

## **Preface**

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## List of Abbreviations

DSO	Distribution System Operator
EBRD	European Bank for Reconstruction and Development
ECT	Energy Community Treaty
EE	Energy Efficiency
EIB	European Investment Bank
EIHP	Energy Institut Hrvoje Požar
EP	European Parliament
ESDS	Energy Sector Development Strategy
ETS	Emissions Trading Scheme
EU	European Union
FER	Faculty of Electrical Engineering and Computing, University of Zagreb
FiT	Feed-in-Tariff
FP7	7 <sup>th</sup> framework programme for research
FZOEU	Fond za zaštitu okoliša i energetske učinkovitost
GHG	Greenhouse Gas
GoO	Guarantee of Origin
GWh	Gigawatt/hour
HDZ	Hrvatska demokratska zajednica
HBS	Heinrich Böll Foundation
HEP	Hrvatska elektroprivreda
HERA	Hrvatska energetska regulatorna agencija
HROTE	Hrvatski operator tržišta energije
IEA	International Energy Agency
INA	Industrija Nafta
IPA	Instrument of Pre-Accession
Kgoe	Kilogramme of oil equivalent
Ktoe	Kiloton of oil equivalent
LNG	Liquefied natural gas
MINGORP	Ministarstvo Gospodarstva, rada i poduzetništva
Mt	Megaton
MW	Megawatt
MZOPU	Ministarstvo Zaštite Okoliša I Prostornog Uredjenja
NEP	National Energy Programme
NGO	Non Governmental Organization
OECD	Organisation of Economic Co-operation and Development
PROHES	Projekt razvoj i organizacija hrvatskog energetskeg sektora
PV	photovoltaic
R&D	Research and Development
RES	Renewable Energy Sources
RELEEL	Approximation of EU Renewable Energy Legislation and Energy Efficiency Labelling
SDP	Socijaldemokratska Partija Hrvatske
SEE	South Eastern Europe
TPES	Total Primary Energy Supply
TSO	Transmission System Operator
UNDP	United Nations Development Programme
WB	Western Balkan

## **1. Introduction**

Most Western Balkan (WB) countries suffer inter alia from a high energy import dependency and from the harmful impact of a large share of coal in the energy mix. Renewable energy sources (RES) can play an important role in mitigating these problems. However, they are barely used in the region, except for hydropower and fuelwood. At the same time, all countries aspire to EU membership and are parties of the Energy Community Treaty (ECT), meaning that they will sooner or later have to transpose the EU acquis on RES. The ECT secretariat regularly names Croatia as having progressed the most of all WB countries in setting up a regulatory framework for promoting RES. Neighbouring states are already requesting to take over parts of the Croatian legislation. This study examines the Croatian RES policy in relation to EU alignment, hereby addressing the question whether the EU, with its RES framework, can trigger energy reform in the WB region. Special emphasis is put on the obstacles and the underlying reasons hampering RES diffusion. Lessons learned can be applied to other WB countries.

The paper first discusses the obstacles for RES diffusion and related instruments in an abstract manner, before examining the EU provisions and turning to the analysis of the Croatian situation.

## **2. Obstacles for renewable energy diffusion and policy instruments**

RES diffusion is hampered by several factors that resemble each other all over the world. The prevailing energy system is characterized by path dependencies of single energy carriers. When these contribute in a stable way to energy production, the energy system proves to be less dynamic to change (Reiche 2004: 29). Energy plants usually run for several decades. Financial and regulatory systems that evolved in the past were mainly constructed to support the development of fossil and nuclear energy (Sawin 2004: 1). Furthermore, energy from RES is often more expensive than conventional energy. High initial costs of RES technologies hinder their diffusion. This effect is even made stronger by prevailing financial distortions, i.e. subsidies to fossil energy, tax burdens or import duties on RES technologies, transmission and grid costs, the lack of access to cheap credit as well as the missing internalization of all the real costs in fossil energy. Institutional barriers play a further important role, for example is the department of economy often more hostile to the introduction of “expensive” RES technologies than the department of environment. Yet another factor is the cognitive mindset of relevant actors and the public. Their lack of information or unwillingness may also hinder RES development.

