

Document of  
The World Bank

Report No: ICR00001557

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(IBRD-71980 TF-52141)

ON A  
LOAN IN THE AMOUNT OF EUR4.4 MILLION (US\$5 MILLION EQUIVALENT)

TO

HRVATSKA ELEKTROPRIVREDA D.D.  
(THE NATIONAL POWER UTILITY)

WITH THE GUARANTEE OF THE REPUBLIC OF CROATIA

AND

A GRANT FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US\$7.0 MILLION

TO

THE REPUBLIC OF CROATIA

FOR

AN ENERGY EFFICIENCY PROJECT

December 28, 2010

Sustainable Development Department  
Central Europe and the Baltic Countries Unit  
Europe and Central Asia Region

## **CURRENCY EQUIVALENTS**

(Exchange Rate Effective November 30, 2010)

Currency Unit = Kuna (Kn)

Kn 1.00 = US\$ 0.18

US\$ 1.00 = Kn 5.61

## **FISCAL YEAR**

January 1 – December 31

## **ABBREVIATIONS AND ACRONYMS**

|                 |   |
|-----------------|---|
| CAS             | Country Assistance Strategy                           |
| CO <sub>2</sub> | Carbon Dioxide  |
| CPS             | Country Partnership Strategy                          |
| EE              | Energy Efficiency                                     |
| EMF             | Environmental Management Framework                    |
| ESPC            | Energy Service Performance Contract                   |
| ESCO            | Energy Service Company                                |
| ETS             | European Trading Scheme                               |
| FI              | Financial Institution                                 |
| FM              | Financial Management                                  |
| GFA             | Grant Framework Agreement                             |
| GEF             | Global Environment Facility                           |
| GEO             | Global Environmental Objective                        |
| GoC             | Government of Croatia                                 |
| HBOR            | Croatian Development Bank                             |
| HEP             | Hrvatska Elektroprivreda d.d.                         |
| HEP ESCO        | Energy Service Company subsidiary of HEP              |
| IBRD            | International Bank for Reconstruction and Development |
| ICR             | Implementation Completion (and Results) Report        |
| MTR             | Mid-Term Review                                       |
| MoELE           | Ministry of Economy, Labor and Entrepreneurship       |
| M&E             | Monitoring and Evaluation                             |
| M&V             | Measurement and Verification of Performance           |
| UNDP            | United Nations Development Programme                  |
| PAD             | Project Appraisal Document                            |
| PCG             | Partial Credit Guarantee                              |
| RE              | Renewable Energy                                      |
| toe             | Tons of oil equivalent                                |

Vice President: Philippe H. Le Houerou

Country Director: Peter C. Harrold

Sector Manager: Ranjit Lamech

Project Team Leader: Peter Johansen

ICR Author: Claudia Ines Vasquez Suarez

**CROATIA  
ENERGY EFFICIENCY PROJECT**

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| <b>A. Basic Information</b>  |                   |                      |                                    |
|--|-------------------|----------------------|------------------------------------|
| Country:   | Croatia           | Project Name:        | ENERGY EFFICIENCY PROJECT (IBRD)   |
| Project ID:  | P079978,P071461   | L/C/TF Number(s):    | IBRD-71980,TF-52141                |
| ICR Date:  | 12/28/2010        | ICR Type:            | Core ICR                           |
| Lending Instrument:  | SIL,SIL           | Borrower:            | HRVATSKA ELEKTROPRIVREDA D.D.(HEP) |
| Original Total Commitment:   | USD 5.0M,USD 7.0M | Disbursed Amount:    | USD 5.8M,USD 6.9M                  |
| <b>Environmental Category: F,F</b>   |                   | <b>Focal Area: C</b> |                                    |
| <b>Implementing Agencies:</b>  |                   |                      |                                    |
| Hrvatska Banka za Obnovu i razvitak (Croatian Bank for Reconstruction and Development) |                   |                      |                                    |
| Hrvatska Elektroprivreda (Croatian Electricity Company)                                |                   |                      |                                    |
| <b>Cofinanciers and Other External Partners:</b>                                       |                   |                      |                                    |

| <b>B. Key Dates</b>                               |            |                   |               |                          |
|---|------------|-------------------|---------------|--------------------------|
| <b>ENERGY EFFICIENCY PROJECT (IBRD) - P079978</b> |            |                   |               |                          |
| Process   | Date       | Process           | Original Date | Revised / Actual Date(s) |
| Concept Review:                                   | 03/19/2001 | Effectiveness:    | 04/08/2004    | 04/08/2004               |
| Appraisal:  | 03/21/2003 | Restructuring(s): |               | 06/29/2010               |
| Approval:   | 10/07/2003 | Mid-term Review:  | 03/01/2006    | 05/07/2007               |
|   |            | Closing:          | 06/30/2010    | 06/30/2010               |

| <b>CROATIA - ENERGY EFFICIENCY PROJECT (GEF) - P071461</b> |            |                   |               |                          |
|--|------------|-------------------|---------------|--------------------------|
| Process  | Date       | Process           | Original Date | Revised / Actual Date(s) |
| Concept Review:  | 03/19/2001 | Effectiveness:    |               | 04/08/2004               |
| Appraisal:   | 03/21/2003 | Restructuring(s): |               | 05/25/2010               |
| Approval:  | 10/07/2003 | Mid-term Review:  | 03/01/2006    | 05/07/2007               |
|  |            | Closing:          | 06/30/2010    | 06/30/2010               |

| <b>C. Ratings Summary</b>            |                         |
|--------------------------------------|-------------------------|
| <b>C.1 Performance Rating by ICR</b> |                         |
| Outcomes                             | Moderately Satisfactory |
| GEO Outcomes                         | Moderately Satisfactory |
| Risk to Development Outcome          | Low or Negligible       |
| Risk to GEO Outcome                  | Low or Negligible       |
| Bank Performance                     | Moderately Satisfactory |
| Borrower Performance                 | Satisfactory            |

| <b>C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)</b> |                         |                               |                |
|---|-------------------------|-------------------------------|----------------|
| <b>Bank</b>   | <b>Ratings</b>          | <b>Borrower</b>               | <b>Ratings</b> |
| Quality at Entry  | Moderately Satisfactory | Government:                   | Satisfactory   |
| Quality of Supervision:   | Moderately Satisfactory | Implementing Agency/Agencies: | Satisfactory   |
| Overall Bank Performance  | Moderately Satisfactory | Overall Borrower Performance  | Satisfactory   |

| <b>C.3 Quality at Entry and Implementation Performance Indicators</b> |                         |                                 |                |
|---|-------------------------|---------------------------------|----------------|
| <b>ENERGY EFFICIENCY PROJECT (IBRD) - P079978</b>                     |                         |                                 |                |
| <b>Implementation Performance</b>                                     | <b>Indicators</b>       | <b>QAG Assessments (if any)</b> | <b>Rating:</b> |
| Potential Problem Project at any time (Yes/No):                       | Yes                     | Quality at Entry (QEA)          | None           |
| Problem Project at any time (Yes/No):                                 | No                      | Quality of Supervision (QSA)    | None           |
| DO rating before Closing/Inactive status                              | Moderately Satisfactory |                                 |                |

| <b>CROATIA - ENERGY EFFICIENCY PROJECT (GEF) - P071461</b> |                         |                                 |                |
|--|-------------------------|---------------------------------|----------------|
| <b>Implementation Performance</b>                          | <b>Indicators</b>       | <b>QAG Assessments (if any)</b> | <b>Rating:</b> |
| Potential Problem Project at any time (Yes/No):            | No                      | Quality at Entry (QEA)          | None           |
| Problem Project at any time (Yes/No):                      | No                      | Quality of Supervision (QSA)    | None           |
| GEO rating before Closing/Inactive Status                  | Moderately Satisfactory |                                 |                |

| <b>D. Sector and Theme Codes</b>                       |                 |               |
|--|-----------------|---------------|
| <b>ENERGY EFFICIENCY PROJECT (IBRD) - P079978</b>      |                 |               |
|  | <b>Original</b> | <b>Actual</b> |
| <b>Sector Code (as % of total Bank financing)</b>      |                 |               |
| District heating and energy efficiency services        | 100             | 100           |
| <b>Theme Code (as % of total Bank financing)</b>       |                 |               |
| Climate change   | 40              | 40            |
| Conflict prevention and post-conflict reconstruction   | 20              | 20            |
| Infrastructure services for private sector development | 20              | 20            |
| Small and medium enterprise support                    | 20              | 20            |

| <b>CROATIA - ENERGY EFFICIENCY PROJECT (GEF) - P071461</b> |                 |               |
|--|-----------------|---------------|
|  | <b>Original</b> | <b>Actual</b> |
| <b>Sector Code (as % of total Bank financing)</b>          |                 |               |
| District heating and energy efficiency services            | 100             | 100           |
| <b>Theme Code (as % of total Bank financing)</b>           |                 |               |
| Climate change   | 67              | 67            |
| Small and medium enterprise support                        | 33              | 33            |

| <b>E. Bank Staff</b>                              |                             |                    |
|---|-----------------------------|--------------------|
| <b>ENERGY EFFICIENCY PROJECT (IBRD) - P079978</b> |                             |                    |
| <b>Positions</b>                                  | <b>At ICR</b>               | <b>At Approval</b> |
| Vice President:                                   | Philippe H. Le Houerou      | Shigeo Katsu       |
| Country Director:                                 | Peter C. Harrold            | Anand K. Seth      |
| Sector Manager:                                   | Ranjit J. Lamech            | Peter D. Thomson   |
| Project Team Leader:                              | Peter Johansen              | Peter Johansen     |
| ICR Team Leader:                                  | Peter Johansen              |                    |
| ICR Primary Author:                               | Claudia Ines Vasquez Suarez |                    |

| CROATIA - ENERGY EFFICIENCY PROJECT (GEF) - P071461 |                             |                  |
|---|-----------------------------|------------------|
| Positions   | At ICR                      | At Approval      |
| Vice President:                                     | Philippe H. Le Houerou      | Shigeo Katsu     |
| Country Director:                                   | Peter C. Harrold            | Anand K. Seth    |
| Sector Manager:                                     | Ranjit J. Lamech            | Peter D. Thomson |
| Project Team Leader:                                | Peter Johansen              | Peter Johansen   |
| ICR Team Leader:                                    | Peter Johansen              |                  |
| ICR Primary Author:                                 | Claudia Ines Vasquez Suarez |                  |

## F. Results Framework Analysis

### Project Development Objectives (from Project Appraisal Document)

The objective of the proposed project is to increase the demand for and supply of energy efficiency projects and services. This will be achieved by:

(i) creating a core developer of energy efficiency projects within HEP, the national power utility. This new energy service company (HEP ESCO) will develop, finance and implement energy efficiency projects on a commercial, for-profit basis, using local businesses as key delivery agents; and

(ii) providing a framework for other emerging service providers to tap into new energy efficiency business opportunities.

### Revised Project Development Objectives (as approved by original approving authority)

The Project Development Objectives were not revised.

### Global Environment Objectives (from Project Appraisal Document)

The project's global objective is to overcome three barriers to energy efficiency market development and financing: (i) lack of capacity and know-how; (ii) lack of development and project financing; and (iii) lack of consumer demand. Removal of these barriers will create a sustainable market for economically viable energy efficiency projects and services, and achieve national and global environmental benefits.

### Revised Global Environment Objectives (as approved by original approving authority)

The Global Environment Objectives were not revised.

#### (a) PDO Indicator(s)

| Indicator              | Baseline Value                 | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|------------------------|--------------------------------|--|--------------------------------|---|
| <b>Indicator 1 :</b>   | HEP ESCO customer satisfaction |  |                                |   |
| Value (quantitative or | N.A.                           | 95   |                                | 90  |



|                                     |   |            |  |            |
|-------------------------------------|---|------------|--|------------|
| Qualitative)                        |   |            |  |            |
| Date achieved                       | 09/11/2004  | 06/30/2010 |  | 09/30/2010 |
| Comments (incl. % achievement)      | Target achieved as measured by a customer satisfaction survey.  |            |  |            |
| <b>Indicator 2 :</b>                | Number of target market segments with significant energy efficiency activity  |            |  |            |
| Value (quantitative or Qualitative) | 1   | 9          |  | 6          |
| Date achieved                       | 09/11/2004  | 06/30/2010 |  | 09/30/2010 |
| Comments (incl. % achievement)      | HEP ESCO has at least 2 active projects in 7 of the 9 market segments identified in the PAD. HEP ESCO was active in the following segments: schools, hospitals, offices, industry, street lighting, and cogeneration. |            |  |            |
| <b>Indicator 3 :</b>                | Number of firms actively engaged in provision of energy efficiency services   |            |  |            |
| Value (quantitative or Qualitative) | 1   | 5          |  | 11         |
| Date achieved                       | 09/11/2004  | 06/30/2010 |  | 09/30/2010 |
| Comments (incl. % achievement)      | Target achieved. A market survey indicates that there are a large number of organizations that provide related EE services in specific market segments; approximately 11 of which work on a commercial basis.         |            |  |            |
| <b>Indicator 4 :</b>                | Number of local banks engaged in energy efficiency financing and lending activity   |            |  |            |
| Value (quantitative or Qualitative) | 1   | 7          |  | 5          |
| Date achieved                       | 09/11/2004  | 06/30/2010 |  | 09/30/2010 |
| Comments (incl. % achievement)      | 3 Banks have signed GFAs with HBOR and currently provide financing to EE; 2 other banks have recently begun to offer specific EE loans.   |            |  |            |
| <b>Indicator 5 :</b>                | Track record of performance of commercially viable energy efficiency projects, as measured by number of incidents reported of project failure after contract signature.   |            |  |            |
| Value (quantitative or Qualitative) | 0   | 3          |  | 2          |
| Date achieved                       | 09/11/2004  | 06/30/2010 |  | 09/30/2010 |
| Comments (incl. % achievement)      | HEP ESCO reported that only 2 projects (out of 31) were stopped due to changes in management and changes in regulations for public procurement following the enactment of the Budget Law in 2010.                     |            |  |            |

**(b) GEO Indicator(s)**

| Indicator                           | Baseline Value  | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|-------------------------------------|---|--|--------------------------------|---|
| <b>Indicator 1 :</b>                | Increase in availability of energy efficiency products in Croatia (%) as defined by HEP ESCOs total expenditures for goods in Croatian currency.  |  |                                |   |
| Value (quantitative or Qualitative) | N/A   | 85   |                                | 100   |
| Date achieved                       | 09/11/2004  | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | Target achieved. HEP ESCO reported that all its expenditure in goods is in Kuna; thereby indicating that there is a robust distribution network of EE products.   |  |                                |   |
| <b>Indicator 2 :</b>                | Price premium of energy efficiency products in Croatia relative to typical EU prices.   |  |                                |   |
| Value (quantitative or Qualitative) | N/A   | max 5%   |                                | 0%  |
| Date achieved                       | 09/11/2004  | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | Target achieved. According to distributors and suppliers of EE equipment, there is no significant difference between the prices of EE goods sold in Croatia and those in other EU countries.  |  |                                |   |
| <b>Indicator 3 :</b>                | Number of added Croatian citizens accepting energy efficiency as a normal way of life.  |  |                                |   |
| Value (quantitative or Qualitative) | 0   | 1,000,000  |                                | 1,300,000   |
| Date achieved                       | 09/11/2004  | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | Target achieved.  |  |                                |   |
| <b>Indicator 4 :</b>                | Number of target market segments with significant energy efficiency activity (same as above)  |  |                                |   |
| Value (quantitative or Qualitative) | 1   | 9  |                                | 7   |
| Date achieved                       | 09/11/2004  | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | Target partially achieved. In addition to HEP ESCO activities in the above mentioned segments (see PDO indicator 2), other EE services providers are active in the following sectors: municipal lighting, hotels, schools, hospitals, and cogeneration. |  |                                |   |
| <b>Indicator 5 :</b>                | Reduction in greenhouse gas emissions at project level (cumulative CO2 reductions in million tons).   |  |                                |   |
| Value (quantitative or Qualitative) | 0   | 1.0  |                                | 0.3   |
| Date achieved                       | 09/11/2004  | 06/30/2010                                       |                                | 09/30/2010  |
| Comments                            | Shortfall in CO2 reduction is due to lower total energy savings than forecasted at  |  |                                |   |

|                       |  |
|-----------------------|--|
| (incl. % achievement) | appraisal resulting from a higher share of EE projects in the municipal lighting and public buildings sectors in the project portfolio with longer payback time. |
|-----------------------|--|

