1. Country and Sector Background

Croatia has good potential for renewable energy (RE), with a significant resource base, including reasonably good resources in all technologies and excellent resources in some (e.g., biomass). Croatia has experience with all technologies, including a small wind project, and has generally very good technical manpower. This experience can be transferred to RE businesses in the future. Because Croatia is likely to be given targets for increased share of RE in its energy mix as part of the accession negotiations with the EU, it has an additional incentive (beyond energy security, local employment, etc.) to generate more clean energy than the share it has today, which mainly comes from large hydropower plants. Finally, there is relatively strong awareness in the country of environmental issues and the need for action in this domain.

Prior to 1980, the country generated a large share of total energy supply from renewable resources, especially from biomass and hydropower. This share has declined as the country moved toward more traditional sources of generation in the 1980s, but large hydropower plants still account for 46 percent of electricity generation.

The Croatian electricity sector is dominated by the national utility, Hrvatska Elektroprivreda (HEP). HEP is the only electricity generating company in the country, despite the allowance of independent or private power producers. HEP is also the transmission and distribution company,
operating approximately 22 local distribution areas. The government is considering restructuring HEP as part of an overall energy sector restructuring and in preparation for EU accession.

The objectives of the Government of Croatia for the energy sector, as stated in the Energy Sector Development Strategy (January 1999), call for post-war recovery and transition towards energy security through: (i) efficient energy supply in an environmentally sustainable manner at realistic but socially acceptable prices; (ii) demonopolization and liberalization of the energy market; (iii) fostering competition in the energy market where possible through privatization; (iv) establishment of a regulatory framework; and (v) addressing market and institutional failures to promote energy efficiency and renewable energy resources and to protect the environment. Croatia meets two thirds of its energy requirements from domestic production (mainly oil and gas). However, production is declining and energy imports will need to increase dramatically if economic recovery is to be sustained. Croatia will have to pay full international prices for these imports, and with large investments needed for reconstruction and expansion of the energy infrastructure, the financial burden on Government would be high. This burden is best mitigated through creating an institutional and regulatory environment to attract private financing to the sector. In addition, the scarce energy resources will have to be used in a way that represents the highest value to the Croatian economy.

The Government has attempted to address these challenges through passage of the Energy Law, which was approved in July 2001. The Law provides, 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. The current government proposal is to institute a minimum share of electricity supply equivalent to 4.5% by 2010. This will be equivalent to between 225 and 450 MW\[FPR6\] of installed RE capacity depending on the capacity factor.\(^1\)

Since the development of the energy sector strategy and passage of the Energy Law, some changes have occurred in the market but little progress has been made toward achieving the stated objectives. Current revisions to the Energy Law and the corresponding regulations may provide a basis for moving forward but this is uncertain. Meanwhile, in the absence of a clear framework for renewable energy, some private sector initiatives have taken hold. One wind project of 6 MW has been built, with HEP as the buyer under a long-term contract. Local financial institutions have shown interest and one has financed the 6-MW wind project\(^2\). No projects of note in the biomass, small hydro or other technologies have been developed.

Foreign and local private capital is currently waiting for clear signals from the government with regard to pricing and other regulations in order to begin investing in earnest. It is unlikely that without private investment the Government will be able to meet its own targets for RE penetration, let alone the targets likely to be set as part of the EU accession negotiations.

\(^1\) Wind energy plants typically have capacity factors around 25% which would result in the higher capacity estimate, whereas biomass cogeneration plants can be expected to deliver power at a capacity factor around of 50% which would result in the lower capacity estimate.

\(^2\) This project was financed because the developer has a strong balance sheet and was able and willing to put up sufficient collateral. This will not be the case for most developers, which indicates limited replicability under the present conditions.
2. Objectives

The objective of the proposed project is to help develop an economically and environmentally sustainable market for renewable energy resources in Croatia. Development of this market will support Croatia in its EU accession efforts. In addition, the project will help make Croatia’s economy less reliant on imported electricity and fossil fuels, reduce overall emissions, lead to a higher degree of local equipment manufacturing, and create an attractive climate for private investment in renewable energy, and generate local industry and employment.

