.4 Financial planning

The project financial plans/budgets have been updated regularly in Annual Work Plans in a detail corresponding to the LogFrame matrix – each budget line corresponds with planned costs for each activity.

The actual project financial management heavily suffered from relying on the UNDP *Atlas* accounting system only which was designed for another purpose and *it is not suitable for actual daily financial project management*. The structure of Atlas system has budget lines that do not correspond with project activities. Atlas budget lines include for example Local consultants, International consultants, Equipment, Travel, etc., and is structured only per project outcomes – not in more detail. Thus it is not possible to track actual expenditures by project outputs, nor project activities.

To make the Atlas system at least to some extend suitable for project financial management purpose, the project financial manager used in the Excel sheet notes in individual Atlas budget lines explaining the factual purpose of the funds planned/spent. This allowed the project to track at least to some extend and only some most important costs according to project activities. It is clear that such system is extremely time-consuming, not flexible at all, and still it does not allow tracking all costs in required detail per project activities.

The original planned project budget in the Atlas structure (as of the Project Document) has been tracked with annual updated budgets (as of AWPs) and actual annual disbursement in the same structure of Atlas budget lines. However, the annual budgets have been revised at the end of the year to reflect actual expenditures. Thus the revised budget corresponds exactly to the actual expenditures. This system does not allow tracking annual actual expenditures versus its planned budget, but only the

cumulative expenditures versus the whole project budget – the difference is what is available for the rest of the project. Again, such system does not allow to properly tracking actual expenditure vs. planned budget for individual year of project implementation – and still this is possible only per outcome, not in more detail.

The financial records are updated in principal once a year for reporting, and ad hoc during the year only if necessary.

Upon a special request of the evaluator the project team prepared ad hoc an overview of key budget expenditures per activity (see below). Although this overview does not and cannot include all project costs, it does provide some overview of costs of key project components. This is the only overview of financial expenditures available in the structure per project activities.

The budget and actual disbursement spent per activities are not available to track from the Atlas accounting system used; however this information is available to some extent and accuracy from Project Managers responsible for specific project segments.

The evaluator has checked randomly selected Atlas budget lines and asked for detailed explanation. Based on this sample my impression is that project expenditures are carefully tracked, however the Atlas structure used does not allow to track the expenditures in a detail (per activity, output) suitable for project management.

As of the end of 2010 a total of 533 149 USD remain undisbursed and are budgeted for the 2011 activities. The 2009 and 2010 disbursements are preliminary, thus the planned total (and planned disbursement/budget for 2011) is 10 610 USD higher than total GEF project budget.

Table 2: Project budget (as of ProDoc) and actual disbursement

Outcome/Year	2005	2006	2007	2008	2009	2010	2011	Total budget	2005	2006	2007	2008	Disbursement 2009 by preliminary CDR	Disbursement 2010 by preliminary CDR	Proposal for 2011	Total disbursement
OUTCOME 1: General	15 045	216 042	2 416 500	130 500	69 000	0	0	2 847 087	15 045	216 042	330 226	429 970	140 146	243 500	315 110	1 690 039
OUTCOME 2: Residential	0	87 990	342 000	51 000	11 000	0	0	491 990	0	87 990	574 828	103 832	-88 246	13 000	30 000	721 404
OUTCOME 3: Service	0	254 462	104 000	67 000	21 000	0	0	446 462	0	254 462	595 309	120 011	-105 294	0	0	864 488
OUTCOME 4: Replication/ Utilization	1 530	38 506	61 500	51 500	34 000	0	0	187 036	1 530	38 506	204 560	87 139	85 266	27 000	113 039	557 040
OUTCOME 5: Evaluation Management	22 744	93 371	137 911	100 600	62 800	0	0	417 425	22 744	93 371	125 212	108 169	78 144	65 000	75 000	567 640
Total	39 319	690 371	3 061 911	400 600	197 800	0	0	4 390 000	39 319	690 371	1 830 134	849 122	110 015	348 500	533 149	4 400 610

4.2.4.1 Financial management and accountability

4.2.4.2 The cost-effectiveness of achievements

The total GEF funding of the project was 4 390 000 USD for the six and half year (2005-2011) period of project implementation.

The project was able to mobilize local cash co-financing for the project implementation (SGE and House in Order programs) over the period 2006-2013 from the EPEEF of a total of 16 130 873 USD (of which 10 739 964 USD have been disbursed till now), from the Ministry of Economy additional 537 740 USD (of which 503 195 USD have been disbursed already), and 463 039 USD was contributed in cash from other small donors (City of Zagreb, conference sponsors, training fees, etc.).

The total project budget for the period 2005-2013 is thus 21 521 652 USD, of which the GEF financing of 4.39 mil USD represents 20%.

This represents a cash co-financing ratio of over 5:1 of co-financing leveraged to GEF money spent which indicates value for money for the GEF and suggests that the project does represent a cost-effective use of GEF resources.

Out of this 21.5 mil USD of total project budget 5.4 mil USD are planned to be disbursed from local sources over the next period 2011-2013 once the GEF project is finished, thereby demonstrating sustainability of the project results.

The total GEF project costs are quite high, and from the project LogFrame matrix, due to its structure and not sufficient detail of activity description, it is not clear the actual scope of project activities. For this reason the project team was asked to reconstruct a table indicating major project activities and their costs. The overview of the main activities and their costs is shown in Table 3.

Table 3: Main GEF project activities and costs

Activity	Amount 2006	Amount 2007	Amount 2008	Amount 2009	Amount 2010	Amount 2011	TOTAL, USD
Institutional and legal framework development (EE Master Plan, Energy Strategy) (institutional capacity- building)		142 415	5 000		8 000	4 000	**159 415**
Typical Measures (knowledge product - all sectors, residential primarily)			35 000	21 000			**56 000**
PDF (financial instrument)	53 963	177 971	14 500	1 560	33 647		**281 641**
PGF (financial instrument)	56 000						**56 000**
Energy audits/Consulting Residential Sector (financial instrument, technical instrument)	39 000	30 000	21 000				**90 000**

Energy audits/Consulting/Feasibility Studies Public Sector (financial instrument, technical instrument)	207 000	257 000	99 000	25 200	31 500		**619 700**
Info campaign/Marketing	95 579	260 500	23 000	0	2 000	0	**381 079**
Education and replication (knowledge)	20 000	55 000	84 600	36 000	20 000	45 000	**260 600**
SGE (cities and counties - regional and local government)		20 000					**20 000**
a) Conferences (high-level knowledge dissemination, political mobilisation)			54 000	60 000			**114 000**
b) Smart City (pilot-project, local government)					71 000	244 840	**315 840**
ISGE (technical tool)			254 000				**254 000**
Monitoring & Evaluation (mid-term and final evaluation)	16 000	26 000		4 500		19 000	**65 500**
Technical support for all project activities (expert- and technical knowledge provided in support of all components and products - technical, financial, knowledge)	66 000	99 000	71 000	90 000	70 000	22 000	**418 000**
TOTAL, USD	**553 542**	**1 067 886**	**661 100**	**238 260**	**236 147**	**334 840**	**3 091 775**

Since the project financial planning and expenditures follow the Atlas budget lines, this ad hoc table with budget lines per key activities does not include all project expenditures, such as project management, travel, equipment, communications and others; thus the total is lower than the total GEF project budget.

The project budget was used for implementing project activities, including the two SGE and House in Order programs, but it did not provide funding for actual EE investment. The investment costs are covered by investors, mainly the public sector, and the EPEEF.

An indicator of cost-effectiveness is willingness of the Croatian government (Ministry of Economy and the EPEEF) to provide co-financing for implementation of the two SGE and House in Order programs in the total amount 5 times higher than the actual GEF contribution.

4.2.4.3 Co-financing

Table 4: Summary overview of co-financing

	Co-financing (Type/ Source)		IA own Financing (mill US$)		Central Government (mill US$)		Local Government (mill US$)		Private Sector (mill US$)		Other Sources* (mill US$)		Total Financing (mill US$)		Total Disbursement (mill US$)	
	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
Grant																
Credits, Loans, Equity									7.99	0						
In-kind					0.67	0.15		0.71			0.175	0.1		0.96		
Non-grant Instruments*																
Other Types* (Cash co-financing)				0.297		11.23		0.15		0.31				11.987		9.05
Other Types* (Investmnet)						3.95		18.55		5.96				28.45		
TOTAL:				**0.297**	**0.67**	**15.33**		**19.41**	**7.99**	**6.27**	**0.175**	**0.1**		**41.397**		**9.05**

Table 5: Overview of in-kind co-financing

Activity	Description	Amount USD
FER Office Space	01.01.2006.-01.08.2010. (55 months) use of office space, in the Faculty of Electrical Engineering and Computing (FER), Unska 3, room D262	49 500
FER Utilities	01.01.2006.-01.08.2010. (55 months) use of FER utilities (electricity, water, heating, municipality charges)	19 800
FER Communications	01.01.2006.-01.08.2010. (55 months) use of FER internet connection	1 980
FER Conference rooms	Conference room space in FER provided for a 50% discount price	14 597
Education	HIO - participation of 7 staff members on the Course for Energy Certificators, Module 1 and Module 2	15 273
Salaries EE teams	SGE EE offices - energy management on local and regional level, implementation of energy efficiency and Green Office measures, energy advising services, educational and promotional activities...	711 421
	HIO EE teams - energy management in buildings owned by the Republic of Croatia, implementation of energy efficiency and Green Office measures, educational and promotional activities...	117 880
National Project Director	Instructions, cooperation, harmonization, decision making. Participation in duration of 2 weeks per year, through 6 years	9 818
MINGORP	Assistance to NPD, contacts, operational cooperation on national level. Participation in duration of 3 weeks per year, through 6 years	12 273
MZOPUG	Legal advisory assistance, participation in education and presentations. 7 days per year, through 6 years	5 266
FZOEU	Operational cooperation on national level. Participation in duration of 2 weeks per year, through 6 years	8 182
HEP ESCO	Cooperation and involvement of 1 expert in duration of 2 weeks per year, through 2 years	2 727
TOTAL		***968 717***

4.2.4.4 Execution and implementation modalities

4.2.4.5 Sustainability

The project has been implemented by the UNDP which hired the Project Manager and all other project staff. The GEF financed project staff will be terminated at the end of June 2011 as per UNDP rules that once a project is closed all staff contracts must be ended. However, the project activities, namely implementation of the SGE and House in Order project are scheduled to last for another two and half years (2011-2013) with exclusively local financing provided by EPEEF. There still is an uncertainty how the (reduced) project team will be organized after the GEF component will be closed. There is an intention that the EPEEF fund would hire the project managers and staff that will implement the two programs in the future. However this plan has not turned into a final agreement yet. One reason is the current governmental ban on opening new positions in the governmental organizations due to the financial/economic crisis and budget cuts. The second problem is relatively low salaries in the state sector that are not attractive to staff who have been paid UN salaries for many years. This represents a significant uncertainty for the rest of the project team that will continue implementation of the SGE and House in Order program. However, should the government fulfill its commitment to finance the program implementation for the next two years, a solution should be found for the organizational set up of the project team for this period. Because the project was implemented by the UNDP, the UNDP project team has been established to be operational only for the period of project implementation.

Although this uncertainty is a significant one, it does not represent in my opinion a risk to sustainability of the project results. The project was successful in having established internal positions of energy officers at local authorities and central government bodies. The energy officers are full-time employees paid from the budget of local/central authorities, and they will stay in their position even after the project would be terminated. They have been trained in energy management, and project development, and have demonstrated already that they have capacity to prepare EE projects for financing. Energy officers will need external support from EE experts and energy auditors, but again the project has trained also these professionals and they are available on the local market. From this point of view, and due to trained local energy officers and experts, the project has secured its results to be sustainable in the future, even after the project funding will be terminated.

Assessment of financial planning

The financial management is assessed to be *unsatisfactory* primarily due to the fact, that the financial expenditures are not tracked versus the planned budget in a detail per project activities, but only in an Atlas structure (ie. per objective). This makes it very difficult to assess the cost-effectiveness of the project. Similarly, the same applies for co-financing which was not properly tracked or monitored through the project in a detail per individual activity. The co-financing used has been reported to the EPEEF in its standard reporting forms.

Standard project management and accounting tools, that allow defining and tracking costs of activities versus its budget in a required detail would definitely help to have better and less time consuming control over the financial flow of the project.

The co-financing from local sources for program implementation, on the other hand, has been exceptionally high, the project have leveraged over 16 million USD in co-financing, and it indicates

among others not only that the project has been fully adopted by local public authorities, but that they were ready to pay for the program implementation, and consider these funds to be effectively spent.

The overall assessment of the financial planning is thus *Marginally Unsatisfactory*.

Highly Satisfactory	Satisfactory	Marginally Satisfactory	**MARGINALLY UNSATISFACTORY**	Unsatisfactory

5. Results

5.1 Impact

A detailed evaluation of project indicators' targets and achievements is provided and discussed in the following overview.

Project Goal:
Removing key barriers to the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors in Croatia, thereby reducing their energy consumption and associated greenhouse gas emissions by 2 Mton CO2 cumulatively by 2020.

Project objective:
Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficient technologies and measures in residential and service sector buildings.

Indicator 1:
Direct CO2 emission reductions as a result of project-assisted investments

Baseline:	No additional investment
Target:	Investments leading to 15 kton CO_2 emission savings by the end of project
Achievement:	63.5 kton of direct CO_2 emission reductions as a result of project-assisted investments, of which 9.5 kton saved by implemented EE investment projects, and 54 kton saved by soft measures and EMS implemented within HiO and SGE programs

Indicator 2:
Indirect CO_2 emission reductions as a result of project activities targeting a wider audience

Baseline:	No additional indirect emission reductions
Target:	Indirect emission savings amounting to 1.9 Mton by 2020
Achievement:	The target is not measurable, since it includes emission reductions from projects that would potentially be implemented in the future. The evaluation would thus be based on assumptions, not facts. No assumption, even the most conservative one cannot be proved to be correct until 2020.

Note: Direct CO_2 emission reductions generated by investment projects implemented so far and by implementation of the EMS in public sector cumulated over the period till 2020 are 0.9 Mton, and cumulated over their life-time is ca 1.8 Mton.

Outcome 1: Overcoming the general institutional barriers to energy efficiency

Indicator 3:
New investments in energy efficient end-use technologies in buildings as a result of project investment support

Baseline:	No additional investments
Target:	Investments for project-endorsed EE measures in buildings of USD 2.5 M at mid-term and USD 7.5 M by the end of project
Achievement:	37.175 mil USD project-endorsed EE investment

Output 1.1: Enhanced capacity of the regional authorities to promote energy efficiency in buildings

Indicator 4:
Regional and other public authorities have established an energy management system and use this to promote EE investments and measures

Baseline: Not indicated, should be 0 – no authority
Target: Mid-term target: 1 authority; end of project target: 5 authorities
Achievement: 20 counties, 82 municipalities, 15 ministries

Outcome 2: Overcoming barriers to improving the energy efficiency of the residential sector

Output 2.1: Increased public awareness of the available energy efficient technologies and measures and their benefits to the consumers

Indicator 5:
Household awareness of availability and benefits of EE lighting, appliances and equipment

Baseline: 24.5% of households aware of availability of EE products and their benefits
Target: 95-100 % of households aware of availability of EE products and their benefits
Achievement: 97.3% of households are aware of insulation, 95.7% of households are aware of CFLs.