**(c) Intermediate Outcome Indicator(s)**

| Indicator                           | Baseline Value   | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|-------------------------------------|--|--|--------------------------------|---|
| <b>Indicator 1 :</b>                | Value of EE projects implemented by HEP ESCO (US\$ million)  |  |                                |   |
| Value (quantitative or Qualitative) | 0  | 6.8  |                                | 4.7   |
| Date achieved                       | 09/11/2004   | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | A total of 31 EE projects were implemented by HEP ESCO for a total cumulative value of US\$29.5 million in EE investments, as compared to US\$ 28 million forecasted in the PAD                              |  |                                |   |
| <b>Indicator 2 :</b>                | HEP ESCO net income (US\$ million)   |  |                                |   |
| Value (quantitative or Qualitative) | 0  | 0.7  |                                | 0.02  |
| Date achieved                       | 09/11/2004   | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | During 2009, HEP ESCO and its clients were severely affected by the global economic crisis. Its 2009 net income is much lower than the 0.3 million achieved in 2008 and the positive trend in previous years |  |                                |   |
| <b>Indicator 3 :</b>                | Lending volume to HEP ESCO by local Banks (US\$ million)   |  |                                |   |
| Value (quantitative or Qualitative) | 0  | 5.1  |                                | 23.4  |
| Date achieved                       | 09/11/2004   | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | Target achieved  |  |                                |   |
| <b>Indicator 4 :</b>                | Number of GFAs signed  |  |                                |   |
| Value (quantitative or Qualitative) | 0  | 4  |                                | 3   |
| Date achieved                       | 09/11/2004   | 06/30/2010                                       |                                | 09/30/2010  |
| Comments (incl. % achievement)      | Important efforts were made by HBOR to attract banks and sign GFAs despite the   |  |                                |   |
| <b>Indicator 5 :</b>                | Disbursements in Guarantee Facility Account (US\$ million)   |  |                                |   |
| Value (quantitative or Qualitative) | 0  | 1.2  |                                | 0.9   |
| Date achieved                       | 09/11/2004   | 06/30/2010                                       |                                | 09/30/2010  |
| Comments                            | Grant proceeds were reallocated to HEP ESCO  |  |                                |   |

|                       |  |
|-----------------------|--|
| (incl. % achievement) |  |
|-----------------------|--|

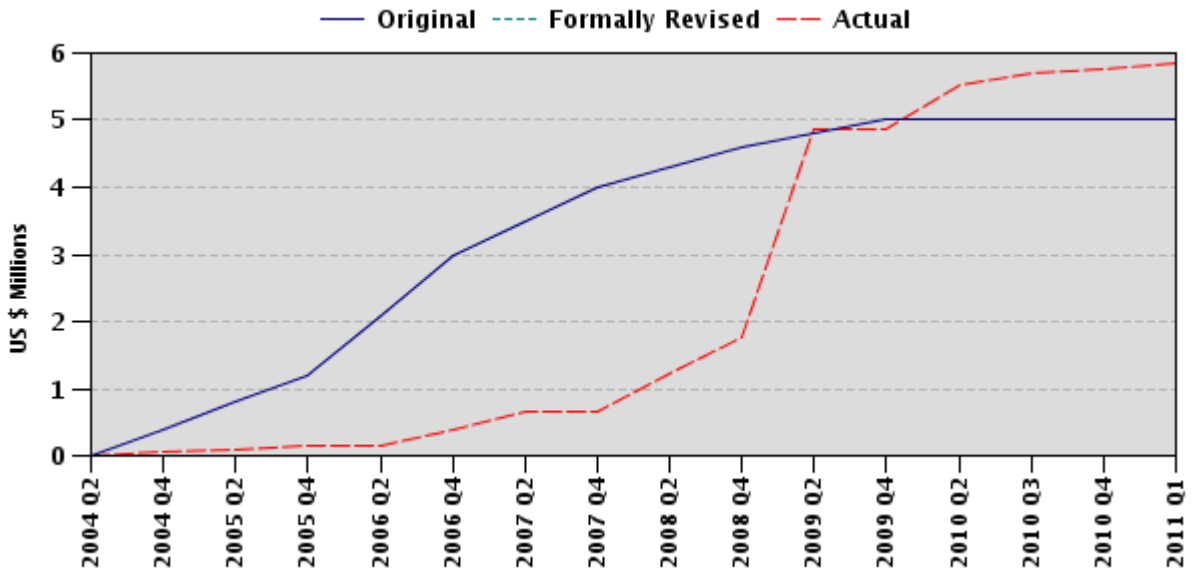
### G. Ratings of Project Performance in ISRs

| -   |                   |    |     |    |                                     |           |
|-----|-------------------|----|-----|----|-------------------------------------|-----------|
| No. | Date ISR Archived | DO | GEO | IP | Actual Disbursements (USD millions) |           |
|     |                   |    |     |    | Project 1                           | Project 2 |
| 1   | 11/25/2003        | S  | S   | S  | 0.00                                | 0.00      |
| 2   | 05/28/2004        | S  | S   | S  | 0.00                                | 0.00      |
| 3   | 11/24/2004        | S  | S   | S  | 0.10                                | 0.74      |
| 4   | 04/29/2005        | S  | S   | S  | 0.10                                | 0.74      |
| 5   | 06/06/2006        | S  | MS  | MS | 0.40                                | 1.46      |
| 6   | 12/04/2006        | S  | MS  | MS | 0.65                                | 1.46      |
| 7   | 09/05/2007        | S  | MS  | MS | 1.06                                | 2.10      |
| 8   | 04/15/2008        | S  | MS  | MS | 1.77                                | 2.70      |
| 9   | 04/14/2009        | S  | MS  | MS | 4.87                                | 4.70      |
| 10  | 03/22/2010        | MS | MS  | MS | 5.52                                | 5.18      |
| 11  | 06/30/2010        | MS | MS  | MS | 5.76                                | 5.47      |

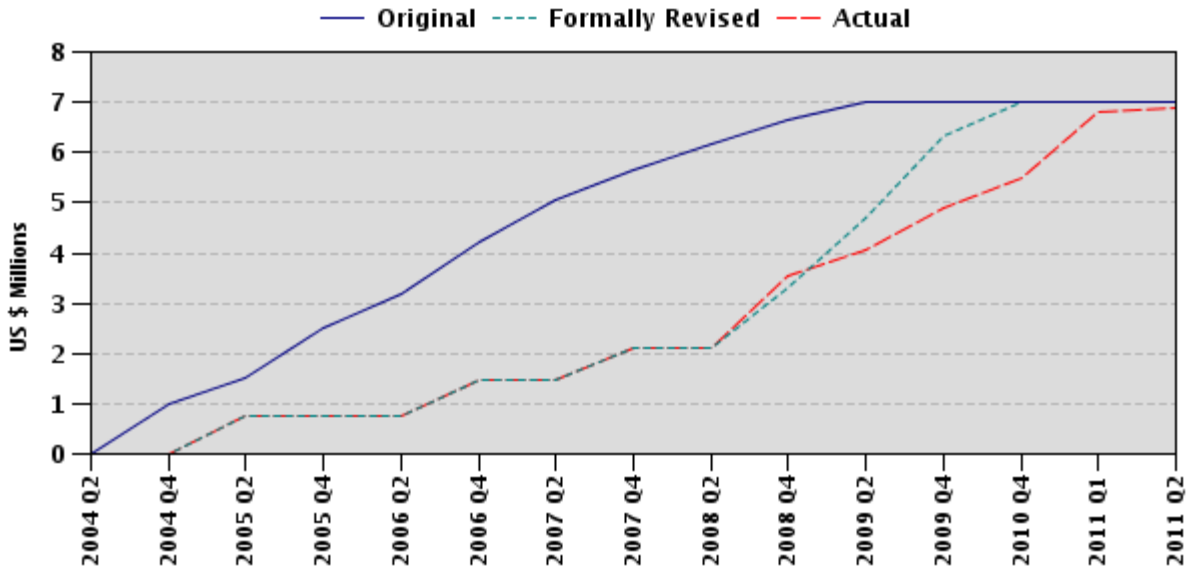
### H. Restructuring (if any)

| Restructuring Date(s) | Board Approved |            | ISR Ratings at Restructuring |     |    | Amount Disbursed at Restructuring in USD millions |           | Reason for Restructuring & Key Changes Made |
|-----------------------|----------------|------------|------------------------------|-----|----|---|-----------|---|
|                       | PDO Change     | GEO Change | DO                           | GEO | IP | Project1  | Project 2 |   |
| 05/25/2010            |                | N          |                              |     | MS |   | 5.47      | Second Reallocation of Grant Funds          |
| 06/29/2010            | N              |            | MS                           |     | MS | 5.76  |           | Second Reallocation of Loan Funds           |

**I. Disbursement Profile**  
P079978



P071461



## 1. Project Context, Development and Global Environment Objectives Design

### 1.1 Context at Appraisal

**Country and Sector Background:** In 2001, Croatia faced a growing imbalance of energy demand and domestic supply. While two-thirds of the country's energy requirements were met from indigenous resources, mainly oil and gas, domestic production of these primary fuels was declining. Between 1995 and 2001, electricity imports almost doubled and accounted for 22% of domestic consumption. Compounding the energy supply problem was a very inefficient use of energy on the demand side. It was estimated that at least US\$100 million annually in energy costs could be avoided by investing in energy efficient measures across all sectors in the economy. Energy savings potential was estimated at about 25% of energy consumption in the district heating sector, 20-30% in the buildings sector, and another 50% in street lighting.

The Energy Law (adopted in 2001) and the Government's Energy Strategy (2002) called for the implementation of concrete programs to increase energy efficiency and develop renewable energy resources. According to the Law, local authorities had to participate in national energy efficiency (EE) programs, integrate EE activities into their development plans, establish local EE action plans, and report annually to the government on the savings achieved. However, by 2001, no private or public entity was developing nor implementing EE projects in Croatia.

**Barriers to energy efficiency:** The most daunting barriers to EE investments were:

- *Lack of financing.* No financial institution was involved in financing EE projects due to their small size, high transaction costs and the perceived low creditworthiness of end users, who pledged assets as well as revenues streams for energy efficiency investments. As a result, commercial banks were lukewarm about providing longer-term financing for EE projects.
- *Lack of capacity and know-how among key stakeholders.* Information on the effectiveness of EE measures was lacking. Moreover, service and equipment suppliers, lenders, investors, users, and other potential actors were unwilling or unable to learn more about the ways to structure, finance, and operate energy-savings projects.
- *Lack of consumer demand.* Despite the significant energy savings potential, end users—municipalities, industries, commercial building owners, and residential building occupants—did not have enough information and therefore, did not make decisions to invest in EE projects.

**Rationale for Bank assistance:** The project supported two objectives laid out in the World Bank's 1999 Country Assistance Strategy for Croatia: (i) make the institutional changes and investments needed to ensure an efficient energy supply in an environmentally sustainable manner at realistic but socially acceptable prices and (ii) achieve financial sustainability and efficient operations for public enterprises.

### 1.2 Original Project Development Objectives (PDO)

The objective of the proposed project was to increase the demand for and supply of energy efficiency projects and services. This would be achieved by:

- (i) Creating a core developer of EE projects within Hrvatska Elektroprivreda d.d. (HEP—the national power utility). This new energy service company (HEP ESCO) would develop, finance and implement EE projects on a commercial, for-profit basis, using local businesses as key delivery agents; and
- (ii) Providing a framework for other emerging service providers to tap into new energy efficiency business opportunities.

### 1.3 Original Global Environment Objectives (GEO)

The project's global environment objective was to overcome three barriers to energy efficiency market development and financing: (i) lack of capacity and know-how; (ii) lack of development and project financing; and (iii) lack of consumer demand.

Removal of these barriers would create a sustainable market for economically viable energy efficiency projects and services, and achieve national and global environmental benefits.

#### Key PDO and GEO indicators:

| PDO:   | Outcome Indicators:   |
|--|---|
| Increase in demand for and supply of energy efficiency projects and services           | <ul style="list-style-type: none"> <li>▪ Market response and consumer acceptance of the HEP ESCO offerings</li> <li>▪ Number of firms actively engaged in the provision of energy efficiency services</li> <li>▪ Number of local banks engaged in energy efficiency financing, and lending activity</li> <li>▪ Track record of performance of commercially viable energy efficiency projects</li> </ul> |
| GEO:   | Outcome Indicators:   |
| Overcoming barriers to energy efficiency market development and financing              | <ul style="list-style-type: none"> <li>▪ Availability and price of energy efficiency products in Croatia</li> <li>▪ Market penetration and growth by market segment and types of users</li> <li>▪ Reduction in greenhouse gas emissions at project level</li> </ul>   |
| Outputs:   | Output Indicators:  |
| Increased efficiency in supply and use of energy                                       | <ul style="list-style-type: none"> <li>▪ HEP ESCO sales and profitability</li> <li>▪ Energy savings achieved</li> <li>▪ Payback period per project</li> <li>▪ Value of energy efficiency projects implemented by other energy service providers</li> </ul>  |
| Increased capacity to assess and select commercially viable energy efficiency projects | <ul style="list-style-type: none"> <li>▪ Share of projects reaching financial closure</li> </ul>  |
| Increased participation of banks in financing of energy efficiency projects            | <ul style="list-style-type: none"> <li>▪ Local bank's lending volume and co-financing mix</li> <li>▪ Commercial lending supported by the GEF Credit Guarantee Facility</li> </ul>   |

### 1.4 Revised PDO

The PDO was not revised.

### 1.5 Revised GEO

The GEO was not revised.

### 1.6 Main Beneficiaries

The project's target population was users of electricity and heat, including owners and occupants of buildings of different types (e.g., housing cooperatives, commercial enterprises, public service facilities such as schools and hospitals), which would benefit from modernization of existing facilities, lower budgetary pressures for maintenance, and increased affordability of energy services.

### 1.7 Original Components

The project had four components (see details in table below):

**(1) Energy saving investments.** The component was to be implemented by HEP ESCO under Energy Services Performance Contracts (ESPCs) with clients managing public and private buildings, public lighting, water pumping systems, and small cogeneration/district heating systems. IBRD financing (US\$5 million) was expected to trigger a total of US\$32.5 million in energy savings investments with the remaining financing coming from local banks and end-users.

**(2) HEP ESCO Project Development and Financing.** A GEF contingent grant of US\$3.6 million would finance preliminary project development costs and provide bridge financing of project design services and initial energy saving investments. The component consisted of two elements:

- *HEP ESCO project development* (US\$0.6 million from the GEF grant) to fund services for pre-contract analysis to identify good candidate projects.
- *HEP ESCO early project financing* (US\$3 million from the GEF grant) to provide bridge financing of project design services and initial energy saving investments.

**(3) A Credit Enhancement Mechanism** at the Croatian Development Bank (HBOR) to enhance the creditworthiness of HEP ESCO, other energy service providers and end users (US\$2.0 million). The component consisted of two parts:

- *A commercial loan facility* (US\$0.8 million from the GEF grant). The facility would act as a first loss reserve for HEP ESCO to mitigate end user credit risks that HEP ESCO would be exposed to when financing projects directly.
- *A Partial Credit Guarantee (PCG) program* (US\$1.2 million from the GEF grant) to underwrite EE lending by commercial banks. The PCG program at HBOR was also the administrator of credit risk funds from UNDP's GEF project "Removing Barriers to Improving Energy Efficiency of the Residential and Service Sectors." Joint administration of guarantee funds from the World Bank/GEF and UNDP/GEF projects was expected to improve both programs' overall capacity to leverage private lending to the energy efficiency sector.

**(4) Training, information dissemination, outreach, and monitoring and verification.** A contingent GEF grant of US\$1.4 million would provide technical assistance to HEP ESCO staff and project partners, other energy efficiency businesses, HBOR, and appropriate nonprofit or consumer groups. An important aspect of the component was the capacity building and transfer of management experience that HEP ESCO would receive from an experienced international ESCO "Strategic Partner."

## **1.8 Revised Components**

The components were not revised.

## **1.9 Other significant changes**

There were no major changes in the project's design, scope and scale, and implementation arrangements. However, several reallocations of both IBRD and GEF proceeds were made:

- Following recommendations from the Mid-Term Review (MTR), GEF proceeds from the Credit Enhancement Facility (US\$0.8 million) were reallocated to the Guarantee Program at HBOR on December 20, 2007. The facility was no longer necessary because HEP ESCO continued to access commercial credits to finance its EE projects through HEP.
- At the same time, Technical Assistance (TA) funds to support HEP ESCO and HBOR were increased by US\$0.6 million. In order to launch the PCG program at HBOR, additional TA budget (of about US\$0.5 million) was allocated to finalize the Grant Framework Agreements (GFAs) with Banks and provide them with training and marketing services.
- By 2009, although three banks had signed GFAs with HBOR and two guarantees had been signed for a total of US\$0.9 million, the demand for guarantee products was lower than expected. The product had failed to attract increased interest from both borrowers and commercial banks. On May 25 2010, following a request from HBOR, the GEF project was restructured and grant proceeds (US\$1.1 million) were reallocated from the PCG program at HBOR to the Energy Savings component (HEP ESCO).
- Finally, other reallocations of IBRD proceeds were made during project implementation as it proved difficult to predict the distribution of HEP ESCO contractor costs for goods, works, and supply and installation. A first reallocation was made on November 7, 2008. Subsequently, the project was restructured on June 30, 2010.



## 2. Key Factors Affecting Implementation and Outcomes

### 2.1 Project Preparation, Design and Quality at Entry

#### Building on lessons learned

The project's design was based on highly innovative concepts and market mechanisms that were unknown in Croatia and in other countries in the Europe and Central Asia region. Important efforts were made to incorporate international ESCO practitioners' expertise in the project's design. During two international workshops, the need to access early project development funds and to transfer know-how was found crucial to the success of an ESCO. Project design of the GEF Contingent Grant Facility and Technical Assistance components benefitted from these lessons learnt. Experience gathered during the early implementation phases of the Bank's and IFC's Energy Efficiency projects in Romania and Hungary which included innovative approaches to diminish risk and leverage GEF Funds with private financing were also incorporated in the design of the PCG.

#### Collection of baseline data and pipeline assessment

Prior to the approval of the project, HEP commissioned an EE market assessment to determine the market potential and identify specific target market segments for HEP ESCO. The assessment identified a pipeline of EE projects. This allowed HEP ESCO to finance projects, immediately after project effectiveness and to obtain early, quantifiable results.