The project will in principle deal with both the production of electricity and heat from RER. However, most of the emphasis will be on electricity production (from wind farms and biomass fired cogeneration plants).

The performance indicators used to justify Development Objectives ratings during supervision include:

- Increased share of renewable energy in total electricity supply of country (compared to policy targets)
- Demonstrated risk-sharing among private developers, commercial banks, and the buyers.

The performance indicators used to justify Implementation Progress ratings during supervision include:

- Number of stakeholders trained;
- Improved access to resource information and public awareness of renewable energy;
- Number of projects supported by contingent loans that lead to financial closure;
- The number of projects reaching financial closure and the amount of co-financing from private capital markets.

The project’s global environment objective is to reduce greenhouse gas emissions on a continuous basis by overcoming barriers to implementation of renewable energy. Performance indicators for the global objective include:

- Reductions in carbon dioxide emissions at the national and project levels;
- Development of renewable energy products and services that deliver a growing range of renewable technologies and applications.

A further objective of the project is to support Croatia’s future accession to the European Union, through support in achieving a significant share of electricity supply from renewable energy. EU target for the 15 “old” member countries was 22 percent of electricity supply from renewables by 2010; for the 10 new member countries the average is 11 percent by 2010. While it is not known what percentage will be required of the next round of accession countries (including Croatia), the inclusion of a renewable energy target by the Government of Croatia in its energy planning will support its accession goals in this respect.

3. Rationale for Bank Involvement
The GEF involvement is critical in helping open the market and in creating a sustainable environment that is not dependent upon credit enhancement or financing mechanisms. GEF’s leading role in the project will be to overcome barriers to development of renewable energy resources through commercially sustainable activities. Without GEF participation, private developers will not be able to develop and finance projects; and without GEF participation there will 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 will lead to sustainable, long-term reductions in greenhouse gas emissions and help Croatia join modern industrialized nations in efforts to reduce global pollutants. GEF financial support and Bank implementation efforts will also help create the framework that will allow Croatia to achieve its EU-mandated renewable energy supply targets.

While the current restructuring of the energy sector presents challenges to development of this project and renewable energy, it also represents a tremendous opportunity. In addition to the sector restructuring efforts, the Government has created a pool of financial resources through a law on pollution tax. These funds, along with private capital, can provide the necessary financial resources for RE implementation if used correctly. The World Bank will be able to add needed capacity, expertise and advice at a critical juncture. The Bank’s assistance will support development of rational secondary legislation, clear approval procedures, a framework for use of pollution tax receipts, and a pipeline of projects for investment. These market conditioning and project preparation activities will help remove barriers to the sector in a relatively short period and allow for development of the market.

This development of the RE market will be important for Croatia with regard to EU accession. While targets for the next round of accession countries (which includes Croatia) will be required, the level is uncertain. Given Croatia’s current low level of deployment of non-hydro renewable energy, the Government has made it a priority to promote its use in the near future.

4. Description
The project will achieve the objectives by:

1) Overcoming the barriers to market development, including:
   a. legal (e.g., lack of enabling policy and legal framework, inadequate planning capacity, unclear permitting and licensing procedures, unclear land ownership);
   b. financial (e.g., lack of understanding of renewable energy in banking and business community, lack of risk capital); and
   c. technical (e.g., potential strain on transmission system).

2) Providing assistance to confirm market potential, build knowledge and implementation capacity, streamline procedures, monitor compliance with minimum share targets, and inform the public.