Output 2.2: Successfully conducted marketing campaign to promote the purchase of energy efficient products

Indicator 6:
Number of households that have purchased EE lighting, appliances or equipment in the last 12 months

Baseline: 41.9% of households have purchased a CFL, EE appliance or insulation material in last 12 months
Target: 54 % of households have purchased a CFL, EE appliance or insulation material in last 12 months
Achievement: 61.4% households have implemented CFLs last year, 36.5% Class A home appliances, 26.8% low-e windows, and 21.8% thermostatic valves

Note: Respondents in the market survey used for the evaluation of this achievement might have in some cases referred a purchase not only in the last year, although the question was properly formulated.

Output 2.3: Successfully developed and demonstrated financial and/or other mechanisms to support investments in the energy efficiency of residential buildings by their owners

Indicator 7:
Number of mechanisms developed and demonstrated for residential sector

Baseline: Not indicated, should read no mechanism developed/demonstrated
Target: 2 mechanisms developed, 1 successful demonstration

Achievement: 2 mechanisms have been developed and demonstrated; PDF with limited success, and PGF with no success.

Note: Project Development Facility (PDF) was operated by the project team, Partial Guarantee Facility (PGF) was managed by HBOR Development Bank, however with limited/no success. PDF was transformed to a successful 100% grant system for EAs (103 EAs implemented in residential sector), and later replaced by free EE advice and free telephone counseling for residential sector. PGF has been implemented at the HBOR bank and extended to cover residential sector as well, however, after it experienced no demand, the whole amount of the UNDP/GEF funds provided (0.6 mil USD) has been withdrawn back to the project budget and used for other project activities.

Outcome 3: Overcoming barriers to improving the energy efficiency within the service sector

Output 3.1: Increased awareness of the owners of the public and commercial buildings on the available energy efficient technologies and measures

Indicator 8:
Hotel and public building owner awareness of availability and benefits of EE lighting, appliances and equipment

Baseline: 26.5% of hotel owners & public building managers aware of availability of EE products and their benefits
Target: 37% of hotel owners & public building managers aware of availability of EE products and their benefits
Achievement: Not enumerated. No information on hotel and public building owner awareness of availability and benefits of EE lighting, appliances and equipment is available, no specific market research data available.

Note: One could expect that the actual EE awareness of professional facility managers should not be lower than awareness of general public/households. With this assumption one could suppose that the actual achievement of indicator 8 should be comparable with the achievement of target 5. Given the fact that the target was significantly lower (37% vs. 95-100%), one could assume with reasonable probability, and based on market research data and polls on EE awareness of general public/households (target 5), that also the target 8 has been achieved (and actually surpassed).

However, this ad hoc evaluation of the achievement of Indicator 8 does not change the impression that the target 8 has been defined irrationally low.

Indicator 9:
Number of hotels and public buildings that have purchased EE lighting, appliances or equipment in the last 12 months

Baseline: Y% of hotel owners & public building managers have purchased a CFL, EE appliance or insulation material in last 12 months
Target: Y + 10 % of hotel owners & public building managers have purchased a CFL, EE appliance or insulation material in last 12 months

Achievement: Not enumerated, no information available on baseline value, nor on achievements.

Note: The baseline has not been enumerated. No data and information exist on the estimation of the Y baseline value, the target, nor on the actual achievement. The project team has made no effort to enumerate or at least to estimate the Y value. Since the Y value refers to the ex-ante project situation, it cannot be reconstructed at the project closure.

Output 3.2: Successfully developed and demonstrated financial and/or other mechanisms to support investments in the energy efficiency of service sector buildings by their owners

Indicator 10:
Number of mechanisms developed and demonstrated for service sector

Baseline: Not indicated, should read no mechanism developed/demonstrated
Target: 2 mechanisms developed, 1 successful demonstration
Achievement: 2 mechanisms have been developed and demonstrated; PDF with limited success, and PGF with no success.

Note: PDF and PGF have been developed and implemented jointly for both residential and service/public sectors. Project Development Facility (PDF) was operated by the project team, Partial Guarantee Facility (PGF) was managed by HBOR Development Bank, however with limited/no success. PDF was transformed to a successful 100% grant system for EAs (total of 1 243 EAs implemented in service and public sectors). PGF has been implemented at the HBOR bank and extended to cover residential sector as well, however, after it experienced no demand, the whole amount of the UNDP/GEF funds provided (0.6 mil USD) has been withdrawn back to the project budget and used for other project activities.

Outcome 4: Facilitating the effective replication/utilization of the project results and lessons learnt

Output 4.1: Enhanced government capacity to prioritize and implement targeted activities to promote energy efficiency

Indicator 11:
National energy efficiency strategy developed and operational

Baseline: Not indicated, should read no national EE strategy developed
Target: Mid-term target: strategy developed; end-of-project target: operational
Achievement: Energy Efficiency Strategy developed and operational; National Energy Efficiency Program for Croatia 2008-2016 (NEEP), and The First National Energy Efficiency Action Plan 2008-2010 of the Republic of Croatia (1st NEEAP) approved by the Government in 2010.

Output 4.2: A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects in place

Indicator 12:
Energy and CO_2 emission monitoring of project impact established and operational

Baseline:	Not indicated, should be: no monitoring system established
Target:	Energy and CO_2 emission monitoring of project impact established and operational
Achievement:	Energy and CO_2 emission monitoring of project impact has been established and is partially operational

Note: The new version of the EMIS system, which includes also CO_2 emission monitoring and functionality to display energy and CO_2 savings has been implemented in May 2011, however not all data are yet entered into the system and thus as of May 2011 the energy and CO2 emission monitoring system is not yet fully operational. The monitoring system covers only those facilities in public sector where the EMIS system has been implemented. It does not cover the residential sector and commercial service sector.

Output 4.3: Project results, experiences and lessons learnt documented and disseminated at the national and regional level

Indicator 13:
Project results widely disseminated and discussed with stakeholders

Baseline:	Not specified
Target:	No specific target defined
Achievement:	Yes, including project web page containing all key project documents, project results were disseminated by 93 public events, 83 press conferences, 56 TV, 98 radio broadcastings, over 200 press articles, 50 public movie projections “My EE City”, 30+ different brochures, manuals and publications published with a total circulation of +1.5 mil

Table 6: Summary overview of target achievements

Target #	Target	Achievement
1	Direct 15 kton CO_2 reductions by end of project from EE investment projects	63.5 kton CO_2 reductions from investment projects and EMS implementation
2	Indirect 1.9 Mton CO_2 reductions by 2020	Indicator "by 2020" is not measurable
3	7.5 mil USD spent on EE investment	37.2 mil USD spent on EE investment
4	5 authorities use Energy Management System	20 counties, 82 municipalities, 15 ministries
5	95-100% of households are aware of EE	97.3% are aware of insulation, 95.7% of households are aware of CFLs
6	54% of households have purchased EE in last year	61.4% households have purchased CFLs last year, 36.5% Class A home appliance, 26.8% low-e windows, 21.8% thermostatic valves
7	2 mechanisms developed, 1 successfully demonstrated to support EE investment in the residential sector	2 mechanisms developed and demonstrated (PDF, PGF) with limited/no success in residential sector; PDF transformed to a 100% grant system for EA (103 EAs), and later replaced by free EE advice and free telephone counseling for residential sector, PGF experienced no demand
8	37% of hotel and public buildings managers aware of availability of EE products and their benefits	Not enumerated, no information
9	Y+10% hotel and public buildings managers have purchased CFLs or EE products in the last year	Not enumerated, baseline (Y value) not specified
10	2 mechanisms developed, 1 successfully demonstrated to support EE investment in the service sector	2 mechanisms developed and demonstrated (PDF, PGF) with limited/no success in service sectors; PDF transformed to a 100% grant system for EA (total of 1 243 EA implemented), PGF experienced no demand
11	National EE strategy developed and operational	EE Strategy developed and operational
12	Energy and CO_2 emission monitoring of project impact established and operational	Energy and CO_2 emission monitoring of project impact established and partially operational
13	Project results widely disseminated	Yes, incl. project web page, 93 public events, 83 press conferences, 56 TV, 98 radio broadcastings, over 200 press articles, 50 public movie projections "My EE City", 30+ different brochures, manuals and publications published with a total circulation of +1.5 mil

The target has been fully achieved
The target is not measurable/enumerated
Target has been partially achieved

Nine out of thirteen targets have been fully achieved or even exceeded. The scale of the project implemented illustrates best the indicator 4 – Number of authorities using Energy Management

System. The target was 5 authorities to use EMS. The actual achievement so far is 117 authorities, and the EMS implemented covers already 52% of square meters of all public facilities in the country. Additional local authorities plan to implement EMS over next two years, when the SGE and HiO programs are scheduled to continue with exclusive local cash financing, after the GEF project is terminated.

One target – target 12: Energy and CO_2 emission monitoring - has been partially achieved. The monitoring system is an integral functionality of the updated version of the EMIS software that has been implemented just in May 2011. Not all data have been transferred and entered into the new software version yet (May 2011). The monitoring system has been implemented, but it is not yet fully operational. The monitoring system based on EMS covers only the public sector, where EMS has been implemented. It does not include information on EE projects implemented with assistance from the UNDP/GEF project in other sectors and facilities that do not use the EMIS system. Information on savings achieved by EE investment projects in such cases is monitored ad hoc "manually", and not all data have been available as well in May 2011.

Three indicators have not been evaluated at all.

Indicator 2 - Indirect 1.9 Mton CO_2 reductions by 2020 – is not measurable, since it includes CO_2 reductions from projects that potentially will be implemented in the future.

No data are available for the evaluation of Indicator 8 and 9. No market survey has been made to collect information on these indicators. And it would be rather costly to make an ad hoc market survey just for these two questions. But even if such survey and information would exist, it would not say that much about actual project achievements. This is because of the poor definition of these two indicators and targets. The EE awareness and usage indicator in hotels and public buildings combines consumables such as CFLs with more complex and costly EE measures, such as building insulation. It is evident that awareness and usage of CFLs would be a decisive factor. One efficient fluorescent lamp or one CFL used or bought last year in a hotel or in a public sector facility would qualify the facility to meet the target of indicator 9. One can hardly imagine that one CFL in a public facility could seriously illustrate actual achievements of a project with cash budget of 21.5 mil USD (of which 4.39 mil USD from GEF). The definition of the indicator 9 is vague and does not illustrate properly project achievements. With this in mind one can assess properly also the critical failure of not having enumerated the baseline and target of indicator 9, no specific number is assigned neither to the baseline nor target. Although this is a serious default it would not make that much difference if they were enumerated, because of the poor definition of the whole indicator. It should be noted here that at least CFLs are widely disseminated and utilized in the country as a similar indicator for residential sector illustrates.

The target of indicator 8 is "37% of hotel owners & public building managers are aware of availability of EE products and their benefits". Similar target for households required 95-100% awareness, and 96-97% awareness has been achieved. One can assume that professional facility managers would be aware of EE products and their benefits at least as much as general public and that the 37% target would be easily achieved. It also suggests that the 37% target has been defined irrationally low compared to the same indicator in the residential sector.

However, even a high achievement of the EE "awareness" indicator does not say much about actual project benefits and impact. Does "awareness" mean that people know that "insulation can save energy"? Probably almost everybody did – as illustrated by the target 5 achievement. Or does it mean

more sophisticated knowledge of EE technologies and more detailed knowledge of their benefits? Without such specification “awareness” indicators are useless.

The evaluation of indicators and targets does not illustrate properly all project results and achievements.

In addition to the project achievements monitored by the GEF project LogFrame, the project has implemented significant scope of activities and has reached substantial achievements namely in the SGE and HiO program components co-financed significantly by local sources (EPEEF and Ministry of Economy). The results of SGE and HiO program are regularly monitored and evaluated in detailed annual progress reports. The following data indicate results as of October 2010, the last available SGE and HiO progress reports.

SGE (EMS Energy Management System in municipalities and in counties) program results as of October 2010

- All 20 counties and all 127 Croatian municipalities have signed the Energy Charter
- 19 of 20 counties and 82 of 127 municipalities have signed Letter of Intent to implement SGE program
- 12 counties and 65 municipalities have publically announced their local Energy efficiency and environmental protection policy
- 16 counties and 63 municipalities have established their local EE teams, with total number of 333 internal employees paid by the county/municipal budget
- 16 counties and 72 municipalities have collected data on all their facilities (3 761 buildings in municipalities and 2 402 buildings in county ownership, totaling 6 163 buildings).
- Building registry was established, including detailed data on building size, construction materials, and energy and water consumption
- Data of 2 418 buildings were collected and entered into web based software application developed by the project - EMIS - Energy Management Information System
- In 1 355 buildings energy consumption and costs are regularly monitored based on monthly energy bills, in 1 078 buildings all energy and water meters are regularly read and recorded twice a week
- 1 126 energy audits have been completed in 30 municipalities and in 7 counties
- Workshops on Energy Management and EMIS - Energy Management Information System have been held in 57 municipalities and in 15 counties and total of 1812 participants (decision makers and technical personnel) trained
- 171 participants from 60 cities and counties and 114 attendants from other sectors have been trained in a training course for Energy Advisors
- EE office administrators from 16 cities and 8 counties have been trained in EMIS
- 71 EE info points were established in 27 cities and 11 counties, of which:
    - 31 EE Info-offices
    - 6 EE Info-centers
    - 14 EE Info-galleries
    - 3 EE Info-corners
    - 17 public lighting information displays
- 93 public events were held with 83 press conferences

- 56 television broadcasting, 98 radio emissions and over 200 articles in press and electronic media
- "My EE city": 50 movie projections with audience raging from 30 to 250, organized within the program of public events
- Green Office workshop for EE teams: completed in 27 cities and 15 counties with 171 participants
- Motivational Green office workshops held in 14 cities and 2 counties for 448 attendants
- Energy consumption modeling developed in 12 cities and counties
- Official Green office work plan implemented in 4 cities and 1 county

HiO program (House in Order targeting state owned facilities) results as of October 2010

- All 16 ministries are involved in the HiO project
- 14 of 16 ministries have signed the Letter of Intent to implement HiO program activities
- Central registry of state owned buildings has been established and data collected – 2 375 (out of estimated 3000) buildings have been described in detail and registered, all energy consumption related data have been collected and entered for 1 602 buildings, data of 796 buildings have been revised and entered into the web based application EMIS – Energy Management Information System developed by the project
- 16 energy audits have been completed with identified investments needed for EE improvements in the amount of 90.2 mil HRK, potential for annual savings in the amount of 15.15 mil HRK with average simple payback period of 5.96 years, and CO_2 emission reductions of 5 000 t/year
- "No cost" energy measures (measures without investments) implemented have generated savings of 5.1 million HRK/year, potential for further saving of 3.7 million HRK/year has been identified by optimizing electricity and heating tariffs used
- Measures with investments of 0.3 mil HRK have resulted in 2.3 million HRK/year of financial savings, mostly trough repair of water leakages and installation of reactive power compensators
- Training, workshops and seminars – 3 328 participants have been trained in total, of which:
    - Green office motivation workshops for all central ministries employees: 2 053 participants
    - Green office workshops for Green Office Managers: 46 participants
    - Training course for Energy advisors: 133 participants
    - Training course for energy management in a building: 17 participants
    - Workshops for personal responsible for EE measures in buildings: 673 participants
    - Workshops for maintenance and technical personal: 408 participants

Since October 2010 the SGE and HiO program achievements and coverage have continued to increase and as of April 2011 they included:

- 20 displays of actual energy consumption installed in state owned facilities/ministries (TV screen in the facility lobby with information on on-line energy consumption), 2 displays with educational content

- All 16 ministries participate in the HiO program, 15 ministries have signed Letter of Intent to implement Energy Management System, as well as the Office of the President and the State Meteorological and Hydrological Service
- Total number of 1 346 buildings have been subject to performed energy audits, of which 1 136 buildings in municipal/county ownership (SGE component), 107 buildings in state owned facilities (HiO program), and 103 private buildings.
- New, more robust version of the EMIS software has been developed to accommodate larger number of facilities than originally planned and additional functionalities
- The total EE investment implemented so far is 37.2 mil USD, of which 0.1 mil USD in family houses, 0.5 mil USD in multiapartment residential buildings, 8.4 mil USD in municipal/county public buildings, 1 mil USD in hotels, 17.2 mil USD in state owned facilities (HiO), and 10 mil USD in other facilities.
- Pilot two-way "Smart Energy" project implemented in Sisak municipality – system combining remote online energy and water meter data reading, and online remote control of the boiler room

During project implementation, the project has mobilized local cash co-financing, fourfold of the original GEF budget that made possible to implement energy management system to practically all public facilities owned by the state and counties and by most of municipalities so far. Implementation of energy management system in public facilities in such a wide scale is really unique – and not only compared to the countries in the region, but compared Europe wide.

