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The World Bank

Report No: ICR00001558

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-54973)

ON A

GRANT FROM THE GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US$ 5.5 MILLION

TO THE

REPUBLIC OF CROATIA

FOR A

RENEWABLE ENERGY RESOURCES PROJECT

November 29, 2010

Sustainable Development Sector Unit
Central/South Europe and Baltics Country Department
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective October 31, 2010)

Currency Unit = HRK
HRK 1.00 = US$ 0.183
US$ 1.00 = HRK 5.46

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CERA	Croatian Energy Regulatory Agency
CLF	Contingent Loan Facility
CO2	Carbon Dioxide
DSO	Distribution System Operator
EPEEF	Environmental Protection and Energy Efficiency Fund
FMR	Financial Monitoring Report
FMS	Financial Management Specialist
GEF	Global Environment Facility
GEO	Global Environmental Objective
GoC	Government of Croatia
HBOR	Hrvatska banka za obnovu i razvitak (Croatian Bank for Reconstruction and Development)
HEP	Hrvatska Elektropriveda (Croatian Electricy Company)
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion (and Results) Report
ISR	Implementation Status and Results Report
MoELE	Ministry of Economy, Labour and Entrepreneurship
MoEPPPC	Ministry of Environmental Protection, Physical Planning and Construction
M&E	Monitoring and Evaluation
PD	Project Document
PCG	Partial Credit Guarantee
PIU	Project Implementation Unit
PPP	Purchasing Power Parity
RE	Renewable Energy
REAF	Renewable Energy Advisory Facility
tCO2	Ton of CO2
toe	Tons of oil equivalent
TSO	Transmission System Operator

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CROATIA
RENEWABLE ENERGY RESOURCES PROJECT

CONTENTS

A. Basic Information

Country:	Croatia	Project Name:	Renewable Energy Resources Project
Project ID:	P071464	L/C/TF Number(s):	TF-54973
ICR Date:	11/29/2010	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	CROATIAN DEVELOPMENT BANK
Original Total Commitment:	USD 5.5M	Disbursed Amount:	USD 4.0M
Revised Amount:	USD 4.0M		
Environmental Category: C		**Global Focal Area: C**	

Implementing Agencies:
HBOR
Ministry of Economy, Labor and Entrepreneurship

Cofinanciers and Other External Partners:
Environmental Protection and Energy Efficiency Fund

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	05/06/2002	Effectiveness:	11/24/2005	11/23/2005
Appraisal:	02/21/2005	Restructuring(s):		03/30/2010
Approval:	06/23/2005	Mid-term Review:	10/25/2007	12/15/2008
		Closing:	01/01/1950	05/31/2010

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Moderately Unsatisfactory
Risk to Global Environment Outcome	Substantial
Bank Performance:	Moderately Unsatisfactory
Borrower Performance:	Moderately Unsatisfactory

C.2 Detailed Ratings of Bank and Borrower Performance

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Moderately Unsatisfactory	Implementing Agency/Agencies:	Moderately Unsatisfactory
Overall Bank Performance:	Moderately Unsatisfactory	**Overall Borrower Performance:**	Moderately Unsatisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating**
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	Satisfactory
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
GEO rating before Closing/Inactive status	Moderately Unsatisfactory		

D. Sector and Theme Codes

	Original	**Actual**
Sector Code (as % of total Bank financing)		
Central government administration	55	55
Renewable energy	45	45
Theme Code (as % of total Bank financing)		
Climate change	29	29
Law reform	14	14
Pollution management and environmental health	29	29
Regional integration	14	14
Regulation and competition policy	14	14

E. Bank Staff

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	
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F. Results Framework Analysis

Global Environment Objectives (GEO) and Key Indicators(as approved)

The Global Environment Objective is "to reduce greenhouse gas emissions on a continuous basis by overcoming barriers to implementation of renewable energy".

The Project Development Objective is "to assist in developing an economically and environmentally sustainable market for renewable energy resources in Croatia".

Revised Global Environment Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications

(a) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Introduction of an enabling regulatory and incentive framework for RER-based power and heat production			
Value (quantitative or Qualitative)	No feed-in tariff; legal financial and technical barriers prevent realization of RE projects	Introduction of new Energy Law and incentive framework for RER-based power and heat production including tariff design, sub-laws on grid-code, licensing and permitting procedures. Training of stakeholders		Introduction of new Energy Law and incentive framework for RER-based power and heat production including tariff design, sub-laws on grid-code, licensing and permitting procedures. Training of stakeholders
Date achieved	07/01/2005	03/31/2010		05/31/2010
Comments (incl. % achievement)	Key legislation and regulatory framework was introduced, creating an enabling environment for investing in RER-based power.			
Indicator 2 :	Total number of RER projects reaching financial closure as a result of CLF including capacity to be installed (MW) and amount of electricity and heat to be generated			
Value (quantitative or Qualitative)	0	5 projects with a capacity of 83 MW and 188,340 MWh		1 project with a capacity of 23 MW and 50,600 MWh

Date achieved	07/01/2005	03/31/2010		05/31/2010
Comments (incl. % achievement)	20% of project numbers 28% of MW (for 1 project) 27% of MWh (for 1 project)			
Indicator 3 :	Reduction of CO2 emissions from project activity			
Value (quantitative or Qualitative)	0	54,417 tCO2		17,710 tCO2
Date achieved	07/01/2005	03/31/2010		05/31/2010
Comments (incl. % achievement)	33% - this is all from the 23 MW wind farm project, which is the only one having reached financial closure			
Indicator 4 :	Increased share of "new" RER in national energy supply			
Value (quantitative or Qualitative)	0	3.5%		0.32%
Date achieved	07/01/2005	03/31/2010		05/31/2010
Comments (incl. % achievement)	9% achievement. The GoC has fallen behind on their time table for RE development. However, given the number of projects under developement it is realistic that the original targets will be met with a two-year delay.			

(b) 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
Indicator 1 :	Number of contingent loans signed under CLF component for RER project development			
Value (quantitative or Qualitative)	0	18		15
Date achieved	07/01/2005	03/31/2010		05/31/2010
Comments (incl. % achievement)	83% achievement based on number of loans. Since the full amount of $2 million is committed the main reason is that the average size of loans has been bigger than anticipated			

G. Ratings of Project Performance in ISRs

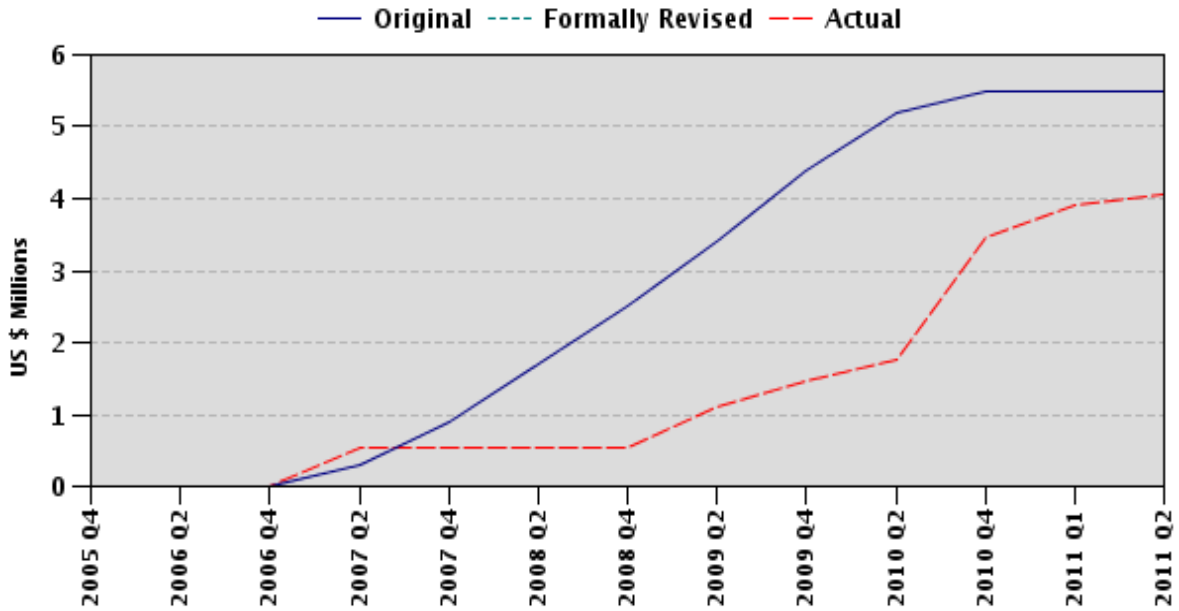
No.	Date ISR Archived	GEO	IP	Actual Disbursements (USD millions)
1	06/06/2006	Satisfactory	Satisfactory	0.00
2	12/04/2006	Satisfactory	Satisfactory	0.55
3	12/21/2007	Satisfactory	Moderately Satisfactory	0.55

4	06/26/2008	Satisfactory	Moderately Satisfactory	0.55
5	05/11/2009	Moderately Satisfactory	Moderately Satisfactory	1.45
6	03/26/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	2.51

H. Restructuring (if any)

Restructuring Date(s)	Board Approved GEO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		GEO	IP		
03/30/2010			MU	2.51	Extension of closing date by two months to May 31, 2010.

I. Disbursement Profile



1. Project Context, Global Environment Objectives and Design

1.1 Context at Appraisal

Country and Sector Issues: Croatia has good potential for renewable energy (RE), with a significant resource base. Because Croatia is likely to be given targets for the share of energy generated from renewable energy resources (RER) as part of the accession negotiations with the EU, it has an additional incentive for RER development beyond energy security, local employment, and global and local environmental concerns.

At the time of appraisal, April 2005, Croatia was meeting two-thirds of its energy requirements from domestic production (mainly oil and gas). However, energy production was declining and energy imports would need to increase dramatically if economic growth was to be sustained. Croatia was faced with full international prices for these imports, and with large investments needed for reconstruction and expansion of the energy infrastructure, the financial burden on the Government was high. This burden was best mitigated through creating an institutional and regulatory environment to attract private financing to the sector. In addition, the scarce energy resources had to be used in a way that represented the highest value to the Croatian economy. At the same time, the transmission and distribution system operator was required to integrate renewable energy into its system but was worried that addition of new intermittent sources based on RER could create problems. To ensure a smooth integration of new renewable sources would require training of dispatch managers, as well as software tools for system management.

The Government attempted to address these challenges with an Energy Law approved in July 2001. The Law provided, inter alia, for the development of renewable energy resources and for a minimum share of total energy supply to be met from renewable energy. This market share-based policy would build sustained interest in the clean energy market and market guarantees for potential clean energy entrants. However, secondary legislation including feed-in tariffs for RER would need to be put in place.

Rationale for Bank Involvement

The Global Environment Facility (GEF) support was seen as critical in helping establish an enabling framework and opening a market for RER technologies. It would focus on overcoming barriers to RER development through commercially sustainable activities. Without GEF participation, private developers would be less likely or unable to develop and finance projects; and without GEF participation there would be no significant resources to build knowledge about renewable energy among entrepreneurs, utility officials and employees, commercial banks, local government, and other stakeholders. Ultimately, GEF support would lead to sustainable, long-term reductions in Greenhouse Gas emissions and help Croatia join modern industrialized nations in efforts to reduce global warming. GEF financial support and Bank implementation efforts would also help create the framework that would allow Croatia to achieve its future EU-mandated renewable energy supply targets quicker or for more ambitious targets to be set during the upcoming negotiations.