Implementation of the project will include two components:

Market Framework (GEF grant of US$2.0 million). This component will comprise 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 will also include support to the market operator (MO), distribution system operator (DSO), transmission system operator (TSO), Croatian Energy Regulatory Agency (CERA), and local governments in streamlining the permitting process. Technical assistance will be 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 within the same institutions will be required to implement the new regulations and system. A monitoring, evaluation and information dissemination subcomponent is included, along with financial support for the Project Management Unit. Additional beneficiaries will include the Ministry of Economy, Labour and Entrepreneurship (MoELE), Ministry of Environmental Protection, Physical Planning and Construction (MoEPPPC), the Environmental Protection and Energy Efficiency Fund (EPEEF), HEP (in its capacity as TSO and DSO), NGOs, the banking community, policy-makers, regulatory authority, and private developers.

Project Preparation (GEF Contingent Loan of US$2.0 million and grant of US$1.5 million; total US$3.5 million). The contingent loan mechanism and supporting activities will be used to identify candidate projects for investment and to cover initial project development cost (feasibility studies). The contingent loan facility (US$2.0 million) will provide loans to qualified project developers on a cost-sharing basis. The loans will be capitalized in the project financing and repaid, or if the projects do not move to implementation the contingent loan will be converted to a grant. Funds that are recovered will be recycled and used in future projects. In addition to and separate from the contingent loan facility, US$1.5 million will be used for project development and project investment support. Project development support will focus on development of a sustainable pipeline of potential projects that can provide deal flow for EPEEF and the contingent loan facility. This will be facilitated by creation of a national energy centers that will provide information and know-how to private developers. Project investment support will include capacity building and financial advice to EPEEF, commercial banks and municipal finance authorities.

Total project costs. The total project costs and financing plan are shown below.
Table 1: Financing Plan (US$ million)

<table>
<thead>
<tr>
<th>Component (according to financing mechanism)</th>
<th>Category</th>
<th>Indicative Costs</th>
<th>Financing Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Amount</td>
<td>GEF</td>
</tr>
<tr>
<td>Market Framework</td>
<td>Capacity building and barrier removal</td>
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<td>Project Preparation</td>
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<td>3.5</td>
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<tr>
<td>Project Investment</td>
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<td>120.9</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>126.4</td>
<td>5.5</td>
</tr>
</tbody>
</table>

5. Financing
Source: ($m.)
BORROWER/RECIPIENT
GLOBAL ENVIRONMENT FACILITY 5.5
LOCAL SOURCES OF BORROWING COUNTRY 60.9
FOREIGN PRIVATE COMMERCIAL SOURCES (UNIDENTIFIED) 60.0
Total 126.4

6. Implementation

HBOR, EPEEF, the MO, CERA and HEP will all be key partners in the project. HEP will be a beneficiary of the project, in its role as TSO/DSO, but it will not be directly involved in the institutional set up. MoELE will remain a key partner and beneficiary, and MoEPPPC will be a beneficiary of TA regarding streamlining of rules for environmental assessments of wind and biomass projects. EPEEF will be a beneficiary and will manage the contingent loan facility. Other partners will include private sector developers and local private sector banks, both of whom will co-finance the projects.

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3 These project investments are not a separate component of the project. They are expected to take place as a direct result of the project preparation activities of Component 2 based on financing from EPEEF and commercial sources.
4 The subsidy amount from EPEEF may be given in the form of soft-loans provided through HBOR. This number will then represent the grant component of a soft-loan.
Implementation arrangements

HBOR will be the primary recipient of the GEF grants, and will coordinate the implementation of the overall project. External consultants will assist HBOR.

The primary reasons for choosing HBOR as executing agency include:

- As the primary bank concerned with economic development in Croatia, HBOR understands issues related to market development and can help to bring commercial banks into the project as co-financiers;
- HBOR has implemented and managed several large World Bank loans, and is familiar with World Bank procurement and disbursement procedures.

Co-financing is expected to come primarily from EPEEF, in the form of loans, grants and possibly other instruments that may be developed with HBOR and others as a result of work done in this Project. EPEEF will directly implement the Project Preparation Component through a Grant Implementation Agreement with HBOR. Specifically, EPEEF will manage the contingent loan facility as part of this arrangement.