#### Risks and Risk Mitigation Measures

The table below shows the risks and mitigation measures identified in the Project Appraisal Document (PAD) along with a brief description of how these risks evolved during implementation. Risk Ratings: S (Substantial Risk), M (Moderate Risk), N (Negligible or Low Risk).

| Risk   | Risk rating | Risk mitigation measures   | Results   |
|--|-------------|--|---|
| <b>From outputs to objective</b>   |             |  |   |
| Projected savings are not achieved   | M           | <ul style="list-style-type: none"> <li>▪ Deploy engineering and financial consultants using best practices</li> <li>▪ Retain a strategic partner, allowing ESCO to tap the experience of an international partner at or prior to startup</li> <li>▪ Compare savings predictions against industry benchmarks during project due diligence and as a condition for grant</li> <li>▪ Share risks among technology providers, service providers, and project sponsors</li> </ul>  | Project energy savings were achieved at 30%. Projects were implemented using best practice in engineering. However, projected energy savings were lower than expected. The main reason was the higher than expected share in the portfolio of public building and street lighting projects with lower pay-back times. |
| Price signals do not motivate service providers and consumers to implement energy saving investments | M           | <ul style="list-style-type: none"> <li>▪ Implement energy efficiency measures consistent with the project's economic circumstances.</li> <li>▪ Continue Bank and other donors' assistance support to pricing reforms</li> </ul>  | Energy prices in Croatia were further adjusted to cost recovery levels. Between 2002 and 2010, electricity prices in Croatia (12.1 UScents/KWh on average) were higher than those prevailing in Central and South Eastern European countries (8 - 10 US\$ cents /KWh)   |
| Local cofinanciers do not accept energy cost savings as collaterals                                  | S           | <ul style="list-style-type: none"> <li>▪ Bring co-financing to refinance projects after construction period and when first year savings are demonstrated</li> <li>▪ Establish ESCO's credibility to develop and implement commercially viable projects</li> <li>▪ Disseminate international experiences and successes from early projects</li> <li>▪ Give co-financiers comfort by taking loans during the first six years onto the HEP ESCO balance sheet, supported by HEP</li> <li>▪ Seek collateral from the customer as much</li> </ul> | Local and international cofinanciers provided financing for a total of US\$23.4 million to HEP ESCO activities through its parent company HEP.  |

| <b>Risk</b>  | <b>Risk rating</b> | <b>Risk mitigation measures</b>   | <b>Results</b>  |
|--|--------------------|---|---|
|  |                    | as possible   |   |
| Sales and marketing skills are not adapted and used by technically trained specialists               | M                  | <ul style="list-style-type: none"> <li>▪ Provide technical assistance to key ESCO staff and project partners</li> <li>▪ Select project partners based on skills and capabilities</li> <li>▪ Retain strategic partner for HEP ESCO</li> </ul>  | HEP ESCO technical staff acquired sales and marketing skills which successfully allowed them to proactively “sell” ESCO services.   |
| Payback periods on financing terms are not acceptable to service providers and consumers             | S                  | <ul style="list-style-type: none"> <li>▪ Select cost and type of savings measures based on economic attractiveness of savings measures and taking into account prevailing financing terms</li> <li>▪ Encourage competitive financing of projects</li> </ul>   | Payback periods for HEP ESCO projects were set at 8 years. This was found acceptable to clients who agreed in some cases to finance from their own resources the incremental capital cost required to bring the project to the required payback period. |
| <b>From components to outputs</b>  |                    |   |   |
| HEP does not contribute enough equity financing  | M                  | <ul style="list-style-type: none"> <li>▪ Make investment in energy efficiency projects explicit in HEP development plan, requiring budget allocation for equity stake in ESCO</li> <li>▪ Commit HEP in-kind equity (purchases of equipment and services) gradually on project-by-project basis</li> <li>▪ Pursue actively other sources of equity investment, such as strategic partner</li> </ul>  | Equity financing from HEP was not necessary since HEP ESCO was able to access financing from local Banks.   |
| Local banks are not willing or able to cofinance energy efficiency projects                          | M                  | <ul style="list-style-type: none"> <li>▪ Develop banker oriented case studies from early projects</li> <li>▪ Conduct awareness workshops to encourage competitive financing of economically attractive energy efficiency projects</li> </ul>  | Additional TA resources were made available to raise awareness among local banks within the PCG program. However, the instrument was neither successful at stimulating the demand for EE loans, nor at diminishing the bank’s risk aversion.            |
| End users cannot adapt procurement and budget procedures to savings financing methods                | M                  | <ul style="list-style-type: none"> <li>▪ Conduct awareness workshops</li> <li>▪ Work with public administration to support changes to budgeting procedures for paid-out-of-savings investments</li> </ul>   | HEP ESCO and the World Bank worked together with Ministry of Economy to modify budgetary/procurement procedures to allow for savings financing arrangements in the public buildings sector.   |
| HEP management is not cost conscious in the use of contingent grant                                  | N                  | <ul style="list-style-type: none"> <li>▪ Share development costs whenever possible, and impose strict oversight and accountability in use of grant funds</li> <li>▪ Require reviews by different parties of initial projects benefiting from grants</li> </ul>  | The contingent grant was fully utilized through the project.  |
| Default rate of energy service providers and end users on guaranteed loans exceeds anticipated level | N                  | <ul style="list-style-type: none"> <li>▪ Ensure that estimates for structuring guarantees and loans are based on real market figures</li> <li>▪ Monitor default rates during project implementation, checking against projections and comparable market benchmarks</li> <li>▪ Establish oversight and accountability for use of guarantee funds</li> <li>▪ Maintain conservative rules and guidelines for guarantee management and have them reviewed by experts with knowledge of Croatian market</li> </ul> | Neither HEP ESCO nor the PCG components registered any defaults.  |
| <b>Overall risk rating</b>   | <b>M</b>           |   | Overall, mitigation measures proved to be successful.   |

The project was considered a moderate risk operation. One of the risks identified: the unwillingness of commercial banks to co-finance energy efficiency projects, turned out to be a more significant risk than originally anticipated during implementation. Despite ensuring that the proposed mitigation measures were carried out during implementation, the project’s PCG component failed to significantly stimulate EE

lending by banks (see section 3.2 below). Overall, however, the preparation team had identified a broad set of potential project risks and included reasonable corresponding mitigation measures.

## 2.2 Implementation

The IBRD-financed project was restructured on June 30, 2010 to reallocate loan proceeds between the categories of Goods, Works, and Supply and Installation in order to reflect the distribution of HEP ESCO's contractor costs. The GEF grant was restructured on May 25, 2010 to reallocate funds from the PCG program at HBOR to the Energy Savings component (HEP ESCO).

The Bank conducted a MTR in June 2007, and assessed progress to date on all project components, the implementation issues and the actions to be taken to ensure the successful completion of the project.

The following **external factors** affected project implementation:

- *Lack of a clear legal framework for ESCOs to operate.* During the early years of implementation, HEP ESCO faced a number of barriers: (i) public entities did not have a financial incentive to implement EE measures since monetary savings were to be absorbed by corresponding budget reductions according to the Budgetary Law and (ii) public procurement rules imposed a competitive bidding process, yet HEP ESCO was the only ESCO in Croatia. These issues were partially resolved through interventions from the Ministry of Finance that provided temporary waivers for HEP ESCO.
- *UNDP decided to withdraw its contribution from the PCG Facility at HBOR.* Although a significant amount of resources (both financial and staff time) were spent in harmonizing the design and requirements of the PCG component to meet both the Bank's and UNDP's program objectives, UNDP decided to focus on other EE activities and reallocated the funds dedicated to the component (US\$600,000) in January 2009.
- *The global economic crisis led to a sharp tightening of financing conditions in Croatia; it increased banks' risk aversion to develop new business opportunities, such as EE lending.* The global economic crisis severely affected the financial sectors in Croatia and in 2008 the economy slid into its deepest recession since early transition. Real GDP fell by 5.8 percent in 2009, led by large drops in investment and private consumption. Credit growth decelerated sharply, driven by increasing risk aversion on the part of banks and lower demand from bank clients, and the National Bank of Croatia adopted measures to rein in domestic credit growth. In this context, banks were hesitant to develop new EE credit lines. The private sector, including industries and SMEs, also put EE projects on hold in order to concentrate on more pressing financial needs.

The following **project specific factors** affected its implementation:

- *The strategic partner played a key role in transferring know-how and providing strategic advice to HEP ESCO.* The chosen consultant guided and trained young staff and provided the technical and management tools necessary to have a fully functioning ESCO. As HEP ESCO staff developed experience and understanding of the ESCO business, the day-to-day project assistance was phased out.
- *HEP ESCO was able to expand its market and propose innovative services.* HEP ESCO found a niche market, financing EE projects for (i) public buildings owned either by local authorities (administration buildings, schools, etc.), hospitals or universities, and (ii) street lightning. With the objective of increasing its profitability and positioning itself as a market leader, HEP ESCO entered new market segments, including green-field Renewable Energy (RE) projects; a notable example was the Hrast biomass cogeneration project. HEP ESCO developed US\$10 million contract with Hrast acting as a consulting project manager, arranger of financing, and debt financier.

- *Being a utility-based ESCO had both positive and negative consequences.* On the positive side, HEP ESCO benefited from HEP's positive corporate image. It also benefited from access to HEP's customer database for data mining and customer sector identification. Another key issue was access to financing; loans to HEP ESCO were made through HEP, which is a creditworthy client. One of the major drawbacks of being a subsidiary was the need to apply HEP's human resources and compensation policies. These were not adapted for a fast-growing company that needed experienced staff. In fact, HEP ESCO management encountered problems in expanding business activity due to a hiring freeze imposed by HEP. Also, the company was unable to retain valuable, trained staff that resigned, for the sake of better salaries elsewhere.
- *The launch of the PCG facility was significantly delayed due to difficult coordination issues between the Bank and the parallel UNDP project.* The delayed signing of the UNDP Grant Agreement implied that TA (audits and feasibility studies) was not available for the participating banks under the PCG facility at HBOR. This resulted in a six-month delay in the implementation of the PCG component of the project. When the UNDP project became operational in mid-2006, it took one additional year to finalize the agreements with the participating banks on use of guarantee funds because they needed to be consistent with both donors' program objectives. As a result, the PCG facility only became operational in January 2008, or three and a half years after the project became effective.

### **2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization**

**Design:** The PAD (Annex 1) lists 10 outcome indicators and 21 output indicators. The overall objective of the project's results framework was to comprehensively monitor and evaluate the effectiveness of the EE market transformation. However, the project's outcome indicators were not clearly defined, and some of them had no baselines (as was typical in pre-2004 PADs) and could only be attributed to a limited extent to the specific efforts of HEP ESCO and HBOR. The output indicators, although useful to measure the project's performance, required significant efforts in terms of data collection. This information was to be monitored by a non-profit agency (supported from the GEF Technical Assistant grant in the amount of US\$0.3 million) to provide the World Bank/GEF, HEP, HEP ESCO, and financial intermediaries, early signs of market transformations possibly needing corrective actions.

**Implementation and utilization:** An international consultant was contracted as the project's monitoring consultant in November 2006. During its four-year M&E contract, the consultant encountered several obstacles in finding a suitable methodology to measure some indicators in view of the available information. The external monitoring was therefore more useful as a general assessment of project results, rather than a tool for internal decision making in the Implementing Agencies.

**Mainstreaming the M&E system at HEP ESCO:** Partly in response to the shortcomings in external monitoring, HEP ESCO created an internal monitoring system to provide information on its overall performance and to orient its strategic choices. Notably, an energy savings Measurement and Verification (M&V) framework was developed to strengthen the company's expertise in EE, adjust the design of new retrofit projects, and prepare HEP ESCO to offer guaranteed savings contracts to its clients (see section 2.5 below for a discussion of the guaranteed contracting model).

### **2.4 Safeguard and Fiduciary Compliance**

**Safeguards:** The EA category for this project was FI (Financial Intermediary). HEP ESCO was responsible for screening sub-projects and ensuring that they comply with the Bank's EA and appropriate Croatian environmental law. The Bank also required an Environmental Management Framework (EMF) including screening, institutional arrangements, applicable laws and regulations for subproject environmental review as well as sample environmental management plans applicable for the type of projects to be funded by the IBRD/GEF project. The strong technical know-how of HEP ESCO and HBOR staff and the good reporting systems ensured compliance with the EMF. The staff team at HEP

ESCO included an environmental specialist. There were no significant deviations or waivers from the Bank's safeguards. Compliance with Bank environmental safeguards was considered satisfactory throughout implementation.

**Procurement:** There were no serious procurement issues during implementation. The ISRs throughout project implementation rated procurement as satisfactory.

**Financial Management:** There were originally three financial covenants in the legal agreements, but one was removed through an amendment to these agreements.<sup>1</sup> HEP and HBOR were in compliance with the remaining two covenants, namely:

1. HBOR to maintain loss rate on non-performing loans of Participating Banks not exceeding 5% of the outstanding guarantee liability commitment (the loss rate is 0)
2. HEP ESCO to maintain loss rate on Beneficiaries' defaults supported by the Partial Risk Guarantee not exceeding 5% of the outstanding HEP ESCO receivables (the loss rate is 0)

The financial management (FM) systems were well-implemented during the life of the project. Internal control systems and procedures established by the HEP ESCO and HBOR ensured the reliability of accounting records, and safeguarding of the Project's resources and assets. FM systems, including project accounting and reporting arrangements, staffing, internal control procedures, planning and budgeting, counterpart funding, financial manual and external audits, were submitted on time and the overall FM system was assessed to be satisfactory through the implementation of the project.

## **2.5 Post-completion Operation/Next Phase**

The Bank reached an agreement with the Government, HEP and HBOR on the plans for continued operation of HEP ESCO and the PCG facility, in line with HEP's and HBOR's proposals sent on June 29, 2010. Both of these proposals are a testament to the high-level of commitment of these two entities to continue working toward the achievement of the project's PDO and GEO after the project closes.

**HEP ESCO:** HEP ESCO will remain a subsidiary of HEP. It will develop, finance and implement on a commercial, for-profit basis: (i) EE projects and programs, (ii) RE projects, and (iii) sustainable renovation/reconstruction projects. Within this new business model, HEP-ESCO will diversify its offering of EE services to provide its customer base with a flexible contractual approach: a guaranteed savings contracting model will be offered in addition to the simple turnkey construction project and the shared savings contracting model.

Through its activities, HEP ESCO will also help its parent company HEP achieve its strategic objective of becoming a leading environment protection company and comply with regulations in the Electricity Market Act which requires utilities to implement activities in the field of EE. Specifically, HEP ESCO's strategic goals outlined in its medium-term Business Plan (2010-2014) are as follows:

1. Keep the leading position in the Croatian market for EE projects,
2. Expand the market to private clients (most projects so far have been with municipalities),
3. Increase support to HEP and HEP's clients in relation to EE, including encouraging the application of energy savings measures in HEP's facilities and plants,
4. Expand the offering of services to achieve a leading position in the region, including consulting services for the establishment of ESCO companies, preparation of EE projects and studies,
5. Continue the positive trend in terms of income and profit growth,

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<sup>1</sup> The covenant referred to HEP's liquidity; the Company was to maintain a current ratio during the transition period (2004 and 2005) of not less than 0.7 and to reach and maintain a current ratio of not less than 1.0 for the years 2006 and thereafter.

6. Increase HEP ESCO's competitiveness by a more aggressive pricing policy,
7. Make project financing possible on an individual basis - which has not been possible so far - in view of the funds received and credits granted to HEP.

HEP is committed to providing HEP ESCO with the financial, management and human resources needed to reach the above-stated strategic goals. One of the key issues related to the sustainability of HEP ESCO has been securing access to financing. Between 2008 and 2010, HEP ESCO's and HEP's efforts led to the negotiation of three loans with commercial banks (Zagrebska Banka, OTP, and Splitska Banka) for a total of US\$11.2 million and a loan from KfW for US\$12.2 million. Financing from these loans in addition to income generated by customer repayment is considered adequate for ensuring the operation of HEP ESCO over the medium term according to its Business Plan.

**PCG at HBOR.** Despite the difficulties encountered during implementation, HBOR remains committed to continue the PCG program, at least until March 31, 2012. HBOR will fund the operation of the PCG program from resources from the "Environmental Protection and Energy Efficiency Fund" (financing available of up to US\$2 million). The prospects for the continued operation of the facility are encouraging: in October 2010, HBOR was negotiating the issuance of a guarantee in the amount of US\$0.1 million in favor of EE rehabilitation of a medical center in Kalos, on the island of Korčula.

### 3. Assessment of Outcomes

#### 3.1 Relevance of Objectives, Design and Implementation

The project objectives were clear, relevant, and important to Croatia's economic development. They were appropriate to the needs of the country's energy sector. GHG emission reduction through energy efficiency remains a very relevant objective for Croatia. The project remains consistent with the current Partnership Strategy (CPS); specifically, it contributes to the second and fourth pillars: (a) strengthening Private Sector-Led Growth and Accelerating EU Convergence by aligning the provision of infrastructure and related services with demand and (b) increasing the sustainability of long-term development through the implementation of mitigation measures. The project's objective of increasing the demand and supply of EE services directly supports the CPS goals. The project's objective also supports the country's Energy Strategy (2009), which identifies EE as a key instrument to help the country achieve its energy savings target in line with the objectives of the EU energy package.<sup>2</sup>

While the overall relevance of this operation remains high, there *does not seem to be a substantial market demand for the PCG-provider*. The public sector clients making up the bulk of ESCO customers proved actually to be of low risk. Although PCGs triggered some EE lending by banks to borrowers with poor collateral, they have not been transformative in reducing banks' risk aversion to EE financing. In reality, most banks do not do practice project finance and therefore look beyond the project at borrowers' overall balance sheets and collateral. Therefore, for many banks the core constraint is their borrowers' lack of creditworthiness, not the novelty of energy efficiency.

#### 3.2 Achievement of Project Development Objectives and Global Environment Objectives

The project has **fully achieved its project development objective** of increasing the demand for and supply of energy efficiency projects and services:

- **A core developer of energy efficiency projects, HEP ESCO** implemented 31 EE projects on a commercial, for-profit basis, for a total cumulative value of US\$29.5 million in EE investments

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<sup>2</sup> The EU energy package sets the objective of a 20% decrease in GHG emissions by 2020 relatively to 1990 levels in EU member states.

(compared to forecasted EE investments of US\$28 million in the PAD). Initially focused on implementing EE projects in public lighting and schools, HEP ESCO diversified its business activities and is now the leading EE Company in Croatia, active in six market segments: public lighting, schools, hospitals, cogeneration, industry and commercial buildings.

- HEP ESCO was able to gradually improve its operational and financial performance, thus demonstrating the commercial and financial viability of EE investments and the ESCO contracting model. The number of projects reaching financial closure (as a share of applications received) increased from about 10% to 22%. In addition, HEP ESCO's profit margin increased steadily since 2006 and reached US\$0.3 million (50% of the target) by 2008. Although the onset of the economic crisis had a negative impact in the Company's profitability in 2009 it is expected that financial results will improve in 2010 as the economy recovers.
- Through its **successful operation, HEP ESCO helped create a framework for other service providers to develop and participate in the new EE market.** The project had a strong demonstration effect that spurred the demand for EE services. Together with a good track record of performance (only 2 out of 31 projects reported incidents, exceeding the target of 3 projects), strong marketing efforts to disseminate the projects' results and best practices led to an increase in demand for EE services from virtually zero to seven market segments reporting significant EE activity. In addition to the market segments in which HEP ESCO is active, important EE activity in the commercial buildings sector and in particular in hotels exists. By establishing strong business relationships with a series of partners such as engineering firms, distributors, manufacturers, and installers, HEP ESCO contributed to developing business opportunities for private firms, building capacity and transferring skills and know-how. In June 2010, about 22 engineering/consultancy firms and academic research institutions provide EE services. In addition, over a hundred small companies are involved as sub-suppliers.
- **Finally, the credit enhancement facility contributed to engage commercial banks in the financing of EE projects.** Important efforts made by HBOR through the TA component) improved the banks' understanding of EE, which in turn helped them market EE loans to their customers. Two PCG deals for US\$0.9 million were signed, leveraging investments in EE for US\$1.8 million. Three banks signed guarantee agreements with HBOR indicating interest in the EE market and two other banks developed specific credit lines for EE and RE investments.

The project has **partially achieved its global environmental objective** of creating a sustainable market for economically viable energy efficiency projects and services, and achieving national and global environmental benefits:

- **The project successfully helped overcome key barriers to the development of an EE market.** The activities funded under the project had a direct transformational effect in terms of increased availability and price of EE products and services (both indicators were fully met as seen in the table below). HEP ESCO procured all its supplies (goods, works and installation) from domestic firms in national currency, indicating that there is a robust distribution network of EE products. The beneficiary survey indicated that EE service providers observe no significant differences in EE product prices when compared to other EU countries (see annex 2 for further details).
- An increase in market penetration and growth of EE services and products is demonstrated by (i) the widespread increase of citizens reporting having changed their behavior with respect to energy conservation measures and (ii) seven market segments reporting important EE activity. This can largely be ascribed to HEP ESCO and the PCG activities in connection with the fact that public financing for EE projects was made available through the Fund for Environmental Protection and

Energy Efficiency and that UNDP's Energy Efficiency project undertook important EE dissemination and awareness raising campaigns.

- **The project was less successful at overcoming the lack of project financing for EE investments.** As explained above, the PCG facility failed to attract demand and reduce the perceived high risks of EE projects and mitigate the rigid collateral requirements imposed on these projects by local financiers. In this context, the PCG did not have a transformational effect but rather helped less creditworthy borrowers to access EE lending by improving their collateral.
- **The realized GHG emissions savings were also lower than expected** and only reached 30% of the target. The lower GHG emission reductions are explained by a lower share of realized energy savings than estimated during appraisal. HEP ESCO supported projects were predominantly in the street lighting and public buildings sector, i.e. projects characterized by predominance of high-cost measures (including some reconstruction works given the poor state of some facilities). As a result, the average payback time was close to 8 years, compared 4 to 5 years as forecast at appraisal meaning that HEP ESCO's EE investments led to lower energy savings. Finally, the weak demand for PCG also translated in lower energy savings and environmental benefits.

### Outcome Performance Indicators – Development Objectives

|  | Target Value<br>06/30/2010 | Actual | Achievement in % | Comment  |
|--|----------------------------|--------|------------------|--|
| <b>Project Level - PDO</b>   |                            |        |                  |  |
| Market response and consumer acceptance of the HEP ESCO offerings:   |                            |        |                  |  |
| HEP ESCO customer satisfaction (%)   | 95                         | 90     | 95%              | Target achieved. Customer satisfaction as measured by a customer satisfaction survey according to the following criteria: (i) project execution timing; (ii) comfort resulting from the project; (iii) realized savings; (iv) appearance of the building; and final impact of the project execution. |
| Number of target market segments with significant energy efficiency activity   | 9                          | 6      | 66%              | HEP ESCO has at least two active projects in 6 of the 9 market segments identified in the PAD. HEP ESCO was active in schools, hospitals, offices, industry, street lighting, and cogeneration.  |
| Number of firms actively engaged in provision of energy efficiency services  | 5                          | 11     | 100%             | Target achieved. A market survey indicates that there are a large number of organizations that provide related EE services in specific market segments; approximately 11 of which work on a commercial basis   |
| Number of local banks engaged in energy efficiency financing, and lending activity   | 7                          | 5      | 71%              | 3 banks have signed GFAs with HBOR and currently provide financing for EE; 2 other banks offer specific EE loans.  |
| Track record of performance of commercially viable energy efficiency projects, as measured by number of incidents reported of project failure after contract signature | 3                          | 2      | 100%             | HEP ESCO reported that only 2 projects (out of 31) were stopped due to changes in management and changes in regulations for public procurement following the enactment of the Budget Law in 2010   |
| <b>Market Transformation Impact - GEO</b>  |                            |        |                  |  |
| Availability and price of energy efficiency products in Croatia:   |                            |        |                  |  |
| Increase in availability of energy efficiency products in Croatia (%). (As determined by the fraction of HEP ESCO's expenditures for goods in Kuna)                    | 85%                        | 100%   | 100%             | Target achieved. HEP ESCO reported that all its expenditure in goods is in Kuna; indicating that there is a robust distribution network of EE products in Croatia.   |
| Price premium of EE products in Croatia  | max 5%                     | 0%     | 100%             | Target achieved. There is no significant   |



|  | <b>Target Value<br/>06/30/2010</b> | <b>Actual</b> | <b>Achievement in %</b> | <b>Comment</b>  |
|--|------------------------------------|---------------|-------------------------|---|
| relative to typical EU prices.   |                                    |               |                         | difference between the prices of EE goods in Croatia and those in other EU countries.   |
| Market penetration and growth by market segment and types of users:                                |                                    |               |                         |   |
| Number of added Croatian citizens accepting energy efficiency as a normal way of life.             | 1,000,000                          | 1,300,000     | 100%                    | Target achieved.  |
| Number of target market segments with significant energy efficiency activity (same as above)       | 9                                  | 7             | 78%                     | Target partially achieved. In addition to HEP ESCO activities in the above mentioned segments (see PDO indicator 2), other EE services providers are active in the following sectors: municipal lighting, hotels, schools, hospitals, and cogeneration. |
| <b>Global Environmental Benefit - GEO</b>  |                                    |               |                         |   |
| Reduction in greenhouse gas emissions at project level (cumulative CO2 reductions in million tons) | 1.0                                | 0.3           | 30%                     | Shortfall in CO2 reduction is due to lower total energy savings than forecasted at appraisal, resulting mainly from a and higher share of EE projects in the public buildings and municipal lighting sectors with higher pay-back times                 |

<sup>1</sup> Market segments comprise: schools, hospitals, offices, hotels, multiple residential, municipal street lighting and water pumping, district heating distribution systems, and cogeneration at end user facilities.

### 3.3 Efficiency

The costs of project-supported EE investments have been reasonable, although realized energy savings and therefore environmental benefits were lower than expected at appraisal. Compared to private/commercial buildings (office, large hotels, residential) and district heating target market sectors, HEP ESCO-supported projects were predominantly in the street lighting and public buildings sector, including thermal refurbishment of schools, kindergartens, and hospitals. These projects were characterized by less favorable financial conditions due to the predominance of high-cost measures (including some reconstruction works) given the poor state of some facilities. As a result, the average payback time was close to 8 years, compared 4 to 5 years as assumed at appraisal.

Over the six years of implementation during which the IBRD loan (US\$5.8 million) and GEF grant (US\$6.9 million) were disbursed, HEP ESCO developed 31 EE projects valued at US\$29.4 million. Energy savings generated over the lifetime of the project-catalyzed investments amounting to about 429 GWh of electricity and 1.05 PJ of heat, and 61.8 thousand tons of oil equivalent. Relevant economic and financial information includes a cost-benefit and incremental cost analysis (see Annex 3).

**The cost-benefit analysis** (based on HEP ESCOs investments) indicates a resulting economic rate of return (ERR) estimated at over 10%. While the ERR was 8% lower than the estimated ERR at appraisal, the project remains profitable. In addition, the project has yielded additional benefits that increase the ERR even further: many projects were retrofitting projects yielding important additional benefits in terms of user comfort/amenities and visual improvements (see beneficiary survey below).

**The incremental cost analysis**, which also takes into account the GEF financed PCG facility, indicates that the project has produced substantial reductions in GHG emissions in Croatia by initiating and sustaining a market for EE services. The US\$29.5 million in EE investments will yield carbon dioxide reductions of 0.3 Mt CO<sub>2</sub> over the lifetime of the equipment installed. Considering the total cost of the GEF project (US\$6.9 million, including the cost for TA, HEP ESCO investments, and funds for the PCG), the project will produce global benefits at a cost to GEF of 21.9 US\$/tCO<sub>2</sub>. While this cost is higher to

that foreseen at appraisal (7.3 US\$/tCO<sub>2</sub>), it is still reasonable compared to an estimated medium-term price of 25 US\$/tCO<sub>2</sub> in the European Trading Scheme (ETS).

### **3.4 Justification of Overall Outcome and Global Environment Outcome Rating**

Rating: Moderately Satisfactory

The project development and global objectives remained relevant throughout implementation and continue to be relevant. **The project achieved its PDO** by increasing the demand and supply of EE projects and services since four out of five outcome indicators were fully—or almost fully met. An innovative utility-based ESCO operating on a for-profit basis was successfully established. This is an important achievement in a region where EE markets, and in particular ESCOs, operating on a fully commercial basis are a rarity. Through its operation, HEP ESCO had a transformational impact, by increasing market response and consumer acceptance not only of EE services, but also of the relatively sophisticated energy performance contracting mechanism. HEP ESCO helped identify legal and regulatory barriers to the development of the ESCO market; which were and are being addressed by the Government. In addition, the PCG facility contributed to increasing commercial banks' understanding of EE and helped less creditworthy borrowers access financing for EE projects. As a result, the EE market in Croatia has developed significantly over the past few years and private firms providing some combination of technical, engineering, and consultancy services in regards to EE measures have entered the market.

The project **partially achieved its GEO**. The project was effective at addressing existing market and institutional failures to promote the development of EE projects as demonstrated by the market transformation indicators which were satisfactory met. However, the PCGs failed to address banks' concerns for energy end-user credit risks; therefore, the lack of project financing for EE investments is still an important barrier to the development of the EE market. Although the project resulted in sustainable reduction of CO<sub>2</sub> emissions, these were only 30% of the target. However, they were achieved at reasonable costs, when compared to the prevailing price in the European CO<sub>2</sub> market.

### **3.5 Overarching Themes, Other Outcomes and Impacts**

#### **(a) Poverty Impacts, Gender Aspects, and Social Development**

The energy cost reductions have a direct impact on the affordability of energy services for end-users. According to the survey, HEP ESCO clients reported significant decreases in their energy bills and were able to direct scarce financial resources to other pressing needs. The support to the retrofitting of street lighting systems, schools, and hospitals also provided social benefits on top of the energy-cost reduction benefits. These social benefits include improved working conditions such as comfortable indoor temperatures during the winter season, and better pedestrian and vehicle visibility. In addition, demonstration effect of EE projects resulted in increased end-consumer awareness about the benefits of EE measures and about the ESCO contracting model, as reported by the beneficiary survey carried out for the purpose of this Completion Report (see Annex 5 below).

#### **(b) Institutional Change/Strengthening**

EE market participants have largely benefited from the project's demonstration effect. As an outcome of the TA provided under the PCG component, banks now have a better understanding of the technical implications of implementing EE projects and their risks and therefore, they have an increased capacity to develop EE financing products. HEP ESCO has also contributed to building and disseminating know-how on EE investments in Croatia by establishing business relations with other EE service providers. Also, HEP ESCO's web-site and active participation in seminars and other events has helped increase awareness. The Government recognizes HEP ESCO as a good example of successful capacity building and institutional development that can serve as a model over the longer term.

The Ministry of Economy, Labor and Entrepreneurship (MoELE) has also benefited from HEP ESCO's on-the-ground experience in developing EE projects. For instance, HEP ESCO's data was used to estimate the energy savings targets laid out in the National Energy Strategy (see the borrower's input to the ICR in Annex 7 below). HEP ESCO established a close relationship with MoELE and barriers faced during implementation (i.e., public procurement issues when contracting with an ESCO) were taken into consideration when drafting the Energy Efficiency Law and its secondary legislation.

**(c) Other Unintended Outcomes and Impacts (positive or negative)**

EE measures, such as insulation of exterior walls and replacement of windows which are typically done as part of an overall refurbishment, produced a dramatic aesthetic improvement, rehabilitation of working space and improvement of the overall building functionality according to the project's beneficiaries. In addition, the development of an EE market has enabled significant energy efficiency investments that increased demand for local "green collar jobs" comprising a wide variety of occupations across different income levels. These include among others: energy auditors, electricians, heating installers, carpenters, construction equipment operators, roofers, insulation workers, and construction managers. Finally, HEP ESCO's focus on the street lighting and buildings sectors contributed to the public sector taking an exemplary role in the EE field, in line with EU Directives and the country's Energy Efficiency Law.

**3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops**

A comprehensive beneficiary survey was commissioned by the Bank to assess the level of satisfaction of HEP ESCO clients with the services received as well as to understand more about the way the project had impacted their EE behavior (see Annex 5). The survey consisted of two separate but interrelated parts: (i) in-depth interviews and (ii) a consumer satisfaction survey (quantitative analysis). Overall, 44 respondents representing HEP ESCO's customer groups, including public lighting and buildings, industry, and energy supply systems, participated in the survey. They included both professional and technical staff (e.g., city officials, heads of departments for cities' communal services, production managers and company directors) involved in the project as well as representatives from project beneficiaries (e.g., school headmasters, hospital directors, etc.).

The survey findings indicate high levels of satisfaction (90 % on average) with HEP ESCO's implementation of energy efficiency projects (see table below). Most of participants (59.1%) report on achieving increased comfort and less costs as the final impact of EE projects. In addition, most participants (61.5%) report that their energy bills are more affordable after project implementation. As a result, participants state that they would definitely (45.5%) or probably (36.4%) recommend HEP ESCO to a colleague or associate.

**Table: Average rates of satisfaction with project characteristics related to the final outcomes of the project (1-dissatisfied; 5-completely satisfied)**

|  | <b>Average</b> |
|--|----------------|
| 1. Project execution timing  | 4.5            |
| 2. Comfort resulting from the project (better lighting, better temperature etc.) | 4.5            |
| 3. Realized savings (less overheads)   | 4.4            |
| 4. Appearance of the building  | 4.3            |
| 5. Final impact of the project execution   | 4.4            |

In addition, participants mentioned other project benefits, including: the increase in students' and employees' energy efficiency awareness, aesthetics and improved conditions in schools that contribute to students' and teachers' better and more stimulating work environment, know-how for future projects, and tourism promotion (e.g., highlighting project benefits in campaigns promoting the City of Novigrad's

protection from light pollution). In particular, people interviewed stated that their personal behavior regarding energy saving methods has changed after participating in energy efficiency projects (65.9% of participants). The survey also indicates increased knowledge of the ESPC model among the population that was involved in the project; a higher degree of ESPC awareness is observed among representatives of technical and professional staff, in comparison to end-beneficiaries.

#### **4. Assessment of Risk to Development Outcome and Global Environment Outcome**

Rating: Low or Negligible

The continuation of HEP ESCO involvement in EE-finance is certain as illustrated by HEP's commitment to provide HEP ESCO with the financial, management and human resources needed to meet the strategic goals outlined in its Business Plan 2010-2014. HBOR is also committed to maintaining the PCG facility with its own resources. The energy savings from the rather straightforward EE measures are certain to continue during their economic and technical lifetime. Thus, further energy efficiency improvements and GHG emission reductions will be achieved, making the achievement of the project's development and environmental objective all the more certain.

HEP ESCO's sustainability is ensured by access to commercial loans from local and international financiers, although the longer term access to capital will be a risk to HEP ESCO's sustainability. Access to medium-term financing will allow the company to at least double its sales volume over the next 5 years to reach about US\$75 million. As of June 2010, HEP ESCO had a strong pipeline of projects under preparation, with investments totaling about US\$ 6.7 million. In turn, HBOR is negotiating the signature of a new guarantee for EE investments in a medical center.

The risk to the further development of sustaining HEP ESCO activities, and more broadly the development of the EE market in the municipal sector is related to changes in the Budgetary Law introduced in January 2009 (see section 2.2 above). The changes to the Law remove the advantage of any company operating in an ESCO contracting model and have become a barrier for new municipal ESCO projects. The Bank has engaged in policy dialogue with the Government to address this risk. Another related regulatory risk to the development of the ESCO market is possible delays in the adoption of key secondary legislation on EE, which is expected by the end of 2010.

#### **5. Assessment of Bank and Borrower Performance**

##### **5.1 Bank Performance**

###### **(a) Bank Performance in Ensuring Quality at Entry**

Rating: Moderately Satisfactory

The Bank played a key role during project preparation in guiding HEP and HBOR on fundamental issues with respect to designing and establishing a HEP ESCO company and a Guarantee Facility. The Bank took into account the adequacy of project design in all major relevant aspects, including technical, environmental, financial, economic, and institutional, as well as procurement and financial management. A number of alternatives were considered for the project's design and the Bank made maximum use of transferring best practices and on-the-ground experience from projects in other Eastern European and North American countries.

The project was highly innovative in its design; it addressed fundamental barriers to the development of the EE market in a comprehensive way through relatively unknown instruments (ESCO and PCG). The PAD recognized the need to transfer management experience from an experienced ESCO and adequately

included in the project assistance from a strategic partner that would work with HEP ESCO to transfer know-how at a senior level.

However, since the project components were implemented by different entities the implementation arrangements became relatively complex. In particular, the joint implementation of the PCG with UNDP posed serious coordination challenges that resulted in significant delays in the implementation of the component as discussed in section 2.2. These risks were not identified in the PAD, despite the fact that extensive discussions had taken place and that the potential problems to harmonize the design of the PCG component to meet the requirements of each donor's program were already known.

The PAD also presented a monitoring and evaluation program that contained too many indicators (a total of 31) that required special efforts to collect data. The Task Team could have done a better job in identifying fewer and more meaningful performance indicators.

### **(b) Quality of Supervision**

Rating: Moderately Satisfactory

Supervision missions were conducted on average two times a year and were complemented by additional visits made by the TTL, allowing for regular face-to-face interaction on project issues. Supervision reporting was also consistent in tracking the key issues arising during implementation. Next steps and follow up actions were regularly agreed with counterparts, included in Aide Memoires and in reporting to management, and subsequently tracked. Implementation Status Reports (ISRs) realistically rated the performance of the project, both in terms of achievement of development objectives and project implementation.

There were no major unforeseen developments that threatened the Project's implementation or strategy for achieving the PDO. The Bank allocated sufficient supervision budget and ensured that the appropriate skill mix was included in the Task Team. Technical oversight of the Project was also well-covered by the team, which was able to establish a solid rapport with HEP ESCO based on the quality of advice that was being provided. Fiduciary aspects were well supervised. Procurement issues including the use commercial practices for procurement of goods, works and services were tackled throughout implementation, with the Task Team exhibiting a reasonable amount of flexibility. An environmental specialist conducted several missions to monitor compliance with the Environmental Management Framework.

In retrospect, however, the Bank was rather slow in adjusting to the realities of the EE market. The PCG component was rated moderately unsatisfactory (MU) one year after the project became effective and did not make significant progress during implementation (it remained rated as MU throughout implementation). Funds from the PCG component were only reallocated to the energy savings component (HEP ESCO) one month before the closing of the project. The project would have also benefited from updating the Monitoring Framework at the Mid-term review to address the data availability concerns and better reflect the lower CO2 savings.

### **(c) Justification of Rating for Overall Bank Performance**

Rating: Moderately Satisfactory

The Bank's performance suffered from some shortcomings in the design of the operation. Despite these shortcomings, the Bank provided important guidance during implementation that ensured the achievement of the project's objectives.

## **5.2 Borrower Performance**

### **(a) Government Performance**

Rating: Satisfactory

Government ownership and commitment remained consistently strong. The Government established the legal and regulatory environment needed for the PDO to be achieved – albeit at a later stage of project implementation. This included: (i) the Energy Sector Development Strategy identifying Energy Efficiency as a cornerstone of the National Energy Policy; (ii) the “Electricity Market Act” including obligations for electricity suppliers to engage in EE activities; (iii) an Energy Efficiency Law and its secondary legislation establishing a national program (Energy Efficiency Action Plan) to reduce energy consumption and reduce GHG and also defining the ESCO business model and its role in the market; and (iv) a Fund for Renewable Energy and Energy Efficiency being put in place to provide, among others, financing to the EE programs outlined in the EE Action Plan. In addition, secondary legislation on EE (specifically, regulation on energy audits, M&V, IT system for monitoring energy savings and energy performance contracting in public sector) has already been drafted and is expected to be adopted by the end of 2010. Effective enforcement of EE policies and measures also remains an important challenge.

### **(b) Implementing Agency or Agencies Performance**

Rating: Satisfactory

HEP ESCO played a central role in the success of the project. It maintained commitment not only to the output targets, but to the achievement of the broader developmental objectives. Management of the newly-founded subsidiary made appropriate judgments on staffing requirements and ensured that young and motivated staff were attracted to work on the project. The unique dedication of HEP ESCO’s management and staff and the positive and encouraging attitude of HEP’s top management were critical components in the successful development of the ESCO concept and the establishment of a financially sustainable business model for ESCO operation inside HEP. As recognition for its outstanding performance, HEP ESCO was awarded the 2007 “European Energy Service Award”, which is a highly recognized prize that honors efforts and achievements for the development and success of energy services for EE in Europe.

HBOR committed the needed funds and staff to develop the Guarantee Component. However, in spite of their effort the market did not show interest for this financing model for EE projects.

### **(c) Justification of Rating for Overall Borrower Performance**

Rating: Satisfactory.

Both the Government and the Implementing Agencies demonstrated strong commitment and support to the project throughout its implementation.

## **6. Lessons Learned**

Lesson 1: When introducing innovative instruments such as ESCOs, it is advisable to begin with simpler models and introduce more complex transactions only as the market develops and supporting systems evolve. HEP ESCO targeted public lighting and public buildings projects, which are relatively easier to implement compared to other EE/RE projects, by offering simple turnkey construction and shared savings contracts. Once HEP ESCO became a well-known company that could deliver EE projects, demand for ESCO services developed. In parallel, HEP ESCO built on successful transactions to improve the project design and created new tools, such as M&V protocols. As a result, HEP ESCO will offer a more flexible menu of contractual options to its clients, including the more risky guarantee savings contracts.

Lesson 2: The Government has a leadership role to play in EE and should actively engage in tapping energy savings potential in its own buildings. While the potential for efficiency gains in the public sector is substantial, the implementation of energy savings programs is complicated by numerous factors. The energy Service Contracting Model has proven to be an effective instrument to overcome some of the more difficult hurdles in promoting EE in public facilities. ESPCs involved outsourcing a full project cycle to a service provider: from the detailed audit through implementation. Therefore, ESCOs can relieve public agencies of bureaucratic hassles, while service providers can secure the off-budget project financing and be paid from the actual energy savings. ESCOs can also act as aggregators, which was the case in Croatia. HEP ESCO was able to bundle projects, thereby reducing transaction costs and making small school and hospital projects commercially and financially viable.

Lesson 3: Partial Credit Guarantees have become a popular choice in EE programs to overcome barriers to energy efficiency lending; they were believed to be a temporary, market-transforming measure that could be discontinued once the banks gained familiarity with EE projects. The design of the facility was based on the assumption that banks perceive high risks associated with EE lending because they are unfamiliar with energy savings investments, which generate a cash flow from energy savings. However, the PCG's performance is extremely dependent on prevailing conditions in the credit market. Although success stories can be found, experiences with PCGs in several emerging economies have been disappointing. In countries where banks do not practice project financing, the main constraint is their borrowers' lack of creditworthiness (collateral), not the novelty of energy efficiency. This was the case in the Croatian finance community, PCGs triggered some energy efficiency lending to less creditworthy public entities, but banks did not perceive the instrument as a critical mean to improved credit access to their well known clients.

Lesson 4: The development of a functioning ESCO market depends on the creation of a level playing field in legal and regulatory terms for ESCOs and their customers. This is difficult to achieve, especially in the presence of leading public utility ESCOs. Important efforts need to be made to pass and enforce regulations that standardize budgeting, public procurement rules, contracts, and guidelines for ESPCs.

Lesson 5: In countries, like Croatia, with high energy savings potential, sufficient scope exists for the financing and implementation of EE projects on a fully commercial basis. Outside the residential sector subsidies should be limited to breaking down initial barriers by reducing transaction costs.

## **7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners**

### **(a) Borrower/implementing agencies**

The Bank concurs with the comments received from MoELE, HEP ESCO and HBOR. However, the Bank considers that adequate TA funds were provided to HBOR to implement the PCG component. Following the recommendations of the Mid-Term review, additional funds in the amount of US\$0.5 million were made available to provide TA to HBOR and participating banks (see section 1.9 above).

### **(b) Cofinanciers**

N.A.

### **(c) Other partners and stakeholders**

The Bank concurs with the comments received from UNDP.

## Annex 1. Project Costs and Financing

### (a) Project Cost by Component (in US\$ Million equivalent)

| <b>ENERGY EFFICIENCY PROJECT (IBRD) - P079978 and CROATIA - ENERGY EFFICIENCY PROJECT (GEF) - P071461</b> |                                       |   |                            |
|---|---------------------------------------|---|----------------------------|
| Components  | Appraisal Estimate<br>(US\$ millions) | Actual/Latest Estimate<br>(US\$ millions) | Percentage of<br>Appraisal |
| Energy saving investments   | 32.45                                 | 26.28                                     | 81 %                       |
| HEP ESCO project financing  | 3.00                                  | 3.25                                      | 108 %                      |
| HEP ESCO project development (GEF contingent grant)   | 0.80                                  | 0.00                                      | 0 %                        |
| Enhance creditworthiness of HEP ESCO and providers and end users (GEF partial credit guarantee)           | 2.00                                  | 0.90                                      | 45 %                       |
| Training, information dissemination, outreach, and monitoring and verification (GEF TA)                   | 1.50                                  | 2.85                                      | 190 %                      |
|   |                                       |   |                            |
| <b>Total Baseline Cost</b>  | <b>39.75</b>                          | <b>33.28</b>                              | <b>84 %</b>                |
| Physical Contingencies  | 0.00                                  | 0.00                                      |                            |
| Price Contingencies   | 0.00                                  | 0.00                                      |                            |
| <b>Total Project Costs</b>  |                                       |   |                            |
| PPF   | 0.00                                  | 0.00                                      |                            |
| Front-end fee IBRD  | 0.05                                  | 0.05                                      | 100%                       |
| <b>Total Financing Required</b>   | <b>39.80</b>                          | <b>33.33</b>                              | <b>84 %</b>                |

### (b) Financing

| <b>ENERGY EFFICIENCY PROJECT (IBRD) - P079978</b>          |                   |                                       |   |                         |
|--|-------------------|---------------------------------------|---|-------------------------|
| Source of Funds  | Type of Financing | Appraisal Estimate<br>(US\$ millions) | Actual/Latest Estimate<br>(US\$ millions) | Percentage of Appraisal |
| Borrower   |                   | 7.00                                  | 3.00*                                     | 43 %                    |
| International Bank for Reconstruction and Development      |                   | 5.00                                  | 5.84                                      | 117%                    |
| <b>CROATIA - ENERGY EFFICIENCY PROJECT (GEF) - P071461</b> |                   |                                       |   |                         |
| Source of Funds  | Type of Financing | Appraisal Estimate<br>(US\$ millions) | Actual/Latest Estimate<br>(US\$ millions) | Percentage of Appraisal |
| Borrower   |                   | 0.00                                  | 0.00                                      | 100 %                   |
| Global Environment Facility (GEF)                          |                   | 7.00                                  | 6.89                                      | 98 %                    |
| Borrowing Country's Fin. Intermediary/ies                  |                   | 20.80                                 | 17.60                                     | 85 %.                   |

\* Estimated contributions by HEP based on figures presented in the Mid-Term Review



## Annex 2. Outputs by Component

|  | Target Value<br>06/30/2010 | Actual | Achievement in % | Comment  |
|--|----------------------------|--------|------------------|--|
| <b>HEP ESCO Program</b>  |                            |        |                  |  |
| <b>Value of energy efficiency projects implemented by HEP ESCO and others</b>            |                            |        |                  |  |
| HEP ESCO (US\$ million)  | 6.8                        | 4.7    | 70%              | A total of 31 EE projects were implemented by HEP ESCO for a total cumulative value of US\$29.5 million in EE investments, as compared to US\$ 28 million forecasted in the PAD  |
| Other energy efficiency firms (US\$ million)   | 2.9                        | 1.7    | 59%              | About 11 firms provide some EE service in specific industries or activities. Although the specific level of investments is unknown, it is estimated that about US\$1.2 million were funded by other EE firms.  |
| HEP ESCO net income (US\$ million)   | 0.7                        | 0.02   | 3%               | During 2009, HEP ESCO and its clients were severely affected by the global economic crisis. Its 2009 net income is much lower than the 0.3 million achieved in 2008 and the positive trend in previous years   |
| <b>Energy savings achieved, total</b>  |                            |        |                  |  |
| Cumulative electrical energy saved (GWh)   | 440                        | 428    | 97%              | Target achieved  |
| Cumulative thermal energy saved (PJ)   | 8.4                        | 1.05   | 13%              | The shortfall in heat savings is explained by the lower than expected share of district heat and cogeneration projects in HEP ESCO's portfolio at appraisal. In fact, HEP ESCO specialized mainly in public lighting and thermal refurbishment of buildings projects |
| Payback period (average Energy Performance Service Contract length)                      | 8                          | 8      | 100%             | Target achieved  |
| Share of projects reaching financial closure (%)   | 50                         | 22     | 44%              | Since 2008, the number of projects that reached financial closure halved while the number of applications dropped only by 20% as a result of lower demand during the crisis  |
| <b>Local banks' lending volume and co-financing mix</b>                                  |                            |        |                  |  |
| Lending volume to HEP ESCO (US\$ million)  | 5.1                        | 23.4   | 100%             | Target achieved  |
| Co-financing available to HEP ESCO from recycled GEF Contingent Grant (US\$ million)     | 2.1                        | 1      | 50%              | The GEF contingent grant is expected to be almost fully recycled (accounts receivable are in the order of US\$ 4.2 million of the US\$ 4.7 million disbursed from the Contingent Grant) to co-finance new EE projects, as stated in the Business Plan                |
| <b>HBOR Program</b>  |                            |        |                  |  |
| <b>For HEP ESCO (US\$0.8 million Loss Reserve Facility)</b>                              |                            |        |                  |  |
| Commercial borrowings for HEP ESCO activities supported by the GEF Loss Reserve Facility | 8.0                        | N.A.   |                  | The facility was cancelled   |
| Reserves disbursed to Co-financing Bank (10% of borrowings up to 0.8 mln)                | 0.8                        | N.A.   |                  | The facility was cancelled   |
| Client default amount  | 1.6                        | N.A.   |                  | The facility was cancelled   |
| Drawn from reserves (50% of client default)  | 0.8                        | N.A.   |                  | The facility was cancelled   |
| <b>For Other ESCOs (US\$1.2 million Guarantee Facility)</b>                              |                            |        |                  |  |
| New commercial bank borrowings by  | 5.50                       | N.A.   |                  | The information was not made available to  |

|  | <b>Target Value<br/>06/30/2010</b> | <b>Actual</b> | <b>Achievement in %</b> | <b>Comment</b>  |
|--|------------------------------------|---------------|-------------------------|---|
| other ESCOs (US\$ million)   |                                    |               |                         | the M&E consultant  |
| New guarantee exposure at 50% (US\$ million)   | 2.75                               | N.A.          |                         | The information was not made available to the M&E consultant                                  |
| Number of GFA's signed   | 4                                  | 3             | 75%                     | Important efforts were made by HBOR to attract banks and sign GFAs despite the                |
| Disbursements in Guarantee Facility Account (US\$ million)   | 1.20                               | 0.9           | 75%                     | Grant proceeds were reallocated to HEP ESCO   |
| Guarantee claims paid (less than 5% of the outstanding guarantee liability amount; end-of-year rounded value) (US\$ million) | 0.14                               | 0             | 100%                    | Target achieved   |
| Net Reserves (US\$ million)  | 1.60                               | 0.9           | 56%                     | Grant proceeds were reallocated to HEP ESCO in May 2010                                       |
| Net outstanding exposure (based on guarantee liability amortization schedule) (US\$ million)                                 | 2.03                               | 0.9           | 44%                     | Only two guarantees were signed in September 2009 for US\$0.9 million                         |
| Liabilities to Reserves Ratio  | 1.91                               | 1             | 52%                     | The initial liabilities-to-reserves ratio was maintained due to lack of demand for guarantees |

### Annex 3. Economic and Financial Analysis

The economic and financial performance of the project used in the appraisal of this project in 2003 consisted of: (a) a cost-benefit analysis to evaluate the national benefits of the implementation of EE projects by HEP ESCO and (b) an incremental cost analysis to satisfy the GEF requirements. While the cost-benefit analysis evaluated HEP ESCO's economic and financial performance to achieve energy savings through the implementation of EE projects, the incremental cost analysis focused on the project's contribution to reduce CO<sub>2</sub> emissions. Against these criteria, the project has functioned relatively well during the implementation period supporting profitable investments, although realized energy savings and therefore environmental benefits were lower than expected.