The Bank's assistance would support development of rational secondary legislation, clear approval procedures, and a pipeline of projects for investment. These market conditioning and project preparation activities would help remove barriers to investments in the sector in a relatively short period and allow for development of the market.

1.2 Original Project Objectives (PDO/GEO) and Key Indicators

The global environmental objective was to reduce GHG emissions on a continuous basis by overcoming barriers to implementation of renewable energy (RE). Performance indicators for the global objective included: (a) Reduction in carbon dioxide emissions at the national and project levels; and (b) Increased share of "new" RE resources in the national energy supply. The project's development objective was to help develop an economically and environmentally sustainable market for renewable energy resources in Croatia. Development of this market would support Croatia in its EU accession efforts. The performance indicators for the second part included: (a) Introduction of an enabling regulatory and incentive framework for RER power and heat production (including tariff design, sub-laws on grid code, licensing and permitting procedures, and training of stakeholders); and (b) Total number of RER projects reaching financial closure as a result of the Contingent Loan Facility (CLF) including the capacity installed (MW) and amount of electricity and heat generated (MWh).

In addition, the project aimed to make Croatia's economy less reliant on imported electricity and fossil fuels, reduce overall emissions, lead to a higher degree of local employment (equipment manufacturing), and create an attractive climate for private investment in RE.

1.3 Revised PDO/GEO and Key Indicators, and reasons/justification

The objectives were not revised.

1.4 Main Beneficiaries

The Ministry of Economy, Labor and Entrepreneurship (MoELE) was the key partner and beneficiary along with the Environmental Protection and Energy Efficiency Fund (EPEEF). The Croatian Bank for Reconstruction and Development (HBOR) was the Implementing Agency and benefitted from the capacity building that took place in the Project Implementation Unit consisting of a Project Manager and a Procurement Specialist. Other beneficiaries included the Market Operator (MO), the Croatian Energy Regulatory Agency (CERA) and the vertically integrated electricity company HEP. Other partners included private sector developers and local private sector banks, both of whom provided co-financing to renewable energy projects, as well as NGOs.

1.5 Original Components

The project included two components:

1. *Market Framework (GEF grant financing US$2.0 million).* This component comprised technical assistance focused on supporting the Government in designing and implementing policy and secondary legislation on the inclusion of RE in the electricity sector. The component also included support to the MO, HEP (who is both the distribution system operator (DSO) and the transmission system operator (TSO), CERA and local governments in streamlining the permitting process. Technical assistance was comprised primarily of legal and technical support and advice to the institutions and government entities involved in creating the regulatory framework for the sector. Capacity building activities were undertaken within the same institutions to implement the new regulations and system. Additional beneficiaries included the Ministry of Economy, Labour and Entrepreneurship (MoELE), the Ministry of Environmental Protection Physical Planning and Construction (MoEPPPC), the Environmental Protection and Energy Efficiency Fund (EPEEF), the state electricity company HEP (in its capacity as TSO and DSO), NGOs, the banking community, policy-makers, the regulatory authority, and private developers. The PIU was also financially

supported under this component. A monitoring, evaluation and information dissemination subcomponent was also included.

2. *Project Preparation (GEF Contingent Loan Facility of US$2.0 million and grant financing of US$1.5 million; total US$3.5 million).* The contingent loan mechanism and supporting activities were used to identify candidate projects for investment and to cover initial project development cost (feasibility studies). The contingent loan facility (CLF, US$2.0 million) provided loans to qualified project developers on a cost-sharing basis. The loans would be capitalized in the project financing and repaid, or if the projects did not move to implementation the contingent loan would be converted into a grant. Funds that were recovered would be recycled and used in future projects as specified in a contract signed between Ministry of Finance, MoELE and HBOR. In addition to and separate from the CLF, US$1.5 million would be used for project development and project investment support. Project development support focused on development of a sustainable pipeline of potential projects that could provide deal flow for the CLF. This was facilitated by creation of renewable energy advisory facility (REAF) inside MoELE that provided information and know-how to private developers and equipment suppliers. Project investment support included capacity building and financial advice to EPEEF, commercial banks and municipal finance authorities.

1.6 Revised Components

The components were not revised.

1.7 Other significant changes

A Monitoring, Evaluation, and Information sub-component was initially included and allocated an amount of $0.35 million from the GEF, but was not implemented as originally designed. The PIU found the M&E requirements to be straightforward and was able to carry out these requirements without procuring special consultant support.

A project restructuring was approved on March 30, 2010 extending the closing date by two months to May 31, 2010 to allow signing of six contracts that were pending approval under the Contingent Loan facility.

On October 5, 2010 an amount of US$1,463,864.40 was cancelled from the Grant since this amount was undisbursed after expiration of a four month grace period following project closure.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Project preparation was facilitated by a GEF PDF-B grant (US$350,000, approved on February 19, 2003). Its utilization started prior to appraisal and continued until September 30, 2005. The activities financed under the grant included support to MoELE in preparing a framework for introducing feed-in tariffs. The grant covered: (i) analytical work to help determine the optimum share of RE in the supply mix of the country and the incentive structure for RE project development and implementation; (ii) identifying ways to streamline the permitting and licensing process for wind and small hydro; (iii) developing the structure, terms and conditions for use of contingent loans: and (iv) developing a draft project implementation plan, including monitoring and reporting.

The project design described in the GEF Project Document (May 2005) was sensible and logical. The project would address two major interrelated barriers to RE development: (i) lack of an enabling legal/regulatory environment, including appropriate price incentives for independent investors in RER; and (ii) lack of well-prepared commercially viable projects – partly due to the first barrier. The project would have two components – each addressing one of these major barriers: the Market Framework component consisting of technical assistance aimed at improving the legal/regulatory environment; and the Project Preparation component specifically dedicated to developing bankable RE projects.

Building on lessons learned. The Project Document reflects an awareness of the risk of dedicating resources to project preparation when the legal/regulatory environment is not ready (e.g., reference is made to numerous earlier programs aiming to support early-stage project development – including USAID-funded programs in the Philippines, Indonesia, Guatemala, and Brazil, as well as a grant program to India for biomass cogeneration). The lesson from such prior projects, as stated in the Project Document, was that "projects produced good feasibility studies but had little chance of commercial success because other barriers, such as lack of clear pricing policy, had not been resolved." This risk would be addressed by the extensive TA under the first component aimed at improving the legal/regulatory environment. Still, the Bank underestimated the time it would take for the legal/regulatory improvements to take place. As a result, implementation of the planned Project Preparation activities (Component 2 of the project) was delayed for almost two years.

The start of implementation was also held back due to unresolved issues concerning the role of EPEEF. Both the GEF Project Document and the Project Implementation Plan envisaged a very important role for the Fund - both as a partner in technical appraisals of CLF projects and as a co-financier. A contract between HBOR and EPEEF regarding the CLF was signed in May 2006 but practical arrangements were not finalized until January 2007.

For the Market Framework Component, the Bank did take into account the experience of earlier successful efforts in other countries, including Germany, Denmark, and Austria. This helped the Bank select the system of feed-in tariffs as the most appropriate incentive system to be supported by the Government of Croatia.

A ***Quality-at-Entry Review*** for the project was held in June 2005 resulting in a *Satisfactory* rating. The review panel found no major shortcomings but felt that the Project Document would have benefitted from an extended discussion of the current country economic and regional energy context.

The risk matrix generally addressed the risks that proved relevant. In some cases the risk ratings assigned in the matrix were inflated and in some cases, significant risks were not identified. For example, the risk of the private sector not being willing or able to finance project development costs was rated as high. The recent developments under the project, however, have demonstrated that, under the improved legal/regulatory framework for RE investments, the private sector is able and willing to finance project development – including the required 50% cost-sharing contribution and borrowing from CLF for the other half. One more type of risk peculiar to CLF was the moral hazard faced by borrowers from CLF due to the option to default on the loan and have it converted into a grant in case of failure to reach financial closure. No such instances have occurred so far and it is likely to be mitigated by the fact that the developer would also lose his 50% contribution, but this is still a relevant risk that ought to have been included in the matrix.

2.2 Implementation

The project was only restructured at the end of project implementation to extend the closing date by two months.

Effectiveness and establishment of PIU. The project became effective on November 24, 2005, five months after the Board date. The relatively late project effectiveness was due to legal issues that needed clarification during finalization of the Project Implementation Plan and the Grant Implementation Agreement between the Government of Croatia and HBOR, which were both effectiveness conditions. The head of the PIU was hired by HBOR in December, 2005.

Delayed passing of vital secondary legislation. In July 2007, the important secondary legislation was passed by Parliament, including technology-specific feed-in-tariffs for RE. This was a major milestone but it came much later than expected during appraisal, which estimated a target date of end-2005. In retrospect it is clear that this milestone should have been made a condition for Board presentation or for effectiveness. The delay, which was caused by the reaction to the proposed feed-in tariffs from vested sector interests, pushed back the activities under the Project Preparation Component (Component 2) by almost two years and the CLF became fully operational only in late 2007. Several of the technical assistance (TA) activities for market framework development could only be effectively defined when the problems and barriers became more visible through the implementation of the system of measures to support RER. This meant that some of the TA got pushed into the last year of implementation.

Progress on project components. Even with this delay Component 1 (Market Framework) has produced some significant results in such as areas as RE grid integration and facilitating procedures for registration and processing of applications from RER project developers for use of land and obtaining state support. The fact that the Market Framework Component was available to support MoELE and to prepare TA that could help persuade skeptical stakeholders to give up their resistance to deployment of RER was of great benefit and helped moving toward the development objectives This contributed to a general view of the Component as largely successful by both the Bank and the Croatian counterparts despite the fact that some of the TA was delayed and some activities had to be cancelled due to the implementation delays.

Component 2 (Project Preparation, $3.5 million GEF) was implemented in close cooperation with EPEEF. Specifically, EPEEF staff were appointed to carry out technical due diligence of RE projects proposed for the CLF. In parallel, a Renewable Energy Advisory Facility (REAF) and a RE Registry were established within MoELE to support the development of pre-feasibility studies for projects in early stages of preparation and establish a registry of such project claims for land and licenses at MoELE. REAF also dealt with broader issues of support to RE and provided information and practical guidance to project developers. Progress under the CLF itself was slow in coming. While the facility was launched in late 2007, the first loans were signed only in the second half of 2008. The slow market up-take in the beginning was partly due to a general lack of knowledge about the facility among the key RER stakeholders. There were also a number of complaints about the initial lending conditions, especially a too low ceiling amount of US$150,000, a too short allowed implementation period and extensive bureaucracy. These issues were, belatedly, addressed by HBOR and EPEEF following recommendations in the Bank's mid-term review in December 2008. The Bank and HBOR agreed to frontload disbursements for sub-projects; other measures were also taken to facilitate disbursement, including increasing sub-loan limit and pay-back time and to include hydro projects under CLF financing. The demand for loans started to pick up as the benefits of the favorable treatment of RE investments became known to the market. Another important factor was the effects of the financial crisis that meant a tightening of the credit market in Croatia, which made the CLF an attractive option to access

financing for project preparation. The combined effect of the delayed launch of the CLF and the slow initial market up-take meant that even though by the Closing Date the CLF was fully subscribed with a US$2 million loan portfolio distributed among 15 different borrowers, most of the contracts were signed during the last two months. Consequently, only one of the supported projects managed to reach financial closure before project closing, which was the main measure of success defined in the Project Document.