Hence, an active RES policy and the introduction of (initial) support schemes are crucial for RES development. Two main support mechanisms for facilitating RES market access prevail

in EU countries: Feed-in-Tariffs (FiT) and quotas. Those countries using FiT – the majority of EU countries – oblige energy utilities to purchase any electricity produced from RES to a certain price. With the newer policy instrument of quotas, the government sets a fixed share of RES to be produced. Utilities receive certificates when making energy from RES and they can sell or buy them, depending on whether they lie above or below the defined quota<sup>1</sup>.

Both FiT and quotas have advantages and disadvantages. Quota systems are based on a political decision, which is often removed from technical progress. They are also not as encouraging for innovation and tend to promote large, centralized projects. FiT are criticized for not providing enough incentives to abolish institutional barriers, but in turn they tend to promote smaller producers. In general, the success of both instruments, especially of the FiT system, relies heavily on how they are set up. Regarding FiT systems, it is important that the tariffs cover the costs of production and be provided for a long time in order to give security to the producers. The tariffs have to be regularly adjusted over time. As to quota systems, it is crucial that enforcement mechanisms be established, that the contracts are long-term in order to enhance certainty and that a minimum and maximum certificate prices be set. Experience shows that the share of RES increased more significantly in countries using FiT systems (Sawin 2004: 8ff.).

Next to regulatory instruments, governments can provide financial incentives. These may include investment tax credits, production tax credits, eco, carbon or other tax exemptions or the elimination of import duties on RES technologies. Rebates or production payments are further means of making energy from RES cheaper and thus more attractive for producers and consumers. In order to overcome the major barrier of high initial costs it is crucial that low-interest, long-term loans are provided. Additionally, research and development of RES technologies can be fostered.

### **3. EU framework for renewable energy**

Before turning to the Croatian case it is crucial to examine the EU provisions. An important presupposition is that the EU has a high degree of influence in the WB countries through its various cooperation programmes. Its alignment strategy can be an important trigger for energy reform.

The EU Commission's main targets in relation to the energy sector are the liberalization of the energy markets, sustainability and security of supply. However, one has to bear in mind that

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<sup>1</sup> Few countries use a tendering system, where a share of RES and a maximum price are set by the regulators and companies submit price bids for contracts. For a more detailed analysis of RES instruments see e.g. Bechberger, Mischa; Körner, Stefan; Reiche, Danyel (2003): Erfolgsbedingungen von Instrumenten zur Förderung Erneuerbarer Energien im Strommarkt, FFU-report 1-2003.

competences for energy policy are shared between the EU and the member states and that the EU has so far not established a comprehensive energy policy. Correspondingly, the provisions for RES are rather vague. Different directives are relevant for RES, most importantly Directive 2001/77/EC *on promotion of electricity produced from RES* and Directive 2003/30/EC *on the promotion of the use of biofuels for transport*. Member states are asked to set national (non-binding) indicative targets to be reached until 2010<sup>2</sup> and to undertake measures in order to increase the share of RES. Additionally, they have to ensure that the origin of the RES in electricity production can be guaranteed. Member states are furthermore asked to “evaluate the existing legislative and regulatory framework” with a view to reduce regulatory and non-regulatory barriers as well as streamlining procedures at the administrative level and they have to guarantee free access to the grid. As for biofuels, member states are requested to set national indicative targets, the reference value is 2 percent of diesel and petrol for transport purposes until 2005 and 5.75 percent until 2010.

In the context of the international climate change negotiations, the EU concluded the main targets of a roadmap for an energy and climate package on the December 2008 summit. Next to increasing energy efficiency (EE) by 20 percent and cutting greenhouse gas (GHG) emissions by 20 percent compared to the 1990 level until 2020, it sets ambitious targets for RES. The share of RES is to increase to 20 percent of final energy consumption (20-20-20 strategy). Following this roadmap, several directives and measures have been adopted among which a new directive on RES. This Directive 2009/28/EC *on the promotion of the use of energy from renewable energy sources* entered into force in May 2009. It sets binding targets for RES shares and introduces new instruments for reaching these goals. It covers three sectors, namely electricity, heating and cooling, and transport. It is already valid for accession states, whereas the schedule for implementation is negotiated bilaterally.

Next to these directives, the EU is influencing RES development through the provisions for the liberalization of the energy market, environmental and state aid legislation as well as in the area of competition by reducing subsidies for fossil fuels. The main financial source for research and development (R&D) on RES has been the *ALTENER* programme. It was followed in 2003 by the *Intelligent Energy Europe* programme that funds RES and EE projects. The 7<sup>th</sup> framework programme for research (FP 7 2007-2013) reserves the main part of the 2.3 billion Euro energy budget to RES.