The implementation of the Energy Management System has been accompanied by training of energy officers that are employed and paid locally by the respective authorities, and thus on-going, sustainable administration of the EMS will be secured even after the EMS has been fully implemented and the project will phase out.

Energy Management System by its nature is not a one-off activity, but, once implemented, it is a system for lasting monitoring, evaluation and control of energy consumption, including identification of facilities with largest potential for energy efficiency improvements. The energy efficiency officers and teams, as well as energy auditors have been trained also in energy efficiency project identification and development.

Local financial sources to finance energy efficiency (EPEEF and commercial banks) are available and operational even during this actual period of financial/economic crises, although the scope of financing is still rather limited and should be increased and diversified in the future, when the financial constrains in the public sector will be phased out (Ministry of Finance currently approves all public sector loans, including EPC projects, and thus effectively limits new loans in the public sector).

The project has thus implemented a sustainable energy management system, which will have a long-term impact covering practically all public sectors, even after the project implementation will be terminated, and will be able to generate energy efficiency projects for implementation in a long-run.

5.2 Effectiveness

As discussed above, the project indicators as defined in the LogFrame have limited explanatory power, and do not fully reflect all project achievements which are described separately in more detail.

Several indicators have been poorly defined, one could not have been evaluated because it is not measurable, two indicators could not have been evaluated, because no data were available. Despite these difficulties the project has in general achieved its objectives, and in key indicators it has significantly exceeded the planned targets.

However, there still remain key unaddressed barriers preventing energy efficiency investment in multiapartment buildings – the 100% quorum requirement and energy billing based on apartment area, not based on metering of actual individual energy consumption.

5.3 Efficiency

As discussed in detail in the Chapter 7.2.4.2, the 4.39 mil USD GEF funding of the project has mobilized additional local cash co-financing, so that the total project implementation budget has reached 21.5 mil USD. This is exceptionally large budget even for the full-size project since it does not include actual investment for implementation of energy efficiency projects (except for the EMS itself). However, the scope of activities implemented corresponds well with the total budget. Several randomly selected activities have been screened for cost-effectiveness, such as energy audits and information campaigns, and have been found to be cost-effective and priced competitively based on effective tender procedure. Economies of scale have been achieved for example by tendering for energy audit packages, and a detailed knowledge of the media market has been used for decreasing the costs of information campaigns and media outreach.

5.4 Global environmental benefits

The methodology of calculation of CO2 emission reductions has been reviewed during the evaluation mission, and the methodology has been improved to be consistent with the methodology of the calculation of respective targets, so that both targets and achievements would be consistent.

The monitoring system developed and implemented in the EMIS v.2 system could not have been fully utilized because not all data have been transferred and entered into the new version of the software. Instead, ad hoc calculation has been made, and the emission reduction data were calculated partly from the reported energy savings, and partly they were calculated based on the emission/investment factors derived from projects implemented.

The CO2 emission reductions should thus be evaluated on a regular basis and based on actual metered energy savings data at least annually over the next period when the project will continue with local financing after the GEF project will be terminated.

5.5 Contribution to capacity development

The project was highly successful in developing its full local ownership as demonstrated by significant local cash co-financing of its activities, namely the SGE and HiO programs. The project activities

were specifically focused on capacity development at local level, at municipalities, counties and governmental organizations; the project trained local energy experts, auditors and officers which have gained the capacity to identify and develop energy efficiency projects in the future, after the project implementation will be terminated.

5.6 Sustainability

The implementation of the EMS and the SGE and HiO programs are designed to continue and to be fully financed from local sources for another two years after the GEF assistance will be terminated in June 2011. Even after the full SGE and HiO programs implementation in next two years, the EMS is expected to continue to be operational, because the local authorities have established their own energy efficiency teams, which have been trained in EMS operation and identification and development of energy efficiency projects, and have this energy efficiency staff on their payroll already.

However, as of the final evaluation mission in Croatia in March 2011, it was not yet clear what will be the organizational set up at the central level concerning implementation of the SGE and HIO programs. The proposal to host the program coordination unit at the EPEEF or at the Ministry of Economy was not yet translated into a binding decision. Despite this uncertainty, I assume the EPEEF and the Ministry of Economy will solve this issue, taking into account the large amount of cash co-financing of the SGE and HiO programs they have provided so far and their plans and commitments to do so over the next two years as well.

The project benefits are thus highly sustainable and an operation and maintenance of the energy management system are expected to be continued in a long-run as well, thanks also to secured and diversified financing of these activities for the future as well on the local level.

5.7 Replication

Already during the project implementation other countries in the region (Serbia, Macedonia, Bosnia and Herzegovina, and Monte Negro) have expressed their interest in replication of the project activities, namely the energy management system in public sector. However, should this type of project be replicated in other countries, the key success factors from this project in Croatia should be taken into account and the situation in other countries properly analyzed.

Key success factors and risks:

- The project has strongly benefitted from a highly qualified, dynamic project manager with both international and local experience, as well as from other highly qualified and dedicated project team members, including project segment managers as well as regional team staff.
- Despite the relatively high GEF funding, the project could not be successfully implemented in such a wide scope targeting practically all public facilities without a strong local support that was demonstrated by a significant local cash co-financing of 16 mil USD.
- Implementation of the Energy Management System is not the aim in itself, *per se*. It is rather a system which enables to effectively control energy spending and to identify most promising opportunities in facilities for subsequent energy efficiency investment. Thus the *timing* of EMS implementation is critical. Should the EMS implementation be successful, the overall energy efficiency infrastructure should be suitably developed, that would allow for EE project development, finance and implementation. This includes, besides others, sufficiently

developed financial market, including financial institutions and clients that could provide and absorb debt financing.

- Effective utilization of EMS requires motivated and technically skilled staff in different positions, serving as facility managers, local authorities' energy/energy efficiency officers, energy auditors, EE project developers, etc.
- High up-front costs of the wide-scale implementation of the EMS, that need to be spent before actual investment in EE projects will start to generate energy and financial savings, as well as not negligible operating costs, are critical barriers that reduce interest in EMS.
- Typically, in countries with economy in transition there often exist some legal barriers that prevent from EE investment in public sector, including third-party financing of EPC projects by ESCo companies, or, especially during the financial/economic crisis, financial constraints and limits on debt financing of public entities, etc. Before replication of EMS implementation in public sector in other countries a detailed analysis of the market and legislation should be performed in order to understand the actual potential for commercial financing of EE investment in public sector, that typically has a much higher capacity than only limited sources of own investment budget of public authorities and potential energy efficiency investment subsidy schemes available in the country.

5.8 Synergies with other projects

The GEF funded project was combined with locally financed project components to implement EMS in public facilities in the state sector (HiO program) and those owned by local authorities and counties (SGE program).

In addition to this, the project has combined its efforts also with another GEF financed project implemented by the World Bank in establishing Partial Guarantee Facility at HBOR, Croatian Bank for Reconstruction and Development.

Under another project component of this World Bank Energy Efficiency Project, the UNDP project has cooperated closely with HEP ESCO. UNDP, having immediate and working relationship with local governments, disseminated information and promoted the concept of ESCO and EPC projects, HEP ESCO utilized energy audits developed within the UNDP/GEF project, and prepared detailed feasibility studies for actual investment.

The UNDP/GEF project also made a thorough analysis of local and regional authorities' budgeting regulation and practice as a background document for development of new enabling bylaws and regulation at the national level.

6. Conclusions

The project has delivered remarkable results that are unique not only compared to other countries in the region, but Europe-wide.

It introduced and established energy efficiency as a policy priority and as a practical tool for effective housekeeping in the whole public sector in the country, including local and county authorities, as well as central government ministries and agencies. The project has implemented Energy Management System covering practically all public facilities in Croatia. The country became a leader in EMS in public sector in Europe.

During project implementation and based on results in pilot cities, the project has attracted exceptionally high local cash co-financing that was fourfold of the GEF budget. The GEF funds served as seed money, but it was the local funding that actually allowed country wide roll-out and implementation of EMS in the whole public sector.

The project has completely changed the perception and the business-as-usual practice concerning energy efficiency in public sector. But it also changed the awareness and attitude towards energy efficiency in the whole society by its information campaigns, outreach activities and free energy efficiency advisory services, targeting primarily the residential sector.

More than 5 500 public authority officers, energy experts, including auditors, have been trained in energy efficiency.

The results achieved and the impact the project had delivered are evaluated more than Highly Satisfactory.

These results would not materialize without the strong leadership and drive of the Project Manager who combined international best-practice experience with a detailed knowledge of the local market. It was the newly appointed Project Manager who redefined project activities and included the EMS component and focus on public sector in his Inception Report already in reaction to partly outdated Project Document.

However, there still remain challenges and barriers to energy efficiency in the country.

In response to the financial crisis, the Ministry of Finance has introduced an effective ban on new loans in public sector. This ban even covers third-party financed EPC projects, despite the fact that this out-of-budget financing is particularly beneficial during the period of public budget restrictions, because it has no negative impact on public budgets. This ban on EPC projects in public sector is unfortunate especially in a country where operates one of the most successful ESCo companies whose establishment and operation was assisted by the World Bank – the HEP ESCO. In response to these restrictions, HEP ESCO had to cancel its activities in public sector and to focus on customers in other commercial and industrial sectors. The only source for financing energy efficiency projects in public sector in Croatia is thus nowadays Environmental Protection and Energy Efficiency Fund – EPEEF, which provides up to 40% subsidies for energy efficiency projects in public sector. (The remaining investment is financed directly from budgets of public authorities, and thus increasing their debt.)

In the residential sector there still exist key barriers that prevent practically any building level investment in multiapartment buildings. There is a 100% quorum required for any building level investment decision, including energy efficiency. In existing multiapartment buildings, district heating

bills are based on floor area of apartments and do not reflect actual energy consumption; building level heat meters and individual heat cost allocators are not installed (with some exceptions). The legislation has not been harmonized with the EU Directive 2006/32/EC on energy end-use efficiency and energy services which requires “energy billing based on metering” for existing buildings, but only for newly built buildings after 2005.

A policy action is needed to remove these barriers.

The project implementation suffered from poorly defined LogFrame, indicators and targets that actually have been defined only after the mid-term evaluation. GHG emission monitoring and evaluation plan and methodology has not been prepared and established in time. Financial planning followed the Atlas budget lines structure which does not allow monitoring budget and expenditures per project activities; it was used for regular project reporting, but not as much for frequent operational project control. This all means that the daily project management was not as effective and flexible as it could have been if standard project management and financial planning tools would be utilized. Without utilization of such standard tools, it is too much time-demanding and practically impossible to have operational frequent control over the details of project implementation and its status.

These negative factors bring down the overall project evaluation to Satisfactory only despite the great results the project has generated.

Highly Satisfactory	**SATISFACTORY**	Marginally Satisfactory	Marginally Unsatisfactory	Unsatisfactory

8. Lessons Learned

- Exceptionally long and costly project development does not necessarily mean a good quality project proposal.

  The period of project formulation covered 8 years, and the project development consumed a total budget of 375 880 USD, of which the GEF cash contribution was 200 880 USD. It is no surprise that conditions on the market and priority needs for intervention might change over such a long period. The Project Document was out-dated already in the time of approval (in that time for example CFL price dropped already and became widely available and utilized as well). The Project Document had also poorly designed LogFrame, especially indicators and targets. The Project Document and project activities have been significantly updated in the Inception Report, which has been prepared only in few months (versus 8 years in case of Project Document).

  Project formulation itself does not need extensive period and budget, if it is prepared with a good knowledge of the local market and needs, and good knowledge of best international practices. However, it might need a targeted external support especially in formulation of the LogFrame and in order to be in line with other UNDP/GEF specific requirements.

- During the implementation phase the project has significantly changed its content. The general project goal and objectives – removing barriers to energy efficiency in residential and service/public sectors – remain unchanged, however more than 50% of GEF budget has been reallocated to different project activities than originally outlined. The evaluation found that these changes did support the general project goal and objectives and that the project delivered more sustainable results and impact than originally planned. Mobilization of local cash co-financing fourfold higher than the GEF contribution proves that the change of the project focus on implementation of EMS in public sector was a good decision. However, it suggests also that the GEF project development and approving process is not efficient enough. Mechanical replication of projects that might have been to some extent successful in some countries does not guarantee that it will be successful also in other countries with different specific conditions and needs, and at different level of energy efficiency market development. A detailed hands-on experience and understanding of local market combined with detailed knowledge of best international practice is a critical success factor. Combination of local experts inexperienced in the best international practices with several short-term international consultants does not necessarily deliver the required mix of expertise for good quality project proposal. An example of how demanding the project development process is, illustrates the case of implemented Partial Guarantee Facility PGF that failed to attract any interest. And the PGF component has been prepared jointly with the World Bank which houses unique international financial expertise. However, the conditions and needs of the local market have not been properly evaluated in that time. Ideally top level international experts with hands-on experience with implementing similar projects in countries with similar development needs should be involved in early stages of project identification and formulation. Or at least they should review these early brief project ideas before the costly process of full project design is committed. The rather administrative institutionalized project proposal review process is probably not sufficiently effective.

- LogFrame quality is critical. LogFrame is what GEF "buys" for its funding. Specification of a good LogFrame and SMART indicators is not a simple task. It is a sort of "art". SMART indicators require smart know-how.

  The definition of LogFrame, namely the definition of project goals, objectives, outcomes, outputs, and activities, and especially the definition of project indicators, baselines and targets is critical not only for approving project proposal, but for evaluation of project as well. It is not only what the project has actually achieved and project results themselves what decides, but also how this is demonstrated by the LogFrame target achievements. The LogFrame is not just a formality. In fact it is what GEF "buys" for its funding.

  A proper definition and specification of the LogFrame is not a simple task. It ideally requires combination of good theoretical knowledge with practical experience in drafting, application and evaluation of LogFrame. Project developers, especially local experts, do not necessarily have extensive experience with LogFrame. A short-term experienced consultant might thus be useful to assist in formulation of the LogFrame, or at least in reviewing the draft LogFrame definitions before the project is submitted for approval.

  The specification of indicators must be precise and specific enough. The headline, the name of the indicator/target used in the LogFrame matrix does not necessarily provide sufficient detail of exact definition. Indicators, baselines and targets, and perhaps also project objectives, outcomes, outputs, and activities, might need to be defined in a required detail outside of the LogFrame matrix, and only the simplified definition used in the matrix itself. A specific method of baselines, targets and achievements calculation should be clearly defined and specified already at the very time of defining baseline and targets. If the method of enumeration of target achievements is specified independently on baselines and targets definitions, the result might turn into "correct" numbers meaning something else. This is of course not the case of all types of indicators, but primarily of those which could be specified in several different ways. Vague definitions of indicators should be excluded. For example "indirect emission savings", "awareness" indicators illustrate such indefinites. Dozens of definitions would be correct. But leading to different results. This does not mean that such indicators cannot be used – but they should be defined in much more specific way, including specification of method for their evaluation.