Joint Portfolio Review and Mid-Term Review. In December 2008, a mid-term review (MTR) concluded that:

- The overall justification for the project remained strong: the support from the Market Framework component was seen by MoELE as vital for RER development in Croatia; MoELE's registry of RER now included more than 270 applications from developers; several applications for CLF loans were received as well.
- The project was *unlikely* to meet its quantitative targets before closing. This conclusion applied not only to the project-level targets but also to the Croatia-wide target for the share of renewable energy in the country's electricity supply: Croatia still had less than 1% of its electricity coming from renewables, while the target for 2010 was 4.5%.
- A restructuring including a revised Results Framework was deemed appropriate by the MTR.

This echoed the findings of a Joint Portfolio Review that took place immediately before the MTR and recommended streamlining the results framework and reducing the targets.

Restructuring and extension request. In May 2009, the project's global environmental objective (GEO)[1] rating was downgraded from S to MS because of the lower than expected rate of implementation of RER projects in Croatia. During summer 2009 the team discussed restructuring with HBOR and MoELE including a one-year extension of the closing date. However, the discussions between the Bank and HBOR/MoELE on a possible restructuring were slow in getting underway and the matter seemed to be given rather low priority on both sides resulting in that the request for restructuring and extension came from MoELE only on January 26, 2010. At this late point, in the opinion of the Bank, only an extension of two months would be justified – to enable processing of the CLF loans ready for signing by end-March 2010. The main reason cited by the Bank was that only 35 percent of this amount had been disbursed two months before the closing date and that the likelihood that this project could fully achieve its stated objectives was quite unlikely even with an additional year of implementation.

The final ISR (#6, March 2010) was approved with ***moderately unsatisfactory*** ratings for both GEO and IP. The downgrade for the GEO rating was because the project was only likely to fulfill around 20-25% of the quantitative targets set in the Results Framework before project closing. Notwithstanding the downgrade, the Bank acknowledges the significant results that the project had achieved in establishing the RE framework, "with an impact going way beyond the project, and generating hundreds of RE proposals."

Impact of implementation delays. The implementation period for several key components of the project (notably, the Project Preparation component/CLF sub-component) began 18 to 20 months later than originally planned. The closing date of the project, however, was extended only by two

[1] The format of the project's ISRs did not provide for a PDO rating distinct from GEO.

months – mainly to allow all the CLF projects in the pipeline to be signed before the closing date. As a result, many of the TA activities that were planned to be carried out under the project could not be implemented before the closing date and had to be cancelled. Furthermore, the anticipated results of the CLF could not be captured within the implementation period. This has had the following consequences:

- The value of CLF loans placed has been limited to $2 million, which is the amount of the GEF grant allocated for the purpose. In contrast, appraisal estimates assumed that this value would be $3.6 million as it would include new loans financed by repayments from the borrowers – the RE project developers.
- The repayment of the first loans taken by the RE project developers from the CLF has not yet come due at the time of the ICR. As a result, no track record of repayment of borrowed funds by RE project developers to the CLF is available for analysis.
- Contribution from EPEEF for loans converted into grants has not materialized thus far, and the need for such contribution in the future is difficult to assess at this time.
- The length of the experience of the CLF operation under GEF grant support and the modalities developed in the project implementation plan (PIP) was cut considerably shorter than planned and is thus hard to assess. For the Croatian counterparts, it is now being replaced by the new experience of operating the facility without access to GEF grant funds.

Under Component 1 (Market Framework), the results of TA contracts have been well received by the beneficiaries, including the Ministry of Economy (MoELE), the Transmission System Operator (TSO), Distribution System Operator (DSO), and the Energy Market Operator (HROTE). The best results came from support which the beneficiaries saw as relevant to their operational needs. However, an important contract that would update the cost-benefit analysis financed under PDF-B (the cost curves informing the selection of the appropriate level of the feed-in tariffs and the optimal amount of RE produced in the country) had to be dropped because of time constraints introduced by the delayed start.

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

M&E Design. Some indicators included in the Results Framework – such as RER capacity installed and energy produced as well as carbon dioxide emission reductions produced by the project – would be more appropriate for a full-scale investment project, whereas the real output of this project was essentially technical assistance and project feasibility/design documentation. The inclusion of the nation-wide share of RE in the energy balance as a project performance indicator was questionable due to the fact that the project only provided support to the pre-investment phase.

M&E Implementation. A separate Monitoring, Evaluation, and Information component was initially included and allocated an amount of $0.35 million from GEF resources, but not implemented. The PIU found the M&E requirements to be straightforward and as such, carried them out through tracking results in a simple spread-sheet in-house rather than contracting an additional consultant.

M&E Utilization. The monitoring of the project progress and the results framework indicators clearly indicated that the project was falling behind its quantitative targets. This was a clear conclusion from the mid-term review. Even though this gave rise to discussions on a possible restructuring it was not followed up by an official restructuring request before the project had almost reached its closing date. This lack of pro-activity from both the Bank and HBOR indicates

that the M&E results were not properly utilized in order to ensure that the project would reach its development objectives.

2.4 Safeguard and Fiduciary Compliance

Safeguard compliance. This was an Environmental Category "C" project. No environmental assessment per se was therefore required by the Bank. Environmental impact studies for the CLF projects studies followed the procedures for environmental compliance for such projects specified in the Project Implementation Plan.

Fiduciary compliance. The Financial Management (FM) rating for the project has been satisfactory in five ISRs out of six. It was downgraded to MS only once – in May 2009 – when it was pointed out that the Financial Monitoring Reports failed to include Government contributions. The FM rating in the final ISR (#6, March 2010) was satisfactory again as Government contribution was included in the Financial Monitoring Report for the first quarter of 2010.

2.5 Post-completion Operation/Next Phase

The questions of project implementation continuity relate to the CLF. Since CLF sub-projects typically require a two-year window to complete, all CLF projects but one were still ongoing by the closing date for the grant (May 31, 2010). According to agreements reached with HBOR and EPEEF, the CLF will continue and recycled funds will be used for new CLF loans in the future. The PIP developed under the project and modified as appropriate to reflect the post-closure realities will be used as the basis for future operation of the CLF.

Continuation and possible expansion of the CLF is addressed by HBOR in Annex 7: "Based on the experience of the GEF project, HBOR is considering introduction of a similar loan program such as CLF, but from its own funds." However, such a commitment from HBOR cannot be expected before they have experience from the first round of CLF.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

The current Country Partnership Strategy for the Republic of Croatia for FY09-FY12 focuses on assisting Croatia in joining the EU. While renewable energy is not specifically mentioned among the goals supporting the accession, a number of broader themes are emphasized that speak to the continued relevance of RER development. These include: (a) reducing vulnerability of the economy to oil price shocks; (b) increasing the sustainability of long-term development; and (c) climate change mitigation. The project will contribute in the following way: (a) RER would contribute to reduce the dependence on imported fuels and could potentially be used as a substitute for small oil fired boilers and oil fired power generation facilities in island communities; (b) a development that relies more on local renewable resources is more sustainable because it provides better security of supply and fosters local economic development and employment: and (c) development of RER will serve to reduce Croatia's carbon footprint by substituting fossil fuels in power generation and space heating.

3.2 Achievement of Project Objectives

To evaluate the degree of success in achieving the objectives of this project, four final outcome indicators and one intermediate outcome indicators have been assessed. The indicators are based on the Results Framework established at appraisal, including the detailed "Arrangements for

results monitoring" table (Project Document, pp. 31-32), and are consistent with the description of performance indicators given in the main text of the Project Document (page 4).

Final outcome indicators

Outcome Indicator 1: Introduction of an enabling regulatory and incentive framework for RER based power and heat production.

Key legislation and regulatory framework were introduced, creating an enabling environment for investment in RER based power. MoELE rates the technical and legal assistance provided as very valuable in enabling and operating the RER licensing process and in resolving backlog cases related to the occupation of sites in the wind sector through the creation of a RER projects Registry [2]. The key achievements of the project in terms of institutional capacity building are:

- Support to the secondary legislation introducing technology-specific feed-in tariffs as a first and foremost precondition for investment in RER.
- The establishment of the Renewable Energy Advisory Facility (REAF) within MoELE and its connection to a RER Registry, which currently contains more than 300 pipeline projects, has been a very successful capacity building activity.
- High-quality TA to the Market Operator – e.g., on the methodology for the consumer surcharges to raise funds to finance the feed-in tariffs and for the introduction of *guarantees of origin*.
- High-quality TA to the grid operators (TSO and DSO) – e.g., for the integration of intermittent energy sources (wind) into the national grid system.
- Increased awareness of the potential investors and financial intermediaries (such as banks) about the improved conditions for investment in RE projects.
- TA in development of the RER market system including streamlined procedure for RER projects and legal support for revision of secondary and tertiary RER legislation.

Outcome Indicator 2: Total number of RER projects reaching financial closure as a result of CLF including the capacity installed (MW) and amount of electricity and heat generated (MWh).

While 15 CLF loans have been made, only one project – a 23 MW wind power project at Glun□a developed by Tudi□Elektro Centar d.o.o. – has reached financial closure. The projected electric output of the installation is 50.6 GWh per year. The appraisal target was for 5 projects with a total design capacity of 83 MW, electric output of 188.3 GWh/a and heat output of 7 GWh/a to have reached financial closure by the end of 2009.

Outcome Indicator 3: Reductions in CO2 emissions related to the project.

CO2 emission reductions at the project level are predicted values based on the feasibility studies since none of the installations designed under the CLF have been built yet. The first emission reductions of 17,710 tCO2e/year are expected to materialize by the end of 2010 due to the construction of the aforementioned 23 MW wind power plant - financed in 2009. The appraisal estimate was 54,417 tCO2e/year.

[2] See Annex 7

Outcome Indicator 4: Increased share of "new" RER in national energy supply.

The value of “new” RER (i.e., renewable energy excluding hydro power larger than 10 MW per installation) was 0.32% at project closing. The appraisal target was 3.5%. The PIU notes that the Croatian government’s original goal of reaching a 5.8% share in national electricity consumption in 2010 has shifted to 2012. This setback is to a large degree due to the delay in adopting secondary legislation introduced only in July 2007.

Intermediate outcome indicators

Intermediate Outcome Indicator 1: The number of contingent loans signed under CLF component for RER project development activities.

By the closing date of the project, 15 loans were signed, each supporting one project in the CLF pipeline. This falls somewhat short of the 18 loans by the end of 2009 targeted at appraisal. Nevertheless, the entire allocated amount of $2 million from GEF resources had been disbursed to the CLF account by the end of the project.

Overall assessment

The Global Environment Objective was *to reduce GHG emissions on a continuous basis by overcoming barriers to implementation of renewable energy (RE).* Overall, the project has significantly improved the environment for RE investments, and now the ground is prepared for such investments to proceed on a substantial scale. In addition to the Glun□a wind project that has already reached financial closure, the CLF pipeline developed by the PIU includes 14 other projects scheduled to reach financial closure by the end of 2011. However, uncertainties remain about both the amount and the timing of such financing

The Project’s development objective *was to help develop an economically and environmentally sustainable market for renewable energy resources in Croatia*. While the project holds great promise for developing the potential for RE and thereby reducing the emissions of greenhouse gases, the hard evidence of the removal of the legal, financial, and technical barriers for such investments remains elusive.

3.3 Efficiency

Rating: Moderately Unsatisfactory
Important progress has been achieved on the Market Framework Component at a reasonable cost level. As a result of this support MoELE has a large pipeline of RER and cogeneration projects that have alredy obtained the so-called Preliminary Energy Approval (in November 2010 the pipeline consisted of more than 300 different projects). However, the efficiency of the Project Preparation Component is more difficult to assess. It was assumed that the amount of investment in renewable energy supported by CLF would reach $120.9 million by the end of 2011. Based on the ongoing CLF funded activities, the amount of expected investment in CLF-supported projects may potentially exceed $300 million, should all fifteen projects supported reach financial closure. However, the timetable for the financing and construction phases of these projects is uncertain as is the likelihood of reaching financial closure. The actual efficiency of the CLF part of the project can only be judged when all the CLF supported project preparations are finalized. As a consequence the efficiency is conservatively rated as Moderately Unsatisfactory.

Estimates of net present values and financial rates of return for the 15 CLF projects are included in Annex 3. The estimates show that all 15 projects are expected to be profitable with internal rates of return ranging from 6% to 20%.

3.4 Justification of Overall Outcome Rating

GEO Rating: **Moderately Unsatisfactory**

The project has contributed significantly to the introduction of an enabling regulatory and incentive framework for RER based power production. However, the project's measurable outcomes, with respect to the achievement of both the global environmental and the overall development objective, can only support a *moderately unsatisfactory* rating. The lack of measurable achievement is partly due to the slow start of most of the activities under the Project Preparation Component, which were held up by the delay in enacting the secondary legislation on renewable energy.

3.5 Overarching Themes, Other Outcomes and Impacts

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

Introduction of incentives for investment in RE in Croatia, like in most other countries, entails some additional cost for the final consumer. In Croatia, the Energy Market Operator collects a small surcharge (currently 0.005 HRK/kWh or about 1% of the average tariff for electricity) on overall electricity consumption by customers – to create cash reserves to support the payment of preferential prices (feed-in tariffs) to renewable energy generators as well as independent co-generators of heat and power. At present, the surcharge typically does not exceed 1-2% of the total energy bill of an average family. The feed-in tariffs, applied only to electricity produced by RE generators, are substantially higher than the average tariff for electricity. However, the impact on the final consumer is still quite minimal as the share of such electricity in the overall energy balance remains very small.

(b) Institutional Change/Strengthening

The ICR team has found that both major counterparts – HBOR and MoELE – believe that the project has contributed substantially to the development of the enabling regulatory framework for RER-based power production in Croatia (including tariff design, by-laws on grid code, licensing and permitting procedures). HBOR and MoELE have summarized the most important legal and regulatory breakthroughs in a table included as part of Annex 7.

The establishment of the Renewable Energy Advisory Facility (REAF) within MoELE and its connection to a RER Registry, which currently contains more than 300 pipeline projects, has been a very successful capacity building activity.

(c) Other Unintended Outcomes and Impacts

None.

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

Feedback was requested from the RE project developers who have received financing from the CLF. To facilitate their feedback, a brief survey was developed and translated into Croatian. The answers are summarized in Annex 5 (Beneficiary Survey Results). On the positive side the

respondents confirmed that the CLF facility had been crucial for their potential to develop RER projects. On the negative side it was criticized that there was no guarantee for funding in the investment phase and that no guarantees were included to reduce the (exorbitant) collateral requirements of Croatian banks.

4. Assessment of Risk to Development Outcome

The risk is assessed to be *Significant,* reflecting a high degree of uncertainty for the results of the Project Preparation component, while giving some credit to the likelihood of sustainability under the Market Framework component.

Market Framework. The development and GEO impact from the Market Framework component is likely to be sustainable. The issuance in July 2007 of the secondary legislation supporting the feed-in-tariff and the procedural and institutional improvements introduced suggest that an enabling environment for RE investments has been created and will continue in the future.

Project Preparation (CLF component). Sustainability of the development and GEO impact from the CLF depends greatly on the success of the RE project developers in securing financing for their projects. As noted, the CLF pipeline currently contains 15 projects, but only one of them has reached financial closure so far. The PIU at HBOR estimates that 10 - 13 projects out of 15 may reach financial closure by the end of 2011. However, the success in finding financiers is far from certain – especially in light of the financial crisis, which has resulted in a general tightening of credit availability. Indeed, the assumption used at appraisal was that 54% of the projects developed under CLF would fail to secure financing for the investment phase. The extent to which this assumption proves to be correct is difficult to evaluate at present. On the one hand, none of the project developers has defaulted on the repayment of the contingent loan. This may suggest that their plans to proceed with the investment phase are on track and finding financiers is not a problem. On the other hand, the fact that only one CLF project out of 15 has reached financial closure suggests that such a conclusion at this stage would be premature.

5. Assessment of Bank and Borrower Performance

5.1 Bank

(a) Bank Performance in Ensuring Quality at Entry

Rating: **Moderately Satisfactory**
During appraisal, the Bank made a good-faith effort to take into account the adequacy of project design and all major relevant aspects, such as technical, environmental, financial, economic, and institutional, including procurement and financial management. A number of alternatives and lessons of earlier operations were considered in the project design. The Bank also made the preparation of the project implementation plan (PIP) a condition of effectiveness – in an effort to ensure smooth implementation of the project. These efforts were duly rewarded with a Satisfactory rating from the QAG Quality-at-Entry review.

However, in hindsight the Bank underestimated the time it would take for the Croatian government to pass the key elements of legal/regulatory framework (notably, the feed-in tariffs) into law. As a result, the planned Project Preparation activities (Component 2 of the project) were on hold for too long. With this in mind, it is possible that a lighter level of engagement (such as

analytical and advisory activities supported by e.g. an ESMAP grant prior to PDF-B) should have been exercised until the country demonstrated tangible progress toward establishing the needed legal/regulatory framework.

(b) Quality of Supervision

Rating: **Moderately Unsatisfactory**
The Bank allocated sufficient budget and staff resources, and the supervision missions proceeded with adequate regularity. The task team regularly prepared Aide-Memoires, alerted the Croatian counterparts about issues of concern and urged them to take corrective action. Both MoELE and HBOR have been very appreciative of the support provided by the task team and states in their project evaluation (see Annex 7) that "the Bank team was very experienced, very cooperative and very often available in Croatia through the missions. Communication and support were excellent."

However, the quality of the Bank's supervision could have been improved by earlier recognition and proactive response to the problem of cumulative delays in the introduction by the Croatian government of the enabling framework (secondary legislation) for RE. Even with the assumption that nothing could be done to accelerate the passage of the secondary legislation by the Parliament, the Bank could have taken steps to improve the chances of the project to achieve its development objectives. This could have been achieved by restructuring the project to adjust it to the new timetable. The best moment for the restructuring would probably have been just after the Government's adoption of the secondary legislation in July 2007. The restructuring proposal could have focused on the need to extend the project implementation period by about 18 months to make up for the time lost due to late introduction of the enabling secondary legislation. The rationale for the extension of the closing date would have been strong based on: (a) well documented delays on the Government's side and the fact that the implementation of the Project Preparation component was held up by 18 - 20 months as a result; and (b) the positive momentum created by the eventual introduction of the enabling framework in July 2007, supporting the argument that the achievement of the project's development objectives was still likely.

The mid-term review probably should have been conducted shortly after July 2007, rather than in December 2008.

(c) Justification of Rating for Overall Bank Performance

Rating: **Moderately Unsatisfactory**.
Based on the Bank's performance during project preparation and implementation, as discussed above, overall Bank performance is rated as *Moderately Unsatisfactory*.

5.2 Recipient
(a) Government Performance

Rating: **Moderately Satisfactory**
MoELE was the main representative of the Recipient (the Republic of Croatia) in this project. The development of RER has been high enough on the Government's agenda to require MoELE to institute a Renewable Energy and Energy Efficiency Department under the Directorate of Energy, and to create EPEEF and REAF with a mandate to promote RE projects. Together, these agencies have achieved impressive results in terms of introduction of new legislative/regulatory framework. This framework has also made it possible to create CLF as a dedicated project preparation facility.

However, despite the best efforts of the staff of MoELE's renewable energy unit, the delays with the introduction of the key secondary legislation have slowed the implementation of the project. It must be noted that the staff and other resources allocated by the Croatian Government to the tasks in question have been less than sufficient, creating work overload for key staff involved in the project. Several important TA activities – including review of feed-in tariffs, setting realistic RER shares in Croatia's energy balance, streamlining of RE processing procedures to pre-feasibility studies for biomass projects, support to project financing models – were delayed and eventually canceled due to the limited capacity in the MoELE to provide the necessary input to and clearance of ToRs.

(b) Implementing Agency or Agencies Performance

Rating: **Moderately Unsatisfactory**
HBOR was the key counterpart and implementing agency of the project. Its management endorsed the creation of the PIU and made all the necessary efforts in good faith to assist the implementation of the project. HBOR has closely and successfully cooperated with MoELE and EPEEF in building the capacity within Croatia to develop and implement RE projects.

However, most of the activities were started much later than expected – leading to a "crunch" in the final year of project implementation. Many of the TA contracts were rushed through during the final eight-months period, which put immense pressure both on HBOR's PIU and the recipients of the TA: MoELE, HROTE (the market operator), HEP TSO and HEP DSO (the system operators), and HERA (the energy regulator). Similarly, under the CLF, very few loans were signed until the final few months before the closing date. Then the number of loans escalated precipitously and finally reached fifteen, which was the maximum allowed by the budget.

Finally, the restructuring and extension request only materialized almost a year after a Joint Portfolio Review had recommended that the project be restructured to revise the results framework given the lower than anticipated project outcomes and to justify a possible extension.

(c) Justification of Rating for Overall Recipient Performance

Rating: **Moderately Unsatisfactory**
In light of the performance of MoELE and HBOR discussed above, the overall performance of the Recipients was *Moderately Unsatisfactory*.

6. Lessons Learned

The following lessons can be learned from this project:

- Creating an enabling regulatory framework for RE investments is challenging, complex, and time-consuming – even when the government is fully committed to the task. Support to RE development therefore needs to be sequenced carefully with well-defined milestones to be reached before moving into pre-investment and investment support stages;

- An enabling regulatory framework with clear financial incentives such as the introduction of guaranteed preferential prices (feed-in-tariffs) for RE is a key prerequisite for creating investor interest in RE projects and without it other activities to stimulate an RE market will

have limited impact. This means that a pipeline of projects will only be credible once such a framework is in place;

- Once an enabling regulatory framework is in place, investors are prepared to borrow funds on a contingent loan basis for pre-investment activities such as feasibility studies (including site-specific resource assessments, environmental impact studies, due diligence and legal documentation) and a contingent loan (to be forgiven if project does not reach financial closure) can be a key risk mitigation device for small, local developers;

- The difficulty in getting financial support for investments in RE will constrain many potential developers. Financing of RE projects is still a relatively novel idea for local banks – even in a middle-income country like Croatia. Securing financial support from commercial banks is challenging and project finance as opposed to balance sheet financing is little known. Even for a project supported by a full set of pre-investment documentation including a power purchase agreement a commercial bank will tend to give more weight to the strength of the borrower's balance sheet than to any of its project-specific revenue streams and will heavily rely on collateral (with required collateral value equal to – in the case of Croatia – as much as 150% of the loan value) to control credit risk;

- A centralized registry of potential renewable energy projects, such as the one built and maintained by MoELE, is a valuable tool in managing information useful to investors in a transparent way. It has created a large number of applications that form the basis for a solid pipeline of projects that can enable the country to reach its RE targets; and

- The Bank's task teams need to give early attention to the need to restructure a project following the delay of effectiveness and/or achieving major milestones. Reducing targets that have become unattainable at an early stage will serve to keep the project from falling into problem status and will facilitate an extension if satisfactory progress toward the new targets can be demonstrated.

7. Comments on Issues Raised by Recipient/Implementing Agencies/Partners

(a) Recipient/implementing agencies

Comments received from HBOR in response to a questionnaire developed for this ICR are included in Annex 7. These comments also represent the view of MoELE. The Bank concurs with the view and conclusions expressed.

(b) Cofinanciers and ther partners and stakeholders

Comments have been received from beneficiaries of the CLF through circulation of a questionnaire and follow-up by telephone. The results are summarized in Annex 5. The Bank has found this feed-back very valuable and it has inspired some of the lessons learned presented in Section 6. It is in particular note-worthy that CLF beneficiaries would have preferred a solution that also involved support to financing of investments e.g. in the form of guarantees.

Comments from EPEEF are included in Annex 8. The Bank concurs with the view and conclusions expressed.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Market Framework	**2**	**2.10**	**105%**
Project Preparation[3]	**6.5**	**4.88**	**75%**
Total Baseline Cost	**8.5**	**6.98**	**82%**
Physical Contingencies	0	0	
Price Contingencies	0	0	
Total Project Costs	**8.5**	**6.98**	**82%**
Project Development Facility (PDF)	**0.35**	**0.35**	**100%**
Front-end fee IBRD	0	0	
Total Financing Required	**8.85**	**7.33**	**83%**

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Govt. of Croatia/EPEEF/Final borrowers		3.00	2.94	98%
Global Environment Facility (GEF)		5.85	4.39	75%
Total Financing Required		**8.85**	**7.33**	

[3] This includes co-financing from project developers

Annex 2. Outputs by Component

Market Framework Component

Name of Study	Contract amount (US$)
Review of the tariff system for RER and Cogeneration	61,500.00
Support to Market Operator – Guarantees of Origin system.	168,000.00
Support to MoELE - Legal support on development of secondary and tertiary legislation for RER	99,807.12
Support to development of policies and measures for RER until 2020.	60,270.00
Support to development of Streamlined Procedures	194,094.84
Support to TSO – Integration of RER Part I	98,460.81
Support to DSO – Support in defining of technical conditions for RER grid connection	122,997.01
Support to TSO - Integration of RER Part II – Short term prediction of wind generation	119,562.00
Support to MoELE – Authorization of construction of RES, legal support Part I	99,000.00
Support to MoELE – Authorization of construction of RES, legal support Part II	123,590.88
Support to MoELE – Development of RER Registry	230,733.68
Support to MoELE – Registry Upgrade – heating and cooling projects	73,492.50
Support to development of heating and cooling regulation	133,762.50

CLF Project Pipeline – Status at GEF project completion

	Investor	Project	Status	CLF Loan amount (USD)	Contribution by Investor (USD)
1	BPEL d.o.o.	Biogas - Pisarovina	CLF signed	157,685.11	157,685.11
2	OIE Semeljci d.o.o.	Biogas - Semeljci	CLF signed	150,000.00	156,373.17
3	Biointegra d.o.o.	Biogas - Slatina	CLF signed	150,000.00	258,972.47
4	EKO d.o.o.	Wind - Kamensko	CLF signed	127,267.40	185,810.41
5	Kon□ar OIE d.o.o.	Wind – Pometeno Brdo	CLF signed	128,627.10	135,606.84
6	Tudi□Elektro Centar d.o.o.	Wind - Glun□a	Financial closure	150,000.00	316.547.00
7	Farma Jozi□	Biogas – Slavonski Kobaš	CLF signed	173,221.98	173,221.98
8	RES energetski projekti	Biogas - Molve	CLF signed	149,340.00	149,340.00
9	Vjetroelektrana Bruvno d.o.o.	Wind - Bruvno	CLF signed	150,000.00	277,619.54
10	Slavonija DI d.o.o.	Biomass, cogeneration – Slavonski Brod	CLF signed	161,522.87	161,522.87
11	SIZIM BIO-NERG d.o.o.	Biogas – Veliki Otok	CLF signed	78,703.16	78,703.16
12	Depod projekti d.o.o.	Biomass, cogeneration - Brinje	CLF signed	105,908.09	431,273.15
13	Eko Energo Sistem d.o.o.	Biomass, cogeneration - Delnice	CLF signed	105,908.10	147,809.43
14	Lika Energo Eko d.o.o.	Biomass, cogeneration - Udbina	CLF signed	105,908.09	145,009.79
15	Parket 4 d.o.o.	Biomass, cogeneration - Karlovac	CLF signed	105,908.10	107,100.20
	TOTAL			**2,000,000.00**	**2,566,048.12**

Annex 3. Economic and Financial Analysis

Economic and financial analyses used in the appraisal of this project in 2005 consisted of: (a) a cost-benefit analysis supporting the Government's decision about the appropriate share of renewable energy in the overall energy balance of Croatia; (b) an incremental cost analysis to satisfy the GEF requirements; and (c) a cash flow model for the contingent loan facility (CLF). It was assumed that the amount of investment in renewable energy supported by CLF would reach $120.9 million by the end of 2011.

During project implementation, the CLF-financed feasibility studies produced results that can be compared with some of the appraisal estimates. For example, the amount of expected investment in CLF-supported projects may potentially exceed $300 million, should all fifteen projects in the table below find their financiers. However, the timetable for the financing and construction phases of these projects is uncertain. Indeed, the assumption used at appraisal was that 54% of the projects developed under CLF would fail to secure financing for the investment phase.

Many other assumptions of the analyses conducted at appraisal had to be reassessed – due to various factors including the timetable slipping by about two years for the introduction of key legislation, and thus the disbursements from CLF, which in turn caused delay in investments. For example, the value of CLF loans placed was assumed to be $3.6 million including new loans financed by repayments from the borrowers – the RE project developers. In reality, no repayments became due by GEF project completion, so the value of loans placed remains at $2 million, the amount of the GEF grant allocated for the CLF component.

At completion of the GEF project, the CLF pipeline consists of 15 projects, including four wind projects and eleven biomass projects. Relevant economic and financial information includes cost estimates, net present value (NPV), and internal rate of return (IRR) calculations.

CLF Project Pipeline at GEF Project Completion

	Investor	Project	NPV (USD*)	IRR (%)	Plant capacity (MWe)	Investment mil. USD
1	BPEL d.o.o.	Biogas - Pisarovina	2,159,709.42	14.08	1.0	5.2
2	OIE Semeljci d.o.o.	Biogas - Semeljci	5,718,021.94	13.25	1.7	8.84
3	Biointegra d.o.o.	Biogas - Slatina	2,914,487.71	12.89	1.0	5.2
4	EKO d.o.o.	Wind - Kamensko	11,836,760.76	10.14	20.0	36.3
5	Kon□ar OIE d.o.o.	Wind – Pometeno Brdo	2,035,458.08	6.82	16.0	27.2
6	Tudi□Elektro Centar d.o.o.	Wind - Glun□a	8,642,275.00	12.13	23.0	39.1
7	Farma Jozi□	Biogas – Slavonski Kobaš	4,259,799.97	20.21	1.0	5.2
8	RES energetski projekti	Biogas - Molve	1,741,202.90	11.52	1.0	5.2
9	Vjetroelektrana Bruvno d.o.o.	Wind - Bruvno	20,756,792.52	9.80	55.0	93.5

	Investor	Project	NPV (USD*)	IRR (%)	Plant capacity (MWe)	Investment mil. USD
10	Slavonija DI d.o.o.	Biomass, cogeneration – Slavonski Brod	11,985,203.52	10.35	4.0	20.8
11	SIZIM BIO-NERG d.o.o.	Biogas – Veliki Otok	4,430,717.16	15.24	1.0	5.2
12	Depod projekti d.o.o.	Biomass, cogeneration - Brinje	1,816,516.42	14.32	6.5	33.8
13	Eko Energo Sistem d.o.o.	Biomass, cogeneration - Delnice	2,455,583.19	15.47	1.0	5.2
14	Lika Energo Eko d.o.o.	Biomass, cogeneration - Udbina	9,145,863.81	17.81	1.0	5.2
15	Parket 4 d.o.o.	Biomass, cogeneration - Karlovac	6,238,992.54	13.99	1.0	5.2
	TOTAL					**301.14**

*HRK/USD rate = 5.36

The calculation of NPV and IRR is based on financial cash flows only and does not include economic benefits such as the value of fuel saved or environmental externalities. The cash flows and resulting IRRs are calculated using a method resembling the well-established free cash flow method taking the perspective of the project as a whole[4]. This is different from the perspective of an equity investor, whose return is measured by the free cash flow to equity. In most cases, the return to the equity investor will be higher due to the leveraging effect of debt. Thus, for example, the IRR for the Bruvno Wind project (no. 9 in the table above) is 9.8% from the perspective of the project as a whole, but it is 15.2% from the perspective of an investor whose equity would cover about ¼ of the investment cost of the project. This assumes that the remaining ¾ of the cost would be covered by a loan with a 12-year maturity and 6% interest rate.

As shown by the NPVs the table, all fifteen projects are expected to be profitable, although the presented NPVs may be overstated as the discount rates used in the calculation were relatively low (between 4% and 7.5% for different projects). This is a reflection of the low weighted average cost of capital (WACC) used in the calculations by the PIU at HBOR. Local inflation was not included in the cash flow projections, so the IRRs essentially reflect returns in real terms.

In all fifteen projects, the key assumption leading to profitability is the ability of the project to obtain the feed-in tariffs included in the Croatian legislation. Without these tariffs, the projects would either be unprofitable or have to seek highly subsidized financing for their capital costs.

[4] The PIU at HBOR used a proprietary model to calculate the cash flows. The cash flows derived by the model may slightly overstate the cash flows relative to the well established methods such as the free cash flow to the firm/project.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Rashid Benmessaoud	Senior Energy Specialist	SACPK	TTL
Frederick Renner	Consultant	-	RER Expert
Supervision/ICR			
Peter Johansen	Senior Energy Specialist	ECSS2	TTL
Angelica A. Fernandes	Consultant	ECSC2	Procurement
Stjepan Gabric	Senior Operations Officer	ECSS6	
Hana Huzjak	Operations Analyst	ECSS6	
Lamija Marijanovic	Financial Management Specialis	ECSC3	Financ. Manag.
Mirela Mart	Consultant	ECSPS	Financ. Manag.
Natasa Vetma	Operations Officer	ECSS3	Env. Safeguards
Iwona Warzecha	Sr Financial Management Specia	ECSC3	Financ. Manag.

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY01		53.62
FY02		59.00
FY03		23.46
FY04		24.46
FY05		49.82
FY06		61.94
Total:		272.30
Supervision/ICR		
FY07		50.77
FY08		58.83
FY09		50.81
FY10		44.66
FY11		22.45
Total:		227.52

Annex 5. Beneficiary Survey Results

Feedback was requested from the RE project developers who have received financing from the CLF. To facilitate their feedback, a brief survey was developed and translated into Croatian. Six project developers (out of 15) completed their surveys by mid-November 2010. The survey included a request to rank the usefulness of the CLF in meeting their project development needs on a scale from 1 to 5. The respondents were mostly positive and gave the CLF high marks. Two respondents however were quite critical of the CLF, and one of them gave it a rating of 1 (the lowest possible).

The survey included the following questions:

(1) Has the CLF helped you reach your project development needs?
(2) What is the proposed installed MW capacity of your project?
(3) What is the proposed RE technology (e.g., wind, biomass, small hydro, etc.)?
(4) What stage of development was your project able to complete with CLF support? (pre-feasibility study, feasibility study, project design, pre-construction licenses, construction license, power purchase agreement);
(5) What sources of funding were used to develop the project documents? (CLF loan, project developer's own funds/equity, etc.)
(6) Is your project likely to reach financial closure for the investment phase

The positive comments focused on the need fulfilled by the facility for providing access to affordable financing at the critical initial stage of project development. To the important sixth question whether financial closure based on the documents developed with CLF support was likely, more respondents answered "yes" than otherwise.

Nevertheless, the major common point of concern raised in the verbal sections of the survey was the lack of certainty with respect to ever achieving financial closure for the investment phase. What was perceived as a lack of commitment from HBOR to extend loans to their projects was mentioned as a major factor contributing to this uncertainty. The respondent that gave the lowest usefulness rating to CLF believed that the concept of leaving it for the free market to come up with the investment phase financing was out of touch with reality.

The other common complaint was that the conditions attached to the loans were too hard to meet. In particular, the developers (especially those of very small project size) expressed frustration with the extremely burdensome collateral conditions required by both HBOR and the commercial banks. One respondent expressly made the point that the high collateral requirements were unreasonable as he saw his project as having very low default risk due to availability of a 12-year power purchase agreement with the market operator and a significant if not major (10%) investment already made by his company on an equity basis.

A view was also expressed that project developers should not be required to start repaying loans to CLF unless and until financial closure is achieved for the investment phase of the project.[5]

Some respondents stated that matching the project development expenses on a 50%:50% basis was difficult to meet and slowed down the project cycle. Some argued for 100% of these expenses to be financed by the CLF loan.

One respondent pointed to the need to make it clearer to potential borrowers that CLF loans are available for a broader spectrum of pre-investment expenditures, including the development of design documentation for grid connections for RE, associated transformer substations, etc.

[5] It must be noted that this view is entirely consistent with the intent of the GEF expressed in the Project Document of 2005. However, the position of HBOR on this issue was obviously different, and the project developers had to accept it when entering into a loan agreement with HBOR.

Annex 6. Stakeholder Workshop Report and Results

N.a.

Annex 7. Summary of Recipient'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: HBOR and MoELE. In particular, HBOR and MoELE were requested to supply the information on the transition arrangements, focusing on making sure that the projects developed under the CLF reach financial closure. The completed questionnaire was received in late October 2010.

Introduction to the Questionnaire for the Preparation of the GEF Grant Recipient's ICR

1. Evaluation of Project Objectives

The objective of the Croatia Renewable Energy Resources Project, defined in the GEF Project Document (May 2005), includes two parts. The first part is the global environmental objective: to reduce greenhouse gas (GHG) emissions on a continuous basis by overcoming barriers to implementation of renewable energy (RE). Performance indicators for the global objective included: (a) Reduction in carbon dioxide emissions at the national and project levels; and (b) Increased share of "new" RE resources in national energy supply. The second part of the project's objective was to help develop an economically and environmentally sustainable market for renewable energy resources in Croatia. Development of this market would support Croatia in its EU accession efforts. The performance indicators for the second part included: (a) Introduction of an enabling regulatory and incentive framework for RE power and heat production (including tariff design, sub-laws on grid code, licensing and permitting procedures, and training of stakeholders); and (b) Total number of RE projects reaching financial closure as a result of the Contingent Loan Facility (CLF) including the capacity installed (MW) and amount of electricity and heat generated (MWh).[6]

In addition, the project would help make Croatia's economy less reliant on imported electricity and fossil fuels, reduce overall emissions, lead to a higher degree of local employment (equipment manufacturing), and create an attractive climate for private investment in RE.

The Questionnaire and Answers by HBOR

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

Yes. At that time development of an economically and environmentally sustainable market for renewable energy resources and reduction of the GHG emissions were certainly adequate objectives. These objectives are relatively broadly defined, so there is no doubt about adequacy.

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

[6] The project in principle deals with both the production of electricity *and heat* from RE resources. However, most of the emphasis is on *electricity* production (from wind farms and biomass fired cogeneration plants).

Yes. However, some objectives/indicators were not clearly defined.

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

Yes. It can be concluded that the project design both in organizational and technical sense was adequate and sustainable. In the part of technical assistance (TA) for the development of RER market, there was enough flexibility for creating particular tasks for consultants, which were adequate for the further development of RER system.

But, because of the complexity of the system (several administrative bodies/authorities involved in the procedure), perhaps, in a formal sense, representatives of the concerned parties should be more tied to project (not only through the Working Group). This can be done through the organization of the Project. For example, all concerned parties to be introduced as co-beneficiaries, or some other way to involve them more formally in the Project. Maybe it could be more prudent with aim to faster achieve the 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?*

Everyone has contributed, either directly or indirectly. However, the largest contribution came from the Ministry of Economy (MoELE) which, as a result of intensive communication with all relevant institutions, had a clear basis in setting objectives / tasks of the project. The Ministry organized 2 workshops with key project participants and used discussion conclusions for further preparing of the project.

2. Achievement of Objectives and Tasks

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

All those conditions, in the part related with the RES, were relatively underdeveloped. Maybe, only economic (EPEEF, FIT) and environmental (GHG "sector") conditions were relatively well developed and a clear understanding existed about the role of RES. Investment in RER projects were practically non-existent and there was no useful experience.

Also, the institutional situation in Croatia (like in other transition countries) was to some extent burdened by problems such as: communication problems, overlap of responsibilities, misunderstanding of responsibilities, slow development, etc.

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

Despite implementation dynamic obstacles (see next question) the CRO RER Project achieved its purpose and objectives. The Market Framework Support component of the Project was very successful in terms of giving support to Ministry of Economy, Labor and Entrepreneurship and other institutions in a RER market development. By implemented activities of technical and legal assistance, very valuable support was given to MoELE in enabling an operating RER licensing process. Very important was technical and legal support in resolving backlog cases related to the

occupation of sites in the wind sector during creating of RER projects Registry and obtaining the Preliminary Energy Approval as a first step in a licensing process. As a result we have a large number of RER and cogeneration projects in pipeline, with obtained Preliminary Energy Approval (at this moment more than 300 different projects). Also, the further development of RER projects and market system are supported through the implementation of services such as:

- Development of streamlined procedures for RER projects permitting;
- Additional development of RER Registry (improved functionalities);
- Additional legal support (basis for upgrade of secondary legislation);
- Review of the tariff system;
- Development of policies and measures for RER until 2020;
- Registry upgrade for heating and cooling projects;
- Development of heating and cooling regulation;

Also, technical assistance support to other market institutions is given such as:

- support to Transmission System Operator (HEP TSO) – short term prediction of wind capacity;
- Distribution System Operator (HEP DSO) – supporting in defining of technical conditions for grid connection;
- Market Operator (HROTE) – Guarantees of Origin system.

Support to grid operators is very valuable, because grid issues are one of the main constrains in development of RER sector. Support to market development was concluded with services that will directly support further improvement of the RER market system through an upcoming review of tariff system and secondary legislation in general. This review will address the most important obstacles in the implementation of the RER system, which are now well identified.

Similarly, despite the market development delay, the Project Preparation Component of the CRO RER Project fully and successfully performed its role in supporting of potential RER projects in an early stage of development, supporting them in achieving financial closure. Through the Contingent Loan Facility lending was contracted for preparation of 15 RER projects. There is an increased demand for such support, and HBOR is considering the possibility of continuing this facility after the closing of CRO RER Project.

Project Investment Support (PIS) part of the Project Preparation Component was not so successful. One could say that the problems and barriers were just encountered, but there was no time for substantial development support. These issues were somehow at the end of the chain, but of course no less important.

If we consider the achievement of the envisaged objectives through the performance indicators set at appraisal, there is no doubt that the Project has not been able to meet the targets within the original timeframe. Specifically, the originally set performance indicators were based on the assumption that technical assistance should be completed and approved in second (year 2) of the Project. The target for the CLF component was that five CLF supported RER projects should reach financial closure by the closing date (which means in the year 4 of the Project), and four more in the following year 5 and year 6. Also, increased share of the “new” RER in national electricity consumption was originally predicted to reach 3.5% in year 4 of the Project and 4.5% and 5.0% in the following year 5 and year 6. According to this increased share of the “new” RE a CO_2 emission reduction was estimated at 87,000 tCO_2eq in year 6 of the Project.

Generally, according to realistic projections Croatia will reach minimum target RER share of 5.8% of the "new" RER in national electricity consumption with two years delay, or by the end of 2012. This dynamic will bring RER share of 3.0-5.0% in year 6 (2011) of the CRO RER Project. This is almost in line with originally predicted Project dynamics but with intensive development in years 2010 and 2011. On the other hand only one or two CLF supported RER projects will reach financial closure by the closing date (which means in year 4 of the Project), and eleven more in the following year 5 and year 6. For year 4 of the Project this is not in line with the originally set performance indicator. But, if the timetable for the target were extended by only one year, this performance indicator could have been met and possibly over fulfilled (13 vs. 9 projects in all six observed years).

Concerning technical assistance, originally set performance indicator (completion and approval in year 2) has not been fully reached at the time but generally performance of technical assistance was successfully reached by the end of the Project.

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

One of the basic preconditions for development of RER market in Croatia and successful implementation of the RER Project was the issuance of the renewable electricity and cogeneration secondary legislation package regulating permitting procedure for RER projects, "feed in" tariff system and minimum share of electricity produced from RER and cogeneration plants whose production is incentivized. Due to reasons that were not in the domain of the RER Project, the issuance of RER secondary legislation package was delayed by 2 years and finally it went into effect on July 1, 2007, i.e. more than two years after Board approval.

The consequence is that the overall development of the RER market in Croatia was delayed by about two years and, at the present moment, the RER market is intensively developing, but is still far from being mature. The delay also had a significant influence on the development of the CRO RER Project regarding both components of the Project. Technical assistance for market framework development could have been effectively defined only when problems and barriers became more visible through the implementation of the system of measures to support RER. The Contingent Loan Facility (CLF) supported RER projects were initiated only when the project development procedures and the feed in tariff system were defined. The result of this was that the majority of the Project activities picked up speed only in the last two years of project implementation.

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

Most significant is support to MoELE and Developers:
- Development of authorization process and OIE Registry;
- Legal support;
- Renewable Energy Advisory Facility (REAF),
- CLF.

To briefly summarize, the project provided certain development and the basics for further development of RER market system. These basics are not theoretical but based on the real experience of the current system development, wherein the obstacles and barriers were identified and documented to be significantly avoided in the next step. This will make the system of supports to RER more efficient than that anticipated at the beginning.

- *To what extent has it become possible to commission and start operating the facilities built or rehabilitated under the project?*

Not really applicable to the RER project, but some of the CLF projects are brought to the level of financial closure for construction, with the start of implementation/construction expected shortly.

- *To what extent did the timeframe for commissioning the facilities correspond to the timeline set out in the legal documents (the grant agreement)?*

There was a delay in the Project implementation. See explanation above.

3. Evaluation of Recipient's Performance

Project Preparation

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

The project support (in framework of policy) by the Government at the preparation stage has been highly satisfactory. In a situation when the RER practically did not exist, MoELE launched a specific activity and, in cooperation with the IBRD, launched a project of great value for the country.

- *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)?*

Yes, within the possibilities. Operationally, the biggest share of the burden was absorbed by the MoELE, where the Directorate for Energy and the Department of RER had been only recently created. A lot of things were done with extraordinary, passionate, and special activity of the RER Department Manager. Not all stakeholders were equally engaged. An important contribution was given by the EPEEF in setting up the project.

- *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 experience is good. The project was, at the time, well prepared. Taking into account today's experience, perhaps less dynamic development of the system should have been expected, and slightly less ambitious goals should have been set. This is especially true if we consider that the system was designed as an authorization of projects (rather than government concessions), and the developers took some time to master the system.

Also, because of the complexity of the system (several administrative bodies/authorities involved in the procedure), perhaps, in a formal sense, representatives of the concerned parties should be more tied to project (not only through the working group). This can be done through the organization of the Project. For example, all concerned parties to be introduced as co-beneficiaries, or some other way to involve them more formally in the Project. On the other hand,

the participation of multiple stakeholders could complicate communication and coordination within the Project. It is necessary to find the right balance.

Project Implementation

- *How would you answer the three previous questions regarding the project implementation stage?*

1) Degree of the project support by the Government;

Support has been very satisfactory as well as determination for development of the market. However, in the area of market development, there was a delay in issuing the first version of the RER secondary legislation. This has slowed the development of RER markets and in some way affected the implementation of the RER project.

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

RER department in MoELE was fully committed, and over time increased its capacity. However, in one respect, which is of great importance for the development of the system, MoELE's capacity is limited. Specifically, the Energy Department does not have its own lawyers. In this sense, support of the RER Project is more than valuable.

Communication between the concerned parties/agencies increased as well. Agencies were intensively working on renewable energy issues (Market Operator, Energy Regulatory Agency). However, the system is not easy to establish, and the RER Project by itself was not sufficient for overall development of the system. Development depends on dedication of individual agencies. The requirements for the development of the grid operator (TSO, DSO) are particularly demanding. Further efforts are needed to ensure a greater capacity of connection to the network.

HBOR very well fit into the project implementation, particularly in the segment of CLF. Communication and experience with the developers have brought a very strong awareness of problems and barriers in the financing sector.

EPEEF has also contributed very much to the implementation of CLF. Their responsibility was for the technical due diligence for the CLF sub-projects. EPEEF has been active in conducting the analysis, but sometimes, probably because the EPEEF staff were busy with their own tasks, the activities took longer than expected.

3) What aspects should be in greater focus?

During the implementation, for this kind of project, aspect of co-ordination of various institutions is very important. The agencies should give emphasis to it, regarding project preparation as much as project implementation.

Also, greater focus should be placed in the field response from the Developers, and, based on that, to management of any potential changes in the project.

4. Evaluation of World Bank Performance

Project Preparation Stage

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

The Bank established good relations, collaborating closely with all government counterparts and supported the framework for preparation of the project.

- *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 understood it in full extent. The understanding was highly relevant regarding to Government's long term strategy of development of RER sector.

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

Yes. In many ways, the Bank specifically directed the project preparation.

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

Successfully. The result is that some institutions contributed to the project (MoELE - 25% for the domestic consultants, EPEEF – guarantees for the CLF, as well as "in kind" contribution of technical expertise)

- *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?*

The Bank should, bearing in mind the institutional situation in transition countries like Croatia (communication problems, overlap of responsibilities, misunderstanding of responsibilities, slow development, etc.), insist on more formal involvement of stakeholders in the project.

Project Implementation Stage

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

Very good. The Bank was all the time "in" the project.

- *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?*

From today's point of view, the project had relatively ambitious objectives. Maybe a possible dynamics of market development was relatively overrated. Perhaps the Bank, recognizing this, should have insisted on an earlier restructuring of the project.

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

Yes. The Bank team was very experienced, very cooperative and very often available in Croatia through the missions. Communication and support were excellent.

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

Successfully. The result is that some institutions contributed to the project (MoELE - 25% for the domestic consultants, EPEEF – guarantees for the CLF, "in kind" contribution)

- *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?*

From today's point of view, a greater focus should be on the realized dynamics of market development, which has an impact on the achievement of project objectives.

5. Contribution of the Project to Institutional Strengthening

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

Yes definitely. It has been a very essential part of the Project's intent and content.

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

MoELE:
- Development of authorization process and OIE Registry;
- Legal support;
- Basics for further development of market system and legislation;
- Renewable Energy Advisory Facility (REAF).

HBOR:
- CLF - enhance the capacity to carry out assessment and RE project financing.

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

In most of the cases there are good chances. The resulting market system and legislation will last for a next period of significant development of the sector.. This is a very important result. The knowledge accumulated within the institutions will last. Improved communication and relationships between institutions will last. In HBOR, knowledge about the RER sector will not only last but grow.

6. Transition Arrangements

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

Not in the short term. Concerning MoELE, all achieved results of the GEF support will be promptly used for formalization of the system through procedures and new set (update) of the legislation. Of course, it would help if the requested extension of the project did not fail. In that case, the transition would be made more efficiently.

On the other hand, after termination of financing from the GEF grant, MoELE will feel a great lack of legal assistance and lack of support by renewably energy advisory facility (REAF). The opportunity to strengthen their own capacity in these areas has unfortunately been missed by MoELE, and the only solution will be continued use of external services.

Concerning other institutions influence of the project was not so significant to make difficulties in regular operations.

- *If you do, what has been done or what has been planned to do to have transition to regular operations and to retain advantages gained during the project (including provision of resources for keeping the maintenance of the facilities created/built/rehabilitated during the project at the adequate level)?*

HBOR – Project Manager of PIU is kept in the HBOR and contributes to the development of the financing of the RER sector. Based on the experience of the GEF project, HBOR is considering introduction of a similar loan program such as CLF, but from its own funds.

Also, MoELE has kept the consultant (Mr. Marijan Hohnjec) from REAF for a scope of activities that will remain largely the same, for a certain period under a contract paid by UNDP.

- *Has the need in a potential follow-up project been assessed?*

Not under the RER Project. However, it might be good under similar future projects to include plans for seeking resources and develop plans for follow-up activities.

At this moment, it would be good for Croatia to pursue such projects because an Action Plan for the development of the economy has just been launched where RER sector plays a significant role.

7. Key Lessons

- *What are the most important lessons of this project as a whole, including both lessons for future investment projects and broader lessons – for example, ideas for development of a more successful policy for supporting RE, more financing opportunities for RE, etc.?*

An important lesson is that, because of the complexity of the RER market system (several administrative bodies/authorities involved in the procedure), perhaps, in a formal sense, representatives of the concerned parties should be more tied to project (not only through the

working group). For example, all concerned parties to be introduced as co-beneficiaries. Other words, to insist on more formal involvement of stakeholders in the project, bearing in mind the institutional situation in transition countries like Croatia (communication problems, overlap of responsibilities, misunderstanding of responsibilities, slow development, etc.). On the other hand, On the other hand, the participation of multiple stakeholders could complicate communication and coordination within the Project. It is necessary to find the right balance.

Also, one of the lessons is that we should pay attention to determining how much attention will be paid to different parts of the RER system – development of legislation and perrmiting procedures, grid connection and financing. In the end, each of these areas should command equal attention. Maybe, an idea is to have three diferent commponents within one project.

The legislative and regulatory actions supported by TA under the Project are summarized in the table below.

Legislative/Regulatory Actions Supported by TA under the Project (Including the PDF-B phase)

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
Ordinance on the Use of Renewable Energy Sources and Cogeneration	01.07.2007. Official Gazette 67/2007	This Ordinance specifies the renewable energy sources and cogeneration plants used for energy production, prescribes the conditions and possibilities for the use of renewable energy sources and cogeneration plants and regulates other issues of importance for the use of renewable energy sources and cogeneration. This Ordinance lays down the form, contents and manner of keeping the Registry of projects and plants for the use of renewable energy sources and cogeneration and of eligible producers.	**PDF-B:** 1. Public Land Use Regulation for Wind Energy Development in Croatia - administrative and proprietary rights barriers regarding wind power potential exploring and wind farm construction 2. Public Land Use Regulation for Wind Energy Development in Croatia" 3. Cost-Benefit Analysis for Renewable Energy in Croatia
Ordinance on Acquiring the Status of Eligible Electricity Producer	01.07.2007. Official Gazette 67/2007	This Ordinance establishes the conditions for acquiring the status of eligible electricity producer which may be acquired by a project holder or producer who in a single generation plant simultaneously produces electricity and heat, uses waste or renewable energy sources for electricity production in an economically viable manner in compliance with environmental protection	

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
Tariff System for the Production of Electricity from Renewable Energy Sources and Cogeneration	01.07.2007. Official Gazette 33/2007	This Tariff System for the production of electricity from renewable energy sources and cogeneration regulates the right of eligible producers of electricity to an incentive price of electricity paid by the market operator for the delivered electricity produced in plants using renewable energy sources and cogeneration plants pursuant to Article 26, paragraph 5 of the Energy Act. This Tariff System defines the tariff items and the amounts of tariff items for electricity produced in plants using renewable energy sources and cogeneration plants, depending on the type of source, power and other elements of delivered energy, as well as the manner and conditions of application of those elements. This Tariff System is based on justified costs of operation, construction, replacement, reconstruction and maintenance of plants using renewable energy sources and cogeneration plants and on a reasonable return on investment funds.	4. Development of renewable energy policy / regulatory framework 5. Local Development Planning

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
Regulation on the Minimum Share of Electricity Produced from Renewable Energy Sources and Cogeneration whose Production is Incentivized	01.07.2007. Official Gazette 33/2007	This Regulation stipulates the minimum share of electricity produced from plants using renewable sources of energy and cogeneration plants whose production is incentivized and lays down the objectives of the Republic of Croatia as regards the production of electricity from plants using renewable sources of energy and from cogeneration plants. The objective referred to in paragraph 1 of this Article shall be expressed as the minimum share of electricity produced from plants using renewable sources of energy and from cogeneration plants in the total electricity consumption whose production is incentivized in the manner and under the conditions laid down in special regulations. This Regulation does not apply to electricity generated from hydro power plants with installed power exceeding 10 MW or to electricity generated from cogeneration plants falling in the category of public heating plants which produce electric and thermal energy for sale and not for their own purposes.	
Regulation on Incentive Fees for Promoting Electricity Production from Renewable Energy Sources and Cogeneration	01.07.2007. Official Gazette 33/2007	This Regulation lays down the manner of disposing of, the amount, calculation, collection, distribution and payment of incentive fees for promoting electricity production from plants using renewable energy sources and from cogeneration plants (hereinafter: incentive fee), in accordance with strategic interests of the Republic of Croatia which pertain to the share of renewable sources of energy and cogeneration in total electricity consumption, taking into account the circumstances on the energy market of the Republic of Croatia and production costs of electricity from plants using renewable energy sources and from cogeneration plants.	

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
Update / Revision of: 1. Energy Act 2. Electricity Market Act	Expected in year 2011. Expected in year 2011.	Energy Act regulates measures to ensure a secure and reliable energy supply, efficient power generation and its use; enforcement of acts that will stipulate and on the basis of which the energy policy and energy strategy will be designed; it also regulates carrying out of energy activities based on market principles or pursuant to public service obligation, and other key issues relevant for the energy sector. This Act regulates the performance of the following activities of the energy sector: generation of electricity, transmission of electricity, distribution of electricity, supply of electricity and organization of the electricity market.	**RER Project:** A1-2: Support to the Croatian Energy Market Operator: - Implementation of the System of Guarantees of Origin in Croatia, with necessary legislative adaptation on current support system. A1-3.1: Support to MoELE - Legal Support: - Revision of secondary renewable energy legislation and drafting a basic concept of the new legislation
Issuance of new Act: 1. Renewable Energy Act	Expected in year 2011.	This Act will integrate existing and planned legislation concerning the authorization, certification and licensing procedures that are applied to plants for the production of electricity, heating or cooling from renewable energy sources, and to the process of transformation of biomass into biofuels or other energy products.	**RER Project:** A1-2: Support to the Croatian Energy Market Operator: - Implementation of the System of Guarantees of Origin in Croatia, with necessary legislative adaptation on current support system. A1-3.1: Support to MoELE -

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
			Legal Support: - Revision of secondary renewable energy legislation and drafting a basic concept of the new legislation A1-6: Support to MoELE - Support to development of streamlined procedures of renewable energy resources (RER) projects: - Review and evaluation of the renewable project development procedures - identify and evaluate all possible barriers and problems in performing the RER licensing procedures. A1-5: Support to MoELE - Development of policies and measures for increasing the RER share and achieving long-term mandatory targets
Update / Revision of RER secondary legislation: 1. Ordinance on the Use of Renewable Energy Sources and Cogeneration	Expected in year 2011.	Update / Revision of RER secondary legislation is intended to harmonize the development dynamics of the RER sector, both through the tariff system and through the process of investment authorization.	**RER Project:** A1-1: Support to the MoELE – RER tariff system revision A1-3.1: Support to MoELE - Legal Support:

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
2. Ordinance on Acquiring the Status of Eligible Electricity Producer 3. Tariff System for the Production of Electricity from Renewable Energy Sources and Cogeneration 4. Regulation on the Minimum Share of Electricity Produced from Renewable Energy Sources and Cogeneration whose Production is Incentivized 5. Regulation on Incentive Fees for Promoting Electricity Production from Renewable Energy Sources and Cogeneration		Croatian feed-in tariffs system is the main driver of the market support to producers through the transfer of funds per kWh generated. The tariff is generally set by the Government at the rate above the market rate to help overcome the cost disadvantages of renewable energy and cogeneration. However, only those technologies that benefit from the feed-in tariff earn sufficient profits to be implemented. For this reason, the Government of Croatia intends to introduce feed-in tariffs for much finer market structure compared to current market composition that would overcome disadvantaged position of some of the technologies with potential for large penetration, e.g., small PV up to 30 kW. After three years of practicing the existing system, Ministry of Economy, Labour and Entrepreneurship (MoELE) decided to review some aspects of existing support system: • implement new segmentation of the RES and cogeneration market that would take into account technology development and recent trends; • review feed-in tariffs for existing and calculate tariffs for a broad range of new RES and cogeneration market segments. Also, the administrative authorization process of RE sources and cogeneration (RESC) projects construction and operation will be revised. Revision will simplify authorization and thus shorten the procedure conducted by the bodies responsible under the energy regulation. Also, it will correlate the activities of relevant bodies in order to strengthen the purpose of the approvals or licenses, and to oblige them to appropriate collaboration in different process stages.	Legal Support: - Revision of secondary renewable energy legislation and drafting a basic concept of the new legislation A1-6: Support to MoELE - Support to development of streamlined procedures of renewable energy resources (RER) projects: - Review and evaluation of the renewable project development procedures - identify and evaluate all possible barriers and problems in performing the RER licensing procedures. A1-8.2: Support to MoELE Authorization for the construction RERCP and RERCPPP Registry – Legal Support A1-5: Support to MoELE - Development of policies and measures for increasing the RER share and achieving long-term mandatory targets

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
Issuance of new secondary legislation regarding renewable heating and cooling energy: 1. Ordinance on obtaining the status of eligible producers of renewable heating and cooling energy 2. Regulation on the supported share of heating and cooling energy produced from renewable energy sources 3. Regulation on sources and amounts of financial support for eligible producers of renewable heating and cooling energy	Expected in year 2011.	The Republic of Croatia, as well as other EU Member States, will have to significantly increase the share of renewable energy sources (RES) in total final energy consumption in order to reduce carbon dioxide and other greenhouse gas emissions. Pursuant to the Energy Strategy of the Republic of Croatia, the aim is to source 20.02% of the country's *total* energy production from the RES (including electricity, heating and cooling energy, and transport). The said percentage has been defined pursuant to the Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources, and Amending and Subsequently Repealing the Directive 2001/77/EC and 2003/30/EC. The current share of *total* energy production from renewables in the Republic of Croatia is 12.58%, and it must be increased by additional 7.42%, which is a very ambitious target considering the set deadline (2020). Global experiences as to heating (cooling) energy production show that heating energy consumption represents a very large percentage of total energy consumption, about 50-60%. This is a large amount of energy, and it is therefore opportune to produce a part thereof using renewables so as to increase the share of the RES in total energy production. In this manner, relatively small changes to the structure of heating energy production would result in maximum effects as regards the increase of the renewables share in the total amount of energy produced, which would then result in a very significant reduction of carbon dioxide and other GHG emissions (under the Kyoto Protocol, Croatia should reduce its GHG emissions by 5% in relation to the base year, 1990).	**RER Project:** A1-9: Support to MoELE – Support to Development of Renewable Heating and Cooling Regulation

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
		Due to all the above, and with the aim of increasing the RES share in the production of heating and cooling energy, intention is to define an incentive system, to be implemented through the secondary legislation.	
Additional technical conditions for the wind power plant connection and operation in the transmission grid“ (Wind Grid Code for transmission grid 110kV, 220 kV, 400 kV)	Issued 31.12.2008. by *HEP-Transmission System Operator* www.hep.hr/ops/ /document	HEP-Operator prijenosnog sustava d.o.o. (*HEP-Transmission System Operator)* stipulates technical requirements for wind power plants regarding their connection and operation aiming at the secure operation of the system with the significant share of wind power plants. These technical requirements are provided due to wind power plants influence on the electricity system operation. Requirements set by this document refer to all wind power plants connected to the transmission grid under the competence of HEP-OPS regardless to the size of construction and location of the connection. HEP-OPS reserves the right by acquiring adequate operating experience to make amendments to these Additional technical requirements for wind power plant connection and operation in the transmission grid, e.g., to set a limit for wind power plant size of construction above which the specified requirements must be met.	**RER Project:** A1-7.3: Support of the Development of Transmission System Operator (TSO) – II - Revision of the Wind Grid Code, and proposals for amendments.
The Grid Code - Network and System Rules	01.04.2006. Official Gazette 36/2006	These Network and System Rules (hereinafter referred to as the «Grid Code») set out operation and management, development and construction of, and connection to the transmission and the distribution system, as well as metering rules in accounting points. The Grid Code sets out the following: - technical and other conditions for user connection to the system, - technical and other conditions for safe electricity system	**RER Project:** A1-7.2: Support of the Development of Distribution System Operator (DSO) - Detailed analysis of technical conditions, per

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
		operation, - procedure in the times of the electricity system crises, - technical and other conditions for interconnection and interaction of systems, - technical and other conditions for accounting for the measured electricity.	technical conditions, per voltage level, for the connection of wind power plants to the distribution system, and the measures for safe use, operation and exploitation of wind power plants within the distribution system (so called "Wind Code").
Update / Revision of: 1. RER National Action Plan	Expected in year 2011.	Croatia became a candidate country for the EU membership in 2004, accession negotiations are near the end, which means that Croatia has harmonized its legislation with the EU Acquis Communautaire. Accession to the EU is expected by 2012. Croatian renewable energy targets are in accordance with EU joint target, calculated on the basis of the effort sharing principle that accepts economic differences between the EU member countries. The main existing measure is feed-in tariff for renewable energy sources in electricity production. In spite of great interest of investors in new projects, practice has shown that implementation is not efficient enough; many barriers exist, including administrative licensing procedures that should be improved. The Action Plan is aimed to help in enforcement of existing measures and to propose development of new ones that will enable Croatia to reach its ambitious renewable energy targets in the	**RER Project:** A1-5: Support to MoELE - Development of policies and measures for increasing the RER share and achieving long-term mandatory targets

Legislative/Regulatory/ Policy action/change	Date/public record reference	Explanation of purpose and significance of action/change for creating an enabling environment for RE investment	TA within RER Project that contributed to action/change
		future. The key underlying document used for preparation of the Action Plan is the new Energy Development Strategy of the Republic of Croatia for the period until 2020, and also a background document, the so called "Green paper". The goal of the Strategy is to build a sustainable energy system with balanced development of relations between environmental protection, competitiveness and security of energy supply, which will enable secure and available energy supply to the Croatian citizens and the economy, under the conditions of uncertain situation in the global energy markets and with scarce local energy resources. One of the specific tasks of the Strategy is to set targets for renewable energy sources in accordance with the EU approach and targets as outlined in the EU energy and climate change policy package.	

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Comments from Irena Dubravec, EPEEF[7]

1) Contribution of EPEEF to the GEF Project

At the start of the Project, contribution from EPEEF was expected to come in three forms:

a) Technical due diligence for the CLF projects;

b) Guarantees for CLF, i.e. financial compensations to HBOR for any defaulting CLF loans; and

c) Co-financing of consulting services procured by HBOR under Component B (Project Preparation).

Of the above three items, only the first one has fully materialized. This was an in-kind contribution provided in the form of technical expertise of EPEEF staff advising HBOR on the technical merits of the projects. The scope and process of technical due diligence was governed by a list of 42 questions[8] that project developers had to answer, including technology, economic, meteorological, land ownership, and other disciplines. Under the second item, the contribution was contingent upon CLF loans defaulting, which did not happen during the life of the GEF Project. Therefore, no monetary contribution from EPEEF was made. No contribution was made as per the third item. Overall, no monetary contribution was made by EPEEF to the Project, but the in-kind contribution in the form of technical due diligence was essential.
It should be kept in mind that EPEEF has its own major portfolio of Government-supported RE projects, apart from those under the GEF Project.

2) Prospects of financial closure for CLF projects

All fifteen CLF projects are expected to be profitable (with biogas projects bringing payback of 5-7 years, wind a little longer) but there are issues with access to finance due to risks perceived by the banking community. The chances of financial closure for all 15 CLF projects are good, based on the high quality of their preparation. Banks are now more aware of the good quality of the projects, and are likely to finance them. EPEEF has undertaken a series of outreach activities (including conferences, workshops, website, etc.) to raise awareness about RE projects as attractive investments.

3) Overall assessment of the GEF Project

The Project went well overall. Understaffing of the technical due diligence function of EPEEF was a notable shortcoming, with only one person engaged in this activity initially, while 2-3 persons were required. This was a reflection of insufficient awareness/appreciation of the benefits of renewable energy development in Croatia. The situation is improving, and the Project has contributed to this. Both components of the Project (A and B) were essential.

[7] This summary is based on e-mail of 28-Jun-2010, followed by a phone call on 29-Jun-2010.

[8] The list, available only in Croatian, was developed separately from the Project Implementation Plan (PIP).

4) Benefits to EPEEF project portfolio from GEF Project

GEF Project Component A (Market Framework) had important benefits for EPEEF's own project portfolio. In addition, the staff of EPEEF has received important learning-by-doing benefits from the experience of providing technical due diligence under Component B. To provide a reliable evaluation of projects, one needs to be conversant with a full range of technical areas of expertise.

5) Future operation of CLF

Post GEF grant financing, the contracts that EPEEF has signed with the CLF borrowers (jointly with HBOR) will remain valid at least until all loans are repaid to HBOR (expected in about 2014). This will complete the first lending cycle of the CLF program that was launched under the GEF project.

Annex 9. List of Supporting Documents

1. Project Document dated May 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. Cost-Benefit Analysis for RE in Croatia, Frontier Economics, May 2003

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CROATIA

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

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