The prevailing discussions in the EU regarding RES have been about the harmonization of support schemes and the sustainability of biofuel (Lauber 2007: 14ff.). The Commission opted many years for introducing an EU-wide, harmonized quota system and wanted to

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<sup>2</sup> The EU hereby gives reference values for each country in order to reach the EU-wide target of 12% RES share in final energy consumption.

abolish support schemes. The prevailing idea was that a liberalization of the energy market automatically serves the diffusion of RES. After the ruling of the ECJ from March 2001<sup>3</sup> when it became clear that support schemes are not considered as state aid, the Commission had to accept that member states follow with their national practices. Reacting to fierce criticism about the problems of the first generation of biofuels regarding their sustainability and environmental record, the EU introduced stricter criteria for biofuel production and import.

#### **4. Renewable energy in Croatia**

After assessing the European RES policy, this chapter analyses the existent regulatory framework and the relevant actor configurations in Croatia.

##### **4.1 Regulatory framework**

Croatia has a 10% RES share in final energy consumption which seems quite high but is dominated by energy from large hydropower plants (Eurostat 2007: 32). The share of “new” RES (i.e. solar, wind and geothermal heat) is marginal: there are only two wind farms and five photovoltaic (PV) installations in the country. This is striking because the potential for RES is very high, first and foremost regarding solar energy. The reasons for this discrepancy will be discussed below.

Croatia approved a package of energy legislation in 2001 (amended in 2004) that aimed at restructuring the energy market. It declared RES as being a “national interest”. However, it lasted until 2007, when Croatia started to adopt the necessary secondary legislation. In this regard, the EU may be seen as the main trigger for reform because the screening of the energy chapter was to come soon.

Croatia has set a national target of having 5.8% of the electricity produced from RES until 2010 (excluding large hydropower) and set up a FiT system. As to biofuel, the target is 5.75% of total fuel consumption until 2010. A law on biofuels was adopted in early 2009. There is no regulation concerning RES for heating and cooling, but provisions from the EU have recently been integrated in the new RES directive. The energy chapter is not closed yet, but the existent framework seems to be accepted by the EU (Interview Percan).

Regarding the FiT, the incentive price is judged to be relatively high, for some technologies even higher than in other European countries. There is an annual adjustment of the price based on the consumer price index and thus also taking into account inflation, which is particularly important in the initial phase of RES development. In order to promote domestic

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<sup>3</sup> Judgment of the Court of 13 March 2001: PreussenElektra AG v Schleswag AG, Case C-379/98.

development, the highest tariff is only paid when more than 60 percent of the value was created in Croatia.

In 2004, the *Fund for Environmental Protection and Energy Efficiency* (FZOEU) was established to finance investment by private persons and local authorities – primarily through long-term “soft” loans and grants – in environmental protection, EE and RES. Its main sources are coming from eco charges and international donations.

The CARDS programme financed the project *Approximation of EU Renewable Energy Legislation and Energy Efficiency Labelling (RELEEL)* (2007-09) with 0.5 million Euro. It aimed at improving administrative capacity and conducted advising in order to support the alignment with EU RES and EE provisions. The programme organized workshops and trainings as well as public awareness raising campaigns. It was very visible in Croatia and the promotional material was exhausted quickly. Project participants claimed the high level of bureaucracy and stated that they spent more time with administrative activities than with the expert work (Interview Bukarica).

## **4.2 Institutions and actors**

### State institutions

The parliament is responsible for adopting energy law. The respective ministries or the government approve secondary legislation. Croatia does not have a special ministry for energy. The *Ministry of Economy, Labour and Entrepreneurship* (MINGORP) is responsible for formulating energy policy and preparing primary and secondary legislation, in cooperation with the regulatory agency. The ministry also determines the levels of tariffs and regulates final prices. The Energy Department employs a staff of 19 and is divided into the Energy System Division and the EE & RES Division. The *Ministry of Environmental Protection, Physical Planning and Construction* (MZOPU) is responsible for the fund. It is a merger between the former Ministry of Environment and the Ministry of Construction. Internal differences between these two branches still prevail in the ministry.