NGOs will carry out information dissemination activities and provide monitoring and evaluation services. Local businesses will carry out project development, financing, and implementation. Consultants will prepare resource assessments and feasibility studies. Many project stakeholders, including the local banks, will benefit from the training activities. Local banks will play key roles in structuring project finance for demonstration and follow-on projects.

HEP is now in transition and it will not be clear exactly what role they can play before the ongoing power sector restructuring is complete. For this reason HEP has not been mentioned as a main implementation partner. However, HEP, in its capacity as the TSO and DSO, will need to be involved in discussing the streamlining of procedures, interconnection agreements, and the recognition of RE IPPs as “privileged producers” with priority dispatch privileges.

CERA will be an especially important partner and beneficiary because of its ongoing role in regulating the market. CERA will have responsibility for issuing, revoking and monitoring licenses for the carrying out of energy activities; giving opinions to the MoELE on the tariff and the system charge for RE, and on the stranded costs charge; issuing decisions granting the status of eligible producers; monitoring objective, transparent and non-discriminatory conditions and connection charges for new producers, especially taking into accounts costs and benefits of RES, distributed generation and cogeneration, etc.

7. Sustainability

Sustainability

The project will contribute to the sustainability of renewable energy supply in Croatia by: (i) supporting the creation and implementation of the enabling legislation; (ii) providing knowledge and building capacity among decision-makers and market participants for a better understanding and acceptance of renewable energy; (iii) supporting the creation of an attractive climate for private investment that will entice multiple market participants to seek business opportunities in renewable energy; and (iv) providing a pipeline of well-prepared projects and the structure and network for continued development of such projects.
Project sustainability will depend heavily on having an effective and enforceable policy and legal framework that would require a minimum share of renewable energy. The project will support the Government in developing this framework during the early part of project implementation. To ensure sustainability, technical assistance will also be provided to the regulatory authority and other local institutions to provide effective regulation and policy oversight, monitor compliance, evaluate market transformation, recommend corrective actions and inform the public. In addition, sustained commitment to and compliance with domestic legislation requiring a minimum share of renewables will be driven by the need for compliance with EU directives to gain EU accession, and Croatia’s eventual commitment to international protocols (e.g., Kyoto).

The project preparation sub-components will ensure a continued flow of well-prepared projects, through regional support centers and a strong network of industry participants; and private developers will be supported through co-financing of early-stage costs of renewable energy projects with contingent loans.

The proposed project will be sustainable because it requires participation by independent actors – financial institutions, renewable energy equipment and service providers, project developers, and the utility buyer – who are pursuing commercially viable development of the renewable energy market, with each actor retaining the specific project risk within its core business competency.

Project activity in Croatia will be replicated on a commercial basis after the GEF program ends. Lending to project developers should continue to grow as financial intermediaries gain experience with their loan portfolios and the risks associated with technology and operations.

**Exit Strategy**

All GEF funding disbursed to HBOR will remain in Croatia after project completion. A review of project progress will be made in Year 3, to determine if (i) there is sufficient demand for contingent loan funds; and (ii) if there is a sufficient level of deals generated through project preparation activities.

Funds that are disbursed through contingent loans will remain in Croatia. Some of the contingent loans will be forgiven; others will be repaid and recycled. If, by the end of the project, a balance of recycled funds remains, the balance will be granted to the EPEEF in order to be used for continued RE project preparation or other GEF related activities.

**Replacibility**

The features of the project that allow replication are technology, financing mechanisms, reduction in development time and cost, and information sharing. Specifically:

During implementation, the project will use technologies that: (i) are commercially proven and widely available in Western Europe; (ii) have excellent prospects for long-term market penetration once the identified barriers are overcome; (iii) can be produced locally, to ensure wider acceptance and public support; and (iv) have the capacity to reduce greenhouse gas emissions. The financing mechanisms (contingent loans) will boost short-term demand and promote early commercialization and in-country replication of renewable resources. Streamlining procedures and refining them, combined with capacity building among stakeholders will reduce development time and costs. The public access to reliable and high
quality data on resource, performance, cost-effectiveness, etc., will enable market knowledge and
growth.