#### *EE market Assessment and initial hypothesis*

The cost-benefit and incremental cost analysis in the PAD was based on a preliminary market assessment which estimated the potential of EE investments in Croatia and established the primary target markets for HEP ESCO. In addition, a pipeline of projects at different stages of preparation was identified. The market assessment and the pipeline indicated favorable financial and environmental characteristics based on high operating cost savings from EE investments, consisting mainly of projects in the private/commercial buildings (office, large hotels, residential) and district heating sectors.

| Type of projects and financial characteristics  | Assumption in the PAD | Realized |
|---|-----------------------|----------|
| Share of EE projects in public lighting in the portfolio (% of total investments)                               | 25%                   | 34%      |
| Share of EE projects in public buildings (schools and hospitals) in the portfolio (% of total investments)      | 14%                   | 50%      |
| Share of EE projects in industry and commercial buildings (hotels and in the portfolio (% of total investments) | 36%                   | 5%       |
| Share of EE projects in district heating and cogeneration in the portfolio (% of total investments)             | 25%                   | 11%      |
| Average simple payback  | 4-5                   | 8        |

In contrast, HEP ESCO-supported projects were predominantly in the street lighting and public buildings sector, including thermal refurbishment of schools, kindergartens, research institutions, and hospitals. These projects were characterized by less favorable financial conditions due to the predominance of high-cost measures (including some reconstruction works) given the poor state of some facilities. As a result, the average payback time was close to 8 years, compared 4 to 5 years as forecast in the PAD (see table above).

#### *Cost-benefit analysis*

At completion of the project, HEP ESCO developed 31 EE projects valued at US\$29.53 million. Energy savings generated over the lifetime of the project-catalyzed investments amount to 428,780 MWh of electricity and 1,045,476 GJ of heat, equivalent to 61.83 thousand tons of oil equivalent. Using the same methodology than in the PAD, the resulting economic rate of return (ERR) is estimated at over 18% (see table below). When the externality costs associated with emissions are not included, the ERR of the project is reduced to 10%. Included in the calculation of the economic rate of return of the project are the total avoided costs of fuel consumption, benefits from reduced operation and maintenance expenditures resulting from the improved performance of high efficiency equipment, benefits to end users from reduced operation and maintenance expenditures associated with the improved performance of high efficiency equipment, and environmental benefits associated with reduced air pollutant emissions of CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>).

The financial rate of return is estimated at 17%. The analysis is based on the net financial savings realized by HEP ESCO consisting of achieved energy savings valued at retail energy prices (incl. taxes and duties where applicable). Total costs are the direct investments costs since there were no client payment defaults.

#### **Summary of Cost-Benefit Analysis**

|   | Assumption in the PAD | Realized |
|---|-----------------------|----------|
| Project investments (US\$ million)                              | 35.4                  | 29.5     |
| Energy savings from project investments ('000 toe)              | 239                   | 62       |
| Value of energy avoided from project investments (US\$ million) | 97                    | 42       |
| CO2 reductions (tons of CO2e)                                   | 1,156,000             | 314,000  |
| <b><i>Economic Analysis</i></b>                                 |                       |          |
| ERR with externalities (%)                                      | 30.7 %                | 18%      |
| ERR without externalities (%)                                   | 18.3 %                | 10%      |
| <b><i>Financial Analysis</i></b>                                |                       |          |
| FRR (%)   | 26.6 %                | 17%      |

#### ***Incremental cost analysis***

The project has produced substantial reduction on GHG emission in Croatia by initiating and sustaining a market for EE services. The US\$29.53 million in EE investments will yield carbon dioxide reductions of 0.31 tCO<sub>2</sub> over the lifetime of the equipment installed.

With a total cost of the GEF project, including cost for TA, HEP ESCO investments, and funds for the guarantee fund operation of US\$6.9 million, the project will produce global benefits at a cost to GEF of 21.9 US\$/tCO<sub>2</sub>. From the country point of view, the costs would be substantially lower. The remaining guarantee funds at HBOR and recovered contingent grant amount to HEP ESCO would stay in the country and be available for additional EE activities as agreed in the plan for future operations with the Bank. They should therefore be subtracted from the initial cost. In this case, the mitigation cost (not counting the time valued of money) drops to US\$12.9/tCO<sub>2</sub>.

## Annex 4. Bank Lending and Implementation Support/Supervision Processes

### (a) Task Team members

| Names                       | Title                            | Unit  | Responsibility/<br>Specialty |
|-----------------------------|----------------------------------|-------|------------------------------|
| <b>Lending</b>              |                                  |       |                              |
| Rachid Benmessoud           | Team Leader                      | ECSEG | Team Lead                    |
| Yves Duvivier               | Team member                      | ECSEG | Financial Analyst            |
| Peter Law                   | Team member                      | ECSEG | Infrastructure Spec.         |
| Irina Kichigina             | Sr. Counsel                      | LEGEG | Lawyer                       |
| Elzbieta Sieminska          | Procurement Specialist           | ECSCS | Procurement                  |
| John Cowan                  | ESCO Management Specialist Cons. | ECSIE | ESCO Spec.                   |
| Hirant Heart                | Financial Management Specialist  | ECSPF | Financial Management         |
| Rory. O'Donoghue            | Financial Analyst Consultant     | ECSIE | Financial Analyst            |
| <b>Supervision/ICR</b>      |                                  |       |                              |
| Peter Johansen              | Team Leader                      | ECSSD | Team Lead                    |
| Angelica A. Fernandes       | Procurement Analyst              | ECSC2 | Procurement                  |
| Claudia Ines Vasquez Suarez | Consultant                       | ECSSD | Energy Economist             |
| Iwona Warzecha              | Sr Financial Management Spec     | ECSC3 | Financial Management         |
| Nicholay Chistyakov         | Disbursement Officer             | LOAG1 | Disbursement                 |
| Michael Gascoyne            | Senior Resource Management Off   | CFRPA | Resource Mngt.               |
| Mirela Mart                 | Consultant                       | ECSPS | Financial Management         |
| Elzbieta Sieminska          | Procurement Specialist           | ECSCS | Procurement                  |
| Ranjan Ganguli              | Financial Management Specialist  | ECSC3 | Financial Management         |
| Natasa Vetma                | Operations Officer               | ECSS3 | Env. Safeguards              |
| Stjepan Gabric              | Senior Operations Officer        | ECSS6 |                              |
| Roman Palac                 | Operations Analyst               | ECSIE |                              |
| John Cowan                  | ESCO Management Specialist Cons. | ECSIE | ESCO Spec.                   |
| Xiaoping Wang               | Sr Energy Spec.                  | LCSEG | Energy Specialist            |
| Hana Huzjak                 | Program Assistant                | ECCHR |                              |
| Rozena Serrano              | Program Assistant                | ECSSD |                              |
| Bogdanka Krtinic            | Program Assistant                | ECCHR |                              |

### (b) Staff Time and Cost

| Stage of Project Cycle | Staff Time and Cost (Bank Budget Only) |  |
|------------------------|--|--|
|                        | No. of staff weeks*                    | US\$ Thousands (including travel and consultant costs) |
| <b>Lending</b>         |  |  |
| FY03                   |  | 2.10   |
| <b>Supervision/ICR</b> |  |  |
| FY04                   |  | 19.84  |
| FY05                   |  | 12.57  |
| FY06                   |  | 39.20  |
| FY07                   |  | 83.57  |
| FY08                   |  | 55.86  |
| FY09                   |  | 51.62  |
| FY10                   |  | 34.30  |
| FY11                   |  | 17.59  |
| <b>Total:</b>          |  | 316.94   |

\*Note: Staff weeks are no longer supported by Bank information.

## Annex 5. Beneficiary Survey Results

### Survey Background

On behalf of the World Bank/GEF and HEP ESCO, Target Ltd. Croatia conducted a comprehensive survey among beneficiary representatives in November 2010. The main aim of the survey was to define the satisfaction of HEP ESCO clients with the services received as well as to understand more about the way the project had impacted their EE behavior.

The survey consisted of two separate but interrelated parts: (i) **in-depth interviews** which were conducted for 10 representative projects selected by HEP ESCO. The targeted group for the in-depth interviews were technical and professional staff as well as end-beneficiaries involved in the implementation of the project; (ii) **a consumer satisfaction survey (quantitative analysis)** was carried out by means of telephone survey, and it covered all projects implemented by HEP ESCO that were not covered by in-depth interviews. Both professional and technical staff (i.e city officials, heads of departments for cities' communal services, production managers and company directors) involved in the project as well as representatives from end-beneficiaries (headmasters of schools and high schools, hospital directors, etc) participated in the interviews and the telephone survey. Overall, 44 respondents representing HEP ESCO's customers groups: public lighting and buildings, industry, and energy supply systems) participated in the survey.

### Results

The results presented below reflect the data gained by the means of the above mentioned two different methodological approaches: quantitative analysis usually allows deriving causal relationships and generalizations, while qualitative analysis provides better insights into researched questions on a deeper level of analysis. Therefore, the main emphasis is given on quantitative data, expanding the findings of quantitative analysis with findings from qualitative analysis. The main results are summarized in the following headings: (i) Level of awareness about energy efficiency measures and about energy service contract (ESCO) model, (ii) HEP ESCO relations and overall satisfaction, (iii) EE projects results: savings, comfort, and functionality, and (iv) recommendations for HEP ESCO on how to improve the level of customer satisfaction based on the results of the survey are provided.

#### *5.1 Increased awareness of EE and the Energy Service Contract (ESCO) model*

**Nearly all participants assess themselves as well informed and knowledgeable about energy savings methods**, rating themselves mostly as very aware (54.5%) and aware (25%) of these methods. Remaining participants assess themselves as completely aware (18.2%), while only one participant considers himself to be rather not aware. When asked to specify in what ways they believe they can save energy, participants most often spontaneously mentioned thermal insulation (56.8%) and energy-saving light bulbs (54.5%). Other ways which were often mentioned are replacing old with new energy efficient equipment (39%), replacing joinery (36.6%), and turning off the light in the rooms which are not used (29.5%), as well as unplugging of chargers which are not currently in use (20.5%).

**Most of participants (65.9%) consider that their participation in HEP ESCO project raised their level of awareness about energy efficiency, and therefore changed their behavioral patterns, personally and professionally.** However, the remaining one third (34.1%) of the participants state that their personal behavior was not changed due to energy efficiency project. Reasons for that can be described best by findings of qualitative analysis, where more than half of interview participants stated that they were well informed about possible ways to save energy before the project implementation, which did not alter any of their behaviors, since they were already behaving in ways that promote energy

efficiency. In addition, two interviewed participants stated that HEP ESCO only changed the way they perceive methods of participating in energy efficiency projects, presenting them with quality methodology and financing solutions that were formerly unknown to them.

**For instance, representatives from public institutions reported that the implementation of HEP ESCO project was the key factor that inspired them to engage in energy savings campaigns.** Some headmasters of schools pointed out that they posted notifications all throughout schools (in form of stickers, notices and signs) that advise students about rational energy use, while some reported on schools' organized educations for students and their parents about energy saving methods. Three out of four schools participate in the international program "Eco schools"; therefore their headmasters try to rationalize energy resources in all possible manners.

**The implementation of HEP ESCO projects also helped demonstrate to the general public the advantages of implementing EE measures according to the majority of participants (65.9%).** Most interviewed headmasters consider that through changes in physical appearance of schools and improved comfort in schools, there has been an increase of interest among students' parents. Some interviewed city officials also note that there has been an increase in public awareness on importance of savings and reduction of light pollution after the implementation. This reported increase in public awareness was only reported by officials from smaller towns, where communication between residents and officials is more likely to transpire, while the participant from City of Zagreb pointed out that the area on which the lighting project was implemented was rather small, therefore only a relatively small proportion of citizens noticed it. Overall, 8 participants (6 headmasters of schools and 2 hospital director) stated that they cannot estimate whether there has been an increase in public awareness about energy efficiency advantages after the project implementation, while 4 headmasters and 2 county officials consider that such increase in public awareness did not occur.

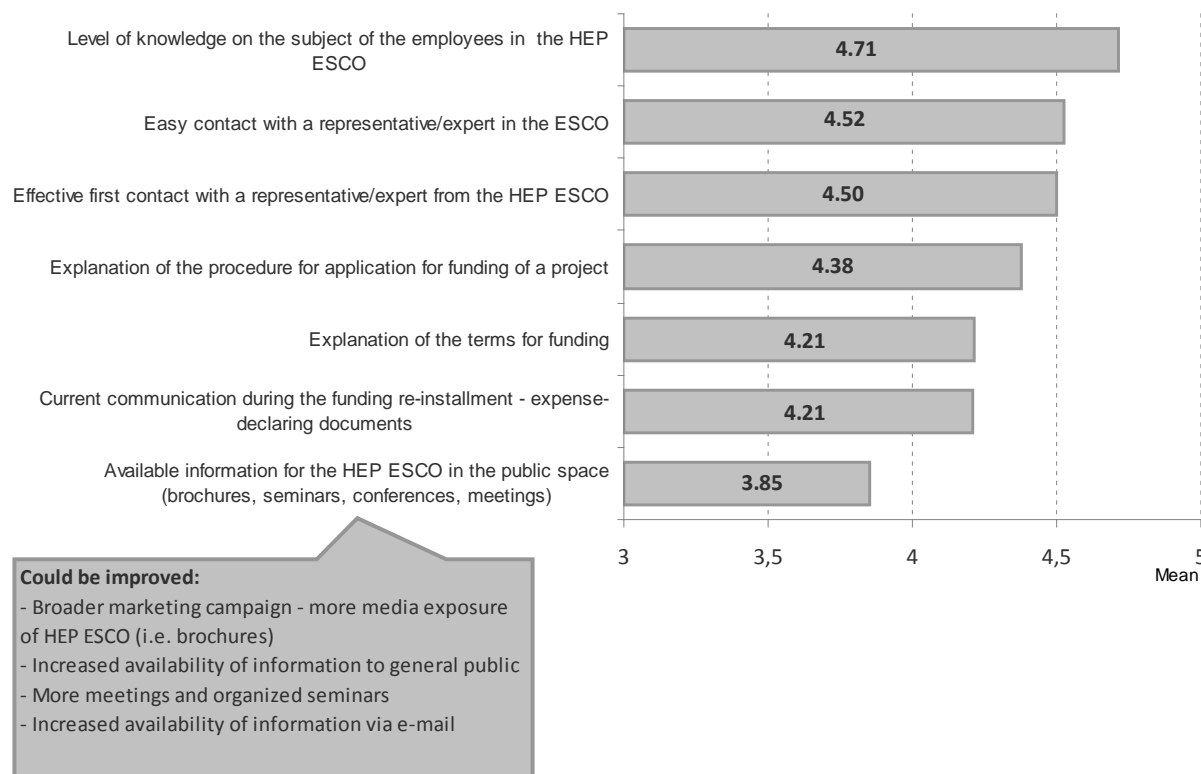
**Moreover, majority of participants (65.9%) state they know what an Energy Service Contract is.** However, participants who are representatives of technical and professional staff generally express greater level of knowledge regarding energy service contract (i.e. the duration of repayment and the intermediary role of HEP ESCO when participants of interviews are in question), than representatives of end-beneficiaries. End-beneficiary participants were mostly headmasters (and hospital directors) and their institutions were mostly included in a greater project on a municipal level; hence the contract management was performed on the county/city level. Participants, who consider they know what this Contract is, mostly describe it as a contract to finance energy efficient practices (89.7%). When asked about knowledge about HEP ESCO project credit and financing terms, most (26 out of 44) of the participants, all of which were end-beneficiaries, acquired it through their county/city officials. On the other hand, representatives of technical and professional staff acquired this information mostly via personal visit by a consultant from HEP ESCO (7 out of 12).

## ***5.2 HEP ESCO relations and overall satisfaction***

**Generally, participants express high levels of satisfaction in regard to accessibility, support and expertise of HEP ESCO representatives,** considering project characteristics related to availability of information on preparation, funding and realization of project satisfactory, which can be seen from high average ratings of satisfaction with these characteristics in the Graph below. Since a part of end-beneficiary participants could not evaluate some of the given characteristics, mainly regarding funding matters, they were excluded from the total number of participants in discussion and graphical presentation.

**Graph: Average rates of satisfaction with project characteristics related to contact with HEP ESCO representatives and availability of information (1-dissatisfied; 5-completely satisfied)**

**To what extent are you satisfied with:**



**Available information.** Most participants express that there is available information on HEP ESCO's activities in the public space, although more marketing efforts could be made. Most of the participants (61.4%) found out about HEP ESCO project through county/city officials' recommendations or initiatives, including the United Nations Development Program (UNDP) for EE. Participants who are representatives of technical and professional staff mostly found out about HEP ESCO project by direct contact from HEP ESCO: they received a letter of intent, or were visited by HEP ESCO representatives. Participants are rather (15 out of 40) or completely (12 out of 40) satisfied with availability of information regarding HEP ESCO. It is important to note that county/city officials tend to express more satisfaction with this information availability, since majority of them state that they are completely (6 out of 12) or rather (3 out of 12) satisfied. On the other hand, 4 end-beneficiaries state that they are not satisfied with availability of information for the HEP ESCO in the public space, suggesting that there should be more meetings and organized seminars regarding this matter, as well as increased availability of information via e-mail.

**Short project preparation and processing time.** For most of participants, time period necessary to make the final decision to apply for project funding was short, mostly up to 1 month (43.2%). Reasoning for that was mentioned in in-depth interviews: they recognized a beneficial opportunity, in terms of modernization and repair of existing systems with assured financing by HEP ESCO. However, more than one third of participants (36.4%) stated they do not know how long that period was. Since their institutions are in the ownership of counties/cities, they were not directly included in the decision making and contract matters. Only in the case of Sladorana reported period of making decision to apply for project funding was longer than 6 months.

**HEP ESCO: a good strategic partner for Croatian municipalities and companies.** Generally, participants state that HEP ESCO helped them make the final decision to implement their project mostly



by providing financing (65.9%). In addition, participants note that HEP ESCO helped them make the final decision to implement the project by demonstrating that the project was financially profitable (52.3%) and by providing technical information on how to design the project (52.3%). Participants of in-depth interviews provided more detailed explanations: they reported about initial feasibility and financial studies HEP ESCO presented them with upon first contact, trust in HEP ESCO personnel expertise, otherwise unattainable financial solutions for projects attainable through repayment through savings, project's credibility and scientific foundation, and transparency of public procurement.

**Smooth project implementation.** Regarding assessment of general course of communication with HEP ESCO during project implementation, majority of interviewed participants found the communication to be highly satisfying. Several participants had commendations in regard to their communication with HEP ESCO, stating that communication was very well organized, that HEP ESCO presented project offers very well and that they promptly and efficiently moderated between contractors and participants when problems arose with contractors during implementation. Moreover, one headmaster reported that through communication with HEP ESCO representatives he managed to negotiate expansion of works that were not previously planned in the project. The only objection was from headmistress from City of Varaždin, who found her attempts at possible modifications in project implementation with HEP ESCO ignored. Participant from City of Zagreb explained that in the beginning of project HEP ESCO representatives tried to marginalize and minimize the role of City's technical staff, but after City and HEP ESCO agreed on a partnership, communication went well.

**HEP ESCO brand name:** Regarding spontaneous associations when HEP ESCO is mentioned, participants mostly mention energy efficiency (31.8%). Other relatively frequent associations on HEP ESCO were energy savings (22.7%) and electrical energy (15.9%). Most of participants state that they would definitely (45.5%) or probably (36.4%) recommend HEP ESCO to a colleague or associate, while 13.6% of them state that they might make such recommendation. Several technical and professional staff during interviews mentioned that they already recommended HEP ESCO projects to their colleagues in their own cities or other cities, and that they plan to do so in the future. In addition, nearly all participants (86.4%) would use HEP ESCO services if financing another energy efficiency project. Moreover, several interview participants stated that they already accepted HEP ESCO's initiative on collaboration in further projects, or that they already proposed future projects to HEP ESCO.

### *5.3 EE projects results: savings, comfort, and functionality*

**Regarding different characteristics of energy efficiency project** (i.e. project execution terms, comfort resulting from the project, realized savings, appearance of the building and final impact of the project execution), **survey participants generally consider them highly satisfactory**, which can be observed from high average ratings of satisfaction with these characteristics in the table below. Again, since a part of participants (mostly end-beneficiaries) stated they cannot evaluate some of the given characteristics, they were excluded from the total number of participants in discussion and graphical presentation.

**When asked to enumerate all perceived benefits they believe they gained through HEP ESCO projects**, interviewed participants generally agreed that they benefited financially, through reduced costs of energy resources, as well as acquiring new and modern components and/or systems. Other benefits that interviewed participants mentioned include increase in students' and employees' energy efficiency awareness, aesthetics and improved conditions in schools that contribute to students' and teachers' better and more stimulating work climate, know-how for future projects, and project benefits that are used in promotion of tourism (e.g. campaigns that promote City of Novigrad's protection from light pollution).

**Table: Average rates of satisfaction with project characteristics related to the final outcomes of the project (1-dissatisfied; 5-completely satisfied)**

|  | <b>Average</b> |
|--|----------------|
| 1. Project execution timing  | 4.48           |
| 2. Comfort resulting from the project (better lighting, better temperature etc.) | 4.54           |
| 3. Realized savings (less overheads)   | 4.39           |
| 4. Appearance of the building  | 4.33           |
| 5. Final impact of the project execution   | 4.41           |

**Comfort resulting from the project is considered to be the most satisfactory out of given project characteristics:** majority of participants rate it as completely (52.3%) or moderately (31.8%) satisfactory. One of two participants who were neither satisfied, nor dissatisfied, explained that in her school problems with heating and hot water were not resolved after project implementation, although conditions have somewhat improved when compared to school's previous state. Similarly, one headmistress expressed medium satisfaction, since she believes that project design did not incorporate all necessary components to achieve maximum benefits.

**Satisfaction with realized savings was also emphasized among participants;** they rate it mostly as completely (45.5%) or moderately (34.1%) satisfactory. Participants who were neither satisfied, nor dissatisfied or dissatisfied suggested that these savings should be more visible, and noted there was an increase in energy prices. Regarding the physical appearance of the buildings, high level of satisfaction among participants can be noted: they mostly express they are completely (43.2%) or rather (22.7%) satisfied. The only participant who was dissatisfied stated that they had objections, which were gradually removed.

#### ***5.4 Recommendations for HEP ESCO for improving the level of customer satisfaction***

- General recommendations that interviewed participants state include better presentation of HEP ESCO to the general public via marketing campaigns, educations and brochures targeted to general public (and students).
- Participants believe that it would be useful if such energy efficiency projects were directed not only to institutions and municipalities, but also to citizens, providing them opportunities for the same financing model. Recommendation of headmasters to HEP ESCO was to establish direct contacts with end-users.
- Some participants believe that it would be useful if HEP ESCO was decentralized by establishing regional centers, which would ease the communication and cooperation with HEP ESCO for municipalities which are dislocated from HEP ESCO headquarters.
- Other participants believe that HEP ESCO should establish monitoring systems for installations and realized savings for a broader period after the project implementation. Hospital director stated that HEP ESCO should hire local contractors, in order to minimize the expenses.

**Annex 6. Stakeholder Workshop Report and Results**

*(if any)*

N.A.

## **Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR**

A questionnaire was developed to assist the Recipient of the GEF grant in providing inputs to the ICR and discussed with the two main counterparts: MoELE, HBOR, and HEP ESCO.

### **Comments by the Ministry of Economy, Labor and Entrepreneurship**

#### **(i) Assessment of the operation's objective, design, implementation, and operational experience**

The project was well designed and implemented at a very appropriate time. Improving energy efficiency is now one of the cornerstones of the Government's energy policy and the successful implementation of the project has helped the country move in the right direction.

The projects' objective of increasing the energy efficiency market by overcoming key barriers to its development has been fully reached. In particular, the creation of the Energy Service Company within the national power utility (HEP ESCO) was key in demonstrating the viability of developing, financing and implementing energy efficiency projects on a commercial basis, using local businesses.

#### **(ii) Assessment of the outcome/result of the operation against the agreed objectives;**

Key impacts of the project are as follows:

- a) The project **fostered the development of the EE market** by creating business opportunities to local vendors and suppliers;
- b) As a result of the successfully implementation of the ESCO component, **the National Energy Strategy foresees a key role for Energy Service Companies (ESCOs)** to help the country achieve its energy savings targets;
- c) The vast operational experience in implementing energy efficiency projects **helped establish realistic quantitative national energy savings objectives** in the **National Energy Strategy** (released in 2009) and the **Energy Efficiency Law**;
- d) The projects' on-the-ground experience in the energy efficiency field **helped identify concrete legislative and regulatory barriers** (i.e. procurement and budgetary issues for municipal governments to hire ESCOs) to the development of the energy efficiency market. The government took into account these legislative and regulatory barriers in the formulation of the Energy Efficiency Law; and
- e) The Technical Assistance component of the project has greatly contributed to enhance capacity at the Government in the energy efficiency field. Also HEP ESCO's participation in workshops and other events significantly helped create awareness in the country.

#### **(iii) Evaluation of the recipient's own performance during the preparation and implementation of the operation, with special emphasis on lessons learned that may be helpful in the future;**

The Government has been very supportive of the EE project through the implementation phase. Effective communication was established between the Ministry of Economy, the World Bank team and the implementing agency HEP ESCO. This created constant feedback on the issues arising during implementation and allowed for their timely resolution.

**(iv) Evaluation of the performance of the World Bank during the preparation and implementation of the operation, including the effectiveness of their relationships, with special emphasis on lessons learned;**

The Government is fully satisfied with the World Bank's supervision performance. The World Bank was flexible in adapting the project's implementation arrangements (i.e. Project Implementation Plan, reallocations) to reflect changed market conditions. Also, **the Bank's annual portfolio review meetings** held together with government officials helped identify issues and engage in fruitful high level policy dialogue.

**(v) Evaluation of the proposed arrangements for future operation of the project.**

HEP ESCO will remain a key player in the energy efficiency market in Croatia. It will remain a fully-owned subsidiary of HEP and will push forward the energy efficiency agenda with the country's largest energy supplier.

The Government has recently put in place regulations and incentive schemes to further develop the energy efficiency market. The Government expects that following the successful example of HEP ESCO, other Service Companies will enter the energy efficiency market, thereby contributing to create a truly competitive market.

## **Comments by Croatian Bank for Reconstruction and Development (HBOR)**

### ***General Provisions***

|                         |  |
|-------------------------|--|
| Recipient of the Grant: | Republic of Croatia, Ministry of Finance         |
| Implementing Agency:    | Croatian Bank for Reconstruction and Development |
| Effectiveness Date:     | November 10, 2003                                |
| Closing Date:           | June 30, 2010                                    |
| Estimated Project Cost: | US\$ 2.0 million                                 |
| Total Project Cost:     | US\$ 0.9 million                                 |

GEF through World Bank developed guarantee program to support financing of energy efficiency (EE) projects by domestic financial institutions in Croatia. This guarantee program is funded with the grants from the GEF, channeled through the World Bank as GEF implementing agency. HBOR has agreed to serve as the local implementing agency for the EE guarantee program.

Budget for the GEF EE guarantee program was US\$ 2 million. Partial credit guarantee should address perceived credit risks common in emerging financial markets by mitigating the risk of end-user default in payment obligations to energy services providers or commercial lenders.

### ***Main Objectives***

- Increase the demand and supply of EE projects and services i.e. to create EE market in Croatia
- Directly support the financing of EE projects by addressing credit risk and transaction structuring barriers to EE finance
- Engage and build capacities of commercial financial institutions to provide financing for EE projects on commercially sustainable basis

### ***Brief Description***

Application for issuing a bank guarantee may be submitted by local government and self-government units, municipal companies, companies, tradesmen and other legal and physical persons resident or domiciled in the Republic of Croatia.

Guarantees are provided to local banks to share in the credit risk of EE loans. Participating banks are selected on the basis of their interest and capabilities in financing EE projects.

After long negotiations HBOR signed Guarantee Facility Agreements (GFA) with three banks:

- Privredna Banka Zagreb d.d. on December 22, 2008
- Raiffeisen Bank Austria d.d. on January 18, 2008
- OTP banka Hrvatska d.d. on January 21, 2008

Participating banks proposed specific transactions to be included under the Guarantee Framework Agreement. Upon approval of the transactions, loan guarantees would be issued and executed by HBOR

### **Privredna banka Zagreb dd – Agreement On Business Co-Operation**

On May 13 2009, Addendum I to the Agreement on Business Co-operation under the Bank Guarantees Issuance Programme for Energy Efficiency Projects was signed between PBZ and HBOR. By the Addendum, the limit for issuing bank guarantees defined in Article 3, paragraph 3.03 of the above

mentioned Agreement was changed to increase the former limit for issuing a bank guarantee from US\$ 600,000 to US\$ 1,200,000.

***Belišće d.d.*** Belišće d.d. financed the investment of reconstruction of Boilers K3 and K4 using HBOR loan via PBZ. Both investments have been confirmed as an investment in energy efficiency by UNDP technical adviser and meet the eligibility criteria of the Bank Guarantees Issuance Program.

In co-operation with PBZ and the company Belišće, HBOR prepared documentation and agreed upon the procedures regarding the issue of two bank guarantees in favor of PBZ for the principal Belišće. The total amount of the two loans approved to Belišće from PBZ (out of HBOR's funds) is EUR 1.293.731,41 (HRK 9,515,912.00), and two 4-year term bank guarantees were issued on September 14, 2009 in the total amount of EUR 646.865,71 (HRK 4,757,956.0, US\$ 894,033.50), covering 50% of the loans.

### **Raiffeisenbank Austria d.d.**

On the recommendation of IBRD, on 10<sup>th</sup> March 2009, HBOR sent a letter to OTP Banka Hrvatska d.d. and to Raiffeisenbank Austria d.d., regarding the projects that would be eligible for the bank guarantee program. Further to the above, both banks sent projects that can be eligible.

RBA Bank sent a proposal of one project that includes small electricity producers by means of installed photovoltaic cells. Namely, the project was in initial phase and at the end HBOR did not receive application for issuing guarantee.

### **OTP banka Hrvatska d.d.**

#### ***Special hospital Kalos***

OTP Banka sent loan application as well as application for issuing a bank guarantee for special hospital Kalos for usage of liquefied natural gas and solar energy for the preparation and heating of water.

The documentation relating to this investment was forwarded to UNDP for technical evaluation. Their opinion was that significant savings in financial terms would be made and ecological impacts in terms of reduction of gas emissions effected in comparison with the existing solution, due to the substitution of energy sources and usage of solar energy.

Based on submitted documentation, HBOR's special units are currently conducting evaluation of the project.

#### **(i) Assessment of the operation's objective, design, implementation, and operational experience**

The main objectives of the WB/ for undertaking an EE finance Program are to:

- Directly support financing of EE projects by addressing credit risk and transaction structuring barriers to EE finance, and
- Engage and build capacities of commercial banks to provide financing for EE projects on a commercially sustainable basis

Capital market conditions in Croatia indicated that a Guarantee Facility may be effective to increase EE lending. Interest rates were at reasonably attractive levels, with rates for Kuna-denominated long term loans (over 2 years) in the 5-6 % p.a. range. However, commercial banks in Croatia are generally using very conservative and risk adverse lending criteria and, according to current banking regulations, must require high

levels of fixed asset security for loans, depending on the credit status of the borrower. A guarantee was introduced as a potential way to allow banks to replace collateral, which was usually in the form of real estate assets, with a partial credit guarantee from HBOR.

An effective EE finance Guarantee Facility was intended as a credit risk management tool for Participating Banks to support them in offering finance on more attractive terms for EE projects than they would in absent of such a guarantee. The Guarantee Facility was combined with a technical assistance (TA) program whose main purpose is to assist participating banks and EE businesses to generate well-prepared projects for investment.

As previously agreed UNDP provided free technical assistance what was very helpful for HBOR and participating banks. After UNDP withdraw 600.000 US\$ in December 2008 from the Guarantee Facility, IBRD covered the difference, and the total budget for the GEF EE guarantee program was US\$ 2 million. HBOR signed the contract with EPEEF for subsidies for EE projects and supported the program with additional US\$ 2 million. Loans approved by HBOR with GFA could be subsidized with additional 2%

#### **(ii) Assessment of the outcome/result of the operation against the agreed objectives**

An important strategy for the success of the Program was to put into place a TA program to provide banks, EE businesses, and end users with the basic tools of EE finance, and to help these entities improve and improve their knowledge and skills in EE finance over time.

In September 2008, HBOR used TA and organized a workshop for participating banks. The workshop introduced a program of issuing bank guarantees for energy efficiency projects, similar to programs in neighboring countries (Hungary). The workshop demonstrated that EE business could be good a source of business opportunity for banks.

**From the very beginning of the project, the main complaint from banks was the excessive paperwork.** Maybe it could be useful to go one step forward and prepare short manual for the participating bank with all important notes and organize more like a case study workshop.

Eligible EE transactions for this Program are based on WB/GEF project selection criteria. The primary definition of eligible EE transactions shall be investments for projects and equipment aimed at improving efficiency of energy use in buildings and facilities. Investments must be for new projects, not refinancing existing projects, and for projects using proven technology that are developed with competent energy audit/feasibility studies and include energy savings monitoring plans. The eligibility criteria includes EE investments in district heating and heat network systems, including thermal and cogeneration plants, provided that the heat supplied is used for space conditioning and domestic hot water in buildings. Guarantees can support loans for greenfield projects using high efficiency technologies/systems provided that an appropriate energy baseline can be established. A broad range of end-user sectors are eligible including multi-family residential, commercial, small and medium enterprises, institutional (e.g., schools and hospitals), municipal and district heating.

**The main obstacle to the successful implementation of the program was the lack of demand for guarantees for EE projects. Banks did not recognize EE projects and did not use technical assistance for marketing activities.**

Marketing activities done by banks could be covered from the Technical assistance with 50% gross amount for acceptable activities such as:

- Preparation, print-out and distribution of booklets and materials for the loan program for PEU which will use bank guarantee,



- Advertising or newspaper articles for target group of end customers,
- Development and implementation of the marketing program, for ex. presentations, cooperation with organizations in energy efficiency sector, etc.

**(iii) Evaluation of the recipient’s own performance during the preparation and implementation of the operation, with special emphasis on lessons learned that may be helpful in the future**

HBOR has experience in working with WB financed projects. In this project HBOR agreed to provide in-kind staff and IT support and overhead resources for program administration and operations. HBOR established the Program management unit within the Credit Division.

*Management.* For the purposes of management, oversight and credit decisions, Guarantee Facility staff reported to the HBOR Management Board.

The operating budget for the Guarantee Facility consists of staffing costs and corporate overhead. The Credit Division, Infrastructure Unit was charged with the responsibility to manage the Guarantee Facility Account. A Program manager and Assistant program manager were allocated to the Guarantee Facility Account on a full time basis. Other staff resources for legal, accounting and information technology were allocated to the Guarantee Facility Account on a “part-time” basis.

HBOR made its best efforts to make this program successful:

- Presented the EE program in chambers of economy in several cities,
- Connected existing loan programs with guarantees for EE projects,
- Contacted participating banks and helping them to choose eligible projects,
- Signed contract with EPEEF (subsidies for EE projects).

Banks and the market did not show the interest for this financial product as it was expected.

**(iv) Evaluation of the performance of the World Bank during the preparation and implementation of the operation, including the effectiveness of their relationships, with special emphasis on lessons learned**

An important strategy for the success of the Program is to put into place a TA program to provide banks, EE/ESCO businesses and end users with the basic tools of EE finance, and to help these entities improve and sharpen their knowledge and skills in EE finance over time. The Guarantee Facility will be complemented by a TA program to support preparation of EE projects for investment, build capacities of banks to market and originate transactions in this area, and build capacities of EE and ESCO businesses. TA may include:

- Training in EE finance;
- Assistance in marketing, including helping banks establish relationships with EE businesses, equipment vendors, contractors and project developers who need financing to support their sales
- Development of niche EE finance products; and
- Technical due diligence on projects during finance origination to confirm energy savings estimates and technical viability of projects.

**The WB team was very helpful during the preparation and implementation phase. They put their efforts to keep program going, after UNDP withdraw their funds.**

More attention could be given to TA and helping HBOR and banks to recognize the potential clients in EE projects.

We consider that instrument of partial guarantee of small amount was not attractive for commercial banks participated in the Guarantee Program.

**(v) Evaluation of the proposed arrangements for future operation of the project**

Marketing was key to the program success. It was anticipated that the marketing activities would be conducted by several parties: HBOR, participating banks, supporting consultants and marketing firms, and ESCO/EE firms. Several audiences could be targeted: including Participating Banks and their staff, EE/ESCO businesses and, in particular, the end-users.

The project of this kind must focus on:

1. Lack of capacity and know-how
2. Lack of development of project financing (project financing as such does not exist in Croatian financial sector)
3. Lack of consumer demand

The **guarantee program to support financing of energy efficiency was not suitable because this was not attractive product for Croatian market.** Grant given for subsidies for EE project would have much better effect in developing Croatian EE market.

## Comments by HEP ESCO

### (i) Assessment of the operation's objective, design, implementation, and operational experience

*Do you think that the objectives of the project adequately reflected the Recipient's needs when the project became effective?*

Yes, at that time the project's objectives reflected the Recipient needs and were defined adequately defined.

*Do you think that the World Bank and the Recipient had the same understanding of the objectives of the project?*

Yes, the World Bank and HEP ESCO had the same understanding.

*Do you think that the project design (its components and relative size of components, their interaction) was consistent with the stated objectives?*

Yes, at the time when the project was prepared, the design was consistent with the stated objectives.

*To what extent did key project participants (ministries and agencies, utility operators, representatives of municipalities, potential investors, energy consumers, etc.) participate in setting objectives/tasks of the project and in its preparation?*

Ministries and banks provided information in the preparation phase during consultation meetings. However, key project participants didn't participate or poorly participated in setting the project's objectives.

### (ii) Assessment of the outcome/result of the operation against the agreed objectives

*How would you describe the most significant economic, financial, social, institutional, and environmental conditions in which the project was implemented?*

*Economic* – the private sector (industry companies and service companies including hotels) faced important risks and high uncertainty in their activity, which made it difficult to engage in long-term contracts (what is required in an ESCO project). As a result of slow economic growth (and economic contraction during the economic crisis), several firms went into bankrupt and those that survived face uncertainty in the short-term.

*Financial* – borrowers face pretty high interest rates in Croatia. However, this was not a problem for HEP ESCO since loans were made through HEP, which is a creditworthy client. HEP ESCO was able to access financing through a credit line at lower interest rates. There was no need to go for financing on a project by project basis. Accessing financing was not issue during project implementation.

*Social* – because of the difficult economic environment for the private sector, HEP ESCO focused in the public buildings sector; mainly hospitals and schools. These facilities were in very poor conditions and it was very difficult to implement exclusively EE measures since there was a need for an overall refurbishment of the installations.

The knowledge of energy efficiency was very poor and living standards were low. Investments in energy efficiency and environmental protection were not a high priority, even if these investments are repaid

from the energy savings generated by the project. At that time, the focus was on fulfilling people's primary needs.

*Institutional* – when the project was designed, there was not any government body in charge of energy efficiency. Since 2004, important efforts were made to put in place the institutional and legal framework. However, enforcement was an issue.

*To what extent were the objectives of the project achieved (as much as possible, please provide factual data supporting your point of view)?*

The first development objective of the project, creating a core developer of energy efficiency projects in Croatia, is fulfilled. HEP ESCO became a leader in the energy efficiency field in Croatia and a leader ESCO in the region. Important marketing and dissemination efforts (both on EE and on the ESCO model) were made throughout the country and also in the region and know-how was transferred. A market for EE services was definitely created, but because of legislative barriers, the development of other ESCOs failed. However, the project helped the launch development of the market and it is now just a matter of time for other ESCOs to enter the market.

*What were the main reasons for the success (or failure) in achieving the objective (and sub-objectives) of the project?*

The most important factor of success for HEP ESCO is the enthusiasm and hard work of its staff. Another contributing factor was an official clarification (in the form of a letter from Ministry of Finance) which stated that loans contracted with HEP ESCO were not considered as commercial credits for Municipal Governments and therefore, they did not count under their debt cap. As a result, demand for EE projects in municipalities (mainly street lighting and buildings sector) increased and became the target market of HEP ESCO.

However, the exemption applied only to HEP ESCO. One of the failures of the project was that a competitive ESCO market did not develop despite the establishment of a leader company. Municipal entities proved to be a good target sector for the ESCO model given the high risk associated with working on a long term basis with the private sector in Croatia. For other ESCOs to develop, legislative and regulatory barriers need to be addressed. For instance, the clarification that ESCO contracts do not count as commercial credits should be stated in the EE and budget Laws. Unfortunately, this did not happen during the project's implementation.

*Which achievements of the project do you consider the most significant?*

The main achievement was the development of the energy efficiency market and the transfer of know-how to different market participants: local municipalities, consultants, designers, banks. The second major achievement was awareness raising on energy efficiency and the need for changes in attitude regarding energy waste.

**(ii) Evaluation of the recipient's own performance during the preparation and implementation of the operation, with special emphasis on lessons learned that may be helpful in the future**

*How would you evaluate the degree of the project support by the Government of Croatia at the project preparation stage?*

The support provided was adequate.

*Did the ministries in charge and other concerned agencies of the Government do everything needed for successful launch of the project (staffing, policy, technical aspects and resources)*

HEP ESCO had adequate support from the government at the launching of the project.

*How would you evaluate the degree of the project support by the Government of Croatia at the project implementation stage?*

There is some room for improvement. At the beginning, a representative from the Ministry of Finance was appointed as a member of the management board of HEP ESCO. The representative was very supportive of the project and provided useful advice to help HEP ESCO solve key issues when working with public entities. However, after the representative left, he was not replaced and there was no further support from a key player such as Min. of Finance. We consider that HEP ESCO (being a public company) was on the right track by working with the Government to help creating a good legal framework for the ESCO model.

*If a similar project happens in the future, what aspects of the role implemented by the Government during project preparation should be in greater focus to properly build on the experience and lessons of this project?*

The Government should be actively involved in the project, by assigning a team of representatives in the preparation team with clearly defined roles and responsibilities. It is of utmost importance that this group has access to high-level officials and decision makers. Such arrangement could be discussed and agreed with the Bank. This would be important for the project to initiate significant changes in any sector at the country-wide level.

**(iii) Evaluation of the performance of the World Bank during the preparation and implementation of the operation, including the effectiveness of their relationships, with special emphasis on lessons learned**

*How would you evaluate the performance of the World Bank as the implementing agency of this GEF grant during project preparation?*

The Bank's role during the preparation stage was very good. The team made an excellent effort to take into consideration all the specific issues in the country and in the region when designing the project. We were very satisfied with the Bank's intervention.

*To what extent, in your view, did the World Bank succeed in understanding the objectives of the project and reaching consensus with the Government?*

The Bank succeeded in understanding the objectives of the project.

*Did the World Bank team have sufficient experience and knowledge for successful preparation of the project?*

Yes, they had.

*How successfully did the World Bank interact with the Government and/or other counterparts during mobilization of resources for cofinancing of the project?*

In this project, the role of the Government regarding cofinancing was not relevant. HEP and HEP ESCO made all the arrangements to access the necessary resources to cofinance the projects. No important problems were encountered and there was no need for WB interference.

*If a similar project is implemented in the future, what aspects of the role taken by the World Bank during project preparation should be in greater focus to properly build on the experience and lessons of this project?*

More attention could be given to the preparation of the business plan of the ESCO Company. This business plan could take into account more realistic assumptions for the evolution of the project's activity; especially in the initial phase. Our experience is that the business plan was too optimistic. Also, the design of the project could be made simpler. In this project, there were two different components which were executed by different implementation agencies, involving different stakeholders (HBOR and HEP ESCO).

*How would you evaluate the World Bank performance during project implementation?*

The World Bank's performance during project implementation was adequate. Intervention to solve issues and problems was also timely. The Bank team had a good understanding of the country specific situation, the project specific needs, including the need for reallocations of proceeds.

*Did the World Bank, in your view, respond adequately and timely to changes that took place in the country and could affect the outcome of the project?*

Yes, during implementation, the World Bank responded adequately to changes in the country that could have affected the outcome of the project.

*Did the World Bank team have sufficient experience and knowledge for successful supervision of project implementation?*

Yes, they have. But our impression is that although the governments are involved in the contracts; sign the contracts, after in the implementation there was no tool from the Banks side to force them to do their obligations. This project is specific so this is our meaning just according to this experience.

*How successfully did the World Bank interact with the Government and/or other counterparts during mobilization of resources for cofinancing of the project?*

The Bank did not intervene to mobilize resources to cofinance the project during implementations since this was not necessary.

*If a similar project happens in the future, what aspects of the role taken by the World Bank during project implementation should be in greater focus to properly build on the experience and lessons of this project?*

It would be advisable to design the project to have one implementing agency so that the objectives, roles and obligations of the each stakeholders are clearly defined.

*Did the project, in your opinion, contribute to institutional strengthening: for example, did the project help improve the regulatory framework for EE or enhance the capacity of local businesses to carry out EE project development, financing, and implementation?*

The project helped improve the regulatory framework for EE. In particular, HEP ESCO provided inputs during the preparation of primary and secondary legislation (sub-laws) on EE. The project also helped raise awareness and emphasize the importance of energy conservation projects for public sector entities.

*Can you provide specific examples of where, in your view, such contribution of the project was the most significant?*

Project's contribution were the most significant in the establishment of HEP-ESCO (first company in Croatia to develop, implement, and finance EE projects), which contributes to the development of the EE market by: helping small and medium enterprises undertake EE projects, raising awareness, involving foreign and local banks in project financing, and by establishing relations between key institutions. Through the implementation of EE projects, energy savings are realized, thus helping the government reaching its energy savings targets in line with the EU 20-20 package.

*How good are the chances that these results will have a lasting impact?*

These results achieved will have a lasting impact. HEP-ESCO will continue with the implementation of EE projects after Project closing date and banks will continue to finance EE projects. HEP ESCO started the EE market, and with an increasingly important role of EE, it is very likely that more ESCOs and other EE projects will be created/developed in the near term.

#### **(iv) Evaluation of the proposed arrangements for future operation of the project**

*Do you anticipate any difficulties in regular operations of any project participants (ministries and agencies, municipalities, EE project developers, etc.) after the termination of financing from the GEF grant?*

No, we do not anticipate any difficulties in the regular operations of HEP ESCO after termination of the GEF project. We established and a good performing ESCO company. We envision continuing our traditional business activities and expand to propose consulting services regarding ESCO business in the country and in the region. In terms of financing, banks participate in the EE market and we do not expect problems in accessing financing for our operations in the future.

#### **(v) Key Lessons Learnt**

- EE projects on an ESCO contracting model are difficult to implement when the ESCO company needs to follow public procurement rules and the client is a private company. Since World Bank-financed projects need to follow the Bank's procurement guidelines, it is easier to work on an ESCO model with public sector clients, which also need to follow procurement rules.
- Timely support from the Government to address the legislative and regulatory barriers to is key to the successful of the project.
- During the preparation phase, technical and expert support from consultants with regional know-how is important, as opposed to consultants exclusively from the developed countries. In addition, their remuneration should not be pro bono.
- When the PIU is a daughter company from a public entity, it is important that issues such as staff planning (including skill mix and incentive remuneration schemes) are addressed early on, during preparation phase. Remuneration systems based on performance-paid bonuses could be appropriate in an ESCO business. HEP ESCO faced important problems to retain valuable trained people due low

salaries, which are based on the parent's company remuneration scale. HEP ESCO lost highly qualified staff for this reason and their replacement was very hard. People are always the key factor of success.

- Considerable administrative efforts were necessary to comply with the World Bank's requirements. During the preparation phase, it is important to ensure that enough resources and staff will be available to ease the administrative burden placed on management. Also, it is important that management has access to decision to discuss and find suitable solution to these problems.



## **Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders**

### **Comments by UNDP**

#### **(i) Assessment of the operation's objective, design, implementation, and operational experience**

Project objective – to enable the creation of EE market in Croatia through introduction and support of the Energy Service Company was good and much needed in Croatia.

Project implementation is run through good management teams, and close collaboration with a wide range of stakeholders, including UNDP.

#### **(ii) Assessment of the outcome/result of the operation;**

Contribution of the WB Energy Efficiency Project to the development of economically sustainable market for energy efficiency goods and services is major and visible. Successful creation and management of the first Energy Service Company in Croatia - HEP ESCO had a very significant role in this accomplishment. HEP ESCO has enabled implementation of newly created pipeline of project proposals and became an indispensable partner to local and regional governments i.e. public sector interested in investments in energy efficiency, but unable to secure funds necessary for such improvements.

#### **(iii) Evaluation of the effectiveness of the relationship between the stakeholder and the World Bank during the preparation and implementation of the operation, with special emphasis on lessons learned that may be helpful in the future**

Relationship between UNDP and WB during the implementation of the project was excellent, mostly due to the fact that UNDP/GEF Energy efficiency project was being implemented at the same time, and without good cooperation, synergy effects would be lost. Fortunately, thanks to constant communication and agreements on the levels of Program officers from the WB and UNDP, and also project managers of both projects, activities were implemented in the way to support each other efforts. Best example is HEP ESCO following on the UNDP free energy audits.

UNDP on the other hand, having immediate and working relationship with local governments, made an effort in the promotion and information sharing to potential beneficiaries about ESCO concept advantages.

#### **(iv) Evaluation of the performance of the World Bank during the preparation and implementation of the operation, with special emphasis on lessons learned**

Performance is good and professional – without it, such results wouldn't be possible. The cooperation and synergies (as opposed to competition) of the two GEF projects, one implemented by the WB, the other by UNDP, has added value to achieving the big picture goal at the national level i.e. creation of market for energy efficiency products and services.

#### **(v) Evaluation of the prospects for future operation of the project, with an emphasis on the sustainability of the project**

The whole concept of Energy service contracting now has an excellent perspective in Croatia, because HEP ESCO activities were not just economically feasible, with good returns and results, but also the concept was demonstrated, proved viable so HEP-ESCO is at the same time an excellent promoter of the ESCO concept in Croatia.

## **Annex 9. List of Supporting Documents**

1. Project Document dated September 2005
2. Project Implementation Plan
3. Aide Memoires and Implementation Status Reports
4. Financial Monitoring Reports
5. Legal documents, including GEF Trust Fund Grant Agreement and Project Agreement
6. Letters sent form HBOR (dated June 28, 2010) and HEP (dated June 30, 2010) regarding the plans for continued operation of the Partial Credit Guarantee Facility and HEP ESCO, respectively.
7. Beneficiary survey carried out by Target Ltd dated December 2010.

# CROATIA

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- SELECTED CITIES AND TOWNS
- ⊙ COUNTY (ŽUPANIJA) CAPITALS
- ⊕ NATIONAL CAPITAL
- RIVERS
- MAIN ROADS
- RAILROADS
- COUNTY (ŽUPANIJA) BOUNDARIES
- INTERNATIONAL BOUNDARIES