- Indicators and targets must be measurable – as evidenced also by the "SMART" requirements. Indicators and targets that should reflect situation in the future, after scheduled time of final evaluation, such as for example CO_2 emission reductions by 2020, are by definition not measurable. Enumeration of the future situation can be based only on assumptions. A variety of different assumptions can be credible. But none of them can be proofed to be correct. Or incorrect. Until the future happens.

  Indicators and targets that reflect situation in the future, ie. after terminal evaluation, should not be used because they are not measurable, evaluation of their actual achievements is by definition impossible.

- LogFrame is not a static matrix and different level of detail is needed for project approval and evaluation process, and different level of detail and flexibility is needed for daily management of project implementation

On one hand LogFrame should serve for project proposal approving process and subsequent project evaluation, and thus the project goals, objectives should properly describe the focus of the project and should remain unchanged even over a multi-year period of project implementation. On the other hand project activities and outputs are subject to change according to changing environment, and could and should be updated on a regular basis if needed – annually, or in some cases even more frequently. Project LogFrames are criticized to be too specific for project approval process, and to focus too much on specific project activities (*"The Logical Framework as an Implementation and Monitoring Tool"*, John Hough, UNDP). On the other hand the detail of activities' specification is often not sufficient enough for project daily management, and needs to have parallel project sub-activities and specific tasks defined. However, the AWPs typically follow only the detail of activities' description as specified in the original LogFrame. Thus the LogFrame and AWPs are typically not suitable enough for detailed daily management of project implementation.

More sophisticated system is needed for effective daily project management.

- LogFrame matrix, including the description of project outputs and activities, and indictors and targets, is used for project approval and evaluation. Typically the same detail of description of project activities is used also for project management and reporting in the form of annual and quarterly work plans, annual progress reports and other standard UNDP reporting formats. However, for these two purposes the required level of detail is significantly different. For project approval the LogFrame should provide only overview and summary. But such an overview is not sufficient for the daily project management. For daily project management a much more detailed planning and specification of activities (and sub-activities) and their individual budgets and targets is necessary. In principle, the UNDP standard reporting formats do not prevent the annual and quarterly plans and reports to be designed in such a required detail. However, in practice they often typically follow only the level of detail as described in the Project Document, and it is not sufficient for daily project management.

  It would be useful to clearly decouple LogFrame goals and objectives that remain unchanged over the whole project period, from project outputs and activities that are subject to change, and especially subject to more detailed specification.

- The project has benefitted from a unique combination of best international experience and good knowledge of local conditions of the Project Manager, and his dynamism.

  Key success factor of the project was the experience and drive of the Project Manager, who combined his international experience with detailed knowledge of the local market and business environment, and utilized his good relations with key policy makers. Series of Business Breakfasts organized for top level policy makers from the public sector attracted their interest to participate in the project. In this case the "Think Big" approach materialized in 16 mil USD of additional local cash co-financing, which allowed for full roll-out of the project and implementation of the Energy Management System practically in the whole public sector in the country. The project benefitted also from the quality of the whole project team, including its highly qualified and dynamic project segment managers and regional task managers.

  Experience, qualification, knowledge of best international practices as well as deep understanding of local market and conditions, and a dynamism and drive of project management are critical for successful value-added project implementation.

- The position of Project Manager comprises the overall responsibility for the project and also it represents the project as a single point of contact to other stakeholders. Any changes in this position constitute a potential risk of discontinuity. The position of the Project Manager should be filled over the whole period of project implementation.

- Financial plans should reflect the project logic and the budget should be structured per project outputs and activities.

  UNDP Atlas system and the structure of its budget lines follow another logic and do not provide transparent information on how much is budgeted for what specifically. Thus the Atlas structure of budget lines should not be used for financial planning in Project Document, nor for financial management and reporting during project implementation. If the Atlas structure of budget lines is needed for any other purpose, it should be used as a secondary, additional reporting format.

- Project management would benefit if standard project management and financial planning tools would be utilized.

  UNDP formats, such as work plans and progress reports, are used for project reporting, but they are not designed to support daily project management in a practical way. Project management and financial planning software tools, if properly used for daily project management, could be utilized also to generate key inputs to official Work Plans and Progress Reports, which would reduce the reporting burden, improve monitoring of project results, and allow to have real-time information on project progress.

  Commercial software tools for project management and financial planning are widely available, some of them even for free download from the internet. GEF and/or UNDP might consider identifying suitable project management and financial planning tools for use in GEF/UNDP project. Or even selecting suitable tools and their customizing for specific UNDP reporting requirements, so that the administrative burden would be minimized, and effective project management would be supported. A dedicated handbook on GEF/UNDP project management might be developed, and project implementing agencies and project managers trained in project management and use of specific project management and financial planning tool. Web based training might be fully appropriate.

- Supply driven project formulation based on replication of projects implemented in other countries comprises a risk that it would not address properly specific local needs. Demand driven approach based on detailed knowledge of local market, priorities and needs, and which reflects best international experience, reduces the risk of failure and tend to be more successful.

  Mechanical replication of successful projects in other countries, even in similar countries in the region, may not be successful, if the country specific situation and needs are not taken into account. Details are critical. And even just an improper timing can make the difference.

  Project formulation should be demand, not supply driven; it should utilize the best available international experience, but reflect specific local situation on the market, local needs and priorities.

The "think big" approach that proved to be successful when implementing EMS in Croatia might not be suitable for all other countries especially if local financial market is not developed sufficiently yet to deliver and accommodate commercial debt financing for energy efficiency investment. A step-by-step approach focusing first on developing local expertise and demonstration of new EE techniques, technologies and skills might be more appropriate in some other countries. Country specific needs and conditions always need to be properly evaluated.

- Implementation of the Energy Management System itself can save energy primarily by better control of energy consumption; it can reduce energy bills by optimizing tariffs used, and identify water leakages or illegal electricity take-off. Although energy savings due to the EMS implementation can be in individual cases relatively high, the main purpose of EMS implementation is not its implementation *per se*, but using EMS for benchmarking and identification of facilities and points of consumption with higher than usual consumption. And subsequent detailed analysis of energy consumption in such place with analysis of potential energy savings – energy audit. The ultimate goal is to implement energy efficiency measures first in such cases – because the economy of EE measures implemented in places with excessive energy consumption tend to be better than average. Meaningful EMS implementation thus requires also financial capacity of facility owners to invest into subsequent energy efficiency measures. When implementing EMS, the financial market should be matured enough that would allow commercial debt financing, and potentially also preferential financial instruments should be in place that support EE investment. This should be taken into account when potentially replicating EMS projects in other countries.

  Future development activities in the country might support EPEEF financing capacity and/or establishment of a dedicated financial facility that would provide preferential energy efficiency financing and/or grants.

- In Croatia, there is currently practically the only source of external financing for energy efficiency projects in public sector – the EPEEF fund. The current policy of the Ministry of Finance to minimize/prevent any new debts of local/regional authorities because of the budget cuts in response of the economic crises is understandable. The general ban on new public debts prevents also commercial lending to energy efficiency projects in public sector. Out-of-budget third-party financed Energy Performance Contracting (EPC) energy efficiency projects implemented by ESCo companies reduce energy expenditures from public budgets, and do not impose an investment burden on public budgets. However, EPC projects are also subject to these restrictions and all EPC projects in public sector have been put on hold. A detailed analysis of this issue and its impacts presented to and discussed with the Ministry of Finance might help to exclude EPC projects from the general ban on new debts in public sector.

- Development projects themselves cannot commit sovereign governments to any actions. However, development projects may formulate policy recommendations and effectively assist governments to develop and implement, or change policies and/or legislation. Should there be any policy or legislative barrier that prevents energy efficiency investment, it should be properly addressed, so that project goals and objectives could be achieved effectively and sustained in a long run as well.

- The project goal was defined to remove barriers to energy efficiency in residential and service/public sectors. However, there still remain unaddressed significant barriers that

prevent implementation of major energy efficiency investment measures in residential multiapartment blocks supplied by district heating:

- There is no single legal entity responsible for the whole multiapartment building with privately owned flats (such as housing association or any other legal entity), and a 100% quorum is required for any investment decision. This practically prevents any building level investment, including but not limited to building level energy efficiency reconstruction. Experience from other countries shows that a legislative measure is needed to reduce the required quorum; otherwise no building level investment will materialize.
- In existing multiapartment buildings, district heating is still billed per square meters of flats to individual flat owners. Energy billing based on metering is not only a good international practice which creates important financial incentives for energy efficiency improvements. It is also a requirement of the EU Directive 2006/32/EC on energy end-use efficiency and energy services. A legislative measure is needed to harmonize the current practice with the Directive, a regulation that would require installation of building level heat meters, and radiator level heat-cost allocators also in the existing multiapartment building stock (current legislation requires billing based on metering only for new buildings).

The project team should use the experience gained during project implementation and credibility it has generated among policy makers and prepare a brief policy paper with strong policy recommendations addressing the 100% quorum and 'energy billing based on metering' requirements in multiapartment buildings.

- Project implementation officially starts by signature of the project document. However, the actual project implementation starts effectively with a delay typically of several months. This inaugural period of several months should be reflected and taken into account in project design.

- Mid-term and terminal project evaluations are performed by number of different experts. Although these experts are independent and use objective and transparent methods for evaluation, their findings necessarily reflect their individuality. Different experts might have different views and opinion on some specific issues. There exists internal global evaluation of GEF/UNDP mid-term and terminal project evaluations. It might be useful for evaluators to have access to such feedback and lessons learned from evaluation of evaluations.

9. Recommendations

- CO2 emission reductions should be evaluated on a regular basis and based on actual metered energy savings data at least annually over the next period when the project will continue with local financing after the GEF project will be terminated.

- A good quality project identification and specification requires top-level expertise: knowledge of international best practices, hands-on experience with similar projects in countries facing similar development challenges combined with a detailed knowledge of local market situation and understanding of specific local needs. This expertise cannot be offset by an extensively long project development period. Top level international experts, not only experienced project administrators should be involved in early stages of project identification and formulation. Or at least they should review these early brief project ideas before the costly process of full project design is committed.

- Project indicators and targets must be SMART: Specific, Measurable/monitorable, Achievable/attainable/attributable, Relevant/realistic and Trackable/time-bound. If they are not, they have no practical use and create just an administrative burden. Use experienced external consultant if needed to define/review project indicators and targets. Avoid vague indicators and indicators that are not measurable within the project implementation period and which indicate what should potentially happen in the future. Define indicators and targets in required detail in a separate section of the Project Document if needed, do not rely only on the limited space available in the LogFrame matrix. Specify in detail the methodology how to monitor and evaluate/enumerate indicator achievements at the same time when indicators and targets are defined. Define alternative indicators if necessary. Use indicators and targets (including additional indicators for specific sub-activities) in daily project management – as in any standard business, not only for formal reporting.

- Clearly decouple the two LogFrame roles: project planning, approval, and reporting from project daily management. Do not hesitate to use much wider and more detailed activities (and indicators and targets) description for project daily management. Do not stay stuck to the general level of detail used in the Project Document LogFrame matrix only.

- When selecting Project Manager, focus on key critical success factor: combination of experience, qualification, hands-on knowledge of best international practices, deep understanding of local market and conditions, and a dynamism and drive. Focus on leadership, not only on project administration.

- Keep the position of the Project Manager filled over the whole period of project implementation, avoid situation when there is no single formal head responsible for the whole project implementation.

- Structure financial plans and reports per individual project activities. Do not use primarily the Atlas structure for financial planning and daily project financial management.

- Utilize standard project management and financial planning tools when implementing GEF/UNDP projects. Identify or develop suitable software tools customized to specific UNDP reporting needs, prepare and make available handbook on GEF/UNDP project management and develop web based training application in project management and financial planning.

- Consider potential strengthening of EPEEF financing capacity and/or establishment of a dedicated financial facility that would provide preferential energy efficiency financing (subsidized loans and technical assistance).

- Avoid supply-driven approach and mechanical replication of projects successful in one country to other countries. Focus on detail analysis of local demand and needs, as well as on specifics of local markets and their maturity.

- When considering replication of the EMS project elsewhere, analyze in detail if the local financial market is matured enough, if there is a capacity in place to provide and absorb commercial debt financing in public sector including EPC, and if potentially available local preferential financial instruments supporting EE investment have sufficient capacity for the scope of the EMS project.

- Prepare a brief policy paper with clear policy recommendations addressing critical barriers to energy efficiency in multiapartment buildings and public sector. Advocate compulsory decrease of the 100% quorum requirement on EE investment decisions and compulsory installation of building level heat meters and individual heat cost allocators also in existing multiapartment buildings – a regulation that is in line with 'energy billing based on metering' principle of the EU Directive 2006/32/EC on energy end-use efficiency and energy services. Advocate removal of the Ministry of Finance ban on EPC projects in public sector and explain benefits of this out-of-budget financing scheme with third-party performance guarantees especially in period of public budget cuts.

- Plan in a project design for an adequate inauguration period between the official start of project implementation (by a signature of the project document) and its effective start which is usually several months delayed.

- Provide a feedback to evaluators and make the internal evaluation of GEF/UNDP mid-term and terminal project evaluations available to them.

10. Annexes

Annex 1: Original definition of project objectives, outputs and activities in the Project Document

DEVELOPMENT OBJECTIVE
Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors.

IMMEDIATE OBJECTIVES, OUTPUTS AND ACTIVITIES
Immediate Objective 1
Overcoming the general institutional barriers to the promotion of energy efficiency

Output 1.1
Enhanced capacity of the regional authorities to promote energy efficiency
Activity 1.1.1
Organizing seminars, workshops and other training activities for the experts that can serve as energy advisors for the local county to conduct regional energy planning, disseminate information and initiate specific projects and marketing campaigns at the county level to support the investments in energy efficiency and renewable energy;
Activity 1.1.2
Strengthening the capacity of the energy departments of the local counties otherwise to act as a clearing house for energy related information and to promote the energy efficiency and renewable energy measures, thereby preparing ground for the later establishment of regional energy centres;

Immediate Objective 2
Overcoming the barriers to improving the energy efficiency of the residential sector

Output 2.1
Increased public awareness of the available energy efficient technologies and measures and their benefits to the consumers
Activity 2.1.1
Organizing general information dissemination and public awareness raising campaigns (incl. seminars, publication and distribution of information leaflets/fact sheets, use of the public media etc.) to raise the public awareness on the costs and benefits of the different energy efficient technologies and measures applicable in the households

Output 2.2
A successfully conducted pilot marketing campaign to promote the purchase of the CFLs
Activity 2.2.1
Announcing a public call for tender for the lamp manufacturers to participate the campaign;
Activity 2.2.2
In co-operation with the selected lamp manufacturer(s), organising a pilot campaign in Istria to reduce the retail price and increase the sales volume of the CFLs with an objective to permanently reduce the price and to increase the market share of the CFLs in the Croatian households.

Output 2.3
Replication of similar campaigns for other regions and/or technologies.
Activity 2.3.1
Based on the experiences and lessons learnt from the first pilot campaign, replicating similar campaigns for other regions and, as applicable, other energy efficient appliances.

Immediate Objective 3
Overcoming the barriers to improving the energy efficiency within the service sector
Output 3.1
Increased awareness of the owners of the public and commercial buildings on the available energy efficient technologies and measures.
Activity 3.1.1
Organizing general information dissemination and marketing campaigns (including targeted energy audits) to raise the awareness of the owners/operators of the buildings on the available energy efficient technologies and their cost and benefits to the clients;

Output 3.2
Enhanced capacity of the local stakeholders to initiate and support the implementation of energy efficiency measures in the service sector
Activity 3.2.1
Establishing strategic partnerships between the local research institutes and private sector representatives (banks, engineering companies etc.) to initiate energy efficiency measures in the service sector, and building the capacity of the local experts in project preparation, financing and management as well as in the installation, maintenance and operation of different energy efficient equipment;
Activity 3.2.2
Providing guidelines and incentives for energy audits and for the preparation of "bankable" feasibility studies and business plans for improving the energy efficiency of the commercial and public buildings, considering both supply and demand side measures with the initial focus on the hotels.

Output 3.3
A pipeline of "bankable" energy efficiency investment proposals for the service sector facilities and, as applicable, for other sectors.2
Activity 3.3.1
Launching a campaign of free "walk through" energy audits for service sector facilities in cooperation with the private sector companies, NGOs, public authorities and other relevant stakeholders.
Activity 3.3.2
Presenting and discussing the results of the audits with the targeted clients with the aim to enter into contractual arrangements for further development and, as applicable, implementation of the projects.
Activity 3.3.3
Supporting the development of the projects into full-fledged investments proposals by the provision of incentives, training and other technical assistance to project developers as well by establishing a specific "Project Development Fund" to share the costs and the risks of project development. For more details, see Annex VI.

Output 3.4
A Partial Guarantee Facility to leverage financing for the targeted energy efficiency investments
Activity 3.4.1
Establishing a Partial Guarantee Facility to share the risks connected with the preparation and implementation of energy efficiency projects in the service sector and to leverage additional financing for the energy efficiency investments from the private sector (for more details, see Annex VII).

Immediate Objective 4
Facilitating the effective replication/utilisation of the project results and lessons learnt.
Output 4.1

A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects in place.

Activity 4.1.1

By building on the experiences with the other climate change projects in other countries (GEF, JI and/or CDM), developing a Project Monitoring and Verification Protocol for monitoring the GHG emission reductions achieved with the suggested pilot/demo projects.

Activity 4.1.2

As needed, preparing the specifications for, procuring and installing the required technical equipment to facilitate proper monitoring of the projects.

Activity 4.1.3

Training the operating personnel of projects to compile and report the necessary information.

Output 4.2

Project results, experiences and lessons learnt documented and disseminated at the national and regional level.

Activity 4.2.1

Monitoring the pilot CFL campaign in the residential sector as well as the development and commissioning of the first pilot/demonstration projects in the service sector, evaluating and reporting the results and lessons learnt.

Activity 4.2.2

Monitoring and verifying the GHG emission reductions achieved as a result of the projects.

Activity 4.2.3

Conducting an independent project midterm and final eva luation , including the evaluation of the effectiveness of the training and other capacity building activities in reaching their stated objectives.

Activity 4.2.4

Compiling, publishing and disseminating the final project report in Croatian and English summarizing the results, experiences and lessons learnt

Activity 4.2.5

Organizing meetings, workshops and seminars with the participation of the key stakeholders to discuss the results and to initiate measures and activities needed at the policy and other levels to follow-up and expand the activities to other regions and sub-sectors on a sustainable basis, incl. the elaboration of measures needed to encourage energy efficiency improvements in the public buildings as well as to strengthen the role of the energy efficiency aspects in the ongoing power sector reform process;

Annex 2: Definition of project objectives, outputs and activities in the Inception Report

Development Objective

Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors.

Immediate Objectives, Outputs and Activities

Immediate Objective 1
Overcoming the general institutional barriers to the promotion of energy efficiency

Output 1.1
Enhanced capacity of the regional authorities to promote energy efficiency (EE)

Activity 1.1.1
Organizing seminars, workshops and other promotional activities aiming to create a sustainable EE market

Activity 1.1.2
Creating and strengthening the capacity of the energy departments of the local counties for the experts that can serve as energy advisors for the local county to conduct energy audits, initate specific EE projects, and otherwise to act as a clearing house for energy related information and to promote and support energy efficiency and renewable energy measures, thereby preparing ground for the later establishment of regional energy centres;

Immediate Objective 2
Overcoming the barriers to improving the energy efficiency of the residential sector

Output 2.1
Increased public awareness of the available energy efficient technologies and measures and their benefits to the consumers

Activity 2.1.1
On an ongoing basis organizing information dissemination and public awareness raising campaigns (incl. seminars, publication and distribution of information leaflets/fact sheets, use of the public media etc.) to raise the public awareness on the costs and benefits of the different energy efficient technologies and measures applicable in the households

Output 2.2
A successfully conducted marketing campaign to promote the EE home improvements and or building new homes and residential buildings according to the low energy and smart home integrated design concept.

Activity 2.2.1
Announcing a public call for tender for EE manufacturers and service providers to submit proposal for development of EE projects;

Activity 2.2.2
In co-operation with the selected manufacturer(s), implement the proposed projects, monitor results and promote the concept through media and DIY retail chains.

Output 2.3
Replication of similar projects for other regions and/or technologies.

Activity 2.3.1
Organizing targeted information dissemination and marketing campaigns to promote the results from pilot projects, and based on the experiences and lessons learnt from the first pilot campaign, replicating similar projects for other regions and, as applicable, other EE technologies and techniques.

Immediate Objective 3
Overcoming the barriers to improving the energy efficiency within the service sector

Output 3.1
Increased awareness of the owners of the public and commercial buildings on the available energy efficient technologies and measures.

Activity 3.1.1
Initiate a "House–in–order" project where selected government and municipality buildings will implement major EE improvements, having subsequent operations closely monitored and the resulted energy savings and GHG reductions verified.

Activity 3.1.2
Organizing targeted information dissemination and marketing campaigns to promote the results from the "House-in-order" project (including targeted energy audits) to raise the awareness of the owners/operators of the buildings on the available energy efficient technologies and their cost and benefits to the clients, and to replicate the projects;

Output 3.2
Enhanced capacity of the local stakeholders to initiate and support the implementation of energy efficiency measures in the service sector

Activity 3.2.1
Establishing strategic partnerships between market participants (banks, engineering companies etc.) to initiate energy efficiency measures in the service sector, and building the capacity of the local experts in project preparation, financing and management as well as in the installation, maintenance and operation of different energy efficient equipment;

Activity 3.2.2
Providing guidelines and incentives for energy audits and for the preparation of "bankable" feasibility studies and business plans for improving the energy efficiency of the service sector, considering both supply and demand side measures with the initial focus on the hotels and public buildings;

Output 3.3
A pipeline of "bankable" energy efficiency investment proposals for the service sector facilities;

Activity 3.3.1
Launching a campaign of free "walk through" energy audits for service sector facilities in co-operation with the local engineering companies, NGOs, public authorities and other relevant stakeholders.

Activity 3.3.2
Presenting and discussing the results of the audits with the targeted clients with the aim to enter into contractual arrangements for further development and, as applicable, implementation of the projects.

Activity 3.3.3
Supporting the development of the projects into full-fledged investments proposals by training and by providing other technical assistance to project developers as well by establishing a specific "Project Development Fund" to share the costs and the risks of project development.

Output 3.4
A Partial Guarantee Facility to leverage financing for the targeted energy efficiency investments

Activity 3.4.1
Establishing a Partial Guarantee Facility to share the risks connected with the preparation and implementation of energy efficiency projects in the residential and service sectors and to leverage additional financing for the energy efficiency investments from the private sector;

Immediate Objective 4
Facilitating the effective replication/utilisation of the project results and lessons learnt.

Output 4.1
A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects in place.

Activity 4.1.1
By building on the experiences with the other climate change projects in other countries (GEF, JI and/or CDM), developing a Project Monitoring and Verification Protocol for monitoring the GHG emission reductions achieved with the suggested pilot/demo projects.

Activity 4.1.2
As needed, preparing the specifications for, procuring and installing the required technical equipment to facilitate proper monitoring of the projects.

Activity 4.1.3
Training the operating personnel of projects to compile and report the necessary information.

Output 4.2
Project results, experiences and lessons learnt documented and disseminated at the national and regional level.

Activity 4.2.1
Monitoring the pilot EE campaign in the residential sector as well as the development and commissioning of the first pilot/demonstration projects in the service sector, evaluating and reporting the results and lessons learnt.

Activity 4.2.2
Monitoring and verifying the GHG emission reductions achieved as a result of the projects.

Activity 4.2.3
Conducting an independent project midterm and final evaluation, including the evaluation of the effectiveness of the training and other capacity building activities in reaching their stated objectives.

Activity 4.2.4
Compiling, publishing and disseminating the final project report in Croatian and English summarizing the results, experiences and lessons learnt

Activity 4.2.5
On an on-going basis organizing meetings, workshops and seminars with the participation of the key stakeholders to discuss the results and to initiate measures and activities needed at the policy and other levels to follow-up and expand the activities to other regions and sub-sectors on a sustainable basis, incl. the elaboration of measures needed to encourage energy efficiency improvements in the public buildings as well as to strengthen the role of the energy efficiency aspects in the ongoing power sector reform process.

Annex 3: Reconstructed LogFrame with newly defined indicators and targets after MTE

Project Goal: Removing key barriers to the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors in Croatia, thereby reducing their energy consumption and associated greenhouse gas emissions by 2 Mton CO2 cumulatively by 2020.

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
Objective: Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficient technologies and measures in residential and service sector buildings.	Direct CO_2 emission reductions as a result of project-assisted investments Indirect CO_2 emission reductions as a result of project activities targeting a wider audience	No additional investments No additional indirect emission reductions	Investments leading to 15,000 kton CO_2 emission savings by end of project Indirect emission savings amounting to 1.9 Mton by 2020.	Investment support records + follow-up on implementation of measures Modeling of national sales data of EE products (lamps, appliances, boilers, insulation materials); surveys to track project impact on investment decisions	--- Economic situation does not deteriorate.
Outcome 1: Overcoming the general institutional barriers to the promotion of energy efficiency	New investments in energy efficient end-use technologies in buildings as a result of project investment support	No additional investments	Investments for project-endorsed EE measures in buildings of USD 2.5 M at mid-term and USD 7.5 M by end of project	Investment support records + follow-up on implementation of measures	---
Output 1.1: Enhanced capacity of the regional authorities to promote energy efficiency in buildings Indicator: Regional and other public authorities have established an energy management system and use this to promote EE investments and measures (mid-term target: 1 authority; end of project: 5 authorities) **Activity 1.1.1** Organizing seminars, workshops and other promotional activities aiming to create a sustainable EE market and to enhance regional authorities' awareness of energy efficiency. **Activity 1.1.2** Create and maintain information system for monitoring and reporting of energy consumption (Energy management system) by types of energy sources for facilities of the municipal or county sector, to help identify energy efficiency opportunities. Activity 1.1.3 Building the capabilities of regional authorities staff to identify local energy needs and service, develop and initiate local energy plans, including energy efficiency and renewable energy measures.					

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
Outcome 2: Overcoming the barriers to improving the energy efficiency of the residential sector	Household awareness of availability and benefits of EE lighting, appliances and equipment No. of households that have purchased EE lighting, appliances or equipment in the last 12 months	24,5 % of households aware of availability of EE products and their benefits 41,9 % of households have purchased a CFL, EE appliance or insulation material in last 12 months	95-100 % of households aware of availability of EE products and their benefits 54 % of households have purchased a CFL, EE appliance or insulation material in last 12 months	Consumer survey in 2nd and last year of project Consumer survey in 2nd and last year of project	Economic situation does not deteriorate, to the point that investments become impossible
Output 2.1: Increased public awareness of the available energy efficient technologies and measures and their benefits to the consumers Indicator: see above **Activity 2.1.1** On an ongoing basis organizing information dissemination and public awareness raising campaigns (incl. seminars, publication and distribution of information leaflets/fact sheets, use of the public media etc.) to raise the public awareness on the costs and benefits of the different energy efficient technologies and measures applicable in the households. **Output 2.2:** Successfully conducted marketing campaign to promote the purchase of energy efficient products Indicator: see above **Activity 2.2.1** In co-operation with the selected manufacturer(s) establish Energy corners in DIY retail chains to promote the purchase of energy efficient products and services. **Activity 2.2.2** Promote the concept of energy efficient products through the public marketing campaign **Output 2.3**: Successfully developed and demonstrated financial and/or other mechanisms to support investments in the energy efficiency of residential buildings by their owners (end of project target: 2 mechanisms developed, 1 successful demonstration) **Activity 2.3.1.** Develop and distribute designs for typical energy efficiency improvement measures for HVAC systems, building insulation, lighting, and use of renewable energy technology, for existing and new residential buildings. **Activity 2.3.2.** Providing advisory service for energy efficiency improvement in the residential sector and development of pipeline of bankable projects. **Activity 2.3.3.** Establish a Partial Guarantee Facility to share the risks connected with the implementation of energy efficiency projects in the residential sector and to leverage additional financing for the energy efficiency investments from the private sector **Activity 2.3.4** Support commercial banks in evaluating technical merits of the loan applications for energy efficiency improvements.					
Outcome 3: Overcoming the barriers to improving the energy efficiency within the service sector	Hotel and public building owner awareness of availability and benefits of EE lighting, appliances and equipment	26.5 % of hotel owners & public building managers aware of availability of EE products and their benefits	37 % of hotel owners & public building managers aware of availability of EE products and their benefits Y + 10 % of hotel owners &	Survey of hotel owners and public building managers in 2nd and last year of project	Economic situation does not deteriorate, to the point that investments become impossible

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
	No. of hotels and public buildings that have purchased EE lighting, appliances or equipment in the last 12 months	Y % of hotel owners & public building managers have purchased a CFL, EE appliance or insulation material in last 12 months	public building managers have purchased a CFL, EE appliance or insulation material in last 12 months	Survey of hotel owners and public building managers in 2nd and last year of project	
Output 3.1: Increased awareness of the owners of the public and commercial buildings on the available energy efficient technologies and measures. Indicator: see above **Activity 3.1.1** Organizing targeted information dissemination and marketing campaigns to promote the results from the sustainable energy management in cities project (including targeted energy audits) to raise the awareness of the owners/operators of the buildings on the available energy efficient technologies and their cost and benefits to the clients, and to replicate the projects. **Output 3.2:** Successfully developed and demonstrated financial and/or other mechanisms to support investments in the energy efficiency of service sector buildings by their owners (end of project target: 2 mechanisms developed, 1 successful demonstration) **Activity 3.2.1** Launch a campaign of free "walk through" energy audits for service sector facilities in co-operation with the local engineering companies, NGOs, public authorities and other relevant stakeholders where selected buildings will implement major EE improvements, and monitor the resulting energy savings and GHG reductions. Presenting and discussing the results of the audits with the targeted clients with the aim to enter into contractual arrangements for further development and, as applicable, implementation of the projects **Activity 3.2.2** Provide training and guidelines to auditors to improve the quality of their energy audit reports. **Activity 3.2.3** Train developers in project development and offer to share the costs and the risks of project development, through the "Project Development Fund". **Activity 3.2.4** Establishing a Partial Guarantee Facility to share the risks connected with the preparation and implementation of energy efficiency projects in the residential and service sectors and to leverage additional financing for the energy efficiency investments from the private sector. **Activity 3.2.5** Provide technical support to commercial banks in evaluating technical merits of the loan applications for energy efficiency improvements.					
Outcome 4: Facilitating the effective replication/utilization of the project results and lessons learnt.	No impact indicator	No impact baseline	No impact target	---	---
Output 4.1: Enhanced government capacity to prioritise and implement targeted activities to promote energy efficiency Indicator: National energy efficiency strategy developed and operational (mid-term target: strategy developed; end-of-project: operational) **Activity 4.1.1** Development of a comprehensive Energy efficiency Strategy which sets national and sector-specific targets for energy efficiency improvements, outlines the methods and implementation procedures and highlight necessary changes in policy and regulatory framework which need to be followed in the long-term for expanding the pilot projects activities on a broad national level. Strengthen the role of Energy efficiency within national energy development plans. **Output 4.2**: A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects in place.					

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
Indicator: Energy and CO2 emission monitoring of project impact established and operational **Activity 4.2.1** By building on the experiences with the other climate change projects in other countries (GEF, JI and/or CDM), developing a Project Monitoring and Verification Protocol for monitoring the GHG emission reductions achieved with the suggested pilot/demo projects; monitoring and verifying the GHG emission reductions achieved as a result of the projects. **Output 4.3:** Project results, experiences and lessons learnt documented and disseminated at the national and regional level. Indicator: Project results widely disseminated and discussed with stakeholders **Activity 4.3.1** Monitoring the pilot EE campaign in the residential sector as well as the development and commissioning of the first pilot/demonstration projects in the service sector, evaluating and reporting the results and lessons learnt. **Activity 4.3.2** Conducting an independent project midterm and final evaluation, including the evaluation of the effectiveness of the training and other capacity building activities in reaching their stated objectives. Compiling, publishing and disseminating the final project report in Croatian and English summarizing the results, experiences and lessons learnt **Activity 4.3.3** On an on-going basis organizing meetings, workshops and seminars with the participation of the key stakeholders to discuss the results and to initiate measures and activities needed at the policy and other levels to follow-up and expand the activities to other regions and sub-sectors on a sustainable basis.					

Annex 4: Itinerary

Date	Meeting	Place
07.03.2011. Monday	08.00 Mr. Zoran Morvaj, National Project Manager - Chief Technical Advisor - Introduction 09.00. – 13.30 Project Managers: Vlasta Zanki, Sandra Magajne, Goran Čačić, Zoran Bogunović, Dunja Fadljević UNDP E&E Programme Officer: Sandra Vlasić 14.00 UNDP CO: Louisa Winton, RR, Alessandro Fracassetti, Deputy RR	Zagreb
08.03.2011. Tuesday	"House in order" stakeholders 10.00 Ministry of Foreign Affairs Mr. Stipe Franjičević, Mr. Miro Škugor – Head of Maintenance Department 13.00 Ministry of Interior Mr. Leon Čok – Senior expert adviser in the Department for the real estate management and investments Ms. Gordana Bušić, Head of Department for the real estate management and investments 14.00 Ministry of justice, Prison System Directorate Mr. Branko Peran – Acting Director General of Prison Administration Ms. Marija Josipović – Head of Legal and Administrative Department 16.00 Ministry of economy Mr. Ivan Raguzin, Head of Department for Renewable Energy and Energy Efficiency Mr- Dražen Leš – Technical Assistant (UNDP part time secondant)	Zagreb
09.03.2011. Wednesday	9.30 World Bank – Ms. Nataša Vetma – Operations Officer 11.00. Environmental protection and EE fund Ms. Irena Dubravec, Head of the EE Department 13.00 HEP ESCO –Ms. Gordana Lučić – director 16:00 Project team, Zoran Bogunović	Zagreb
10.03.2011. Thursday	13.30. Osijek-Baranja County Goran Pichler, EE Project Task Manager for Slavonia Mia Dragović, Assistant Task Manager Božica Dunković, Ivana Čandrlić, Osijek-Baranja County Agency for Development	Osijek
11.03.2011. Friday	9h Varaždin County Ms. Blanka Glavica Ječmenica – Deputy County Prefect Mr. Miroslav Huđek – Head of the Department for	Sisak Varazdin

	Education, Culture and Sport Mr. Tomislav Jarmić – Head of the Department for economy, regional development and EU integration Mr. Nikola Kučiš – EE team leader 13 h Sisak municipality Ms. Đurđica Franić – EE manager Mr. Petar Larotić – EE manager 17:00 Project Team: Sandra Magajne	
14.03.2011. Monday	10:00 Internorm/Alutermik; 11:30 Vaillant 14:00 Danfoss	Zagreb
15.03.2011. Tuesday	10.00 Davor Percan, Delegation of the EU Toni Vidan – Zelena Akcija	Zagreb
16.03.2011. Wednesday	National Project manager Project Managers UNDP E&E Programme Officer	Zagreb
17.03.2011 Thursday	9:00 debriefing UNDP CO – RR or DRR	
	RTA John O'Brien, UNDP BRC, Bratislava De-briefing and discussion (phone)	

Annex 5: List of persons interviewed

Mr. Miro Škugor, Head of Maintenance Department
Mr. Stipe Franjičević, Maintenance Department
Ministry of Foreign Affairs
Trg Nikole Šubića Zrinskog 7-8, 10 000 Zagreb
www.mvpei.hr

Ms. Gordana Bušić, Head of Department for the Real Estate Management and Investments
Mr. Leon Čok, Senior Expert Adviser in the Department for the Real Estate Management and Investments
Ministry of Interior
Ulica grada Vukovara 33, 10 000 Zagreb
www.mup.hr

Mr. Branko Peran
Acting Director General of Prison Administration
Ms. Marija Josipović
Head of Legal and Administrative Department
Ministry of Justice, Prison Administration Head Office
Petrinjska 12, 10 000 Zagreb
www.uzs.pravosudje.hr

Mr. Igor Raguzin
Head of Department for Renewable Energy and Energy Efficiency
Dražen Leš, Technical Assistant, Department for Renewable Energy and Energy Efficiency
Directorate for Energy
Ministry of Economy, Labour and Entrepreneurship
Ulica grada Vukovara 78, 10 000 Zagreb
www.mingorp.hr

Ms. Nataša Vetma
Operations Officer
Environment and Energy
The World Bank
Radnička cesta 80/IX, 10 000 Zagreb
www.worldbank.hr

Ms. Irena Dubravec
Head of Department for Rational Energy Use and Energy Efficiency
Environmental Protection and Energy Efficiency Fund
Ksaver 208, 10 000 Zagreb
www.fzoeu.hr

Ms. Gordana Lučić
Director
HEP ESCO d.o.o.

Ulica grada Vukovara 37, 10 000 Zagreb
www.hepesco.hr

Ms. Božica Dunković
Ms. Ivana Čandrlić
Osijek-Baranja County Development Agency
S. Radića 4, 31 000 Osijek
www.obz.hr

Ms. Blanka Glavica-Ječmenica, Deputy County Prefect
Mr. Miroslav Huđek, Head of the Department for Education, Culture and Sport
Mr. Tomislav Jarmić, Deputy Head of the Department for Economy, Regional Development and EU integration
Varaždin County
Franjevački trg 7, 42 000 Varaždin
www.varazdinska-zupanija.hr

Mr. Nikola Kučiš, Energy efficiency team leader
AZRA, Varaždin County Development Agency
Franjevački trg 7, 42 000 Varaždin
www.azra.hr

Ms. Durdica Franić
Mr. Petar Larotić
Energy Efficiency and Renewable Energy Counselor
Department of Environmental Protection, Rural Development and Agriculture
Municipality of Sisak
Rimska 26, 44 000 Sisak

Mr. Josip Komljenović, Chairman
Mr. Tomislav Brletić, Sales Manager
Alu Termik d.o.o., Internorm partner
Savska 144a, 10 000 Zagreb
www.alutermik.hr, www.internorm.hr

Ms. Vlasta Konosić
Sales and Marketing
Industrial Automation
Danfoss d.o.o.
Magazinska 9a, 10 000 Zagreb
www.danfoss.hr

Mr. Davor Percan
Task Manager
Environment, Energy and Natural Resources
Delegation of the European Union to the Republic of Croatia
Trg žrtava fašizma 6, 10 000 Zagreb
www.delhrv.ec.europa.eu

Mr. Toni Vidan
Director of Energy Program
Zelena Akcija – Friends of the Earth Croatia
Frankopanska 1, 10 000 Zagreb
http://zelena-akcija.hr

Annex 6: Summary of field visits

Ministry of Foreign Affairs

The Ministry of Foreign Affairs has participated in the House in Order segment of the project. The project has established EE team and trained EE Advisors at the Ministry, Green Office training was provided to 500 employees of 600, the Ministry has prepared EE reconstruction plans. On-line metering of energy consumption has been implemented and real-time data are shown on an LCD screen installed in the lobby of the Ministry, energy consumption in facilities of the Ministry is monitored in the EMIS system. The cooperation with the project has been very useful and informative. The managers expect energy consumption reduction of ca 10% due to improved management and changed behavior of employees.

Ministry of Interior

The Ministry has 360 facilities with a total area of 400 000 m2, and employs 25 000 people. The Ministry has established EE team, developed the register of their buildings and collects and monitors data on energy consumption of ca 200 buildings in the EMIS system as part of the HiO program. Eight EE advisors and 800 employees of the headquarters have been trained in EE and Green Office management, including green tendering, all of 20 county directorate facility managers will be trained in EE housekeeping. EMIS has already helped to identify excessive water consumption due to pipe leakages, and to optimize electricity tariffs used. The savings generated more than 1 mil HRK (200 k USD) per year, without investment. Three EE projects with estimated savings of up to 40% have been prepared with assistance from the project and have been submitted to the EPEEF for financing. EE measures include both demand and supply side measures, such as fuel switch (oil to gas). LCD screen with real-time information on the actual consumption has been installed in the lobby of the Ministry.

Ministry of Justice, Prison Administration Head Office

The prison administration belongs to the most active participants in the House in Order program. The Ministry administers 14 prisons, 8 houses of correction, 1 hospital, and 135 facilities. Energy efficiency and green office training has been proved and EE advisors trained. Excessive water consumption has been reduced due to energy and water consumption monitoring and evaluation. In addition to four energy efficiency projects submitted to EPEEF for financing a special recycling project has been prepared. A system for collection of used paper in all governmental facilities should be established and recycled and processed in the production facility by the prisoners. Monthly reports on EE are prepared and submitted to the director of the Prison Administration. Cooperation with HEP ESCO put on hold for now because of the restrictions of the Ministry of Finance (Aim of MoF is to reduce budget deficit, and thus heavily controls and prevents new debt financing, including third party financing – EPC/ESCO projects). The administration clearly recognizes benefits of EE in facility management and will continue to operate the EMIS system even after the project is phased out.

Ministry of Economy, Labour and Entrepreneurship

Ministry of Economy serves as a main project partner in the country – and as an executing agency as well, and it played a critical role in supporting and promoting the project concept among local stakeholders. The Ministry has provided also 0.5 mil USD cash co-financing to the project, and the

former minister has provided significant political support in obtaining the local co-financing of 16 mil USD from the EPEEF. The Energy Efficiency Department of the Ministry is heavily understaffed. The Energy efficiency department has only a single person actively employed (another one is on a long sick-leave). Due to the budget cuts in response to the economic crisis there is a general ban on new governmental jobs openings. The project has developed the Energy Master Plan and Energy Efficiency Strategy including EE targets, based on which the Ministry of Economy submitted Energy Efficiency Program for Croatia (2008-2016) and The First National Energy Efficiency Action Plan, which have been approved in 2010. The project provides also part-time technical assistance to the Energy efficiency department, and assists the Ministry with developing certification of energy auditors, energy efficiency bylaws, and other activities.

World Bank

The World Bank has provided 5 mil USD loan to HEP National Electricity Utility for establishment and operation of HEP ESCO, and it has implemented energy efficiency project with a 7 mil USD grant from GEF, of which 1.2 mil USD has been allocated for financing the Partial Credit Guarantee program at the HBOR bank. The Partial Credit Guarantee (Partial Guarantee Facility - PGF) was jointly developed and supported by the World Bank project and by the UNDP project, and financed in both cases by GEF. The UNDP project has provided 0.6 mil USD for financing of the PGF at the HBOR bank. The Partial Credit Guarantee program did manage to have signed only two deals with industrial customers, in the total amount of 0.9 mil USD. The remaining amount of 0.3 mil USD was reallocated to other World Bank project activities (HEP ESCO). The World Bank project evaluation states that "*the PCG facility failed to attract demand and reduce the perceived high risks of EE projects and mitigate the rigid collateral requirements imposed on these projects by local financiers. In this context, the PCG did not have a transformational effect but rather helped less creditworthy borrowers to access EE lending by improving their collateral*."
The World Bank appreciated the technical assistance the UNDP project has provided, including energy audits performed at the facilities of the client of the Partial Credit Guarantee program.

Environmental Protection and Energy Efficiency Fund

The Fund provides financing for environmental protection, waste management, energy efficiency and renewable energy projects. Fund serves, together with the Ministry of Economy, as a national Energy Efficiency Agency. Since its establishment in 2004, the Fund has disbursed a total of 829 mil EUR, of which 56 mil EUR (ca 7%) have been spent on energy efficiency and renewable energy projects. The Fund's support cannot exceed 40% of the eligible costs, and 230 000 EUR in total per customer. The Fund has provided significant co-financing for the UNDP project, including information campaigns, SGE and HiO projects. The Fund is willing to accommodate the project team necessary for implementation of the SGE and HiO programs, however, no decision has been made yet.

HEP ESCO

HEP ESCO is an Energy Service Company established within the HEP Group with the initial support from the World Bank. HEP ESCO has been successful in implementing EPC projects in Croatia and in 2007 it has been awarded European Energy Service Award for the best European energy service company. Due to debt restrictions of the Ministry of Finance, public authorities are currently practically not allowed to implement EPC projects. HEP ESCO has thus refocused its activities from public sector to private industrial and commercial customers. The UNDP project has significantly improved the quality of energy audits in the country; it developed the methodology of energy audits and has trained energy auditors.