The Croatian experience is expected to demonstrate that, as the energy sector reforms with
incentives for renewables are implemented and as risk capital is made available, renewable
energy technologies have high prospects for long-term market penetration and for reducing
greenhouse gas emissions. This experience is also expected to demonstrate the long-term
economic and environmental benefits of renewable energy investments; the benefits of a ‘win-
win’ relationship between the Market Operator, independent energy providers and lenders,
through long-term power purchase contracts; the effects of streamlining procedural issues
controlled by the state; and the role of NGOs and benefits of public participation in local energy
planning.

To the extent that this project is successful, the Croatian experience can be easily tailored to other
countries of the Region (for example, EU accession countries) having renewable resource
potential, where similar Government’s commitment exists but policy and financing barriers
hamper implementation, where domestic commercial financing for renewable energy could be
improved through similar credit and financing enhancement mechanisms, and where policy
reforms can pave the way for reduced costs and public acceptance of renewable energy. To
enhance the replicability of the project, GEF technical assistance will support dissemination of
project outcomes through appropriate channels, including regional workshops involving bilateral
and multilateral donors, country officials and private investors. The replication strategy beyond
Croatia will be firmed up during project preparation.

8. Lessons Learned from Past Operations in the Country/Sector

For the Market Framework Component

Several successful renewable energy tariff systems have been developed in Europe, both for
wind and biomass. Experience in Germany, Denmark and Austria have shown the benefits of a
feed-in tariff structure in terms of rapidly increasing renewable energy capacity in the system. In
Austria, the differentiation of use of feed-in tariffs for electricity and capital subsidies for heat
has proved successful.

Financial and contract training will be based on project finance-based programs, some of which
have been sponsored by the U.S. Agency for International Development. Training in wind
energy use and interconnection will draw on examples of training programs for the wind industry
in countries with large installations of wind energy, such as Germany and Denmark, or
laboratories such as the National Renewable Energy Laboratory in the United States.

For the Project Preparation Component

Numerous programs have been developed to support early-stage project development funding
through use of contingent loans, including: USAID-funded programs have disbursed numerous
grants on a cost-sharing basis to renewable energy developers in the Philippines, Indonesia,
Guatemala, and Brazil among others. Other national programs include cost-sharing grants in
India for biomass cogeneration, sponsored by the Ministry of Non-Conventional Energy Sources.
While these programs have stimulated development of projects and had some successes
(especially in India), some problems have arisen where grants were made prior to establishment of the necessary regulatory and legal framework, therefore 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. In addition, some programs, like the USAID funds managed by IFREE, did not apply standard due diligence procedures, resulting in high default rates. Finally, a UNDP-implemented GEF project in the Caribbean (Caribbean Renewable Energy Development Program) has a contingent loan facility with similar parameters as the proposed facility. However, the UNDP project has not yet been implemented.

9. Safeguard Policies (including public consultation)

<table>
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<tr>
<th>Safeguard Policies Triggered by the Project</th>
<th>Yes</th>
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<tr>
<td>Environmental Assessment (OP/BP/GP 4.01)</td>
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<td>Projects in Disputed Areas (OP/BP/GP 7.60)*</td>
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<td>Projects on International Waterways (OP/BP/GP 7.50)</td>
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<td>[x]</td>
</tr>
</tbody>
</table>

10. List of Factual Technical Documents

11. Contact point
Contact: Peter Johansen
Title: Sr Energy Spec.
Tel: (202) 458-5578
Fax:
Email: pjohansen@worldbank.org

12. For more information contact:
The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-5454

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop