



Mid-Term Evaluation

Removing barriers to
improving energy
efficiency of the
residential and
service sectors



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Colophon

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Meerssen, August 2007

Executive summary

Brief description of project

The start of the project lies in May 1997, when a first project concept was prepared under direction of a national stakeholder group (contact group), including the relevant state institutions and an NGO. A PDF-B proposal was prepared, which was approved in May 1998. The Project Brief for the full project was approved by the GEF council in November 2000, after which preparations of the UNDP Project document started (in February 2001). Negotiations with stakeholders, also on co-financing issues, were concluded in October 2003 and February 2004, at which point the project document could be finalized. GEF CEO endorsement and delegation of authority was given in August 2004.

The project manager took office in July 2005, starting with the drafting of an inception report. Actual implementation of the project's activities started in October 2005. At the time of this mid-term evaluation, the project has been operational for a little more than 1.5 years, and will be operational for two more years.

The objective of the project was to remove the key barriers to the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors, thereby reducing their energy consumption and associated greenhouse gas emissions. The development objective of the project was to reduce the CO₂ emissions of Croatia, to be achieved by overcoming the general institutional barriers to the promotion of energy efficiency, the barriers in the residential sector and those in the service sector. Rather remarkably, in the UNDP project document this objective is not further specified in the amount of emission reduction to be achieved or the date at which these should have been realized.

The overall objective of the project, outcomes (immediate objectives), outputs and indicators are hardly measurable. With some exceptions, no target values are specified, and there are no baseline values at all. This implies that any judgment regarding success or failure will depend heavily on the interpretation given by an

evaluator and is arbitrary. In addition, the indicators do not track the progress made by the project towards actual energy changes, and cannot justify any claims regarding energy or emission savings. For this, new indicators have been developed for the evaluation of results.

Context and purpose of the evaluation

A mid-term evaluation is intended to assess the relevance, performance and success of the project, focusing on the ongoing implementation. It will look at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It is also supposed to document lessons learnt and to make recommendations that might improve the design and implementation of other UNDP/GEF projects. Furthermore, the evaluation is to rate project performance for a given number of aspects.

Key issues in this evaluation include the (long) project development phase; the project strategy, and how it matches the needs of the country; the logical framework, and lack of targets and baselines; and the financial instruments deployed in the project. Evaluation indicators have been developed, based on the evaluation issues relevant for UNDP/GEF project evaluations. An indicator targets an important, measurable aspect of an evaluation issue, with the aim to make a complex, principally qualitative issue measurable and (semi-) quantifiable.

Main findings, conclusions, recommendations and lessons learned

Main findings & conclusions

The project aims to mitigate barriers for investment in cost-effective energy efficiency technologies in residential and service-sector buildings, by addressing some named technologies in sub-sectors. There is, however, no assessment of the overall cost-effective savings potential in these sectors; the project document is limited to describing the estimated impact of a limited number of measures. It is not

clear whether these measures target the largest potential, or even if this is the suggested measures are the cost-effective ones. Overall, the project document is a rather weak product, and it is remarkable that such a poor document has passed UNDP reviews and was approved by the GEF. The LogFrame of the project is extremely weak. It provides little direction for the implementation of the project, does not quantify most of the 'results' to be achieved, and provides no indicators to track progress towards actual energy savings.

The inception report, written at the start of project implementation, re-assesses the situation in the country and strategies to address identified barriers, within these sectors. It questions some of the limitations of the project strategy (in the project document) and – rightly – suggests a more thorough approach of targeting all buildings, albeit within a geographically limited area to keep the project manageable, and assessing the cost-effective savings potential of each via an audit as a starting point for investment. It re-assesses the appropriateness of the various instruments included in the project design (in the project document), introduces some operational changes and introduces a timeline for the application of instruments. This is likely to have saved the project, putting it back on track to addressing the actual needs of the country.

The project is executed by the Ministry of Economy, Labour and Entrepreneurship on behalf of the Government of Croatia, and implemented by a UNDP project team under leadership of the Assistant Minister for Energy and Mining (project director) and a project steering committee. This committee meets regularly to discuss project progress and implementation issues, involvement of national institutions in the project, collaboration and additional co-financing of activities, provides guidance and advice to the project management and reviews and approves annual work plans and budget revisions.

Project implementation is characterized by good, adaptive management, a clear commitment towards the objectives of the project and close collaboration with a wide range of stakeholders. The project has

initiated a number of instruments, all working towards the goal of initiating investments in energy efficiency in the residential and service sectors. During the project's inception phase, the implementation approach was re-oriented towards the needs of the country, following an investment development model. It was decided not to pursue a separate CFL component in the project, but to merge efforts and budgets with other consumer awareness raising activities.

At the beginning of the project, a series of energy efficiency breakfasts was organized to increase awareness with different target groups of the project. This has helped considerably in mobilizing participation of these groups in the project. The project has established partnerships and collaborations with local governments, starting with the city of Sisak. Similar schemes are being set up in four other cities and three counties. Energy corners, demonstrating energy efficient technologies, have been created together with business and local governments. A commercial bank in Sisak has opened a new credit line for energy efficiency projects.

Free energy audits have been completed for 42 single family houses and 20 apartment buildings, and for approx 40 service sector buildings funded by project resources and another 100 buildings funded by other sources. A Project Development Facility, partial grants for investment-grade energy audits, has attracted little interest. A partial credit guarantee component, consisting of a guarantee fund deposited at HBOR to provide partial guarantees of energy efficiency loans to commercial banks, is not yet operational. As the project is now at mid-term without a single operational credit guarantee agreement, it is becoming questionable if this component can deliver the planned impacts before the end of the project.

A nation-wide media campaign was developed, informing the public about the benefits of low energy buildings and energy efficient equipment and appliances and promoting action. On UN Environment day, a brochure was distributed with in all newspapers in Croatia. Both activities received substantial amounts of government co-financing. The project has

further developed television adds about energy efficiency in buildings, a website to communicate with the general public and project stakeholders, and a telephone helpdesk. The project was recently invited by the national government to co-develop a national Energy Efficiency Master Plan, setting national and sector-specific targets for energy efficiency improvements.

Underdeveloped is the monitoring of project impacts on energy demand and CO₂ emissions. This is complicated by the fact that many impacts of the project are indirect, as a result of awareness raising and market transformation. However, a combination of small, target surveys, sales volume data collection and modeling of national impacts could result in a well-established monitoring system for the direct and indirect energy and CO₂ impacts of the project at the level of international best practice.

The original project budget is rather opaque and incorrect in crucial aspects, inconsistent with the project's activity planning and not properly reflecting the planned activities. A budget overhaul and reconstruction is needed, to reflect budget planning and actual spending per objective and output from the beginning of the project to the current date and onwards to the end of the project. This should preferably follow a reconstruction of the project logical framework, resulting in one comprehensive combination of results and budget plans.

Project spending has been steadily growing, from less than USD 10,000 per month in 2005 to a little above USD 50,000 per month in 2006, and close to USD 100,000 per month in 2007. Total spending over the implementation period so far amounts to USD 1.3 M, or 30% of the total available budget, or 50% of the total budget excluding the partial credit guarantee facility. It may be estimated that the remaining two years of the project will require a budget of USD 1.5 to 2 M to be able to maintain its current presence in Croatia, and it could be considered if the credit guarantee budget should be limited to the agreed minimum of USD 0.6 million, redirecting the remainder to continuation of other activities and to other investment support activities. It should further be

considered to set aside a budget for a fifth year of operation, to allow for a proper transfer or close-down of activities, post-activity monitoring of achieved impacts, aftercare for the various activities etc. The project has more than realized its co-financing targets at mid-point. The total amount of co-financing delivered to the project at mid-point is USD 6.8 M plus end-user investments, compared to the total expected amount of USD 8.66 M at the end of the project.

Although the end of the project is still two years away, it is important to start discussing a long-term follow-up to the project shortly, as it typically takes time to make proper arrangements and secure that project activities can be transferred smoothly to a new entity.

There are currently no direct assessments of end-use energy savings or mitigated greenhouse gas reductions achieved as a direct or indirect result of the project. A rather crude assumption of direct savings results in 3.7 kton CO₂ emission reduction per year, substantially lower than the target. This is likely to improve substantially in future years, but probably not to the indicated target of 82 kton/year. A better elaboration of baselines and targets and development of a monitoring system are needed, taking into account the activities of the project and realistic ratios between investments and savings.

Regional and national authorities' involvement in the project has outpaced expectations, and the development of a national energy efficiency strategy well underway. Little is known about the impacts of project activities on residential and service sector building owners around the country. The project has undertaken substantial awareness raising and marketing campaigns for energy efficient technologies (building technologies, appliances and lighting), but it is too early to expect measurable impacts in the market from these campaigns. The project development facility has seen little demand, and is certainly delivering substantially less than was expected, but residential building owners seem to respond well to other project activities like

energy audits, energy centers and local activities.

Recommendations

The following recommendations are made regarding corrective actions needed for this project:

- A reconstruction of targets, baseline values and indicators as part of a revision of the logical framework (LogFrame);
- A revision of the investment-support mechanisms used in this project and the relative amount of inputs for each;
- A fixed, secured budget for the partial credit guarantee, kept available for at least a year for HBOR;
- 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;
- Better tracking of co-financing;
- UNDP and the GEF should assess their procedures for the review and approval of project documents.

The following recommendations target potential improvements to the effectiveness of the project:

- Preparation of an overall view of the savings potentials or the potential long-term benefit of building energy efficiency in the country;
- Yearly repetition of additional data collection work as done for this MTE;
- Exploring if the involvement of NGOs and state organizations can provide a route towards long-term sustainability of consumer education;
- Improve involvement of organizations of building designers and similar professionals;
- Consideration if special sessions of the steering committee are needed to address long-term strategic issues;

- Consideration if specific activities could facilitate the exchange of experience between projects.

Lessons learned

Although it is too soon to list all lessons learned with this project, some are visible already:

- It is probably better to round up a project design as quickly as possible, focusing on the main directions of the project and leaving details to the implementation phase.
- Projects need champions, and luckily this project has seen two of these, the project director and the project manager;
- This project is a textbook example of adaptive management, addressing the wider socio-economic context as well as details of the implementation situation in its activities;
- A wide range of stakeholders is involved in the project, right from the start, contributing to the success of the project;
- The project has developed local actions in cities and regions, successfully bringing local stakeholders together in a targeted action.

Ratings of project components

Rated elements in the project formulation, implementation and results are listed here.

The overall appreciation of the project formulation is moderately satisfactory.

Rated elements are:

- Conceptualization / Design: Unsatisfactory
- Stakeholder participation: Highly satisfactory

The overall appreciation of the project implementation is highly satisfactory.

Rated elements are:

- Implementation Approach: Highly satisfactory

- Monitoring and Evaluation: Highly satisfactory
- Stakeholder participation: Highly satisfactory

The overall appreciation of the project results is satisfactory. Rated elements are:

- Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors: Marginally satisfactory
- Overcoming the general institutional barriers to the promotion of energy efficiency: Highly satisfactory
- Overcoming the barriers to improving the energy efficiency of the residential sector: No rating given due to lack of data
- Overcoming the barriers to improving the energy efficiency within the service sector: No rating given due to lack of data
- Facilitating the effective replication/utilization of the project results and lessons learnt: No rating given due to non-relevance

Introduction

Purpose of the evaluation

The mid-term evaluation is intended to assess the relevance, performance and success of the project. It will look at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The evaluation is also supposed to identify and document lessons learned and to make recommendations that might improve the design and implementation of other UNDP/GEF projects. Furthermore, the evaluation is to make forward vision recommendations related to the sustainability of project outputs.

The deliverables of the evaluation process are:

- List of evaluation indicators
- Interview summaries
- Draft report
- Final report

Key issues addressed

Key issues in this evaluation include:

- The (long) project development phase
- Project strategy, and how it matches the needs of the country
- The logical framework, and lack of targets and baselines
- Financial instruments deployed in the project

Methodology of the evaluation

This evaluation aims at assessing the projects relevance, performance and success, early signs of impact and sustainability of results, identifying lessons learned, and making recommendations for the sustainability of project outputs and for future projects. For this, evaluation indicators have been developed, based on the evaluation issues relevant for UNDP/GEF Final project evaluation (annex 3, evaluation indicators).

An indicator targets an important, measurable aspect of an evaluation issue, with the aim to make a complex, principally qualitative issue measurable and (semi-) quantifiable. During the evaluation, fact-finding focuses on collecting data regarding these indicators (next to general qualitative and contextual information about the project), and during the analysis the projects results are valued against indicators (ranging from below to above what has been / might have been expected or was implied in the project design). Given the extent of the project and the complexity of the subject, not all aspects (of all issues) can be targeted during this evaluation.

Evaluation issues have been rated according to the assessment of the project on the indicators, complemented with the contextual information and information of a strictly qualitative nature. The rating is reported and justified in the *Findings and Conclusions* section. The Evaluation outline (annex 2, Evaluation itinerary) provides a full overview of the project methodology.

Structure of the evaluation

The evaluation included the following steps:

- Initial desk review of project documentation, including the project document and some progress reports. This review has served to (a) generate an overview of the project, its context, proceedings, outputs and outcome; (b) develop a list of evaluation indicators for the assessment of the project; and (c) to collect data regarding the evaluation issues and indicators. A list of reviewed documents is included in annex 6 (List of documents reviewed).
- Interviews with project officers and (representatives of) major stakeholders involved in the project. The interview schedule is included in annex 7 (List of persons interviewed). These interviews have served to (a) complete the overview of the project, in its context, and the relevance and (future) impact of the projects outcomes according to the involved organizations and

stakeholders; (b) complete the fact finding regarding the evaluation issues and indicators; and (c) assist in the assessment of the project by asking the involved organizations about their impression of the projects results on specific issues (indicators), where relevant.

- The analysis of the collected information, and assessment of the projects relevance, performance, success and potential impact. Collected data have been analyzed and structured according to the evaluation indicators. Where target values for evaluation indicators exist (in the project proposal or in the progress reports), the observed results of the project have been compared to these target values. Where these target values did not exist, a status quo description has been given and an assessment of the projects results based on a review of the project documentation (and the implied assumptions in it), reference information from similar developments (of thermal standards) in other environments, stakeholders opinions and the evaluators judgment. Ratings have been assigned based on this information. Together with the overview and contextual information, this formed the basis for this final evaluation report.

The evaluation took place from 21 May to 30 June 2007, including a mission to Zagreb from 29 to 31 May and from 17 to 21 June 2007. At this time, the project had been operational for almost two years, during which the project design was revised in various aspects. A draft final evaluation report has, via the UNDP country office, been circulated with the project team and the main stakeholders of the project. Comments and additions have been included in this final version of the report.

The project and its development context

Project start and duration

The start of the project lies in May 1997, when a first project concept was prepared under direction of a national stakeholder group (contact group), including the relevant state institutions and an NGO. A PDF-B proposal was prepared, which was approved in May 1998. Project development work commenced in June 1998, leading to a Project Brief being submitted to the GEF council in September 2000. A project steering committee, including the main government and civil society stakeholders, was composed and met at times during this stage.

The Project Brief was approved by the GEF council in November 2000, after which preparations of the UNDP Project document started (in February 2001). This stage also involved various consultations with stakeholders, as well as some preparatory studies by consultants. Negotiations with stakeholders, also on co-financing issues, were concluded in October 2003 and February 2004, at which point the project document could be finalized. GEF CEO endorsement and delegation of authority was given in August 2004.

Implementation of the full project started in February 2005 with the announcement of a project manager vacancy. The project manager took office in July 2005, starting with the drafting of an inception report. This report was finalized three months later, and discussed in a project steering committee meeting. In parallel, the project offices were established, and staff was hired to form the project management unit. Actual implementation of the project's activities started in October 2005. At the time of this mid-term evaluation, the project has been operational for a little more than 1.5 years, and will be operational for two more years.

It should be noted, already at this stage, that the project development has taken exceptionally long. Especially in a country like Croatia, with an economy in rapid transition, it cannot be assumed that what was relevant in 1997 still is today. Luckily, this was recognized at the project's inception, and the inception report

includes a thorough review of the status quo in the country, implementation challenges and strategies to pursue the goals of the project. It is remarkable, however, that none of this was recognized one year earlier, when all parties, the Government of Croatia, UNDP and the GEF, agreed to a Project Document that was dealing with the 1997-situation.

Problems that the project seeks to address

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

The project goal was expected to be achieved by:

1. Overcoming the general institutional barriers to the promotion of energy efficiency
2. Overcoming the barriers to improving the energy efficiency of the residential sector
3. Overcoming the barriers to improving the energy efficiency of the service sector
4. Facilitating the effective replication / utilization of the project results and the lessons learnt

It should be noted that this objective and the outcomes specified for this project provide so little direction, that these are not very helpful for project management and evaluation uses. The logical framework of the project suffers from the same lack of detail, and should be reconstructed based on the actual barriers listed and observed, and the real goals of the interventions of the project. Annex 2 to this report provides a proposal for such a reconstructed logical framework with redefined outputs and targets.

The barriers that the project is addressing were specified, in the project document, 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.

The planned total project budget was 13.05 M USD, including 4.4 M USD GEF funding. As of 1 June 2007 the total GEF-budget

disbursed was 1.2 M USD, and total co-financing delivered amounted to 6.5++ M USD.

Immediate and development objectives of the project

The development objective of the project was to reduce the CO₂ emissions of Croatia. Rather remarkably, this objective is not further specified in the amount of emission reduction to be achieved or the date at which these should have been realized. The project brief lists a target of 2 Mton CO₂ by 2020, composed of 1.65 Mton in the residential and 0.35 Mton in the service sectors. The project document includes a table (see below) listing various savings.

Some listed emission reductions appear to be yearly savings, other savings could be cumulative. Most savings appear to be direct savings, but a major one probably

represents indirect savings. The savings do not seem to add up to 2 Mton. As there is no further specification for the table, there is no clear measure to evaluate the impacts of the project apart from the cumulative 2020 target.

These goals should have objectively verifiable outcomes in the country (see table next page).

It is noted that, as with the overall objective of the project, outcomes (immediate objectives), outputs and indicators are hardly measurable. With some exceptions, no target values are specified, and there are no baseline values at all. This implies that any judgment regarding success or failure will depend heavily on the interpretation given by an evaluator regarding the meaning of the objectives and indicators, and is arbitrary.

CO₂ emission saving calculation UNDP project document

	Energy Savings	GHG reduction potential	Simple Payback	Avoided Cost For the Utility
Energy saving light bulbs - Households¹				
	0,5 TWh/year - electrical energy	0,25 Mt CO ₂		
Croatia	20 GWh/year - electrical energy			US\$0,07/kWh or
Istria ²	300 kWh/unit - electrical energy	8 kt CO ₂	<1 year	US\$17/lamp ³
Energy efficient refrigerators and freezers				
	300 kWh/unit - electrical energy	35 kt CO ₂	>10 years ⁴	US\$80/unit ³
3-tariff meters, peak-load management and reactive power compensation				
	4,5 GWh/year - electrical energy	2,000 tons CO ₂	1-2 years	
Istria	2 million litres - fuel oil for water heating	7,000 tons CO ₂	3-4 years	
Water saving Systems Heating Systems				
	20% fuel (gas, fuel oil)	13,000 tons CO ₂	3-4 years	
Hotels				
Solar Panels For Water Heating				
	5% fuel, 3% electrical energy	3,000 tons CO ₂	>10 years	
Hotels				
Energy Management and Monitoring Measures				
	>5% total energy	5,000 tons CO ₂	<1 year	
Hotels				

1 - 80W lamp with average daily usage of 3 hrs. and guaranteed lifetime of 15,000 hrs.

2 - Assuming: US\$4-5 purchase price, the distribution of 200,000-250,000 lamps, US\$6,3/kWh

3 - Assuming: 10% discount rate during 5 years

4 - Assuming no incentives

This, however, is what the project opted for and what UNDP and the GEF have approved, so it will have to do.

In addition, the indicators do not track the progress made by the project towards actual energy changes, and cannot justify any claims regarding energy or emission savings. For this, new indicators have been developed for the evaluation of results (in this MTE). These are included in an annex to this report, and are also used in the

reconstructed LogFrame.

Main stakeholders

The stakeholders of the project are primarily the nationally involved parties in construction sector regulations and in building design. Government stakeholders listed in the project document are:

- The Ministry of Economy, Labour and Entrepreneurship;

- The Ministry of Environmental Protection and Physical Planning and Construction;
- The Ministry of Foreign Affairs;
- The Ministry of Finance;
- The Ministry of Science and Technology;
- The Ministry of Public Works,

Objectively verifiable outcomes in Croatia (UNDP project document, planning matrix)

Project Strategy	Objectively Verifiable Indicators
Development Goal: 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.	The demand for energy efficient equipment and projects show an increasing trend. Increasing leveraging of financing for EE investments
Immediate Objective 1: Overcoming the general institutional barriers to the promotion of energy efficiency	The regional and other public authorities taking an active role in promoting the energy efficiency investments
Output 1.1: Enhanced capacity of the regional authorities to promote energy efficiency	The regional authorities actively promoting energy efficiency investments and measures
Immediate Objective 2: Overcoming the barriers to improving the energy efficiency of the residential sector	The demand for energy efficient equipment and projects show an increasing trend in the residential sector
Output 2.1 Increased public awareness on the available energy efficient technologies and measures and their benefits to the consumers	The awareness of the people on the available energy efficient technologies and measures and their benefits to the consumers has increased.
Output 2.2: A successfully conducted pilot marketing campaign to promote the purchase of the CFLs	At least 100,000 lamps sold during the campaign.
Output 2.3: Replication of similar campaigns for other regions and technologies	The activities replicated for other regions and, as applicable, technologies.
Immediate Objective 3: Overcoming the barriers to improving the energy efficiency within the service sector	The demand for energy efficient equipment and projects show an increasing trend in 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	Awareness of the owners/operators of the buildings on the available energy efficient technologies and measures and their financial and other benefits to the customers increased
Output 3.2 Enhanced capacity of the local stakeholders to initiate and support the development and implementation of energy efficiency measures in the service sector	Strategic partnerships between the key local stakeholders established. Loan applications for high quality, “bankable” proposals submitted. First demo projects successfully commissioned.
Output 3.3 A pipeline of “bankable” energy efficiency proposals	At least 10 ‘bankable” investment proposals fully developed for the submission for financing
Output 3.4 A partial guarantee fund to leverage financing for the energy efficiency investments	The partial guarantee facility established and in operation. At least USD 7,500,000 worth of additional resources leveraged for energy efficiency investments.
Immediate Objective 4 Facilitating the effective replication/utilisation of the project results and lessons learnt.	The activities replicated at the national and, as applicable, regional level.
Output 4.1 A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects.	A system with trained personnel for monitoring the GHG emission reductions of the first pilot/demonstration projects in place
Output 4.2 Project results, experiences and lessons learnt documented and disseminated at the national and regional level.	Final project report published and disseminated at the national and regional level. Workshops and other public outreach activities organized at the national and regional level to discuss and disseminate the project results, conclusions and recommendations.

Reconstruction and Construction;

- The Ministry of Tourism.

Furthermore, the following parties have a key role to play in the advancement of thermal building codes:

- The Croatian Power Utility - Hrvatska Elektroprivreda (HEP);
- Energy Institute "Hrvoje Pozar" (EIHP);
- Various NGOs: Green Action, Lijepa nasa etc.

Results expected

The project document does not specifically list the results expected from its implementation. The document includes, as described earlier, ambiguous emission reduction targets and mainly qualitative objectives and outcomes.

It should be stressed once more that the project document includes insufficient information to evaluate the progress made by the project. This evaluation assesses results achieved against the partial information available, and in addition takes into account what, in the views of the evaluator, could have been achieved by the given time and budget in a country of comparable size and situation.

Findings and Conclusions

Project Formulation

The project addresses the building sector, a key source of energy-related greenhouse gas emissions. It aims to mitigate barriers for investment in cost-effective energy efficiency technologies in residential and service-sector buildings, by addressing some named technologies in sub-sectors. There is, however, no discussion of the overall cost-effective savings potential in these sectors; the project document is limited to describing the estimated impact of a limited number of measures. It is not clear whether these measures target the largest potential, or even if this is the suggested measures are the cost-effective ones. Overall, the project document is a rather weak product, and it is remarkable that such a poor document has passed UNDP reviews and was approved by the GEF.

The LogFrame of the project is extremely weak. It provides little direction for the implementation of the project, does not quantify most of the 'results' to be achieved, and provides no indicators to track progress towards actual energy savings. New indicators are introduced with this MTE report, and a proposed revised LogFrame is annexed to this report.

The inception report, written at the start of project implementation, re-assesses the situation in the country and strategies to address identified barriers, within these sectors. It questions some of the limitations of the project strategy (in the project document) and – rightly – suggests a more thorough approach of targeting all buildings, albeit within a geographically limited area to keep the project manageable, and assessing the cost-effective savings potential of each via an audit as a starting point for investment. It re-assesses the appropriateness of the various instruments included in the project design (in the project document), introduces some operational changes and introduces a timeline for the application of instruments. This is likely to have saved the project, putting it back on track to addressing the actual needs of the country.

The project had its origin within national development plans and focuses on national environment and development interests, was developed in collaboration with national government and civil society stakeholders, and addresses the need to improve energy efficiency in Croatia. The government has taken ownership of the project in the person of the Assistant Minister for Energy and Mining. During project development, the project has sought to learn lessons from others, especially on mechanisms that have worked elsewhere and might be useful for Croatia. The project's strategy is at the heart of UNDP's core competences, and also fits well with UNDP country strategy for Croatia.

The overall appreciation of the project formulation is moderately satisfactory. Rated elements are:

- Conceptualization / Design: Unsatisfactory
- Stakeholder participation: Highly satisfactory

Conceptualization/Design (R)

The project addresses the building sector, a key source of energy-related greenhouse gas emissions. It aims to mitigate barriers for investment in cost-effective energy efficiency technologies in residential and service-sector buildings, by addressing some named technologies in sub-sectors. There is, however, no assessment of the overall cost-effective savings potential in these sectors; the project document is limited to describing the estimated impact of a limited number of measures. It is not clear whether these measures target the largest potential, or even if these suggested measures are the cost-effective ones. It is also not clear how measures in one, relatively small, sub-sector would lead to a nationwide uptake of energy efficient technologies.

The LogFrame of the project is extremely weak. It provides little direction for the implementation of the project, does not quantify most of the 'results' to be achieved, and provides no indicators to

track progress towards actual energy savings. Monitoring activities described in the LogFrame are not adequate for the listed indicators, and those activities that are described, like surveys, are not included in the activity planning of the project. Rather, the design assumes that a mid-term and final evaluations will provide the required information. The project planning matrix, part of the same project document, includes a somewhat different list of indicators, and lists rather different means of verification. None of these, however, include a baseline description or an activity plan to actually measure the progress made.

The preparation of the project document has taken 6 years, including a number of stakeholder consultations. Expert input was used on selected topics, but not on the overall strategy of the project. There is some documentation available about this project development stage, but it obviously is not possible to assess 6 years of work in detail. It seems that most of the attention in the project development stage was focused on improving components of the project, and some attention on securing national support and co-financing, but little or no attention was given to the overall strategy or the changed status quo in the country. It was no secret, however, that Croatia has undergone a rapid transformation since the late 1990s, and even if project developers didn't act on this, reviewers in the UNDP and GEF system should have taken notice of the time lapse and required a strategic review.

Overall, the project document is a rather weak product. It describes an ad-hoc selection of technologies, without an overall view on energy efficiency in the buildings sector, includes too little measurable targets and no overall greenhouse gas emission target, describes an outdated situation in the country, and is in parts internally inconsistent. Although targeting cost-effective measures in the buildings sector is a proper, recommended way of reducing greenhouse gas emissions, the weak overall approach and the lack of strategic direction severely reduces the appropriateness of this approach. It is remarkable that such a poor document has passed UNDP reviews and was approved by the GEF, and it is strongly

recommended that both institutions review their procedures to prevent this from happening again.

The inception report, written at the start of project implementation, re-assesses the situation in the country and strategies to address identified barriers, within these sectors. Although formally part of the project implementation stage, it is discussed here as the inception report in a way re-assessed the project's strategy and could be seen as an extension of the project development stage. This is not a recommended procedure, as project documents should provide strategic guidance and inception reports operational direction, but in this case it was a fortunate turn of events, as this allowed for the improvement of a rather weak project design before the project actually started.

The inception report questions some of the limitations of the project strategy (in the project document) and – rightly – suggests a more thorough approach of targeting all buildings, albeit within a geographically limited area to keep the project manageable, and assessing the cost-effective savings potential of each via an audit as a starting point for investment. It re-assesses the appropriateness of the various instruments included in the project design (in the project document), introduces some operational changes and introduces a timeline for the application of instruments. Although it is not clear what would have happened otherwise, it is likely that this revision has saved the project, as it put the project back on a track that takes into account the actual situation in the country (and not one that is 6 years outdated), assesses which instruments are needed in which order to address barriers, and uses budgets where these can leverage the largest investments. The revised implementation strategy has been approved by the steering committee, and has since been implemented. Overall, this inception procedure demonstrates a commendable way of adaptive management, and one could imagine that project managers are required to produce such thorough reviews of 'their' projects every one or two years, to check if the project strategy still addresses the most pressing needs of the country.

The inception report does not introduce an overall view of savings potentials or the potential long-term benefit of energy efficiency in the country. Such an assessment often requires substantial inputs, which are not available at an inception stage (funds were available during the project development stage, however). Nevertheless, it would be beneficial if the project, at some point in time, corrects the lack of a residential and service sectors savings potential overview. Secondly, the inception report did not address the lack of suitable indicators and means of verification for the project, or the weak LogFrame. New indicators are introduced with this MTE report, and a proposed revised LogFrame is annexed to this report.

NB For the following ratings, only the project development stage up to the project document was taken into account. The inception report is included in project implementation ratings.

Evaluation indicators for this item:

1. Project design targets root causes of building energy consumption: Yes, but it lacks a good strategic orientation on the actual needs and potentials of the country.
2. Project design (summarized in LogFrame) is appropriate and suitable for the national context: No, the project design is weak and based on an outdated assessment of the needs of the country
3. Project design includes sufficient indicators to track progress and measure outputs: No, indicators are mainly qualitative and do not properly address CO₂ emission savings, the project has no overall CO₂ emission savings target, although this is required.

Rating: Unsatisfactory

Country-ownership/Drive

The project had its origin within national development plans and focuses on national environment and development interests. It has been developed in collaboration with national government and civil society

stakeholders, and addresses the need to improve energy efficiency in Croatia. The government has been a leading factor in bringing this project forward, and has taken ownership of the project in the person of the Assistant Minister for Energy and Mining, who is project director.

The topic addressed in the project is of high relevance to the country, as is demonstrated by the continued high-level involvement of government officials in the project, the emergence of a variety of other energy efficiency initiatives in parallel to this project, the integration of the project with national energy efficiency strategies and in general the good standing of the project. It is hard to imagine a better integration of a donor-funded project in a country.

Evaluation indicators for this item:

4. Project concept originates from within and is supported by national institutions: Yes, strongly supported.
5. Project concept targets pressing national environmental and development needs: Yes.

Stakeholder participation (R)

The project has been developed in collaboration with the relevant government and civil society stakeholders. Throughout the (long) project development stage, project steering committee meetings have been held, and stakeholders have been involved via bilateral contacts as well.

The project was planned to closely coordinate activities with main partners, such as the Ministry of Economy, Labour and Entrepreneurship (MINGORP), the Ministry for Environmental protection, Physical planning and Construction, the Croatian Bank for Reconstruction and Development (HBOR), the Energy Efficiency and Environmental Protection Fund (EEEPF), HEP ESCO (an ESCO operated by the national utility), the Chamber of Commerce and selected municipalities. Further, it was developed in close cooperation with the World Bank.

Project development was characterized by elaborate consultations with stakeholders, especially on the design of components of

the project. These discussions included implementation modalities, the roles of parties in the project and financial arrangements (including co-financing aspects). During the inception stage, the project renewed relations with all stakeholders, and discussed the implementation strategy with all relevant parties.

Evaluation indicators for this item:

6. Stakeholders have been actively and passively informed during project development: yes, quite elaborately.
7. Key stakeholders have been consulted about core project design decisions and have provided significant input into the project: yes, to a very high level

Rating: Highly satisfactory.

Replication approach

During project development, the project has sought to learn lessons from others, especially on mechanisms that have worked elsewhere and might be useful for Croatia. This was rather useful for a specific component of the project (partial guarantee fund), which' design was improved based on experiences with similar instruments elsewhere. Lessons learned where not limited to UNDP-implemented project, and also included World Bank and USAID-implemented mechanisms.

The project design does not include specific measures to facilitate the exchange of experiences between projects during implementation, although project management seems to make good use of experiences elsewhere to learn from and improve its own implementation of the project. It might have been beneficial, however, if this had been facilitated by a specific activity and accordingly tracked.

Despite the approach in the original project design to implement energy efficiency measures in a small sub-sector only, to be replicated nationwide later on, the design did not include a mechanism to facilitate such a replication. This should be considered to be a major fault in the design. Fortunately, this was recognized at project inception, and the implementation

was changed to target the majority of buildings from the start of the project.

Evaluation indicators for this item:

8. Project has communicated lessons learned and sought cooperation with new or ongoing projects of similar concept: yes, quite well.

UNDP comparative advantage

In addressing UNDP's comparative advantage for this project, a differentiation should be made between the overall project and the financial instruments applied. The overall project deals primarily with national and local government policies and programs, to facilitate the uptake of energy efficiency measures by the general public and professionals, as well as interacting with the civil society and professional and academic bodies. This is at the heart of UNDP's core competences, and also fits well with UNDP country strategy for Croatia. UNDP has put the project in contact with similar projects in other countries (e.g., Romania) to learn lessons and exchange experiences.

The project includes some financial instruments: grants for energy audits, conditional grants for investment project development and a credit guarantee scheme. Energy audit grants are rather simple financial instruments, in line with the usual practice for introducing energy efficiency in society, and are not really financial instruments. Similarly, conditional grants for investment project development are a rather simple financial tool, and certainly no elaborate financial instrument. The credit guarantee mechanism, however, is a more complex financial instrument, requiring a good understanding of credit mechanisms and commercial banking. This is usually not considered to be a core competence of UNDP, although there are good experiences with UNDP-implemented projects in other countries. The credit guarantee schemes is designed to facilitate commercial banks' lending to building owners, under preferential conditions (to standard loans). Ultimately, this depends on the ability to understand and work with commercial banks, which is typically considered to be the core competence of the International Financial Corporation (IFC), a World Bank

company. In this project, UNDP set out to develop its own credit guarantee scheme early on during project design, but later decided to integrate its scheme with an IBRD-scheme already being developed for Croatia. In this way, it mitigated its relative lack of experience in the commercial banking sector by building on IBRD's experience. As IFC has the strongest experience in this sector, however, both institutions (UNDP and IBRD) might have benefited from inviting IFC to present its experience in developing commercial energy efficiency loan programs in Central Europe.

Evaluation indicators for this item:

9. Project is linked with other projects or programs in the sector via well-developed management arrangements: Partially: there are links, but no structural arrangements

Project Implementation

The project is executed by the Ministry of Economy, Labour and Entrepreneurship on behalf of the Government of Croatia, and implemented by a UNDP project team under leadership of the Assistant Minister for Energy and Mining (project director) and a project steering committee. This committee further includes representatives of the energy efficiency unit of the Ministry of Economy, Labour and Entrepreneurship, the Ministry of Environmental protection, physical planning and construction, the Environmental protection and energy efficiency fund, the Faculty of electrical engineering and computing of the University of Zagreb, HEP ESCO, Lider press, the UNDP country office and the project management. It meets regularly (approx. every 3 to 4 months) to discuss project progress and implementation issues, involvement of national institutions in the project, collaboration and additional co-financing of activities, provides guidance and advice to the project management and reviews and approves annual work plans and budget revisions.

Project implementation is characterized by good, adaptive management, a clear commitment towards the objectives of the project and close collaboration with a wide range of stakeholders. The project has initiated a number of instruments, all

working towards the goal of initiating investments in energy efficiency in the residential and service sectors.

During the project's inception phase, the implementation approach was re-oriented towards the needs of the country, following an investment development model. This included a shift of focus from financial investment support, via credit guarantees, to investment preparation support, via awareness raising, local support centers, free energy audits, and various educational and outreach activities to professionals and the general public. Following an outside evaluation, it was decided not to pursue a separate CFL component in the project, but to merge efforts and budgets with other consumer awareness raising activities.

At the beginning of the project, a series of energy efficiency breakfasts was organized to increase awareness with different target groups of the project. This has helped considerably in mobilizing participation of these groups in the project. The project has established partnerships and collaborations with local governments, starting with the city of Sisak. Similar schemes are being set up in four other cities and three counties. Energy corners, demonstrating energy efficient technologies, have been created together with business and local governments. A commercial bank in Sisak has opened a new credit line for energy efficiency projects, not connected to the financial mechanisms of the project but their own initiative in response to increased local awareness of energy efficiency.

Free energy audits have been completed for 42 single family houses and 20 apartment buildings, and for approx 40 service sector buildings funded by project resources and another 100 buildings funded by other sources. A Project Development Facility, partial grants for investment-grade energy audits, has attracted little interest. A partial credit guarantee component, consisting of a guarantee fund deposited at HBOR to provide partial guarantees of energy efficiency loans to commercial banks, is not yet operational. Contract negotiations between HBOR, UNDP and IBRD have taken some years, and were concluded in mid-2006. Contracts between

HBOR and commercial banks have not yet been concluded. As the project is now at mid-term without a single operational credit guarantee agreement, it is becoming questionable if this component can deliver the planned impacts before the end of the project. A reconsideration of this component is needed, looking also at alternative uses of the budget that have not yet been allocated to HBOR.

A nation-wide media campaign was developed, informing the public about the benefits of low energy buildings and energy efficient equipment and appliances and promoting action. On UN Environment day 2007, a brochure was distributed with in all newspapers in Croatia. Both activities received substantial amounts of government co-financing. The project has further developed television adds about energy efficiency in buildings, a website to communicate with the general public and project stakeholders, and a telephone helpdesk.

The project was recently invited by the national government to co-develop a national Energy Efficiency Master Plan, setting national and sector-specific targets for energy efficiency improvements. UNDP manages the involvement of international experts on behalf of the Croatian government. The project is currently discussing a new national initiative, called "House in order", to foster active involvement of the public administration in the implementation of energy efficiency projects in national government buildings.

The project has been subject to the usual UNDP and GEF monitoring procedures, including quarterly progress reports and yearly project implementation reviews, all done timely and comprehensively. The project has additionally reported its progress to the project steering committee with proposals for a change of activities if needed. These reviews in general appear to be well-founded, focusing discussion on the main issues, and with clear well-based proposals. Budget monitoring is especially well-developed in this project including, beyond UNDP requirements, also spending forecasts.

Underdeveloped is the monitoring of project impacts on energy demand and CO₂

emissions. This is complicated by the fact that many impacts of the project are indirect, as a result of awareness raising and market transformation. However, a combination of small, target surveys, sales volume data collection and modeling of national impacts could result in a well-established monitoring system for the direct and indirect energy and CO₂ impacts of the project at the level of international best practice.

The project has established good relations with a wide range of stakeholders, including national and local government institutions, NGOs, a university and some businesses. There is operational cooperation with stakeholders in all activities of the project, and stakeholders are represented in project decision making via the steering committee. Stakeholders are closely involved in project decision making and there are various collaborative activities that were developed during implementation of the project, in addition to scheduled project activities. Involvement of professional organizations, like a union or architects or universities involved in building energy issues, could be improved.

The original project budget is rather opaque and incorrect in crucial aspects, inconsistent with the project's activity planning and not properly reflecting the planned activities. As this all could have been observed during the project development, it is rather remarkable that such a budget has been approved by UNDP and the GEF. Given the lack of an adequate project budget in the project document, it is difficult to track budget planning and actual expenditure from the start of the project to the current date. A budget overhaul and reconstruction is needed, to reflect budget planning and actual spending per objective and output from the beginning of the project to the current date and onwards to the end of the project. This should preferably follow a reconstruction of the project logical framework, resulting in one comprehensive combination of results and budget plans.

Project spending has been steadily growing, from less than USD 10,000 per month in 2005 to a little above USD 50,000 per month in 2006, and close to USD

100,000 per month in 2007. Total spending over the implementation period so far amounts to USD 1.3 M, or 30% of the total available budget, or 50% of the total budget excluding the partial credit guarantee facility. It may be estimated that the remaining two years of the project will require a budget of USD 1.5 to 2 M to be able to maintain its current presence in Croatia, and it could be considered if the credit guarantee budget should be limited to the agreed minimum of USD 0.6 million, redirecting the remainder to continuation of other activities and to other investment support activities. It should further be considered to set aside a budget for a fifth year of operation, to allow for a proper transfer or close-down of activities, post-activity monitoring of achieved impacts, aftercare for the various activities etc.

The project has more than realized its co-financing targets at mid-point. The total amount of co-financing delivered to the project at mid-point is USD 6.8 M plus end-user investments, compared to the total expected amount of USD 8.66 M at the end of the project, of which USD 4.5 M are investments in energy efficient technologies in buildings compared to an expected amount of USD 7.5 M at the end of the project. The current co-financing ratio is better than 5 to 1, compared to a required ratio of 2 to 1 at project approval, and it may be assumed that the co-financing will further improve towards the end of the project.

Although the end of the project is still two years away, it is important to start discussing a long-term follow-up to the project shortly, as it typically takes time to make proper arrangements and secure that project activities can be transferred smoothly to a new entity.

The overall appreciation of the project implementation is highly satisfactory. Rated elements are:

- Implementation Approach: Highly satisfactory
- Monitoring and Evaluation: Highly satisfactory
- Stakeholder participation: Highly satisfactory

Implementation Approach (R)

Project implementation is characterized by good, adaptive management, a clear commitment towards the objectives of the project and close collaboration with a wide range of stakeholders. The project has initiated a number of instruments, all working towards the goal of initiating investments in energy efficiency in the residential and service sectors.

During the project's inception phase, the implementation approach was re-oriented towards the needs of the country, following an investment development model. This included a shift of focus from financial investment support with credit guarantees, to investment preparation support, via awareness raising, local support centers, free energy audits, and various educational and outreach activities to professionals and the general public. Further, the project has given a lot of attention to raising the public's awareness for energy efficiency in appliances and lighting, primarily via media campaigns, leaflets and inserts. All activities originally included in the project design have been implemented except a pilot marketing campaign for CFLs. This was more than compensated by additional results achieved with other activities.

The inception report concluded, based on a market assessment, that in the years between the drafting of the project design and its implementation the market had evolved on its own beyond the target set for that activity, and that a re-assessment of the work on CFLs was needed. A market survey was commissioned, addressing availability, prices and consumer perceptions of CFLs. The survey report concluded that CFL availability is no longer a barrier, prices are at internationally competitive level, and that consumer awareness of the benefits of CFLs was lagging behind. Based on this, it was decided not to pursue a separate CFL component in the project, but to merge efforts and budgets with other consumer awareness raising activities (for energy efficient technologies). The decision not to pursue separate activities for CFLs is supported, based on the evidence presented regarding prices and availability. The survey report, however, is of a rather questionable quality, including conclusions

that are not supported by findings and general statements on consumer marketing that are contradictory to literature. Nevertheless, the plain survey results provide sufficient information to conclude that the originally planned CFL-component would not make sense anymore: Survey findings are that CFL ownership in Croatia is (at the time of the survey) close to European levels (although the survey does not make this comparison), suggesting that the project could follow common international practice in promoting CFLs. The increased consumer awareness activities recommended by the survey report, although ill-based, are coincidentally also international good practice and can be supported for that reason.

At the beginning of the project, a series of energy efficiency breakfasts were organized to increase awareness with different target groups of the project. This has helped considerably in mobilizing participation of these groups in the project. The project has established partnerships and collaborations with local governments, starting with the city of Sisak. A local energy efficiency unit was established within the local government, and the City of Sisak and the project are actively promoting energy efficiency investments and measures. This local effort comprises of walk-through energy audits in all local government buildings, an energy audit of the street lighting system, an energy audit of the water supply system and the development and introduction of an Energy Management System (EMS). It has been initiated together with HEP ESCO (the energy service company of the national utility), whereby the project and the local government primarily provide information, technical support and free energy audits, and the ESCO provides investment-grade audits and investments. Similar schemes are being set up in four other cities (Split, Karlovac, Koprivnica and Bjelovar) and three counties (Sisačko-moslavačka, Karlovačka and Splitsko-dalmatinska), and negotiations for replication in further cities are underway.

As a result of the project, the OTP Bank in Sisak has opened a new credit line for energy efficiency projects. This is not connected to the financial mechanisms

planned and implemented by the project, but a result of the increased local awareness of energy efficiency. The OTP Bank recognized that many building owners have difficulty obtaining financing due to cumbersome procedures and high requirements for collateral, and suggests to discuss mechanisms to facilitate easier, cheaper and more accessible credit schemes with government support, e.g. with reduced interest rates and shorter procedures. Such schemes have had good results in other countries and it suggested that the project investigates if a preferential loan scheme could also work in Croatia, or at least in one or two pilot cities.

The project, in collaboration with local governments and business, has established a number of 'energy corners'. These corners are located in city halls and other public places, to show to the public a variety of energy efficient home appliances and building materials. The first energy corner was set up in a KONCAR shop in downtown Zagreb and has resulted in an increasing public awareness of energy efficiency.

Free energy audits have been completed for 42 single family houses and 20 apartment buildings. Reports provide a client and object description, an analysis of the present state of energy systems, energy consumption, costs and plans of the building owners, and present suggestions for energy efficiency measures such as joinery replacement, envelope insulation, renovation of lighting and appliances, heating controls, boiler replacements, solar water heaters and water consumption savings. All measures are presented in table with savings, costs and payback time estimations. The application of heat pumps, which can be difficult in existing buildings but is a potentially important technology, has not yet been reported in the free energy audits. Reports are technically sound, but the audit is probably too extensive and costly for a single family house. This has been recognized by the project, which focuses more on alternative services like advice via telephone or a website for small building owners.

Similar free audits have also been conducted in the service sector, for approx

40 buildings funded by project resources and for another 100 buildings funded by other sources (primarily Environmental protection and energy efficiency fund). Reports include the same components and commonly recommended measures as for residential buildings, as well as measures like thermostatic radiator valves, fuel switching (oil to natural gas), and occupancy sensors for lighting. Additionally, the City of Zagreb has started, on their own cost, a project on energy efficiency improvements for the holding of city companies (including 22 companies). Preliminary energy audits are ongoing with support from the UNDP-GEF project.

The project offers to building owners a Project Development Facility, consisting of partial grants for investment-grade energy audits for loan applications, to be repaid if a loan can be secured. So far, however, only four grants have been given and interest among building owners appears to be limited. Many owners have invested without this support from the project, and others indicate not having access to funding anyway. It should be considered if this kind of support is really required or if resources are more useful for other means of facilitating investments. A possible means to address this issue would be to survey owners that have invested and those that haven't, asking about their views on investing in the efficiency of their property and the main barriers for obtaining financing. Further, various successful financial mechanisms in other countries could be presented to building owners and other involved parties, e.g. in surveys or focus groups, to discuss the pros and cons of various approaches

To further support investment in building energy efficiency, the project includes a partial credit guarantee component. This component consists of a guarantee fund to be deposited at HBOR, the Croatian bank for reconstruction and development, for HBOR to provide partial guarantees of energy efficiency loans to commercial banks. The guarantee mechanism is jointly operated with the International Bank for Reconstruction and Development (IBRD, part of the World Bank group), under common rules. Contract negotiations between HBOR, UNDP and IBRD have taken

some years, are were concluded in mid-2006. Contracts between HBOR and commercial banks have not yet been concluded, although HBOR is now close to initiating agreements with up to five banks. Parties give different accounts of the reasons for the rather long contract negotiations and there seems to be some miscommunication between parties.

Whatever the reasons, the project is now at mid-term without a single operational credit guarantee agreement, and even in the most optimistic time line, the first energy efficiency loans under this scheme will not be operational before the end of the year. In 2006, the project commissioned a consultancy report about the views and needs of the banking sector for a credit guarantee mechanism. This report concluded that banks do not see a need for such a guarantee as there is no shortage of commercial lending in Croatia, also usable for energy efficiency investments. The report further concludes that building owners do not express a need for guaranteed credits, but that part of the report is rather poorly substantiated, based on interviews with only one real building owner and five local government representatives that do not have authority over financial matters. In the meantime, the project witnessed a strong demand for other kinds of support and, also as a result of the long delay in the establishment of the credit guarantee mechanism, has pooled the budget for credit guarantees with that for other forms of investment support, using these on an as-needed basis and resulting in a flexible budget for guarantees with a minimum of USD 0.6 million. As the project also observed that residential building owners seem to have the most difficulties in obtaining loans for energy efficiency improvements, it also asked – in line with the provisions of the project document - HBOR to include the residential sector in its credit guarantee agreements.

Since the mechanism is not operational, and the consultancy report is not deemed to be reliable regarding the needs of building owners, it is hard to conclude whether the mechanism is needed and could be a success in Croatia. What is observed, however, is: (1) in an optimistic scenario, the mechanism will be

operational during the last 1.5 years of the project. This is a short time for loans to be agreed and measures to be contracted and implemented, limiting the potential effectiveness of the mechanism for realizing results; (2) anecdotal evidence indicates that small building owners and the public sector have the biggest need for financing, and that the main barrier for obtaining loans for small building owners are very high collateral requirements. A partial credit guarantee might reduce the need for collateral, but will not eliminate it. For the public sector, credit guarantees are not known to be effective; (3) international experience is that a partial credit guarantee alone is often insufficient to attract much new investment in energy efficiency in buildings. Successful schemes usually include larger credit guarantees combined with preferential loan terms (e.g., reduced interest rates); (4) a budget of USD 0.6 to 2 million is rather insubstantial compared to the amount needed for investment in energy efficiency in buildings, or compared to the overall credit market in Croatia; (5) there seems to be little rationale for a flexible budget for credit guarantees. A budget that is not definitely allocated cannot be used for guarantees, and neither be planned for other purposes.

It is recommended that the project conducts a new, proper analysis of the needs of building owners would be a good starting point for such a reconsideration, assessing not only the needs for partially guaranteed loans and project development grants, but also for other investment support mechanisms, like preferential loans. Based on such an assessment, the project should decide which budget can be usefully deployed, in a short term, for credit guarantees, fix this budget and reallocate the remainder (if any) to other mechanisms. Pooling resources and using these on an as-needed basis does not allow for long-term planning and introduces the risk that some components of the project use up too much resources. A multi-annual budget allocation for support mechanisms, revised at regular intervals based on operational results and strategic objectives, seems to be a better way forward and should be introduced shortly. Lastly, it should be taken into account that the budgets available will only allow for pilot

schemes, probably best concentrated in a sub-sector or a city or region to be able to observe impacts beyond a collection of single projects. It may be expected, however, that available budgets will be more substantial in years to come and pilot schemes can be important to demonstrate the way forward.

The project has established a website (www.energetska-efikasnost.undp.hr) as a means of communication with the general public and project stakeholders. The website includes comprehensive information materials about project activities (free energy audits, PDF, financing, workshops), energy efficiency corners and info centers, pilot projects, legislative and promotion materials. A national environmental NGO (DOOR) has been involved in the design of the website. It could be considered if this NGO could also be a future home for the website, towards the end of the project, to secure continuation. The project has also established a telephone helpline, offering advice to individuals. So far, 900 persons have contacted the telephone helpdesk for advice. A small-sample (n=15) survey revealed that all 15 clients appreciated the helpdesk and that 13 were completely and one partially satisfied with the advice given. 8 out of 15 have applied all recommended measures, 3 partially applied recommended measures and 2 no measures at all. Two clients had called about difficulties with free energy audit reports, which is somewhat out of scope of the helpdesk (but important nevertheless). Four clients reported a lack of finance for the implementation of measures, signaling that access to financing might be an issue for residential building owners. The overall results of the telephone advice appear to be quite good, with a rather large share of callers implementing recommended measures.

The project was recently invited by the Croatian national government to work on the development of a national Energy Efficiency Master Plan which sets national and sector-specific targets for energy efficiency improvements and outlines the methods and procedures which need to be followed in order to accomplish the long-term energy efficiency goals. The development of this plan is executed in

close cooperation with the implementation of project activities. UNDP was invited to manage the involvement of national and international experts for this plan, on behalf of the Croatian government, as a result of the good experience with the project.

The project is currently discussing a new national initiative, called "House in order", to foster active involvement of the public administration in the implementation of energy efficiency projects in national government buildings. The initiative is promoted by the Ministry of Economy, Labour and Entrepreneurship and the Environmental protection and energy efficiency fund, and is currently awaiting approval by the Croatian government.

The project has communicated extensively with the general public, as well as with professionals, and has leveraged very substantial financing for these activities. A nation-wide media campaign was developed, informing the public about the benefits of low energy buildings and energy efficient equipment and appliances and promoting action. The national Environmental protection and energy efficiency fund provided financing for this campaign, and has pledged HRK 9 million (approx. USD 1.7 million) for re-runs in three coming years. On UN Environment day 2007, a brochure was distributed with in all newspapers in Croatia, for which the government paid the printing cost and distribution. The project has further developed television adds about energy efficiency in buildings.

Evaluation indicators for this item:

10. Logical Framework is used as a management tool during implementation: No, not remarkably as the LogFrame does not provide sufficient direction. A reconstructed LogFrame should be used in the future, however.
11. Implementation management is adaptive to changes in the project environment: Yes, the project has responded exceptionally well to changes in the project environment, and translated these into well-founded operational strategies.
12. ICT have been used to support project implementation and dissemination: Yes, a project website and a telephone helpdesk have been established.
13. The project established suitable operational relations between involved institutions and key stakeholders: Yes, the project has built excellent co-operations with a wide range of stakeholders.
14. The project employed the required technical capacities and made appropriate use of these: Yes, but the project could make better use of capacities of building designers and their associations, consumer protection agencies and universities.

Rating: Highly satisfactory

Monitoring and evaluation (R)

The project has been subject to the usual UNDP / GEF monitoring procedures, including quarterly progress reports and yearly project implementation reviews. The reviews have been done on time and are comprehensive. This mid-term evaluation, scheduled to take place after two years of implementation, was initiated slightly ahead of schedule.

A tri-partite review, as described in the project document, has not taken place. It must be noted that the project document is inconsistent in this aspect, referring to the tri-partite review as the highest decision making body in one section, and to the steering committee in another section. In reality, all functions of a tri-partite review have been properly addressed by the steering committee, which also includes all required parties and has met considerably more frequently than required. A potential risk is that, with the frequent meetings of the steering committee and discussions on upcoming issues, attention for longer-term strategic issues might diminish. It is suggested that the project considers if this risk is real, and if so plans a specific meeting of the steering committee focusing solely on long-term issues.

The project has, in addition to required reviews, regularly reviewed its progress and reported this to the project steering

committee, with proposals for a change of activities if needed. These reviews in general appear to be well-founded, focusing discussion on the main issues, and with clear well-based proposals. Budget monitoring is especially well-developed in this project including, beyond UNDP requirements, also spending forecasts. The inclusion of forecasts in budget overviews allows for a much better linking of activity planning to strategic objectives of the project, taking into account the continuously changing project environment, and is important for good adaptive management. This is a commendable improvement over typical procedures.

An underdeveloped aspect is the monitoring of project impacts, on energy demand and CO₂ emissions. The project makes a good effort in tracking the direct results of its interventions, e.g. the number of energy audits conducted, requests for advice received etc, and also tracks the volume of investments as a direct result of its interventions. These are all very important results and tracking this should continue as it is. In support of this MTE, the project has undertaken additional data collection work, tracking the follow-up to its activities by target groups (building owners). This has delivered useful results, for evaluation purposes but probably also for project management purposes, and it is recommended that the project repeats such data collection work at yearly intervals or at least before the final evaluation.

Missing, however, is the conversion of these direct impacts into overall energy savings and mitigated CO₂ emissions. A local consultant has proposed a system of greenhouse gas emission monitoring in line with UNFCCC procedures for JI and CDM projects. Although correct, the proposed system is probably a bit over-elaborate for the relatively small and simple investments in building technologies. It is usually considered sufficient to calculate the difference in energy consumption for energy efficient versus standard technologies, under standard conditions (using reference values). More elaborate calculations, as typical for JI and CDM, might be useful for large investments (e.g., renovation of hospital buildings), but not

for residential and office buildings. Conversion of energy consumption into greenhouse gas emissions can be done using standard carbon factors for fuel, and marginal carbon factors for electricity, and do not require a project by project assessment.

A complicating factor for the monitoring of energy and CO₂ impacts are the indirect impacts that the project is realizing. The project has several components that target the overall investment climate for energy efficient technologies in Croatia which are likely to lead to substantial additional investments by target groups. Monitoring this, however, requires additional efforts that are not yet included in the project plans (although the project already had set first steps for monitoring some indirect impacts). It is necessary but not sufficient to track the direct results of project activities (like the distribution of leaflets, visitors to energy centers etc); it is also needed to track the actual investment by target groups for endorsed products and technologies, to see if activities like awareness raising have actually led to more investments by target groups. It is virtually impossible to monitor if investments are a direct result of project communication activities, as this would require a very elaborate monitoring of all kinds of investment decisions by large target groups. A combination of small, target surveys, sales volume data collection and modeling of national impacts, however, would result in a well-established monitoring system for the direct and indirect energy and CO₂ impacts of the project at the level of international best practice. This would be useful for the project, to demonstrate impacts, but might also provide useful experiences for the country.

The project document proscribes that the project establishes a system of GHG monitoring (based on JI and CDM practices) for the projects it realizes, and reports these emissions. As discussed before, it would be highly unusual to set up such an elaborate system for building projects. Intended is probably a system to monitor the national impacts of project activities, as discussed above. The project document LogFrame requires that such a report is produced after every 12 months, which has

not happened so far. This is considered to be a minor omission, as there is probably little to report after just one year of implementation. It is recommended that the project establishes a monitoring system and starts yearly reporting on impacts soon, to build experience and construct a track record of impacts from mid-term to the end of the project.

Evaluation indicators for this item:

15. The project has established progress monitoring and has undergone regular evaluations, which have led to required adaptations of the implementation: Yes, all regular reviews have taken place, as well as substantial additional monitoring activities.

Rating: Highly satisfactory

Stakeholder participation (R)

The project has established good relations with a wide range of stakeholders, including national and local government institutions, NGOs, a university and some businesses. There is operational cooperation with stakeholders in all activities of the project, and stakeholders are represented in project decision making via the steering committee.

The project has developed an approach for local promotion of building energy efficiency in close collaboration with the local government and a variety of local stakeholders, including banks and suppliers of energy efficient technologies. Local stakeholders are involved in project activities, and develop some of their own activities in parallel to it. The approach, though developed independently, has many similarities to the established 'community approach' developed in the health education field. This local approach seems to be working very well, and will likely lead to a sustainable model for promoting building energy efficiency in Croatia.

The project has collaborated with a national environmental NGO, DOOR, in the development of its website. The website is an important platform for consumer education on building energy efficiency, and is referred to in communications. The

project remains to be in good contact with 'DOOR', and exchanges website links with their website. This collaboration seems to have benefited the project, and might also provide a route to sustainability for this kind of public information by encouraging this NGO to take up larger responsibilities for consumer education in coming years.

Involvement of national stakeholders like government institutions in the project is excellent. Stakeholders are closely involved in project decision making and there are various collaborative activities that were developed during implementation of the project, in addition to scheduled project activities. All stakeholders indicate to have a good working relationship with the project and to be content with the project and how it is implemented.

Early on in the project, 'energy breakfasts' were organized to reach out to the various stakeholder groups. These were relatively short meetings, in the morning, to brief stakeholders about the new project and to ask for their inputs about what should be done and how to involve them in project activities. Although there is little documented evidence about the impact of these meetings, it seems to have had a positive impact on stakeholder attitude and involvement and to have created a lot of attention for the project with professional stakeholders.

Involvement of professional organizations, like a union or architects or universities involved in building energy issues, seems to be a bit underdeveloped. These organizations are typically not needed for short-term activities but can be important for a long-term transition towards better energy performing buildings. The project has recently initiated activities to educate building designers on building energy performance issues, in collaboration with (and co-financed by) the US Embassy in Croatia. It is recommended that the project further develops such activities to help build a platform for future energy efficiency work.

Evaluation indicators for this item:

16. The project properly involved national and local stakeholders in implementation and decision making:

Yes, involving a wide range of stakeholders.

- 17. The project properly involved government and other relevant institutions in implementation and decision making: Yes, it has built excellent ties with the various stakeholders.
- 18. The project disseminated the required information to all relevant stakeholders: Yes, it keeps stakeholders involved and discusses implementation issues with them.

Rating: Highly satisfactory

Financial Planning

The project has developed a good financial management approach, including budget planning, commitments and expenditure recording by objectives and activities, in yearly budget cycles. As UNDP's Atlas system has some limitations for the financial administration of large, multi-annual projects, this system is run by the project team in parallel, in spreadsheets. These are manually updated to match the Atlas system, resulting in an amount of cumbersome work, but a better recording of financial aspects of the project. The expenditure information presented here, specified by objective and activity, is based on that parallel system, as UNDP records provide a more limited specification of expenditure. It would be preferable if UNDP's system would be upgraded to better support multi-annual budgets, e.g. by allowing for integrated multi-annual budgeting and spending records.

This section first lists and discussed the original GEF project budget as included in the project document, and then actual expenditure.

Regarding the original GEF project budget, it is observed that:

- The project budget as included in the project document is rather opaque, listing a variety of costs that cannot be linked to activities;
- The budget category 'management' includes several costs that are probably

Original GEF project budget (as included in project document)

	total	year 1	year 2	year 3	year 4	year 5
Management	588,000	39,250	177,000	149,500	127,000	95,250
Research	680,000	7,500	345,000	180,000	87,500	60,000
Training, study tours and workshops	90,000	3,750	31,250	32,500	11,250	11,250
Equipment	416,000	10,500	340,750	32,750	19,250	12,750
Miscellaneous	116,000	2,500	35,000	28,750	26,500	23,250
Grants	2,500,000	0	975,000	775,000	750,000	0
Total	4,390,000	63,500	1,904,000	1,198,500	1,021,500	202,500

related to activities, like international consultancy), but that are not specified in sufficient detail to actually links these to a specific activity;

- The budget includes some activities that can be linked to more objectives activities, like 'general information dissemination and marketing' and 'energy audits';
- Some budget items are misplaced, like 'translations' included under research;
- Budgets for the partial credit guarantee facility are included in the 2nd and 3rd years of the project, suggesting that these funds will be committed to an intermediary institution (HBOR) only in these years, whilst the facility should have been started and thus funds committed in the first year of operation of the project;
- A USD 300,000 budget for CFL sales guarantees is included as equipment (which it probably isn't), and although it was expected that this substantial budget would not be needed, no alternative use was indicated;
- The budget is for five years, while the project should run only for four calendar years!

Overall, the original project budget is incorrect in crucial aspects, inconsistent with the project's activity planning and not properly reflecting the planned activities. As this all could have been observed during the project development, it is rather remarkable that such a budget has been approved by UNDP and the GEF. It is needless to say that, as a result of this

poor budget planning, a budget overhaul is needed.

The improved budget planning by the project team includes expenditure and budget planning per activity, but this is completely in line with the planned outputs of the project. It is recommended that, following an upgrade of the project logical framework, both UNDP and the project team update their records and administer spending and budget plans according to the project LogFrame.

Regarding project expenditure (see table on next page), it can be observed that:

- Given the lack of an adequate project budget in the project document, it is difficult to track budget planning and actual expenditure from the start of the project to the current date. UNDP and the project team should try to reconstruct a full record of project budgets, revisions and actual spending per objective and output from the beginning of the project to the current date and onwards to the end of the project. See also next point, however;
- As outputs are not clearly delineated, most activities can (and will) contribute to more objectives at the same time. This is not a fundamental problem, but it does lead to administrative and budget planning difficulties. Although largely a result of poor project planning (discussed in the project design section), the project should try to untangle its budgets, preferably in line with a reconstructed logical framework, to be able to better plan and track spending per objective and output;

Original GEF project budget (as included in project document)

	Expenditure	Planned	Total
Outcome 1: Overcoming general institutional barriers	343,907.79	2,503,178.94	2,847,086.73
Marketing, Legal & Technical support	142,511.12	252,770.13	395,281.25
Project Development Facility & Free Energy Audits	93,596.05	290,366.97	383,963.02
Partial Guarantee Facility	59,385.62	1,940,614.38	2,000,000.00
Miscellaneous	48,415.00	19,427.46	67,842.46
Outcome 2: Overcoming residential sector barriers	383,610.54	108,379.18	491,989.72
Promotion of EE products	301,680.77	-1,169.97	300,510.80
Energy audits	40,885.54	52,114.46	93,000.00
Information dissemination & Marketing	22,047.30	14,356.63	36,403.93
Miscellaneous	18,996.93	43,078.06	62,074.99
Outcome 3: Overcoming service sector barriers	355,870.73	90,591.40	446,462.13
Emission savings monitoring	30.70	34,000.00	34,030.70
Energy audits	295,692.10	1,307.90	297,000.00
Information dissemination & Marketing	38,021.02	13,143.86	51,164.88
Miscellaneous	22,126.91	42,139.64	64,266.55
Outcome 4: Replication & utilization	61,651.48	125,384.49	187,035.97
Workshops, study tours	21,897.61	52,102.39	74,000.00
Publications	14,838.68	62,464.55	77,303.23
Miscellaneous	24,915.19	10,817.55	35,732.74
Management & Evaluation	161,103.53	256,321.92	417,425.45
Project Management	145,752.18	150,911.32	296,663.50
Monitoring & evaluation	15,351.35	105,410.60	120,761.95
Total	1,306,144.07	3,083,855.93	4,390,000.00

NB Expenditure 2005 covers the period July – December 2005, as project implementation started in July 2005; Expenditure 2007 includes the period January – June 2007, as budget information was requested per that date.

- As an example of the previous point: The cost of awareness raising activities is charged almost exclusively to the residential sector component. Based on international experience, it might be expected that public information campaigns also influence commercial and public sector staff, and it would make sense to share the cost of these activities between the two objectives, or pool resources in a combined budget line;
- A second example: The largest budget item, the partial credit guarantee, is listed under objective 3 (service sector). The project document specifies, however, that this budget can also be used for other sectors if it is not used for the service sector. This implies that costs may be accounted with the wrong objective. In a budget revision, it was included under objective 1 (general) to counteract this risk;
- The total awarded budget reported by UNDP includes an unspecified amount of currently available co-financing. Presentation of available budgets is rather confusing and can easily lead to mistakes (as is proven by the fact that the project team lost track of actually available budgets). Similarly, there is no easily available comparison of committed, disbursed and remaining budgets per donor, which might be expected. It is recommended that UNDP considers how it can improve clarity and accessibility of its overviews to prevent future confusion;
- The project has redirected a budget of USD 300,000 for pilot CFL marketing to other activities promoting investments in energy efficient end-use technologies. This change was based on a well-argued steering committee decision and can be endorsed;
- The project decided to make its partial guarantee facility budget flexible, and to pool it with the budgets for other investment support instruments (as discussed in section 4.2.1). As these tools target both residential and service sector investments, it would be advisable to manage the resources under one general heading (e.g. objective 1), but to plan separate budgets for each tool. If more tools are implemented, these should be given separate budget lines within the same cluster;
- Project spending in 2005 was very limited, reflecting a project inception phase and little other activities. It has

since been growing, to a little above USD 50,000 per month in 2006, and close to USD 100,000 per month in 2007, compared to less than USD 10,000 per month in 2005;

- Total spending over the implementation period so far amounts to USD 1.3 M, or 30% of the total available budget, or 54% of the total budget excluding the partial credit guarantee facility;
- Taking into account that the vast majority of spending so far has occurred in the last year to 1.5 years and the project is currently in full swing and continuously expanding its outreach, it may be estimated that the remaining two years of the project will require a budget of USD 1.5 to 2 M to be able to maintain its current presence in Croatia, which is more than is available taking into account a USD 2 million reservation for the project development guarantee. As the current activities appear to be rather successful, and the changes of delivering results with the guarantee facility appear to be more limited, it would make sense to redirect a substantial share of that budget reservation to other activities. It could be considered if the guarantee budget should be limited to the agreed minimum of USD 0.6 million, redirecting the remainder to continuation of other activities and to other investment support activities. The project document (annex VII) already includes provisions for a redirection of this budget if there is insufficient expected usage, which seems to be the case. Such a revision should be well-documented, setting budgets for specified activities in a given timeframe to allow for monitoring of success and adjusting efforts accordingly;
- Lastly, it should be considered to set aside a budget for a fifth year of operation, to allow for a proper transfer or close-down of activities, post-activity monitoring of achieved impacts, aftercare for the various activities etc. Experience learns that such a transfer period is needed, and can take as much time as a project start-up, but there often is insufficient time to take care of this when a project is in full operation.

A budget provision somewhere between the first and second year budgets would appear to be a reasonable amount.

The project has received considerable amounts of co-financing during its implementation. Planned co-financing amounted to USD 8.66 M consisting of:

- USD 0.49 M supplier credit for the purchase of CFLs;
- USD 7.5 M in commercial banks loans for energy efficiency, supported by a credit guarantee;
- USD 0.67 M in-kind contribution by the Croatian government for office space, provision of national experts, access to information and logistical support.

One could wonder if supplier credits, especially when backed-up by a sales guarantee as was planned for this project actually should constitute a source of co-financing, as these do not constitute any additional funds for the objectives of the project. Similarly, bank loans themselves do not constitute co-financing, but the resulting investments do, so these should be measured (using bank loans as a proxy, if needed).

Since the CFL mass purchase for a pilot marketing scheme has been abolished, there has been no supplier credit. The credit guarantee mechanism is not yet operational, and therefore cannot have resulted in guarantee-backed loans. The Croatian government has provided office space and experts free of charge and is otherwise very supportive to the project.

The project, however, has raised a considerable amount of co-financing:

- The Croatian government, via the Energy efficiency and environmental protection fund and the Ministry of Economy, Labour and Entrepreneurship, has co-financed a mass-media awareness raising campaign, amounting to USD 1.7 M;
- The Croatian government, via the Energy efficiency and environmental protection fund, has financed some 100

energy audits, representing a value of USD 0.09 M;

- A government cash contribution of USD 0.03 M and an in-kind contribution of USD 0.2 M for the development of a national energy efficiency master plan;
- USD 0.25 M by various commercial parties for the promotion of energy efficient technologies in cooperation with the project;
- Investments by building owners of USD 4.55 M in energy efficient technologies as a direct result of technical investment support by the project, of which USD 1.57 M is already realized, USD 2.85 M are confirmed commitments, and USD 0.13 M is planned;
- A yet unspecified amount of leveraged investments in energy efficient buildings and products by end-users as an indirect impact of the project.

The total amount of co-financing delivered to the project at mid-point is USD 6.8 M plus end-user investments, compared to the total expected amount of USD 8.66 M at the end of the project, of which USD 4.5 M are investments in energy efficient technologies in buildings compared to an expected amount of USD 7.5 M at the end of the project. Compared to the total expenditure of USD 1.3 M, the co-financing ratio is better than 5 to 1, compared to a required ratio of 2 to 1 at project approval. It can be concluded that the project has more than realized its co-financing targets at mid-point. Taking into account that end-user investments usually lag behind project spending and that indirect impacts have not yet been included, it may be assumed that the co-financing will further improve towards the end of the project.

As the project was implemented by UNDP, at the request of Ministry of Economy, Labour and Entrepreneurship under the National execution (NEX) procedure, it has been administered and audited as part of UNDP's usual operations. Consequently, no separate audit reports were required. There have been no reports of unusually long payment periods or other disbursement problems.

There are difficulties with instable US dollar exchange rates, as this makes it hard to estimate what dollar amounts will be needed for future activities, which are contracted in the national currency (UNDP rules do not allow for the project budget to be transferred to national currency at once). Further, as the value of the dollar has decreased dramatically in the last years, the project budget, while the same in dollar amounts, is worth only 60% of the original sum in the national currency. This should be taken into account when evaluating the cost-effectiveness of the project. Further, UNDP should consider if holding project budgets in dollars makes sense when operating in economic zones dominated by other currencies (in this case: Euro).

Evaluation indicators for this item:

19. The actual spending on project activities was cost-effective and proportional to the projects objectives: Spending per activity was proportional in relation to size and scope of the work, and has so far resulted in sufficient results on items for which results are visible at this stage. Overall, results achieved are more than adequate given the budget spent so far.
20. Financial management was timely and adequate: Yes, but some improvements are suggested.

Sustainability

This issue is further discussed in section 4.3.2 Sustainability, dealing with the extent to which the benefits of the project continue after finalization of this project.

Execution and implementation modalities

The project is executed by the Ministry of Economy, Labour and Entrepreneurship on behalf of the Government of Croatia, and implemented by a UNDP project team, hired for this project, and located in offices provided by the government at Zagreb Technical University. The Assistant Minister for Energy and Mining is project director and chairs the project steering committee. This committee further includes representatives of the energy efficiency unit of the Ministry of Economy, Labour and Entrepreneurship, the Ministry

of Environmental protection, physical planning and construction, the Environmental protection and energy efficiency fund, the Faculty of electrical engineering and computing of the University of Zagreb, HEP ESCO, Lider press, the UNDP country office and the project management.

The steering committee meets regularly (approx. every 3 to 4 months) and discusses project progress and implementation issues, involvement of national institutions in the project, collaboration and additional co-financing of activities, provides guidance and advice to the project management and reviews and approves annual work plans and budget revisions. Involved parties report that it is a well-functioning committee, and attendance seems to be good. The fact that the committee is chaired by the Assistant Minister seems to give more credibility to the project and is instrumental in arranging collaborations with national institutions. This has helped the project to move forward quickly and raise a lot more national contributions to its activities than originally planned.

The project is implemented by a UNDP team, hired via open procedures in accordance with UN procedures specifically for the tasks at hand. The project document listed the national Energy Institute Hrvoje Pozar (EIHP) as implementing agency, but the government decided to change this. Reasons were the lack of a suitable project manager within EIHP, difficulties in securing that project staff would spend a large amount of their time on the project experienced during the project development stage and the large number of other projects already being executed by EIHP. The government felt that an independent, dedicated unit would be a better option, which was discussed and agreed with UNDP. UNDP has led the selection of project staff. The team works under UNDP financial and administrative rules, but content-wise operates under guidance of the project director and the steering committee. In practice, the team seems to operate fairly independently in operational matters and be guided by good strategic relations with the national project director and the steering committee.

Given the reported difficulties in securing a well-functioning project team within EIHP, the selected solution can be supported, taking into account that the government asked for this change. This does, however, create the challenge of securing a long-term 'home' for the knowledge and experience developed in this project. There will be a lot of work remaining after this project and the well-functioning models and approaches developed will need to be continued.

Although the end of the project is still two years away, it is important to start discussing a long-term follow-up to the project shortly, as it typically takes time to make proper arrangements and secure that project activities can be transferred smoothly to a new entity. It is suggested to consider setting up a managerial unit within national government institutions and to also consider if some components could be continued, with government support, by other partners like NGOs, professional organizations and local authorities.

Evaluation indicators for this item:

23. UNDP provided adequate oversight of the project and assignment of the required experts: Yes, execution and implementation modalities were handled well.

Results

There are currently no direct assessments of end-use energy savings or mitigated greenhouse gas reductions achieved as a direct or indirect result of the project. Indirect impacts cannot be estimated at all at this moment; a rather crude assumption of direct savings results in 3.7 kton CO₂ emission reduction per year, substantially lower than the target. This is likely to improve substantially in future years, but probably not to the indicated target of 82 kton/year. A check on the listed targets reveals that the direct emission reduction target this would be equivalent to investments of roughly HRK 285 M to HRK 475 M, or USD 54 M to USD 90 M, approximately ten times above the expected investment amount, and that the combination of direct and indirect CO₂ emission targets would add up to approx 2.5 Mton, more than the 2 Mton indicated

in the project brief. A better elaboration of baselines and targets and development of a monitoring system are needed, taking into account the activities of the project and realistic ratios between investments and savings.

Regional and national authorities' involvement in the project has outpaced expectations, with more regional authorities involved at mid-term than was expected for the end of the project, and the development of a national energy efficiency strategy well underway, fully supported by the government.

Little is known about the impacts of project activities on residential building owners around the country. The project has undertaken substantial awareness raising and marketing campaigns for energy efficient technologies (building technologies, appliances and lighting), but it is too early to expect measurable impacts in the market from these campaigns. The project development facility has seen little demand, and is certainly delivering substantially less than was expected, but residential building owners seem to respond well to other project activities like energy audits, energy centers and local activities. These impacts could not be quantified, however. The same issues apply as for the service sector.

Replication of a project is listed as a separate objective of a project, which is remarkable as this rather seems to be an operational issue in the original project design.. Since this objective is rather undefined and incomprehensible, it should be re-assessed. The development of a national energy efficiency strategy, now added to the project as a general activity, is in fact an excellent mechanism to replicate the lessons learnt in this project with some sectors and measures to the wider economy. It is proposed to include that strategy development to outcome 4. As the strategy development has recently started, and there is yet little indication about its eventual impact, it is not possible to rate this as a result yet.

The overall appreciation of the project results is satisfactory. Rated elements are:

- Reducing Croatia's greenhouse gas emissions by supporting the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors: Marginally satisfactory
- Overcoming the general institutional barriers to the promotion of energy efficiency: Highly satisfactory
- Overcoming the barriers to improving the energy efficiency of the residential sector: No rating given due to lack of data
- Overcoming the barriers to improving the energy efficiency within the service sector: No rating given due to lack of data
- Facilitating the effective replication/utilization of the project results and lessons learnt: No rating given due to the early stage of these activities

Attainment of Outcomes/ Achievement of objectives (R)

The outcomes of the project are evaluated and rated separately for the development objective and each of the (four) immediate objectives. The success criteria as defined in the project document have been discarded, as these are not useful for measuring the success of a project, due to a lack of specificity and no quantification. New indicators have been developed for this mid-term evaluation, based on the actual activities and goals of the project.

NB Target values indicated in this section are all provisional. Given the lack of adequate planning of results during project development, a reconstruction of baselines and targets is urgently needed. That may include a revision of the target levels specified here.

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

There are currently no direct assessments of end-use energy savings or mitigated greenhouse gas reductions achieved as a direct or indirect result of the project.

Indirect impacts cannot be estimated at all at this moment; a rather crude assumption of direct savings can be made using investments in energy efficient technology as a proxy. Committed and realized investments so far amount to USD 4.55 M. Assuming a conservative average pay-back period of 5 years, this would translate in yearly energy cost savings of USD 0.81 M, or HRK 4.3 M. At an average energy cost of HRK 2.05 per m³ natural gas (the most common heating energy source), this translates into yearly savings of 2.1 M m³ natural gas, equivalent to 70 TJ. At a (standard) emission factor of 0.053 kton CO₂/TJ, this converts into 3.7 kton CO₂ emission reduction per year, substantially lower than the target. This is likely to improve substantially in future years, but probably not to the indicated target.

As a check on the listed CO₂ emission target, the approximate amount of investments needed has been calculated. A reduction of 82 kton/year is equivalent to savings of 1.5 PJ/year in natural gas, or approx 46,000 million m³, resulting in cost savings of around HRK 95 M. Assuming that investments are 3 to 5 times yearly savings, the estimated amount of investment needed would be HRK 285 M to HRK 475 M, or USD 54 M to USD 90 M. This is roughly ten times the amount currently targeted.

It should be noted that this is a very crude and imprecise calculation. Better registration and modeling of direct and indirect impacts is needed, as discussed in section 4.2.2. The combination of currently listed direct and indirect CO₂ emission targets will add up to approx 2.5 Mton of reductions cumulatively, more than the 2 Mton indicated in the project brief. A recalculation of targets is needed, taking into account activities of the project and realistic ratios between investments and savings.

~~24. Greenhouse gas emission by the selected measures and within the end user groups that are targeted directly under this project has been reduced by approximately 2.0 Mt of CO₂ by 2020.~~

24a. Direct CO₂ emission reductions as a result of project-assisted investments

(target 82 kton/yr): Investments committed so far will likely lead to some 3.7 kton/year

- 24b. Indirect CO₂ emission reductions as a result of project activities targeting a wider audience (target 1.65 Mton cumulatively by 2020): No information available

Rating: Marginally satisfactory

Overcoming the general institutional barriers to the promotion of energy efficiency

This part of the project deals primarily with the involvement of regional authorities in energy saving activities, as well as the provision of support for investments in energy efficient technologies. The project has focused its activities on providing information, awareness raising and energy audits instead of direct financial investment support, as this was needed in the current market. Investments are coming forward, indicating that the strategy is so far successful.

Regional and national authorities' involvement in the project has outpaced expectations, with more regional authorities involved at mid-term than was expected for the end of the project, and the development of a national energy efficiency strategy well underway, fully supported by the government.

~~25. The regional and other public authorities taking an active role in promoting the energy efficiency investments Immediate Objective:~~

- 25a. 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): Five local and three regional governments are involved in the project and are promoting energy efficiency measures and investments. One has a completed energy management system and a well-established local promotion system, others are in varying states of development of such systems.

- 25b. Partial guarantee fund established and operational (end-of-project target: loans provided for USD 7.5 M investments): The guarantee fund is not operational and consequently no related loans have been provided. Investments amounting to USD 4.55 M have been realized and committed, however, and a local bank has independently set-up an energy efficiency credit line.

- 25c. Amount of investments for project-endorsed EE measures in service sector buildings (mid-term target: USD 2.5 M investments): Of the total of amount investments resulting from the project, USD 3.9 M relate to service-sector buildings, thus surpassing the mid-term target of USD 2.5 M investments.

Rating: Highly satisfactory

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

Little is known about the impacts on residential building owners around the country. The project has undertaken substantial awareness raising and marketing campaigns for energy efficient technologies (building technologies, appliances and lighting), but it is too early to expect measurable impacts in the market from these campaigns. It usually takes a few years of marketing before a shift in the sales of efficient technologies can be observed, and this kind of monitoring still needs to be developed.

Changes in awareness can be recorded somewhat earlier, but do not always lead to actual investments. Further, changes need to be substantial to be measurable, and usually cannot be attributed to a specific intervention (project activity).

~~26. The demand for energy efficient equipment and projects show an increasing trend in the residential sector:~~

- 26a. Household awareness of availability and benefits of EE lighting, appliances and equipment (mid-term target: 26.5% of households aware – target to be revised): no data available.

- 26b. No. of households that have purchased EE lighting, appliances or equipment in the last 12 months (no target specified): no data available.

Rating: No rating given due to lack of data

Overcoming the barriers to improving the energy efficiency within the service sector
The same issues apply as for the residential sector. A better elaboration of baselines and targets and development of a monitoring system are needed.

The project development facility has seen little demand, and is certainly delivering substantially less than was expected, but residential building owners seem to respond well to other project activities like energy audits.

~~27. The demand for energy efficient equipment and projects show an increasing trend in the residential sector (sic):~~

- 27a. Hotel and public building owner awareness of availability and benefits of EE lighting, appliances and equipment (end-of-project target: 28.5% of hotels, 10% of public buildings aware): no data available.

- 27b. No. of hotels and public buildings that have purchased EE lighting, appliances or equipment in the last 12 months (no target specified): no data available.

- 27c. Amount of investments as a result of project development support delivered (mid-term target: support for 15 buildings, 30% leading to investments, no amount specified): Overall, project development support was delivered for 4 buildings (residential and service sector combined), with only one leading to investments.

Rating: No rating given for lack of data

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

It is remarkable that replication of a project is listed as a separate objective of a project, as these rather seems to be an

operational issues to be dealt with while implementing a project, but not affecting the long-term impact in the country. If replication of project mechanisms in the country is a goal in itself (which it can be), it requires a quite more specific objective than 'activities replicated at the national and, as applicable, regional level'. As the intentions for this objective are unknown and probably obsolete by now, it should be considered to discard completely of this objective and merge the operational issues with project management tasks.

Energy and CO₂ emission monitoring has not yet been established and, although first steps are underway, this should be a priority for this year of the project. According to the project document, a monitoring system should have been in place within 12 months of operation, which does not seem to make much sense as results of market transformation projects typically take much longer to evolve. Dissemination of project results should take place towards the end of the project.

~~28. The activities replicated at the national and, as applicable, regional level:~~

28a. National Energy Efficiency Strategy implemented with project support (target: realized by end of project): Development of a national Energy efficiency master plan is well underway and expected to be concluded before the end of the year.

28b. Energy and CO₂ emission monitoring of project impact established and operational (target: yearly reporting): not yet established, first steps underway.

28c. Project results widely disseminated and discussed with stakeholders (no target specified): not relevant yet

Rating: No rating given due to the early stage of these activities

Sustainability

Sustainability relates to the lasting impact of project activities, once the project itself has stopped operations. It is usually not expected that truly lasting impacts are

observable at mid-term of a project, but early signs of sustainability may be visible.

The project has initiated several activities that can lead to lasting impacts in Croatia. These include the work with local and regional governments, likely to result in self-sustaining local energy efficiency promotion campaigns; the awareness raising campaigns, that will be supported by other parties during and after the project and are likely to lead to increased awareness of energy efficient technologies remaining after the project; experience built with energy auditors and contractors due to their exposure to energy efficiency for project work; and the development of a national energy efficiency master plan for the country.

These achievements so far strongly indicate that the project will have lasting impacts that will benefit Croatia for years. A true perspective on sustainable impacts, however, can only be established once the project has concluded its work and has transferred activities to national parties.

Evaluation indicators for this item:

21. The project established a sustainable impact in the country, which will continue independently: There are early signs of activities that will have a lasting impact, beyond the life of the project.
22. The project established arrangements with relevant organizations or other instruments to secure a continued impact: Arrangements have been and are being developed to allow a continuation of activities after the project. It is too early to tell if this will actually happen towards the end of the project.



Recommendations

Corrective actions for the design, implementation, monitoring and evaluation of the project

Even though the project is doing well, there are some issues that require urgent attention. These include:

- The absence of measurable targets with baselines and useful indicators. The project document does not include adequate targets, no baseline values and indicators that tell very little about the end goals of the project. A reconstruction is needed as part of a revision of the logical framework (LogFrame). For this MTE, new indicators have been developed that aim to measure the final objectives of the project; these are also included in a proposed reconstructed LogFrame. It will be necessary for the project to assess baseline values and, based on that, realistic targets that are consistent between themselves (including investments vs. energy impacts) and with the project design. Secondly, it will be necessary to develop an impact model, to calculate national energy and emission savings based on observed changes in the market, especially regarding indirect impacts. A combination of small, target surveys and collection of sales volume data is recommended as basic data for such calculations. Thirdly, it would be beneficial if the project tracked the calculated energy savings associated with implemented energy efficiency investment recommended in audits, to have a direct measure of the direct energy impacts of the project.
- A revision of the investment-support mechanisms used in this project and the relative amount of inputs for each. The project design relied heavily on a credit guarantee mechanism that probably will not deliver sufficient results before the end of the project, and includes other mechanisms that deliver impacts (investments) for lower relatively costs. An overall assessment of required instruments is needed, taking into account that projects the needs of the country may evolve once technical knowledge improves and that there are alternative ways of financially supporting investments besides a partial credit guarantee like a new credit line developed by a commercial bank or preferential loan schemes that have been successful in other countries. This assessment should lead to a well-structured plan to implement a number of instruments, each assigned a budget and results target, with clear evaluation moments where budgets can be re-assigned to successful activities (at the cost of unsuccessful ones). It should be taken into account that financial instruments usually require a firm, unambiguous commitment for others, like commercial banks, to rely on, so that frequent changes should be avoided.
- In view of this, it is recommended to fix a budget for the partial credit guarantee as soon as possible, and keep that available for at least a year for HBOR and the commercial banks to develop the mechanism undisturbed. The budget could be fixed at the currently agreed minimum of USD 600,000 or a higher amount if there is sufficient rationale to do so, and the remainder to be definitely re-assigned to other purposes. A deadline should be set for the use of the partial credit guarantee funds, after which unused funds will return to the project. This deadline would ideally be at least one year away, but also approx one year before the end of the project to make sure that sensible alternative uses for the money can still be exploited. That would suggest that a deadline be set somewhere between summer and the end of 2008.
- A budget revision cycle should be introduced, combined with project progress revisions (e.g., in yearly or half-yearly reporting cycles) and discussed in the steering committee, taking into account:
 - Objectives and outputs of the project according to the (reconstructed) LogFrame;

- Expected use of funds per component (objective / outcome / activity) over time;
 - Activities that contribute to more than one output, for which costs should be spread over these several outputs.
 - Tracking of co-financing needs improvement, especially for activities paid directly by others. Additionally, it is recommended that UNDP keeps clear records of commitments and disbursements for cash co-financing received for specific tasks in the project;
 - Although technically not applicable to this project, as it is already ongoing, it is recommended that UNDP and the GEF assess their procedures for the review and approval of project documents, to make sure that future documents apply to higher standards than the one that was approved for this project.
- a route towards long-term sustainability of consumer education.
- Involvement of professional organizations, like a union or architects or universities involved in building energy issues, seems to be a bit underdeveloped. The project has recently initiated activities to educate building designers on building energy performance issues, and it is recommended to further develop this avenue to help build a platform for future energy efficiency work.
 - It should be considered if special sessions of the steering committee are needed addressing long-term strategic issues related to building energy efficiency in Croatia, or if these are sufficiently addressed in the current meeting schedule. If required, the project should schedule and prepare such meetings.

Actions to follow up or reinforce initial benefits from the project

There are some issues that could improve the effectiveness of the project. These include:

- Both the project document and the inception report don't include an overall view of the savings potentials or the potential long-term benefit of building energy efficiency in the country. It would be beneficial if the project, at some point in time, prepares such an overview to demonstrate the relative impact of the project in relation to this overall potential and prepare the ground for future work in this area.
 - The project has undertaken additional data collection work in support of this MTE, tracking the follow-up to its activities by target groups (building owners). It is recommended that this is repeated at yearly intervals or at least before the final evaluation.
 - The project has built good collaborations with a variety of institutions, including NGOs and state institutions participating on consumer education activities. It could be explored if this involvement can provide
- The project has had useful ad-hoc exchanges of experience with projects in other countries. UNDP could organize specific activities to further facilitate such exchanges between projects.
 - Although the end of the project is still two years away, it is important to start discussing a long-term follow-up to the project shortly, as it typically takes time to make proper arrangements and secure that project activities can be transferred smoothly to a new entity. Part of this should be a consideration if a new managerial unit within the national government's structure, like an energy agency, is needed for the continuation of this and similar work in Croatia.

Proposals for future directions underlining main objectives

As the project is currently in the middle of its operations, still creating new activities and results, it is too soon to provide directions for future work. The project team and steering committee are encouraged to address future needs and propose initiatives in the area of energy efficiency in the next two years.

Lessons learned

The project, including its design, implementation and results, shows many insightful lessons. Many of these lessons point to excellent aspects of the project, and repetition of the underlying practices in other projects would be recommended. Some point to clear failures in this project, and also provide very useful lessons for future projects. It is impossible to provide a full overview of all lessons learned here, and the project management and the stakeholders involved are encouraged to describe their lessons learned, and report these (e.g., as part of the project final report, in a conference or magazine paper).

Remarkable practices include:

- Project design has taken exceptionally long for this project. Contrary to popular expectations, this has diminished the quality of the design rather than improved it. The time lapse alone implies that the project design is no longer a good reflection of the actual status quo in the country. During the design phase, some tunnel vision was observed, with attention for implementation details of set priorities, but not for the relevance of these priorities in a wider context. It is probably better to round up a project design as quickly as possible, focusing on the main directions of the project and leaving details to the implementation phase.
- Projects need champions, and luckily this project has seen two of these. The project director, himself a leading person in the country, has taken the project under his wings and driven it forward on the political level. The project manager, characterized by drive, experience and commitment, has done the same on the operational level. Together, this has led to a rapid establishment of the project as an important party in Croatia, leading the country towards more energy efficiency.
- This project is a textbook example of adaptive management, addressing the wider socio-economic context as well as details of the implementation situation in its activities. Although this creates administrative challenges, like the need to keep good track of project activities, it is a highly recommended practice.
- A wide range of stakeholders is involved in the project, right from the start. The project organized 'energy breakfasts' in its first months to reach out to a wide variety of parties, a successful way of involving these stakeholders in the project by gaining their views on what the project should do and not (only) on if they are willing to do what the project wants.
- The project has developed local actions in cities and regions, bringing local stakeholders together in a targeted action. This makes national programs tangible for a community and provides local parties with a clear direction on practical measures to take, in marketing energy efficiency and in implementing it.

Annex 1: Project Budget Overview

	Expenditure		Total		Planned		Total		Total
	2005	2006	2007	2007 Expenditure	2007	2008	2009 Planned	2009 Planned	
Outcome 1: Overcoming general institutional barriers									
Marketing, Legal & Technical support	15,044.78	216,041.95	112,821.06	343,907.79	2,303,678.94	130,500.00	69,000.00	2,503,178.94	2,847,086.73
Project Development Facility & Free Energy Audits	167.14	87,114.11	55,229.87	142,511.12	72,770.13	116,000.00	64,000.00	252,770.13	395,281.25
Partial Guarantee Facility	0.00	53,963.02	39,633.03	93,596.05	290,366.97	0.00	0.00	290,366.97	383,963.02
Miscellaneous	0.00	56,000.00	3,385.62	59,385.62	1,940,614.38	0.00	0.00	1,940,614.38	2,000,000.00
	14,877.64	18,964.82	14,572.54	48,415.00	-72.54	14,500.00	5,000.00	19,427.46	67,842.46
Outcome 2: Overcoming residential sector barriers									
Promotion of EE products	0.00	87,989.72	295,620.82	383,610.54	46,379.18	51,000.00	11,000.00	108,379.18	491,989.72
Energy audits	0.00	21,510.80	280,169.97	301,680.77	-1,169.97	0.00	0.00	-1,169.97	300,510.80
Information dissemination & Marketing	0.00	38,000.00	2,885.54	40,885.54	32,114.46	20,000.00	0.00	52,114.46	93,000.00
Miscellaneous	0.00	21,903.93	143.37	22,047.30	6,356.63	6,500.00	1,500.00	14,356.63	36,403.93
	0.00	6,574.99	12,421.94	18,996.93	9,078.06	24,500.00	9,500.00	43,078.06	62,074.99
Outcome 3: Overcoming service sector barriers									
Emission savings monitoring	0.00	254,462.13	101,408.60	355,870.73	2,591.40	67,000.00	21,000.00	90,591.40	446,462.13
Energy audits	0.00	30.70	0.00	30.70	12,000.00	12,000.00	10,000.00	34,000.00	34,030.70
Information dissemination & Marketing	0.00	207,000.00	88,692.10	295,692.10	-23,692.10	25,000.00	0.00	1,307.90	297,000.00
Miscellaneous	0.00	36,664.88	1,356.14	38,021.02	5,143.86	6,500.00	1,500.00	13,143.86	51,164.88
	0.00	10,766.55	11,360.36	22,126.91	9,139.64	23,500.00	9,500.00	42,139.64	64,266.55
Outcome 4: Replication & utilization									
Workshops, study tours	1,530.00	38,505.97	21,615.51	61,651.48	39,884.49	51,500.00	34,000.00	125,384.49	187,035.97
Publications	0.00	19,000.00	2,897.61	21,897.61	32,102.39	15,000.00	5,000.00	52,102.39	74,000.00
Miscellaneous	0.00	1,303.23	13,535.45	14,838.68	6,464.55	30,000.00	26,000.00	62,464.55	77,303.23
	1,530.00	18,202.74	5,182.45	24,915.19	1,317.55	6,500.00	3,000.00	10,817.55	35,732.74
Management & Evaluation									
Project Management	22,744.12	93,370.73	44,988.68	161,103.53	92,921.92	100,600.00	62,800.00	256,321.92	417,425.45
Monitoring & evaluation	23,221.50	77,542.00	44,988.68	145,752.18	45,011.32	70,600.00	35,300.00	150,911.32	296,663.50
	-477.38	15,828.73	0.00	15,351.35	47,910.60	30,000.00	27,500.00	105,410.60	120,761.95
Total	39,318.90	690,370.50	576,454.67	1,306,144.07	2,485,455.93	400,600.00	197,800.00	3,083,855.93	4,390,000.00

Annex 2: Proposed Reconstructed Project Logical Framework

Note: This LogFrame is reconstructed based on the project document after clearing that of inconsistencies and by adding targets and indicators that address the end-goal of the project. Baselines and targets need to be re-examined as soon as possible, using new information about the status quo in Croatia.

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	No additional investments	Investments leading to xx kton/year CO ₂ emission savings by end of project	Investment support records + follow-up on implementation of measures	---
	Indirect CO ₂ emission reductions as a result of project activities targeting a wider audience	No additional indirect emission reductions	Indirect emission savings amounting to yy kton/year by the end of the project	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)					
Output 1.2: Increased awareness of available energy efficient end-use technologies and their benefits Indicator: Sustainable consumer information & education activities executed by national parties (by end of project)					
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	X % of households aware of availability of EE products and their benefits	X1 % of households aware of availability of EE products and their benefits	Consumer survey in 2 nd and last year of project	Economic situation does not deteriorate, to the point that investments become impossible
	No. of households that have purchased EE lighting, appliances or equipment in the last 12 months	Y % of households have purchased a CFL, EE appliance or insulation material in last 12 months	Y1 % of households have purchased a CFL, EE appliance or insulation material in last 12 months	Idem	

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
Output 2.1: Increased public awareness of the available energy efficient technologies and measures and their benefits to the consumers Indicator: see above					
Output 2.2: Successfully conducted marketing campaign to promote the purchase of energy efficient products Indicator: see above					
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)					
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	X % of hotel owners & public building managers aware of availability of EE products and their benefits	X1 % of hotel owners & public building managers aware of availability of EE products and their benefits	Survey of hotel owners and public building managers in 2 nd and last year of project	Economic situation does not deteriorate, to the point that investments become impossible
	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	Y1 % of hotel owners & public building managers have purchased a CFL, EE appliance or insulation material in last 12 months	Idem	
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					
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)					
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 capacities of national authorities to promote energy efficiency in buildings Indicator: National energy efficiency strategy developed and operational (mid-term target: strategy developed; end-of-project: operational)					
Output 4.2: A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects in place. Indicator: Energy and CO2 emission monitoring of project impact established and operational					
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					

Annex 3: Terms of Reference for Mid-term project evaluation

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 projects with long implementation periods should undergo mid-term evaluations. 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.

Mid-term evaluations are intended to identify potential project design problems, assess progress towards the achievement of objectives, identify and document lessons learned (including lessons that might improve design and implementation of other UNDP/GEF projects), and to make recommendations regarding specific actions that might be taken to improve the project. It is expected to serve as a means of validating or filling the gaps in the initial assessment of relevance, effectiveness and efficiency obtained from monitoring. The mid-term evaluation provides the opportunity to assess early signs of project success or failure and prompt necessary adjustments.

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 market development is considered a critical factor for the overall Project success. The EE market transformation can be achieved by stimulating demand and supporting the supply side for development and implementation of EE improvement projects.

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 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 project instruments are Free energy audits (FEAs), Project Development Fund (PDF), Partial financial guarantees fund (PGF), Technical Assistance, and Information promotion campaign. The emphasize is on promoting implementation of profitable EE projects from selected target groups, promoting the successful implementation results, and using it to stimulate replication of similar projects. The initial focus of the project is on the residential and service sectors.

The key stakeholders for the implementation of this project are:

- Ministry of Economy, Labour and Entrepreneurship (MINGORP);
- Energy Efficiency and Environmental Protection Fund (EEEEPF);
- Croatian Bank for Reconstruction and Development (HBOR);
- World Bank Energy Efficiency and Renewable energy projects;
- HEP ESCO;
- Selected Municipalities
- UNDP Croatia

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

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.

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 2006 Annual Project Implementation Review (to be made available for the evaluator).

Planned duration of the Project is four years (2005-2009).

II. Objectives of the Mid Term Evaluation

This Mid Term Evaluation is initiated by the UNDP Croatia as the Implementation Agency for this project and it aims to provide managers (Project Manager, UNDP Croatia Country Office and UNDP/GEF levels) with strategy and policy options for more effectively and efficiently achieving the project's outcomes and for replicating the results. It also provides the basis for learning and accountability for managers and stakeholders.

The objective of this Mid-Term Evaluation is to measure the effectiveness and efficiency of project activities in relation to the stated objective so far, and to produce possible recommendations on how to

improve the management of the project until its completion in 2009.

The report will have to provide to the GEF Secretariat complete and convincing evidence to support its findings/ratings. Particular emphasis should be put on the current project results and the possibility of achieving all Outcomes in the established timeframe, taking into consideration the speed at which the project is proceeding and specific national circumstances and all relevant conditions in the project environment.

III Products expected from the evaluation

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

1. Executive summary
2. Introduction
3. The project(s) and its development context
4. Findings and Conclusions
 - a. Project formulation
 - b. Implementation
 - c. Results
5. Recommendations
6. Lessons learned
7. Annexes

The length of the mid-term evaluation report shall not exceed 40 pages (not including annexes).

IV. Methodology or evaluation approach

This evaluation is to be undertaken taking into consideration the GEF Monitoring and Evaluation policy¹ and the UNDP/GEF Monitoring and Evaluation Policy²

An outline of an evaluation approach is provided below; however it should be made clear that the evaluation team 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 Group³). They must be also cleared by UNDP before being applied by the evaluation team.

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 consultants are 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.

The methodology to be used by the evaluation team 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, MINGORP Administration, Project Steering Committee members, Project Director;
- Field visits;
- Questionnaires;
- Participatory techniques and other approaches for the gathering and analysis of data.

The consultant 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

¹ See <http://www.gefweb.org/MonitoringandEvaluation/MEPoliciesPro>

cedures/documents/Policies_and_Guidelines-me_policy-english.pdf

² See <http://www.undp.org/gef/05/monitoring/policies.html>

³ See <http://www.uneval.org/>

with (R) should be rated using the following divisions:

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

V. Evaluation team

A team of independent experts will conduct the evaluation. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The evaluation team will be composed of one International Consultant or team leader and one National Consultant. The consultants shall have prior experience in evaluating similar projects. Former cooperation with GEF is an advantage.

International expert (team leader)

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);
- Decide the division of labor within the evaluation team;
- Conduct an analysis as per the scope of the evaluation described below;
- Draft related parts of the evaluation report; and finalize the whole evaluation report.

2. Qualifications

Candidate for the position is expected:

- To have graduate degree in the technical sciences with specialisation in the energy field;
- To have international experience in strategic energy projects (design, participation and evaluation);
- To have recent experience with result-based management evaluation methodologies;
- To have experience applying SMART indicators and reconstructing or validating baseline scenarios;
- To have recent knowledge of the GEF Monitoring and Evaluation Policy;
- To have recent knowledge 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;
- 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 minimum 10 years of work experience in relevant areas.
- To have excellent analytical and organizational skills.
- Have excellent writing and communication skills in English
- Have excellent computer skills.
- Project evaluation experiences within United Nations system will be considered an asset

National expert

1. Key tasks:

Candidate for the position will perform the following tasks:

- Provide input in reviewing all project documentation and provide the International Consultant with a compilation of information prior to the evaluation mission;
- Review documents;
- Prepare a list of the outputs achieved under project;
- Organize the mission programme and provide translation/interpretation when necessary;
- Participate in the design of the evaluation methodology;
- Collect all data necessary for conducting an analysis of as per the scope of the evaluation described below;
- Participate in analysis as per Team leader instructions;
- Draft related parts of the evaluation report;
- Assist Team leader in finalizing document through incorporating suggestions received on draft related to his/her assigned sections.

2. Qualifications

Candidates for the position are expected:

- To have graduate degree in the technical sciences.
- To have experience in energy efficiency projects (design, participation and evaluation);
- To have recent experience with result-based management evaluation methodologies;
- To have competence in Adaptive Management, as applied to Climate Change projects;

- To have experience and good understanding of relations within energy sector;
- To be very familiar with national and European Union's legislative, institutional and financial framework for energy and energy efficiency;
- To have excellent understanding of key stakeholders in Croatian energy sector;
- To have minimum 10 years of work experience in relevant areas.
- To have excellent analytical and organizational skills.
- To have excellent writing and communication skills in both English and Croatian
- To have excellent computer skills.
- 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. Joint proposals from two independent evaluators are welcome. Or alternatively, proposals will be accepted from recognized consulting firms to field a complete team with the required expertise within the evaluation budget.

The evaluators must be independent from both the policy-making process and the delivery and management of assistance. Therefore applications will not be considered from evaluators who have had any direct involvement with the design or implementation of the project. This may apply equally to evaluators 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 the project, the MINGORP Administration, HBOR, UNDP Croatia or other partners/stakeholders must be disclosed in the application. This applies equally to firms submitting proposals as it does to individual evaluators.

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.

If individual evaluators are selected, UNDP will appoint one Team Leader. The Team Leader will have overall responsibility for the delivery and quality of the evaluation products. Team roles and responsibilities will be reflected in the individual contracts. If a proposal is accepted from a consulting firm, the firm will be held responsible for the delivery and quality of the evaluation products and therefore has responsibility for team management arrangements.

VI. Implementation Arrangements

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

These Terms of Reference follow the UNDP GEF policies and procedures, and together with the final agenda will be agreed upon by the UNDP/GEF/Regional Coordinating Unit, UNDP Country Office and MINGORP. 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: 4 weeks after signing the contract. The evaluation should be completed by 30 June 2007. 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 government counterparts, 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:

Team Leader (international expert) – 20 working days

Technical expert (national expert) – 22 working days

The proposed dates for the in-country mission to Croatia are 23-30 May 2007. The assignment is to commence no later than 15 May 2007.

VII. Scope of the evaluation – specific issues to be addressed.

The key product expected from this mid-term 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

The activity and timeframe are broken down as follows:

Activity	Timeframe and responsible party
Desk review	3 days by the international expert, 5 days by the national consultant
Briefings for evaluators	1 day by the MINGORP/UNDP
Field visits, interviews, questionnaires, de briefings	7 days by the international consultant, 9 days by the national consultant
Validation of preliminary findings with stakeholders through circulation of draft reports for comments, meetings and other types of feedback mechanisms	6 days by the evaluation team
Finalization of the evaluation report (incorporating comments received on first draft)	3 days by the international evaluator, 1 day by the national evaluator

<p>1.3. Main conclusions, recommendations and lessons learned</p> <p>2. Introduction</p> <p>2.1. Project background</p> <p>2.2. Purpose of the evaluation</p> <p>2.3. Key issues addressed</p> <p>2.4. Methodology of the evaluation</p> <p>2.5. Structure of the evaluation</p> <p>3. The Project and its development context</p> <p>3.1. Project start and its duration</p> <p>3.2. Implementation status</p> <p>3.3. Problems that the project seek to address</p> <p>3.4. Immediate and development objectives of the project</p> <p>3.5. Main stakeholders</p> <p>3.6. Results expected</p> <p>4. Findings and Conclusions</p> <p>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</p> <p>4.1. Project Formulation</p> <p>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.</p> <p>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</p>	<p>and responded to national market, institutional, legal and regulatory settings of the project.</p> <p>It should also assess the indicators defined for guiding implementation and measurement of achievement.</p> <p>Taking into consideration the quality of the original logframe and indicators, the project's intension to revision the project scope, the evaluator is asked to pay particular attention to the revised logframe, and recommendations for its improvement if necessary.</p> <p>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 environment and development interests.</p> <p>4.1.3. Stakeholder participation (R) Assess information dissemination, consultation, and "stakeholder" participation in design stages.</p> <p>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.</p> <p>4.2. Project Implementation</p> <p>4.2.1. Implementation Approach (R). This should include assessments of the following aspects:</p> <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The project's use/establishment of electronic information technologies to support implementation, participation and monitoring, as well as other project activities. • The 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. <p>4.2.2. Monitoring and evaluation (R):</p> <ul style="list-style-type: none"> • Assessment as to 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. • Review of the project log frame including: providing technical advice for the revision of performance indicators and realistic end-of-project targets. Assessment of the baselines, identification of sources of data and collection methods. <p>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:</p> <ul style="list-style-type: none"> • The production and dissemination of information generated by the project. • Local resource users and NGOs participation in project implementation and decision making
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<p>and an analysis of the strengths and weaknesses of the approach adopted by the project in this arena.</p>	<p>of the project. Examine their relevance to specific national conditions and whether they provide the most effective route towards results. Including a description and rating of the extent to which the project's objectives (environmental and developmental) are achieved. 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.</p>	<p>7.6. Questionnaire used and summary of results</p>
<ul style="list-style-type: none"> • 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. 	<p>This section should also include reviews of the following:</p>	<p>7.7. Comments by stakeholders (only in case of discrepancies with evaluation findings and conclusions)</p>
<p>4.2.4. Financial Planning: Including an assessment of:</p>	<p>4.3.2. Sustainability: Including an appreciation of the extent to which benefits continue, within or outside the project domain after GEF assistance has come to an end.</p>	<p>VIII. Terms of reference annexes</p>
<ul style="list-style-type: none"> • 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. 	<p>4.3.3. Contribution to upgrading skills of the national staff</p>	<ul style="list-style-type: none"> • Annex 1: Table 1. Co-financing and Leveraged Resources
<ul style="list-style-type: none"> • The cost-effectiveness of achievements 	<p>5. Recommendations</p>	<ul style="list-style-type: none"> • Annex 2: Terminology in the GEF Guidelines to Mid and Final Evaluations
<ul style="list-style-type: none"> • Financial management (including disbursement issues) 	<p>5.1. Corrective actions for the design, implementation, monitoring and evaluation of the project</p>	<ul style="list-style-type: none"> • Annex 3: List of Documents to be reviewed by the evaluators
<ul style="list-style-type: none"> • Co-financing 	<p>5.2. Actions to follow up or reinforce initial benefits from the project</p>	
<ul style="list-style-type: none"> • Sustainability. Extent to which the benefits of the project will continue, within or 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. 	<p>5.3. Proposals for future directions underlining main objectives</p>	
<p>4.3. Results</p>	<p>6. Lessons learned</p>	
<p>4.3.1. Attainment of Outcomes/ Achievement of objectives (R): How and why Outputs contribute to the achievement of the expected results</p>	<p>This should highlight the best and worst practices in addressing issues relating to relevance, performance and success.</p>	
	<p>7. Evaluation report Annexes</p>	
	<p>7.1. Evaluation TORs</p>	
	<p>7.2. Itinerary</p>	
	<p>7.3. List of persons interviewed</p>	
	<p>7.4. Summary of field visits</p>	
	<p>7.5. List of documents reviewed</p>	

Annex 4: Evaluation itinerary

The itinerary followed is described in the evaluation outline developed for this evaluation, which is repeated here.

Introduction

This evaluation outline describes the approach proposed for the mid-term evaluation of the UNDP/GEF project 'Removing Barriers to Improving Energy Efficiency of the Residential and Service Sectors (CRO/00/G31/A/1G/99)', the assessment of its contribution to capacity development and global environmental goals, and the identification of lessons learned, recommendations for future projects and forward vision recommendations regarding the sustainability of project outputs.

Background for this Evaluation

The project 'Removing Barriers to Improving Energy Efficiency of the Residential and Service Sectors (CRO/00/G31/A/1G/99)' (further: the project) is funded by the Global Environment Facility (GEF), managed by the United Nations Development Program (UNDP), and executed by the Croatian Ministry of Economy, Labour and Entrepreneurship. The project falls under the Climate Change focal area, and aims at reducing greenhouse gas emissions by removing the key barriers to the implementation of economically feasible energy efficiency technologies and measures in the residential and service sectors, thereby reducing their energy consumption and associated greenhouse gas emissions.

To evaluate the project results and impacts; promote accountability for resource use; document, provide feedback on and disseminate lessons learned; and provide forward vision recommendations to complement and sustain project outputs, UNDP requests this mid-term project evaluation. This outline describes the proposed approach for this evaluation and its strategy, planning and deliverables, in accordance with the Terms of Reference provided by UNDP.

Evaluation Issues

The ToR describe the issues that need to be addressed in the final evaluation, the documents to be reviewed and the stakeholders to be consulted. For some of the evaluation components (specifically Findings and Conclusions), the ToR specify which elements need to be addressed in the evaluation.

The evaluation should include the following issues. Items marked with an (R) should also be rated in one of four classes.

1. Executive summary
 - Brief description of project
 - Context and purpose of the evaluation
 - Main findings, conclusions, recommendations and lessons learned
2. Introduction
 - Purpose of the evaluation
 - Key issues addressed
 - Methodology of the evaluation
 - Structure of the evaluation
3. The project and its development context
 - Project start and duration
 - Problems that the project seeks to address
 - Immediate and development objectives of the project
 - Main stakeholders
 - Results expected
4. Findings and Conclusions
 - 4.1 Project Formulation
 - Conceptualization/Design (R)
 - Country-ownership/Drivenness
 - Stakeholder participation (R)
 - Replication approach
 - UNDP comparative advantage
 - 4.2 Project Implementation
 - Implementation Approach (R)
 - Monitoring and evaluation (R)
 - Stakeholder participation (R)
 - Financial Planning
 - Sustainability
 - Execution and implementation modalities
 - 4.3 Results
 - Attainment of Outcomes/Achievement of objectives (R)
 - Sustainability
- 5 Recommendations

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

6 Lessons learned

- This should highlight the best and worst practices in addressing issues relating to relevance, performance and success.

These evaluation issues form the basis for the proposed evaluation. The projects relevance, performance and success, as well as emerging impact and sustainability of results, will be assessed against indicators for the above issues.

These indicators have been taken from the Project Document, as far as possible, supplemented with additional indicators where needed. A full list of evaluation indicators is prepared at the start of the evaluation, based on the above issues, and the project documentation. It should be noted that the availability of information, and the limitations in time and budget for the evaluation will limit the extend to which evaluation indicators can be assessed. The indicators provide the framework for the fact finding, analysis, ratings and recommendations of the evaluation.

Organization and approach of the evaluation

This evaluation will be performed as an external, independent assessment of the project, including a desk review of available project documentation (including the project document, progress reports, outputs and other sources of information), interviews with UNDP and PMU program officers, the project manager, the project consultant, and stakeholders. These interviews take place during visits to Zagreb and site-visits. External experts may be contacted to gather background information or references and to check project data.

Evaluation Strategy

This evaluation aims at assessing the projects relevance, performance and success, early signs of impact and

Evaluation indicator structure

Activity	I Direct output	II Direct effects	III External effects	IV Final outcome
Project activity A	Direct result (e.g. report or standard published, website developed) of one activity	Indirect result / effect on target group (e.g. report or standard used by target group, website used by target group) of one or a few activities	External results (e.g. adoption of building code legislation, installation of enforcement infrastructure, based on reports or building codes, websites, training etc) as a result of a group of activities	Final results (e.g. transformation of building market, changes in thermal performance of buildings, CO2-emission reductions) as a result of the whole project
Project activity B				
Project activity C				
Etc				

sustainability of results, identifying lessons learned, and making recommendations for the sustainability of project outputs and for future projects. For this, evaluation indicators will be developed, based on the evaluation issues stated above. The indicators are intended to measure the performance, management and impact of the project and will guide the evaluation process.

Evaluation Indicators

Evaluation indicators serve to measure the performance of the project on several aspects. An indicator targets an important, measurable aspect of an evaluation issue, with the aim to make a complex, principally qualitative issue measurable and (semi-) quantifiable. During the evaluation, fact-finding focuses on collecting data regarding these indicators (next to general qualitative and contextual information about the project), and during the analysis the projects results are valued against indicators (ranging from below to above what has been / might have been expected or was implied in the project design). Given the extent of the project and the complexity of the subject, not all aspects (of all issues) can be targeted during this evaluation. The evaluation indicators will therefore be selected to cover a large proportion of the project, but the availability of data and access to information sources will be taken into account. The evaluation indicators will be developed in close co-operation with UNDP program officers.

Although monitoring and evaluation is often a part of a project design, and ideally an integrated management tool, usually not all relevant evaluation aspects were foreseen at the initiation of a project and duly monitored during project execution. Additionally, a final evaluation often includes issues (specifically about project design and impact / outcome) that are of lesser relevance during project execution and can only be assessed ex-post. Therefore, it is often needed to develop additional indicators to assess project design issues, the impact on stakeholders and the long-term impact (or early signs of this) of the project. These will be developed during the desk review of the project documentation, based on the (listed) evaluation issues. Draft evaluation indicators will be presented to the program officers and executors for review and comments, before these are finalized.

The development of the evaluation indicators will be structured according to the following system (see table above).

Category I direct outputs are usually monitored through progress reports (as they are normally a direct output of the work to be done) and do not require specifically designed evaluation indicators. These outputs are usually delivered during the course of the project, can easily be observed and give an indication of the efficiency of the project.

Category II direct effects are usually a direct effect of activities, but are often not measured during the course of a project

(though they could provide valuable information to the program management). These effects can usually be observed during or shortly after the completion of an activity, can be measured by enquiries, surveys, interviews etc and give an indication of the efficiency of the project.

Category III external effects are an indirect result of project activities. These are usually (for projects like the development of thermal standards / building codes) the result of activities that target groups in target countries engage in as a result of project activities (e.g. government adopting thermal standard / building code legislation following participation in the project). These effects are usually more difficult to monitor, as they occur some time after completion of activities (typical time delays differ a lot, but a six months to one year delay would be a reasonable assumption) and are usually the result of more inputs (one being the project). External effects can be measured in a variety of ways, including interviews, surveys, observations, dependent on the type of effect, and give an indication of the effectiveness of the project.

Category IV final outcome is the final effect of the project in a target country (the market situation, building stock, energy consumption, etc). These are usually long-term effects of projects and can only be measured after longer periods (typically starting after three to five years, with effects lasting more than 10 years). Possible measurements include building market and building stock analyses and energy consumption analysis, but it can be difficult to prove a direct relationship between project activities and changes in market and stock. The final outcome is always the result of many activities, can give an indication of the effectiveness of a project but is not always very helpful for an evaluation of a single project.

Since the details of the project are not yet known, it is difficult to indicate whether observable effects can be expected in all categories. Based on the information provided, and on an understanding of the typical development of building standards, it may be expected that there will be observable effects in category I (direct outputs), category II (direct effects) and

category III (external effects). It is unlikely that the Final outcomes (category IV) will be substantial, although it may be possible (dependent on the project duration and the results achieved) that there are indications of early effects in the market. Directly observable effects in the building stock (and resulting carbon emissions) will likely be impossible to observe, although it may be possible to calculate the likely long-term impact of a thermal standard development in these fields.

Direct outputs can be evaluated by a comparison to the deliverables and output stated in the project document and usually do not require the definition of additional evaluation indicators. It will be analyzed whether the project document includes the necessary indicators covering category III external effects (where relevant and feasible) and category II effects (for other subjects), which will then be adopted as evaluation indicators for the evaluation issues. If needed, additional indicators will be developed, as described before.

Given the scope of this evaluation, the number of indicators will be limited to one or two (max. three) per evaluation issue, with more focus on (and more than one indicator for) issues that require a (semi-quantitative) rating next to a (qualitative) assessment.

Data collection and Analysis

The proposed approach for this evaluation will include three main components:

- The desk review of (all kinds of) project documentation, including the project document, progress reports, and outputs. This review will serve to (a) generate an overview of the project, its context, proceedings, outputs and outcome; (b) develop a list of evaluation indicators for the assessment of the project; and (c) to collect data regarding the evaluation issues and indicators. Further documentation (e.g. workshop reports, financial statements) may be needed to answer specific issues, in which case these documents will be requested from the project manager or consultant. When necessary, additional information on project activities may be requested from the project management

and/or reference information may be collected from independent experts;

- Interviews with project officers and (representatives of) major stakeholders involved in the project. These interviews will serve to (a) complete the overview of the project, in its context, and the relevance and (future) impact of the projects outcomes according to the involved organizations and stakeholders; (b) complete the fact finding regarding the evaluation issues and indicators; and (c) assist in the assessment of the project by asking the involved organizations about their impression of the projects results on specific issues (indicators), where relevant. During these interviews, fact finding will be supported by questionnaires developed during the desk review phase (semi-structured interviews).
- The analysis of the collected information, and assessment of the projects relevance, performance, success and potential impact. Collected data will be analyzed and structured according to the evaluation indicators. Where target values for evaluation indicators exist (in the project proposal or elsewhere), the observed results of the project will be compared to these target values. Where these target values do not exist a status quo description will be given and an assessment of the projects results based on a review of the project documentation (and the implied assumptions in it), reference information from similar developments in other environments, stakeholders opinions and the evaluators judgment. Where requested, a rating will be given based on this information. Together with the overview and contextual information, this will form the basis for the draft and final evaluation report, which will also include conclusions, recommendations and lessons learned.

Recommendations and lessons learned

The recommendations will be based on the data collected and analyzed and will focus on the evaluation issues (see paragraph 1.2) and the evaluation indicators. The recommendations and lessons learned will include:

- Remarkable practices and lessons learned regarding the project and its development context;
 - Remarkable practices and lessons learned regarding project formulation;
 - Remarkable practices and lessons learned regarding project implementation and management;
 - Recommendations regarding major problems, outstanding issues or possible improvements in the projects design, implementation, monitoring or management;
 - Recommendations regarding the follow-up of the project to reinforce the full implementation of the projects results and/or directions for future work aiming at similar objectives.
- evaluator, in which case these will be explained in an annex to the report. The final report is due within two weeks after receiving the UNDP feedback on the draft final report.

Report

The final report will be drafted within two weeks after completion of the interviews (and debriefing meeting), and will provide a complete overview of the evaluation as described in this outline. The report will be structured along the following lines:

- Executive summary
- Introduction
- The project and its development context
- Findings and Conclusions
 - Project formulation
 - Implementation
 - Results
- Recommendations
- Lessons learned
- Annexes

The draft final report will be sent to UNDP, to be circulated among involved parties, for comments and feedback. Issues raised by the involved parties will be reflected in the final report, unless there are discrepancies in the opinions and/or findings of the involved parties and the



Annex 5: Evaluation indicators

This evaluation aims at assessing the projects relevance, performance and success, early signs of impact and sustainability of results, identifying lessons learned, and making recommendations for the sustainability of project outputs and for future projects. For this, evaluation indicators will be developed, based on the evaluation issues stated in the Terms of Reference. The indicators are intended to measure the performance, management and impact of the project and will guide the evaluation process. Data will be collected to assess the performance of the project, via a review of project documentation and outputs, and interviews with key persons (during a mission to Croatia).

Indicators for the evaluation of project formulation

Conceptualization/Design (R)

1. Project design targets root causes of building energy consumption
2. Project design (summarised in LogFrame) is appropriate and suitable for the national context
3. Project design includes sufficient indicators to track progress and measure outputs

Country-ownership/Drive

4. Project concept originates from within and is supported by national institutions
5. Project concept targets pressing national environmental and development needs

Stakeholder participation (R)

6. Stakeholders have been actively and passively informed during project development
7. Key stakeholders have been consulted about core project design decisions and have provided significant input into the project

Replication approach

8. Project has communicated lessons learned and sought cooperation with

new or ongoing projects of similar concept

UNDP comparative advantage

9. Project is linked with other projects or programmes in the sector via well-developed management arrangements

Indicators for the evaluation of project implementation

Implementation Approach (R)

10. Logical Framework is used as a management tool during implementation
11. Implementation management is adaptive to changes in the project environment
12. ICT have been used to support project implementation and dissemination
13. The project established suitable operational relations between involved institutions and key stakeholders
14. The project employed the required technical capacities and made appropriate use of these

Monitoring and evaluation (R)

15. The project has established progress monitoring and has undergone regular evaluations, which have led to required adaptations of the implementation

Stakeholder participation (R)

16. The project properly involved national and local stakeholders in implementation and decision making
17. The project properly involved government and other relevant institutions in implementation and decision making
18. The project disseminated the required information to all relevant stakeholders

Financial Planning

19. The actual spending on project activities was cost-effective and proportional to the projects objectives

20. Financial management was timely and adequate

Sustainability

21. The project established a sustainable impact in the country, which will continue independently

22. The project established arrangements with relevant organisations or other instruments to secure a continued impact

Execution and implementation modalities

23. UNDP provided adequate oversight of the project and assignment of the required experts

Indicators for the evaluation of project results:

Project Development and Immediate Objectives (evaluating final outcome / impact of the project, related to Attainment of Outcomes/ Achievement of objectives (R) and Sustainability)

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

~~24. Greenhouse gas emission by the selected measures and within the end user groups that are targeted directly under this project has been reduced by approximately 2.0 Mt of CO2 by 2020.~~

24a. Direct CO2 emission reductions as a result of project-assisted investments (target 82 kton/yr)

24b. Indirect CO2 emission reductions as a result of project activities targeting a wider audience (target 1.65 Mton cumulatively by 2020)

Overcoming the general institutional barriers to the promotion of energy efficiency

~~25. The regional and other public authorities taking an active role in promoting the energy efficiency investments Immediate Objective:~~

25a. 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)

25b. Partial guarantee fund established and operational (end-of-project target: loans provided for USD 7.5 M investments)

25c. Amount of investments for project-endorsed EE measures in service sector buildings (mid-term target: USD 2.5 M investments)

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

~~26. The demand for energy efficient equipment and projects show an increasing trend in the residential sector:~~

26a. Household awareness of availability and benefits of EE lighting, appliances and equipment (mid-term target: 26.5% of households aware – target to be revised)

26b. No. of households that have purchased EE lighting, appliances or equipment in the last 12 months (no target specified)

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

~~27. The demand for energy efficient equipment and projects show an increasing trend in the residential sector (sic):~~

27a. Hotel and public building owner awareness of availability and benefits of EE lighting, appliances and equipment (end-of-project target: 28.5% of hotels, 10% of public buildings aware)

27b. No. of hotels and public buildings that have purchased EE lighting,

appliances or equipment in the last 12 months (no target specified)

27c. Amount of investments as a result of project development support delivered (mid-term target: support for 15 buildings, 30% leading to investments, no amount specified)

Facilitating the effective replication/utilisation of the project results and lessons learnt

~~28. The activities replicated at the national and, as applicable, regional level:~~

28a. National Energy Efficiency Strategy implemented with project support (target: realized by end of project)

28b. Energy and CO2 emission monitoring of project impact established and operational (target: yearly reporting)

28c. Project results widely disseminated and discussed with stakeholders (no target specified)

Annex 7: List of documents reviewed

The list of documents reviewed has been expanded during the evaluation process, primarily to allow for a detailed analysis of the technical outputs.

Reviewed documents are:

- GEF Project Brief (source: Gefweb)
- Project document dd. 090704
- Project document annexes 1 to 24
- Inception report
- APR 2006
- PIR 2006
- Project steering committee minutes
- Energy Efficiency awareness (consumer survey report)
- Market evaluation EE projects (banking sector survey report)
- Selection of free energy audit reports
- Selection of leaflets and other communication materials

Annex 7: List of persons interviewed

Interviewed stakeholders are:

- Ms. Gordana Lučić, HEP-ESCO
- Ms. Marlene Nice and Ms. Diana Matijas-Vengar, US Embassy
- Mr. Marijan Hohnjec, EPEE Fund
- Prof. Nenad Debrecin, University of Zagreb
- Mr. Daniel Schneider, Ministry of Environmental protection, physical planning and construction
- Ms. Nataša Vetma, World Bank
- Ms. Andreja Neral Lamza and Ms. Ana Pašiček, HBOR
- Ms. Maja Božičević-Vrhovčak, DOOR
- Mr. Željko Tomšić and Mr. Igor Raguzin, Ministry of Economy, Labour and Entrepreneurship
- Đurđica Franić
- Petar Lerotić
- Nada Berek
- Milan Domitrović
- Dražen Božić
- Rajko Šenjug
- Zvonimir Vražić

The following people were interviewed during field visits:

- Duško Radulović
- Miljenko Butorac
- Robert Klanac
- Željko Slavica
- Tomislav Miletić
- Marino Grozdek
- Dragutin Vukalović
- Lidija Vizek -Mrzljak
- Nikola Čupin
- Marijan Debanić
- Zdenka Stojčević
- Vlatko Matijević
- Ksenija Vrebac

Annex 8: Summary interview and field visit reports

Interview summary Ms. Gordana Lučić, HEP-ESCO

Ms. Lučić expressed her appreciation of what the project is doing and feels that the team is operating successfully. There is a good cooperation between the project and HEP-ESCO, following up on each other's work and each doing what it is best at, the project information building owners and advising them on energy saving technologies, and HEP-ESCO assisting in the execution of investments, combined with financing if needed. Less appreciated was the long preparation time of the project, going back ten years and generally with very little activity (before the actual start of the project).

According to Ms. Lučić, there is a real need for more information and education of the public and professionals of the benefits of energy efficient technologies. Professional capacities in the construction sector are good on general issues, but there is not sufficient attention for the possibilities of modern end-use technologies. It would be good if the project could keep informing the market for a longer period.

Interview summary Ms. Marlene Nice and Ms. Diana Matijas-Vengar, US Embassy

The US Embassy's involvement in the project is recent. Globally, the US aims to promote the use of energy efficient technologies, and when the Embassy learned about the project, they contacted their office and offered assistance. A series of three lectures, by a leading US green building expert, was organised in Croatia, to inform professionals about the latest developments in this area.

The Embassy's observation is that the project is going well, and has established a successful grassroots approach to promoting energy efficiency in buildings. Further cooperation with the project in the future is being considered.

Interview summary Mr. Marijan Hohnjec, EPEE Fund

Mr. Hohnjec's involvement with the project is fairly recent (since late 2006). The most

important feature of the project is that it has brought energy efficiency to the forefront, which in turn has led to a number of new initiatives in the country, including activities by the Fund. Whether this will continue in the future depends on the government: without a government decision, the Fund would not initiate new activities in this area.

In the short period that he has been involved, he observed that the project has been successful in marketing energy efficiency, but that tools like the project development facility are not a success yet. His impression is that the project will easily bring forward the planned investments (in energy efficient technologies in buildings) of USD 7.5 million.

Mr. Hohnjec is moderately satisfied with the steering committee, indicating that there is good cooperation and information about ongoing matters, but that it might be beneficial to receive more frequent progress updates.

Interview summary Prof. Nenad Debrecin, University of Zagreb

Prof. Debrecin is head of the university's power systems department and project team leader for the energy efficiency master plan. He reports a very good cooperation between the project and the faculty, with active participation of the project in some university teaching and participation of students and staff in the project. As a result of the project, attention for energy efficiency in Croatia has greatly increased which has led to a strong increase in new students enrolling in energy studies.

In his view, the project has put energy efficiency on the agenda in Croatia and it is now a focal point for the various parties involved with the subject. Together with the Ministry of Economy, Labour and Entrepreneurship, the project has initiated the development of the energy efficiency master plan.

Most important impacts of the project for Croatia can be the municipal energy management activities, with energy centers and promotion of energy saving materials; the nationwide promotion of energy efficient appliances and equipment; the initiation of the master plan. The establishment of an institutional unit for the continuation of the project's work is not yet on the agenda, but it is something to consider, in his views.

Interview summary Mr. Daniel Schneider, Ministry of Environmental protection, physical planning and construction

Mr. Schneider stresses that energy efficiency is now a top priority for Croatia, key to achieving its Kyoto targets (recently ratified). The largest savings potential is in the building sector, thus the importance of the project for the country. The government is preparing a new program, 'House in Order', to follow up on the project with investments in government buildings. It has also asked the EPEE Fund to co-finance promotion materials, to leverage the impact of the project.

The most important achievements of the project so far are the increase in public awareness and the energy audits performed. It is well appreciated that the project has specifically addressed smaller cities, as these often lack the capacities to implement energy efficiency programs on their own. It would be good if the project would prepare a manual or guideline for energy audits, and would arrange certification of auditors.

Communication with the project and within the steering committee is very good, and UNDP is performing its role well. Mr. Schneider suggest a consideration if an energy agency would need to be established, to continue the work of the project in the future. He further suggest initiatives for large public buildings, and especially hospitals.

Interview summary Ms. Nataša Vetma, World Bank

The World Bank and UNDP jointly implement a component of the project, the partial credit guarantee facility implemented by HBOR. Ms. Vetma reports that the facility has not started yet, but that HBOR is about to sign its first

contracts with commercial banks in July 07. These will include up to USD 600,000 guarantee funds on behalf of UNDP, as previously agreed.

The interview was in part conducted jointly with HBOR (see next item). During this meeting it was discussed if the type of investments eligible for the credit guarantee facility should be expanded to include service sector buildings as well as residential buildings (HBOR mentioned to be under the impression that only residential sector buildings would be eligible for funding, according to UNDP requirements).

Interview summary Ms. Andreja Neral Lamza and Ms. Ana Pašiček, HBOR

HBOR is currently negotiating credit guarantees for energy efficiency investments with five commercial banks, and expects to sign first contracts within weeks. Ms. Lamza reports that discussions on the eligibility criteria for projects, especially the type of projects allowable and the maximum simple payback period of investments, are not yet concluded. HBOR is waiting on UNDP to provide their final position on these issues.

Overall, there is some discomfort with UNDP's handling of the credit guarantee facility and the communication with HBOR. In HBOR's experience, there have been frequent changes in UNDP's wishes and long delays in providing guidance on eligibility criteria and related issues. This is blamed for the delay in getting the credit guarantee mechanism operational.

Interview summary Ms. Maja Božičević-Vrhovčak, DOOR

Ms. Božičević, on behalf of national environmental NGO DOOR, has various roles in the project. She has assisted the project in their communication activities and is involved as an expert in the development of the energy efficiency master plan. As part of her university tasks, she has developed a curriculum for future energy advisors and an energy efficiency in buildings course for architects.

Her observations are that the project is doing good work in Croatia, and that especially awareness raising is important. This is a prerequisite for further action,

and therefore cannot be stressed enough. It might be good to put more efforts into education of professionals and the public, to prepare the country for larger energy efficiency investments in the future. The fact that the project is implemented by UNDP, an outside organization, is beneficial, as this provides one independent focal point for end-use energy efficiency activities.

Interview summary Mr. Željko Tomšić and Mr. Igor Raguzin, Ministry of Economy, Labour and Entrepreneurship

Mr. Tomšić is Assistant Minister for Energy, and project director; Mr. Raguzin head of division for the new unit for renewable energy and energy efficiency at the Ministry and deputy project director. Both are closely involved with the project.

The project is very well appreciated at the Ministry, and they receive a very good feedback on project activities from stakeholders in the country. The general public has responded well to awareness raising campaigns, which is beneficial, and the establishment of local energy management systems is an important step forward. A national energy efficiency program is being developed, comprising a 'House in order' component to improve the energy performance of public buildings and further marketing and awareness raising activities.

The Ministry, in collaboration with the project, has recently started the development of a national energy efficiency master plan, providing a national strategy for energy efficiency improvements. A new law, the energy efficiency act, will underpin the strategy, and the plan will include public sector initiatives, measures targeting the residential, industry and transport sectors and the appointment of an institute to monitor the progress made in energy savings.

The Ministry, as co-founder of the EPEE Fund, has pushed for financial support for energy efficiency investments. These are now part of the portfolio of the fund, and comprise a share of the total fund's disbursement of € 50 million which has led to total investments in environmentally sound measures of € 187 million.

Long-term needs of the country include the monitoring of energy efficiency improvements, more action in the public sector, the establishment of a network of energy agencies to deliver municipal and regional projects and a better use of existing legislation to promote energy efficiency.

Field visit report Energo Rijeka - contractor for free energy audits

Overall impression of the project is great. Arrangements with UNDP management were successful as a product of two-way communication which was indicated as the best practice in project implementation. The worst practice was the lack of documentation needed for project activities. The estimated time of project duration is too short to sustain its outcome by itself. Some subventions should be introduced. Also, other similar projects should be financed from EU funds. The demand for energy efficient equipment and projects is increased in residential sector where implementation of the gas-fired boilers is great. Also, the interest for condensing gas-fired boilers is increasing. In service sector, some interest appears for absorption cooling. Solar systems are not yet present. Energo is disposed to implement projects financed from EU funds furthermore. Energo has exigency for additionally education of the stuff and also for more stuff. More documentation about new directives would also be useful.

Energo role was focused on one energy audit for UGO Hotels in Opatija, and they do not collaborate with residential sector within the UNDP project. Nevertheless, they have own department which is concerned with consulting the public about energy efficiency. Overall impression is that Energo, as the gas distribution company is mostly oriented to applications where gas consumption is stimulated.

Field visit report UGO Hotels Opatija - beneficiary of free audit - service sector

Overall impression of the project is good. Until the time planned for the interview, the presentation of energy audit results for UGO Hotels, prepared by Energo Rijeka within the UNDP project has not been accomplished. Consciousness about energy efficient technologies exists. UGO Hotels already performed the renewal of all their

hotels and a series of EE measures has been implemented. They expect the introduction into feasible EE measures. After the presentation they will consider the proposed EE measures and accept those which do not demand higher level of construction works. Closing the hotels for such works is not acceptable for now.

Field visit report Ekonerg Zagreb - contractor for free energy audits

Overall impression of the project is good. Communication with UNDP was successful due to UNDP cooperativeness and prompt reactions. Unlike this, communication with client wasn't very well which was indicated as the worse practice during project implementation. The best thing about the project is just the identification of the problem because the barriers in Croatia are presents. Their opinion is that project cannot sustain it by itself because the number of energy experts in Croatia is not sufficient. There is a need for education and stimulation of the stuff employed in governmental sector which attends of energy. Feedback from energy audits is good because there are some positive signals from clients who call and ask for suggestions. At the beginning it wasn't practice. Ekonerg is disposed to implement projects financed from EU funds, especially through UNDP due to great collaboration.

Ekonerg role was focused on one project, e.g. energy efficiency in city of Sisak, and they do not collaborate with residential sector.

Field visit report Tomislav Miletić - beneficiary of free audit - private sector

Project is very useful, it increases public awareness and has educational character about energy saving. He received information about the project by his professional activities. Best side of the project is information about energy efficiency, and possibility of energy and financial saving applying EE measures. He is aware about available energy efficient technologies and benefits. His expectations were answers about EE measures, energy and economical benefits, and as consequences improvement of the living standard. He was introduced about benefits of the project by auditors and experts from energy institute Hrvoje Požar and he received all required information.

Finally he did not apply any of suggested EE measures because of the satisfactory condition of his house by aspects of energy consumption. He suggests improvement of the condition of financial stimuli by fiscal policy, EE funds or by action of relevant ministry as follow-up work to sustain project outcome.

Field visit report FSB Zagreb - Faculty of Mechanical Engineering and Naval Architecture - contractor for free energy audits

Overall impression of the project is completely positive. There was a necessity for the project like this because project finally has informed public that energy savings can be realized. The worst practice was the lack of required documentation for the activities on of project. Their opinion is that they had to overcome limits of a simple walk through audit. Key issue from their point of view is connection between audits and implementation of recommended measures for energy savings. The implementation should be reinforced by funds. Also, education of clients should be performed because it is very important to know how to approach the banks in right way.

There is a lot of other projects about EE on Faculty of Mechanical Engineering and Naval Architecture with great collaboration amongst. They have done several analyses for their own building (FSB is also beneficiary of free energy audit) but they are still waiting for financing. UNDP should inform them about projects progress because it would be very useful. FSB is disposed to implement projects financed from EU funds furthermore, and is acquainted with EU Directive on Energy Performance of Buildings.

Field visit report Energy corner Zagreb

They consider the project as very useful. There is need for more energy corners in the Zagreb, but also in other cities in Croatia. The project has increased interest amongst citizens for energy efficiency and high quality products that save energy. The insufficient number of energy corners throughout Croatia and need for continuous advertising and promoting actions about energy corner have been stressed. They expected education and informing about EE products for citizens and increase of sales as well. Energy corner

is well equipped by different EE products and information materials. There is a great interest among citizens for high quality and energy efficient products and EE measures. Statistical data on that issue do not exist. Frequently asked questions by citizens are about cost effectiveness and energy saving. They consider energy corner as good opportunity for common exposure and collaboration of different manufacturers on energy efficiency and energy efficient products presentation.

Field visit report Trades union Zagreb (Sindikata Zagreb) - beneficiary of free audit - service sector

They consider the project as very useful, especially if all suggested measures in energy audit could later be implemented. Energetic, ecological and economical aspects of the project are considered as the best of the project, while problems with implementation of suggested measures due to the lack of financing and finance stimuli are considered as the worst. Unequal level of conscious and awareness about EE among managers structure has been identified as the problem as well. They were introduced into the project by UNDP and Shipbuilding Institute. No one of suggested measures from audit has been applied, because there are more owners in that building with different priorities. They could not agree about investment about energy efficiency. They tend to regulate the ownership and legal relationships among building owners (combined service and private sector). They suggest stimulating legislation (fiscal policy, taxation measures) for investments intended to improve energy efficiency and for renewable energy sources.

Field visit report Lidija Vizek – Mrzljak, Knetina Mislava 4, Lug Samoborski - beneficiary of free audit - private sector

Overall impression is that project is very constructive especially when someone is in phase of investments in own house. She is very contented with UNDP's and auditor's team. As the worst practice she indicated poor synchronization of terms between audit and investment. She already has known a lot on available energy efficient technologies and she has got the information about the project through business contacts. Through the energy audit she received all information from

UNDP and FSB audit team, which were helpful. As it was recommended, insulation of the house (facade) and boxes for light protection were implemented. She suggests evaluation of the project's efficiency and estimation of users' satisfaction as the follow up activity.

Field visit report OKIT - City of Glina - local government – beneficiary/partner

Overall impression of the UNDP project is good. Support to project in Glina by UNDP exists and 50% co-financing of the feasibility study for this project is expected. The expectations are financial support in project realization not only at study level. The earlier experience with EE projects was on the feasibility study level unfortunately not in implementation. Interaction with project management was excellent. Citizens are not sufficiently conscious of rational energy use and as the consequence the demand about EE projects among majority of citizens does not exist. EE measures have been promoted and supported by city of Glina and Sisačko Moslovačka County. EE measures have not been applied yet, but preparation has been pending. He expects that this project will be trigger for similar projects in the future about EE. Also expects that this project will be realized with government financial participation and support.

Suggestions for government policy changes are that energy strategy should stimulate the use of renewables. Need for establishment of independent teams for energy management and optimization.

Field visit report Marijan Debančić, Fratersčica 43, Zagreb - beneficiary of free audit - private sector

Overall impression of the project is good. Arrangements with UNDP and auditor's team were good but the problem was the arrangement with constructors. He didn't know much about energy efficient technologies and benefits before. He has got the information about the project from internet and he also participated in the UNDP presentation at Zagreb Fair. Substitution of the fuel oil with gas and implementation of the efficient lighting have already been implemented. Insulation of the house (facade) is going to be implemented.

Field visit report Hotel Panonija Sisak - beneficiary of free audit - service sector

Overall impression of the project is good. The best observed practice is that problems about energy consumptions can be exactly located and indicated. They were already conscious about their energy losses, but didn't know exactly the causes. UNDP presentation was organized for potential beneficiaries for free audit, invited by City of Sisak. Insulation of the building envelope, new PVC joinery and substitution of fuel have been implemented. Also, entire central heating system has been reconstructed. Suggestion for sustain project and similar projects was 'Polluter pays policy'.

Field visit report City of Sisak - local government – beneficiary/partner

Overall impression of the project is good and project has a key role in running actions concerned with EE in the city of Sisak. Communication with UNDP is successful. Public awareness about energy efficiency s increased, but interest for EE projects is still low, due to insufficient knowledge about EE among citizens, insufficient financial resources in private sector and adverse loan conditions for EE investments.

Although earlier experience with EE projects does not exist, EE team of city of Sisak is fully aware about available energy efficient technologies and benefits.

Some projects have been already realized, such as windows replacement and the replacement of thermal and control equipment and control equipment in boiler-room in primary school Braća Ribar, as well as replacement of the boiler room with connection to the cogeneration thermal power plant (TE-TO Sisak) which has better thermal efficiency in primary school Viktorovac. Monitoring of energy consumption is established using the software produced by Ekonerg (contractor for energy audits). Energy costs are decreased by 25-40% in 2006 compared to earlier years. Improvement of envelope thermal insulation and windows replacement with multiple glazed windows with better sealing is planned for all other school buildings. The need for technical information on energy services and EE products and the need for staff education

are recognized. They are suggesting the continuation of the present project or similar projects dealing with EE and expecting realized projects and financial participation. Suggestions for government policy are in direction of interest-rate subsidy or change in fiscal policy for energy efficiency and renewable sources investments. Facilitation of the access to the relevant funds is suggested in order to make easier and simpler access to the financial support for investments in energy efficiency and environment protection.

Field visit report Primary school Braća Ribar Sisak - beneficiary of free audit - service sector

The project has been accepted readily, but similar actions were applied before. Already 3 or 4 years ago, substitution of lights had started. The present action was initiated by ex. headmaster and supported by City of Sisak. Substitution of fuel has been performed and entire central heating system has been reconstructed. Energy costs are significantly reduced. Further, new PVC joinery is going to be implemented. The need for staff education is stressed. Better promotion of EE projects is suggested. The implementation of education on energy and environmental protection in school programs is suggested as well.

Field visit report OTP Bank Sisak - Participant of presentations for banks in the city of Sisak - partner

Overall impression of the project is good. The increasing society awareness about energy efficiency and environmental protection is recognized as the best project practice. The OTP Bank expected to join in promoting positive trends in society and to be recognized as the Bank that supports the energy efficiency. Main obstacles in implementation of EE measures are that the majority of citizens are overmuch indebted. Credit system is too complicated, slow and comprises additional cost. Suggestions for government policy are in direction of interest-rate subsidy or change in fiscal policy for EE investments. The suggestion is that the priority in financing support should be given to groups of building owners which perform regular payments in financial funds for building maintenance. The project initialized actions within the bank to improve credit

line system and to simplify the procedure to get loans aimed to investments in energy efficiency for private building owners.

Field visit report Končar KA (Končar Domestic Appliances) - Beneficiary of PDF funding for development of Smart Home System

Overall impression of the project is very positive and the spreading the EE consciousness among citizens is considered as important and the best practice. As the worst are recognized poor results achieved in availability of financial support and stimuli for implementation on EE technologies. Končar KA company is aware about available energy efficient technologies and benefits, earlier experience with EE projects and audits does not exist. Končar expects the improvement of implementation at all levels (private and service sector) from legislative aspects to different kind of financial stimuli measures. Company produced new products were developed with aim to improve energy efficiency of domestic appliances and manage the consumption of electric energy in domestic economy. Both products were supported by UNDP project. As the main obstacles in implementation of EE measures they recognize too low financial and fiscal stimuli for implementation of EE technologies. Suggestions for follow-up work to sustain project outcome, on energy corner example: Problem is that energy corner occupied valuable commercial part of the space in this shop and does not accomplish its function as it was expected. Energy corner needs the continuous advertising campaign. Need for more stimuli in financial support of national manufacturers of energy efficient products, and legislative stimuli to implementation the EE products in design of new buildings has been stressed.

Field visit report Zvonimir Vražić - beneficiary of free audit - private sector

Project is rated as very useful. Beneficiary was introduced into a project by flyer, and later he got information via internet. He received all requested information by personal contact during energy audit visits, audit reports and meetings with UNDP, he is satisfied and that helped him to improve his knowledge about EE measures. He applied domestic appliances with "A" class of energy efficiency. He is planning to

reconstruct and improve envelope insulation, roof and attic insulation, change the classic light bulb with fluorescent compact light, install the thermostat valves on radiators and build in new solar collectors and boiler for hot sanitary water. He considers financial deficiency, and low quality of loans for financing investment in building sector as main obstacles in implementation of EE measures. He tried to find out the possibility for official stimulus in some governmental institutions, but no one gave him back any positive information about stimuli for energy efficient investments.

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