Annex 7: List of documents reviewed

Document	Description
Project document	The Project Document and Budget Revisions Amendment to Project Document HiO Project Documents SGE Project Documents
Project reports	Project Inception Report Performance Reports Mid-term Evaluation Report
Annual Project Report to UNDP/GEF	Annual Project Implementation Reports
Other relevant materials:	Project files Notes to the files Minutes of Project Board and Project Steering Committee Meetings Co-financing agreements Researches and evaluations results Presentation materials Press articles and other media appearances
GEF Monitoring and Evaluation Policy	http://www.thegef.org/gef/sites/thegef.org/files/documents/GEFMonitoringEvaluationPolicy.pdf
UNDP/GEF Monitoring and Evaluation Policy and Procedures	http://www.undp.org/gef/documents/me/ME-HandBook.pdf

Annex 8: List of publications

TITLE	COMMENT	TOTAL NUMBER
Manual for Implementation of Energy Audits in buildings	For energy auditors	2 000
Manual for weekly and daily analyses and energy consumption data interpretation		1 000
Manual for Energy Certification of the Buildings		2 500
Manual for Energy Advisors	Instructions for energy advisors	4 000
Typical measures for improvement of energy efficiency	A compilations of informative and educational materials, aiming at familiarizing citizens with energy efficiency technologies, devices and materials and stimulate their application in homes. The brochure also provides information on energy and financial savings, necessary investments, return on investment period and include specification of equipment and their maintenance.Typical measures should facilitate a decision on how to build and renovate their homes, which equipment and materials should be built in, all aiming at reducing energy expenses.	2 000
Handbook for implementation of EE projects into local and regional administration budgets.	A manual for the classification of energy efficiency projects in the local government budgets. It describes process of preparation of energy efficiency projects, their implementation in the budgets of local and regional self-governments and good practices of energy efficiency projects financed by local and regional governments. The manual is designed for decision makers in the public sector and officials responsible for implementing energy efficiency projects, their budget planning and monitoring, but also to the wider interested public.	2 000
Procura+ guidebook	Translation of a guidebook for sustainable public procurement originally published by the Procura+ Campaign that was established in 2004 by ICLEI – Local Governments for Sustainability to help drive the mainstreaming of sustainable public procurement.	2 000
Brochure “One Ton Challenge (1 t CO2)”	Simple instructions, suggestions and ideas to citizens how to personally reduce emissions of 1t CO2	635 000
Brochure “200 EE advices”	For citizens	750 000
Manual Energy management in cities and	For policy makers and E managers in local and regional government	3 200

counties		
Annual report on systematic energy management in the city of Sisak	Good practice examples from the pilot project in the City of Sisak	2 500
Programme of the national conference of cities and counties held in Split (May 2008)	Systematic energy management in the cities and counties	600
Energy management in the City of Zagreb - Conference brochure		500
SGE 2 pager (hrv and eng)		7 100
HiO 2 pager (hrv and eng)		10 200
EE promotion posters	Posters on 5 topics of EE, SGE poster, HiO poster	8 600
Green Office Guide	For all employees in public administration (but also suitable for commercial sector). Guide is describing performance of daily activities, usage of devices, the way we buy things, travel to and from work. It covers the following topics: office equipment, paper, lighting, heating, cooling, ventilation, water, waste, green procurement, passenger transport. Guide can be used in whole or modular. Chapters are separated, although mutually dependent, can be performed by the measures that relate to one or all of the chapters.	10 000
Green Office Workbook	For Green office managers. It is a tool that guides introduction and implementation of the green office concept so that it can became a continuous practice in administration. It shows how to evaluate the status (baseline) in the office and to plan future priorities and objectives, policies and measures for their implementation. Provides guidance for monitoring and analysis of progress and proposes new activities to meet measurable goals.	2 000
Green Board	Tool for displaying Green Office activities progress, enables distribution of the analyzed data to all employees of local government unit. It serves to show the achieved results, implemented measures, settings of new goals and collecting new ideas for future periods.	100
Green office poster “Gaspar in the office”		400
Green office stickers	Computers, lighting, water, paper, office equipment, heating/cooling	63 000
Green office comments box		100

DVD Movie “My EE (Energy Efficiency) Town”	Informative-educational tool for training of local government officials. Two versions with different duration 25’12” and 12’16”	2 000
Movie “Think about tomorrow”		52 000
Poster “City news”	Template – custom information for each city	31
Poster “Gaspar advice”		31
City light poster	Template – custom information for each city	78
EE cloth bags		12 600
EE folders (A3 and A4)		18 400
EE Small posters A4		38 350
A4 "Gaspar advices" posters		4 000
HIO A4 folder		6 900
Stickers for info centers		23
Glued posters/Forex posters		1 167
EE paper bags		5 850
Info center&info points wallscapes & stickers	Hard to specify, as they are different dimensions and tailor-made to fit each info center and info point	7
HIO brochure		1 700
Box/Folder for EE advisors courses		1 000

Annex 9: Evaluation TOR

Terms of Reference

For

Final Evaluation of the Project

CRO/00/G31/A/1G/99

REMOVING BARRIERS TO IMPROVING ENERGY EFFICIENCY OF RESIDENTAL AND SERVICE SECTORS IN CROATIA (EE PROJECT)

ATLAS PROJECT NO: 00034424

PIMS 715

Functional Title: **International Expert for the Final Evaluation**

Project: "Removal of barriers for energy efficiency in Croatia" (EE Project)

Type of Post: SSA

Duration: 3 months, estimated working time: approximately 35 working days

Commencement Date: February 1st, 2011

Terms of Payment: Lump sum payable in instalments upon satisfactory completion of milestones and approval by UNDP of all deliverables, including the Evaluation report

Contents:

I. INTRODUCTION

A) UNDP/GEF Monitoring and Evaluation (M&E) policy

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives: i) to monitor and evaluate results and impacts; ii) to provide a basis for decision making on necessary amendments and improvements; iii) to promote accountability for resource use; and iv) to document, provide feedback on, and disseminate lessons learned. A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project, e.g. periodic monitoring of indicators, or as specific time-bound exercises such as mid-term reviews, audit reports and final evaluations.

In accordance with UNDP/GEF M&E policies and procedures, all regular and medium-sized projects supported by the GEF should undergo a final evaluation upon completion of implementation. In addition to providing an independent in-depth review of implementation progress, this type of evaluation is responsive to GEF Council decisions on transparency and better access of information during implementation.

The final evaluation is intended to assess the relevance, performance, management arrangements and success of the project. It looks at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It also identifies/documents lessons learned and makes recommendations that project partners and stakeholders might use to improve the design and implementation of other related projects and programs.

B) The project objectives and its context within the Croatia

In December 2004, the Government of Croatia and the United Nations Development Programme (UNDP) signed a project aimed to develop an active and sustainable market for energy efficiency products and services.

The main project objective is to remove the key barriers to the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors in Croatia, thereby reducing their energy consumption and associated greenhouse gas emissions.

Since the Energy efficiency (EE) market in Croatia is underdeveloped with almost non-existing demand for EE products and services, the Project is focusing on transforming the EE market through a mix of interventions and instruments targeting both supply and demand

side of the market, and through continuous public information, awareness and social marketing activities.

The initial focus of the project was on the residential and service sectors with following instruments: Free energy audits (FEAs), Project Development Fund (PDF), Partial financial guarantees fund (PGF), Technical Assistance, and Information promotion campaign.

Building on the excellent results of the pilot project of introducing Energy Management (EM) in the City of Sisak, which was implemented within the EE Project; and in order to support national development priorities, as defined in Energy Strategy for Republic of Croatia and in the national Programme for Efficient Use of Energy, the Project: "*Introducing Energy Management to Cities and Counties" (SGE)* and the Program *"House in Order" (HIO),* endorsed by the Government of Croatia, have been developed. Both SGE and HiO are components of the existing project "Removing barriers to energy efficiency in Croatia", supported both financially and institutionally by the Ministry of Economy, Labour and Entrepreneurship and Environmental Protection and Energy Efficiency Fund of Croatia. Their aim is to introduce EM on national, regional and local level, with a range of related projects in building sector

The key stakeholders for the implementation of this project are:

Ministry of Economy, Labour and Entrepreneurship (MELE);

Environmental Protection and Energy Efficiency Fund (EPEEF);

Ministries

Cities and Counties

World Bank Energy Efficiency and Renewable energy projects;

HEP ESCO;

UNDP Croatia

UNDP/GEF Regional Center for Europe and CIS (Bratislava)

Project Outcomes as defined in the Project Document:

1. Overcoming general institutional barriers to promotion of energy efficiency;

2. Overcoming the barriers to improving energy efficiency of the residential sector;

3. Overcoming the barriers to improving energy efficiency within the service sector;

4. Facilitating effective replication/utilization of the project results and lessons learnt.

There is a number of Outputs associated with these outcomes. Progress towards them is reported in the Annual Project Implementation Reviews (APR/PIR) and in the Mid Term Evaluation Report completed in 2007 (all to be made available to the evaluator).

Original Project's duration of four years (2005-2009) was extended for additional two years (2009-2011).

II. OBJECTIVES OF THE FINAL EVALUATION

This Final Evaluation is initiated by the UNDP Croatia as the Implementation Agency for this project.

The objective of the Evaluation is to assess the achievement of project's objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy. It also provides the basis for learning and accountability for managers and stakeholders.

The report will have to provide to the GEF Secretariat complete and convincing evidence to support its findings/ratings.

The Evaluation Report will present assessment of the support model applied in the project, its implications for the long-term impact and sustainability of the project results, recommendations and lessons of broader applicability for follow-up and future support of UNDP and/or the Government, highlighting the best and worst practices in addressing issues relating to the evaluation scope.

III PRODUCTS EXPECTED FROM THE EVALUATION

The key product expected from this Final evaluation is a comprehensive analytical report in English that should, at least, include the following contents:

1. Executive summary
2. Introduction

3. The Project and its development context
4. Findings and Conclusions
   4.1 Project Formulation

   4.2 Project Implementation

   4.3 Results

5. Recommendations
6. Lessons learned
7. Annexes

The length of the Final evaluation report shall not exceed 40 pages in total (not including annexes).

IV SCOPE OF THE EVALUATION – SPECIFIC ISSUES TO BE ADRESSED

The key product expected from this final evaluation is a comprehensive analytical report in English that should, at least, include the following contents:

1. Executive summary

1.1. Brief description of the project
1.2. Context and purpose of the evaluation
1.3. Main conclusions, recommendations and lessons learned

2. Introduction

2.1. Project background
2.2. Purpose of the evaluation
2.3. Key issues addressed
2.4. Methodology of the evaluation
2.5. Structure of the evaluation

3. The Project and its development context

3.1. Project start and its duration
3.2. Implementation status
3.3. Problems that the project seek to address
3.4. Immediate and development objectives of the project
3.5. Main stakeholders
3.6. Results expected

4. Findings and Conclusions

In addition to a descriptive assessment, all criteria marked with (R) should be rated using the following divisions: Highly Satisfactory, Satisfactory, Marginally Satisfactory, and Unsatisfactory with an explanation of the rating. Also the Overall Rating of the project should be indicated.

4.1. Project Formulation

4.1.1. Conceptualization/Design (R). This should assess the approach used in design, the level of appropriate definition of problems and barriers to implementation of Energy Efficiency measures in Croatia and whether the selected intervention strategy addressed the root causes and principal threats in the project area.

It should also include an assessment of the logical framework and whether the different project components and activities proposed to achieve the objective were appropriate, viable and responded to national market, institutional, legal and regulatory settings of the project.

It should also assess the indicators defined for guiding implementation and measurement of achievement.

4.1.2. Country-ownership/Driveness. Assess the extent to which the project idea/conceptualization had its origin within national, sectoral and development plans and focuses on national energy and development priorities.

4.1.3. Stakeholder participation (R) Assess information dissemination, consultation, and “stakeholder” participation in design stages.

4.1.4. Replication approach. Determine the ways in which lessons and experiences coming out of the project were/are to be replicated or scaled up in the design and implementation of other projects.

4.2. Project Implementation

4.2.1. Implementation Approach (R). This should include assessments of the following aspects:

- General management and adequacy and effectiveness of the project implementation structure.
- Relevance: the extent to which the activities used are suited to local and national development priorities and organizational policies, including changes over time.
- The use of the logical framework as a management tool during implementation and any changes made to this as a response to changing conditions and/or feedback from M and E activities if required.
- Other elements that indicate adaptive management such as comprehensive and realistic work plans routinely developed that reflect adaptive management and/or; changes in management arrangements to enhance implementation.

- The project's use/establishment of electronic information technologies to support implementation, participation and monitoring, as well as other project activities.
- Partnership strategy, general operational relationships between the institutions involved and others and how these relationships have contributed to effective implementation and achievement of project objectives.
- Technical capacities associated with the project and their role in project development, management and achievements.

4.2.2. Monitoring and evaluation (R):

- Assess the adoption of the monitoring and evaluation system during the project implementation, focusing to the relevance of the performance indicators, using SMART system of indicators (Specific, Measurable, Achievable and Attributable, Relevant and Realistic, Time-bound, Timely, Trackable and Targeted).
- Assess whether there has been adequate periodic oversight of activities during implementation to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan.
- Whether formal evaluations have been held and whether action has been taken on the results of this monitoring oversight and evaluation reports.

4.2.3. Stakeholder participation (R). This should include assessments of the mechanisms for information dissemination in project implementation and the extent of stakeholder participation in management, emphasizing the following:

- The production and dissemination of information generated by the project.
- Local resource users and NGOs participation in project implementation and decision making and an analysis of the strengths and weaknesses of the approach adopted by the project in this arena.
- The establishment of partnerships and collaborative relationships developed by the project with local, national and international entities and the effects they have had on project implementation.
- Involvement of governmental institutions in project implementation, the extent of governmental support of the project.

4.2.4. Financial Planning (R): Including an assessment of:

- Financial management and accountability, including disbursement issues and the extent to which the sound financial management has been integral part of achieving project results, with particular reference to adequate planning, identification of problems and adjustment of activities, budgets and inputs, and reporting.
- The cost-effectiveness of achievements - the actual project cost by objectives, outputs, activities. The evaluator should include a table of planned financing and co-financing, and actual financing and co-financing.
- Co-financing[1]
- Execution and implementation modalities. This should consider the effectiveness of the UNDP and UNDP counterpart participation in selection, recruitment, assignment of experts, consultants and national counterpart staff

[1] Please see guidelines in Annex 1 for reporting of co-financing

members and in the definition of tasks and responsibilities; quantity, quality and timeliness of inputs for the project with respect to execution responsibilities, enactment of necessary legislation and budgetary provisions and extent to which these may have affected implementation and sustainability of the Project; quality and timeliness of inputs by UNDP, Government and other parties responsible for providing inputs to the project, and the extent to which this may have affected the smooth implementation of the project.

- Sustainability. Extent to which the benefits of the project will continue, within or outside the project domain, after it has come to an end. Relevant factors include for example: development of a sustainability strategy, establishment of financial and economic instruments and mechanisms, mainstreaming project objectives into the economy or community activities.

4.3. Results

4.3.1. Impact: assessment of the results with reference to the project's objectives. The positive and negative, foreseen and unforeseen, changes to and effects produced by a project's intervention. In GEF terms, results include direct project outputs, short- to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects. If the project did not establish a baseline (initial conditions), the evaluators should seek to determine it through the use of special methodologies so that achievements, results and impacts can be properly established.

4.3.2. Effectiveness: the extent to which the objectives have been achieved or are expected to be achieved, taking into account their relative importance.

4.3.3. Efficiency: the measure of how economically resources or inputs (Funds, expertise, time and so on) are converted into results.

4.3.4. Global environmental benefits: reductions in green house gas emissions, including review of the methodology for calculating CO2 emission reductions and validation of direct and indirect CO_2 emission reductions resulting from the project.

4.3.5. Contribution to capacity development: extent to which the project has empowered beneficiaries and have made possible for the government and local institutions (municipalities) to use the positive experiences; ownership of projects' results.

4.3.6. Sustainability: prospects for continuation of project's activities and benefits for an extended period of time after completion of the GEF assistance.

4.3.7. Contribution to capacity development: extent to which the project has empowered beneficiaries and have made possible for the government and local institutions (municipalities) to use the positive experiences; ownership of projects' results.

4.3.8. Replication: analysis of replication potential of the project positive results in country and in the region, outlining of possible funding sources; replication to date without direct intervention of the project.

4.3.9. Synergies with other similar projects, funded by the government or other donors.

5. Recommendations

Corrective actions that could be used for the design, implementation, monitoring and evaluation of the subsequent projects.

6. Lessons learned

This should highlight the best and worst practices in addressing issues relating to relevance, performance and success that could be shared with other projects. The section on lessons learned should include an analysis of how other projects could be improved and strengthened based on the experience in Croatia.

7. Evaluation report Annexes

7.1. Evaluation TOR
7.2. Itinerary
7.3. List of persons interviewed
7.4. Summary of field visits
7.5. List of documents reviewed
7.6. Questionnaire used and summary of results
7.7. Comments by stakeholders (only in case of discrepancies with evaluation findings and conclusions)

V METHODOLOGY OR EVALUATION APPROACH

This evaluation is to be undertaken taking into consideration the GEF Monitoring and Evaluation policy[2] and the UNDP/GEF Monitoring and Evaluation Policy[3]

An outline of an evaluation approach is provided below; however it should be made clear that the evaluator is responsible for revising the approach as necessary. Any changes should be in-line with international criteria and professional norms and standards (as adopted by the UN Evaluation Group[4]). They must be also cleared by UNDP before being applied by the evaluator.

The evaluation must provide evidence-based information that is credible, reliable and useful. It must be easily understood by project partners and applicable to the remaining period of project duration. The consultant is expected to take into account all relevant changes in the project environment since the project was designed in the late 1990's, and the project started only in 2005.

[2] See http://www.thegef.org/gef/sites/thegef.org/files/documents/GEFMonitoringEvaluationPolicy.pdf
[3] See http://www.undp.org/gef/documents/me/ME-HandBook.pdf
[4] See http://www.uneval.org/normsandstandards/index.jsp?doc_cat_source_id=4

The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with the government counterparts, the National Project Manager, Project team, Regional Technical Advisor, and other key stakeholders.

The evaluator is expected to use interviews as a means of collecting data on the relevance, performance and success of the project. S/He is also expected to visit the project sites.

The methodology to be used by the evaluator should be presented in the report in detail. It shall include information on:

Documentation review (desk study) - the list of documentation to be reviewed is included in the Annex 3 to this Terms of Reference;

Interviews will be held with the following organizations and individuals at minimum:

UNDP Croatia, UNDP/GEF RTA from Bratislava, MELE Administration, Project Steering Committee members;

Field visits;

Questionnaires;

Participatory techniques and other approaches for the gathering and analysis of data.

The evaluation should also provide ratings of Project achievements according to GEF Project Review Criteria. In addition to a descriptive assessment, specific criteria (listed in section VII. of this TOR) marked with (R) should be rated using the following divisions:

HS	Highly Satisfactory
S	Satisfactory
MS	Marginally Satisfactory
U	Unsatisfactory
NA	Not applicable

Although the Evaluator should feel free to discuss with the authorities concerned, all matters relevant to its assignment, it is not authorized to make any commitment or statement on behalf of UNDP or GEF or the project management.

The Evaluator should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

VI EVALUATOR

The evaluator selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The consultants shall have prior experience in evaluating similar projects. Former cooperation with GEF is an advantage.

INTERNATIONAL EXPERT

1. Key tasks:

Candidate for the position will perform the following tasks:

- Lead and manage the evaluation mission;
- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Review documents and all data necessary for conducting and analysis;
- Prepare a list of outputs achieved under project;
- Conduct an analysis as per the scope of the evaluation described above;
- Draft related parts of the evaluation report; and finalize the whole evaluation report incorporating and responding to all comments on the draft report.

2. Qualifications

Ideally, the candidate for the position is expected:

- To have University degree in business, economics or energy/environment related fields;
- To have at least 10 years (post degree) international experience in strategic energy projects (design, participation and evaluation);
- To have recent experience within the past 3 years with result-based management evaluation methodologies;
- To have recent experience within the past 3 years applying SMART indicators and reconstructing or validating baseline scenarios;

- To have recent knowledge within the past 3 years of the GEF Monitoring and Evaluation Policy;
- To have recent knowledge within the past 3 years of UNDP's results-based evaluation policies and procedures
- To have competence in Adaptive Management, as applied to Climate Change projects;
- To have experience and good understanding of relations within energy sector – especially within the buildings sector;
- To be very familiar with national and European Union's legislative, institutional and financial framework for energy and energy efficiency;
- To have good understanding of key stakeholders in Croatian energy sector;
- To have knowledge of and experience with quality assurance and control procedures and standards;
- To have excellent analytical and organizational skills.
- Have excellent writing and communication skills in English
- Project evaluation experiences within United Nations system will be considered an asset

Individual consultants are invited to submit applications together with their CV for these positions.

The evaluator must be independent from both the policy-making process and the delivery and management of assistance. Therefore applications will not be considered from consultants who have had any direct involvement with the design or implementation of the project. This may apply equally to consultants who are associated with organizations, universities or entities that are, or have been, involved in the national policy-making process and/or delivery of the project. Any previous association with such entities must be disclosed in the application.

If selected, failure to make the above disclosures will be considered just grounds for immediate contract termination, without recompense. In such circumstances, all notes, reports and other documentation produced by the evaluator will be retained by UNDP.

The evaluation will be undertaken in-line with GEF principles[5]:

- Independence
- Impartiality
- Transparency
- Disclosure
- Ethical
- Partnership
- Competencies and Capacities
- Credibility
- Utility

[5] See p.22 of the GEF's Monitoring and Evaluation Policy

VII IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation lies with UNDP Croatia. UNDP Croatia will contract the evaluator and ensure the timely provision of per diems and travel arrangements within the country. UNDP Croatia will be responsible for liaising with the Evaluator to set up stakeholder interviews, arrange field visits, etc.

UNDP Croatia will support the Final Evaluation by:

- Providing insight in project documentation and provide the evaluator with a compilation of information prior to the evaluation mission;
- Assist in organizing the mission programme and provide translation/interpretation when necessary;
- Assist in collecting all further data necessary as per evaluator's instructions;

These Terms of Reference follow the UNDP GEF policies and procedures, and together with the final agenda will be agreed upon by the UNDP Bratislava Regional Centre,, UNDP Country Office and MELE. These three parties will receive a draft of the final evaluation report and provide comments on it prior to its completion.

Timeframe for submission of first draft of the report: 6 weeks after signing the contract. The evaluation should be completed (finalised and approved Evaluation Report submitted) by 30 April 2011. The report shall be submitted to the UNDP Croatia office.

Prior to approval of the final report, a draft version shall be circulated for comments to MELE, project team and UNDP CO and RCU. If any discrepancies have emerged between impressions and findings of the evaluation team and the aforementioned parties, these should be explained in an annex attached to the report.

Working Days:

International expert – 35 working days

The proposed dates for the in-country mission to Croatia are 15 February - 1 March 2011. The assignment is to commence no later than 1 February 2011.

VIII COSTS AND REMUNERATION

The payments will be made according to a lump sum upon certification that the services have been satisfactorily performed and according to the following task schedule:

- Thirty (30) percent upon signing of the contract
- Thirty (30) percent upon circulation of draft Evaluation

- Forty (40) percent upon finalization of the Evaluation Report (incorporating comments received on revised draft)

Lump sum will be determined according to estimated number of working days and UN fee rates (travel and DSA included).

IX TERMS OF REFERENCE ANNEXES

Annex 1: Table 1. Co-financing and Leveraged Resources
Annex 2: Terminology in the GEF Guidelines to Mid and Final Evaluations
Annex 3: List of Documents to be reviewed by the evaluators

APPLICATION:

International expert - selection criteria:

The Evaluation Criteria is attached for ease of reference.

Applicants are invited to thoroughly review the Evaluation Criteria and include all information relevant to evaluation of the advertised position within their Curriculum Vitae or their Application Letter. The Application Letter should contain a brief concept (no more than 3 pages) that address two issues related to expected performance:

Methodology - This section should demonstrate the Applicant's responsiveness to the TOR by identifying the specific components (building on specification in the TOR), and providing a description of the essential performance.

Work plan – including time schedule and milestones for fulfilment of the tasks defined by the TOR, have to be presented. Thad includes a work breakdown by activities, travel and sight visit schedule.

Only long-listed candidates will be contacted.

In order to be long-listed and asked for an interview, the candidate is expected to have minimum requirements:

- To have University degree in business, economics or energy/environment related fields;
- To have at least 10 years (post degree) international experience in strategic energy projects (design, participation and evaluation);
- To have experience with result-based management evaluation methodologies;
- To have experience applying SMART indicators and reconstructing or validating baseline scenarios;
- To have knowledge of the GEF Monitoring and Evaluation Policy;
- To have knowledge of UNDP's results-based evaluation policies and procedures;
- To have experience and good understanding of relations within energy sector;
- To be familiar with national and European Union's legislative, institutional and financial framework for energy and energy efficiency;
- To have good understanding of key stakeholders in Croatian energy sector;

- To have project evaluation experience;
- To have submitted the Application Letter that contains a brief concept that address Methodology and Work plan related to expected performance.

Interviews will be conducted via telephone.

OFFERS

Financial offers containing consultants' daily rates will be sought only from short listed candidates who have passed the technical evaluation threshold with a minimum of 140 points. Financial offers should consist of gross daily fee in USD.

The final rating will be made using the cumulative analysis and will comprise of 66.67% technical evaluation and 33.33% financial offer, both elements weighted according to consultants' individual score at the evaluation and financial offer.

The financial score will be calculated by giving 100 points to the lowest cost financial score which meets the 140 points minimum threshold and then all other short-listed technical scores will receive a financial score equivalent to Lowest Financial Offer/Financial Offer of the short-listed candidate x 100. (Example: For the Financial Offer Lowest Financial offer is $18,000 and another offer is $21,000. The proposal for $21,000 would receive for Financial Score of 18,000/21,000 x 100 = 85 points. The proposal for $18,000 would receive 100 points).

	Maximum Score
Technical Score	200 points
Financial Score	100 points

The maximum total score is therefore 300 points.

Deadline for applications is 3 January 2011.

Annex 1: Table 1. Co-financing and Leveraged Resources

	Co financing (Type/ Source)		IA own Financing (mill US$)		Central Government (mill US$)		Local Government (mill US$)		Private Sector (mill US$)		Other Sources* (mill US$)		Total Financing (mill US$)		Total Disbursement (mill US$)	
	Proposed	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**	**Proposed**	**Actual**
Grant																
Credits																
Loans																
Equity																
In-kind																
Non-grant Instruments*																
Other Types*																
TOTAL:																

- "Proposed" co-financing refers to co-financing proposed at CEO endorsement.
- Please describe "Non-grant Instruments" (such as guarantees, contingent grants, etc):
  _____
- Please explain "Other Types of Co-financing": _____
- Please explain "Other Sources of Co-financing":
- Projects that have not realized expected co-financing levels must provide explanations. Please describe in 50 words the resources the project has leveraged since inception and indicate how these resources are contributing to the project's global environmental objective.

Annex 2: Terminology in the GEF Guidelines to Mid and Final Evaluations

Implementation Approach includes an analysis of the project's logical framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management.

Some elements of an effective implementation approach may include:

- The logical framework used during implementation as a management and M&E tool
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- Feedback from M&E activities used for adaptive management.

Country Ownership/Driveness is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements where applicable. Project Concept has its origin within the national sectoral and development plans

Some elements of effective country ownership/driveness may include:

- Project Concept has its origin within the national sectoral and development plans
- Outcomes (or potential outcomes) from the project have been incorporated into the national sectoral and development plans
- Relevant country representatives (e.g., governmental official, civil society, etc.) are actively involved in project identification, planning and/or implementation
- The recipient government has maintained financial commitment to the project
- The government has approved policies and/or modified regulatory frameworks in line with the project's objectives

For projects whose main focus and actors are in the private-sector rather than public-sector (e.g., IFC projects), elements of effective country ownership/driveness that demonstrate the interest and commitment of the local private sector to the project may include:

- The number of companies that participated in the project by: receiving technical assistance, applying for financing, attending dissemination events, adopting environmental standards promoted by the project, etc.
- Amount contributed by participating companies to achieve the environmental benefits promoted by the project, including: equity invested, guarantees provided, co-funding of project activities, in-kind contributions, etc.
- Project's collaboration with industry associations

Stakeholder Participation/Public Involvement consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the

individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF-financed project. The term also applies to those potentially adversely affected by a project.

Examples of effective public involvement include:

Information dissemination

Implementation of appropriate outreach/public awareness campaigns

Consultation and stakeholder participation

Consulting and making use of the skills, experiences and knowledge of NGOs, community and local groups, the private and public sectors, and academic institutions in the design, implementation, and evaluation of project activities

Stakeholder participation

Project institutional networks well placed within the overall national or community organizational structures, for example, by building on the local decision making structures, incorporating local knowledge, and devolving project management responsibilities to the local organizations or communities as the project approaches closure

Building partnerships among different project stakeholders

Fulfilment of commitments to local stakeholders and stakeholders considered to be adequately involved.

Sustainability measures the extent to which benefits continue, within or outside the project domain, from a particular project or program after GEF assistance/external assistance has come to an end. Relevant factors to improve the sustainability of project outcomes include:

- Development and implementation of a sustainability strategy.
- Establishment of the financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (from the public and private sectors, income generating activities, and market transformations to promote the project's objectives).
- Development of suitable organizational arrangements by public and/or private sector.
- Development of policy and regulatory frameworks that further the project objectives.
- Incorporation of environmental and ecological factors affecting future flow of benefits.
- Development of appropriate institutional capacity (systems, structures, staff, expertise, etc.)
- Identification and involvement of champions (i.e. individuals in government and civil society who can promote sustainability of project outcomes).

- Achieving social sustainability, for example, by mainstreaming project activities into the economy or community production activities.
- Achieving stakeholders' consensus regarding courses of action on project activities.

Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Examples of replication approaches include:

- Knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc).
- Expansion of demonstration projects.
- Capacity building and training of individuals, and institutions to expand the project's achievements in the country or other regions.
- Use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions.

Financial Planning includes actual project cost by activity, financial management (including disbursement issues), and co-financing. If a financial audit has been conducted the major findings should be presented in the TE.

Effective financial plans include:

- Identification of potential sources of co-financing as well as leveraged and associated financing6.
- Strong financial controls, including reporting, and planning that allow the project management to make informed decisions regarding the budget at any time, allows for a proper and timely flow of funds, and for the payment of satisfactory project deliverables
- Due diligence due diligence in the management of funds and financial audits.

Co financing includes: Grants, Loans/Concessions (compared to market rate), Credits, Equity investments, In-kind support, Other contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries. Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6.

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the

[6] Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6. The Annex 1 presents a table to be used for reporting co-financing.

private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Cost-effectiveness assesses the achievement of the environmental and developmental objectives as well as the project's outputs in relation to the inputs, costs, and implementing time. It also examines the project's compliance with the application of the incremental cost concept. Cost-effective factors include:

Compliance with the incremental cost criteria (e.g. GEF funds are used to finance a component of a project that would not have taken place without GEF funding.) and securing co-funding and associated funding.

The project completed the planned activities and met or exceeded the expected outcomes in terms of achievement of Global Environmental and Development Objectives according to schedule, and as cost-effective as initially planned.

The project used either a benchmark approach or a comparison approach (did not exceed the costs levels of similar projects in similar contexts)

Monitoring & Evaluation. Monitoring is the periodic oversight of a process, or the implementation of an activity, which seeks to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan, so that timely action can be taken to correct the deficiencies detected. Evaluation is a process by which program inputs, activities and results are analyzed and judged explicitly against benchmarks or baseline conditions using performance indicators. This will allow project managers and planners to make decisions based on the evidence of information on the project implementation stage, performance indicators, level of funding still available, etc, building on the project's logical framework.

Monitoring and Evaluation includes activities to measure the project's achievements such as identification of performance indicators, measurement procedures, and determination of baseline conditions. Projects are required to implement plans for monitoring and evaluation with adequate funding and appropriate staff and include activities such as description of data sources and methods for data collection, collection of baseline data, and stakeholder participation. Given the long-term nature of many GEF projects, projects are also encouraged to include long-term monitoring plans that are sustainable after project completion.

Annex 3: List of Documents to be reviewed by the evaluators

Following documents can be used as a basis for evaluation of the project:

Document	Description
Project document	The Project Document and Budget Revisions Amendment to Project Document HiO Project Documents SGE Project Documents
Project reports	Project Inception Report Performance Reports Mid-term Evaluation Report
Annual Project Report to UNDP/GEF	Annual Project Implementation Reports
Other relevant materials:	Project files Notes to the files Minutes of Project Board and Project Steering Committee Meetings Co-financing agreements Researches and evaluations results Presentation materials Press articles and other media appearances
GEF Monitoring and Evaluation Policy	http://www.thegef.org/gef/sites/thegef.org/files/documents/GEFMonitoringEvaluationPolicy.pdf
UNDP/GEF Monitoring and Evaluation Policy and Procedures	http://www.undp.org/gef/documents/me/ME-HandBook.pdf