### The expert community

Expert communities are very important for RES diffusion. They provide expertise for political decision-makers as well as to the public and have the capacity to influence public discussions. The major part of the expert community is considered to have a positive attitude towards RES. The *Energy Institute Hrvoje Požar* (EIHP) used to be a Croatian state institute, responsible for energy statistics and the design of energy policy concepts, including energy forecasts, as well as for advising the government and energy operators. Although the institute is not state-owned since 2004, it is one of the major consulting companies for the government.

It has a RES and EE department with lots of expertise. Several other institutes are active in the energy sector. The *Energy Research and Environmental Protection Institute* (EKONERG) is a consulting company. The *Ruđer Bošković Institute* is active in the field of basic research and also has several good solar experts. Various universities/faculties conduct R&D programmes on RES, most important the *Faculty of Electrical Engineering and Computing* (FER) at the University of Zagreb.

### Economic actors

Business interests can be a motor for RES development as companies may lobby the government for better RES policy. Technical capacities also play a role, especially given the “national component” of the Croatian legislation. The *Renewable Energy Association of the Chamber of Economy* is an independent national organization of business entities established in 2003 and current membership is made up of 132 companies. The main aim of the association is to promote RES utilisation in Croatia, which is a sign for the interest of business in RES. There are several companies active in the field of RE technology. Končar, one of the main Croatian electro-technical companies, developed a wind turbine with 1 MW capacity. Končar is currently investing in its own wind park in order to get references for further business undertakings. It is also developing a PV system. The business community recognizes that RES open the development for small investments and that this sector has a significant business potential (Interview Car). Three producers of PV modules exist in Croatia, two of them founded after 2000. According to a small survey from 2005, where 128 foreign companies were asked about their interest in investing in RES in Croatia, 50 percent confirmed such an interest (Robić *et al.* 2009: 9). It is estimated that over 500 persons are working in the RES sector in Croatia (UNDP 2009: 227). A comparison to Germany, where 278 000 people are working in this sector (O’Sullivan *et al.* 2009), reveals the great potential. The traditional energy monopolies are still existent in Croatia and due to their inherent organization and tradition follow a very centralized approach. They are still very close to government and thus an influential lobby. Although there is no nuclear power plant, part of the research community is described as being very pro-nuclear. The market is not fully liberalized and in the field of electricity, the Croatian electricity provider HEP is the only player.

The strongest lobby in the RES sector are wind companies. The wind lobby was e.g. very much involved in the formulation of the secondary legislation. Foreign investors, coming mainly from Germany, are playing an important role and are one of the main driving forces for RES development in Croatia. The solar lobby and interest groups for the other RES sources are said to be basically non-existent (Interview Piršić).

### Non-governmental organisations (NGOs)

Certain NGOs are the strongest proponents of the diffusion of RES on a large scale. NGOs work quite professionally, but are rather centralized and mainly based in Zagreb; local citizens' initiatives are not as active. The relationship between NGOs and politicians is described as not very cooperative and a real dialogue between them seems to be missing. A stakeholder declares: "We do not sit and talk to them [the politicians] and argue and agree. This is just not functioning. Green lobbying is very ineffective. We do campaigns, we create public pressure and wait and see what happens." (Interview Vidan). The problem of this tactic is that it is working e.g. in preventing the construction of new coal-fired power plants but not in helping the politicians in drafting RES legislation. There is a division between NGOs who are very professional and have a high budget and small, grass-root NGOs. Financial support by the state is very modest.

### Public mindsets

Another factor for RES development is the general public opinion as well as the level of information and innovative thinking of the "common citizen". A survey from 2003 found that citizens in Croatia supported the idea of RES and were also willing to pay a higher electricity price for promoting RES development. At the same time, they declared to be poorly informed about RES technologies and general aspects related to energy production and consumption. They furthermore lacked interest and motivation and underestimated their influence as a normal citizen to take initiative (Domac *et al.* 2004). A recent survey by UNDP showed that the Croatian population has a positive attitude towards protecting the environment (72 percent consider this issue very important compared to an EU average of 64 percent) and they are very supportive of measures combating climate change. Over two thirds stated that they were ready to pay a higher sum for their electricity in order to push investment in green technologies (UNDP 2009: 24ff.). People strongly agree with the EU goals of the 20-20-20 strategy. One explanation might be the importance of tourism for the Croatian economy, especially the Adriatic Sea (UNDP 2009: 26). Thus, people link a clean environment to tourism. Very often, this stays on the level of values, though the active manifestation of these values is much more weakly developed. Still, this cognitive framework provides a very positive background for the development of RES.

There are few private initiatives like that of Ljubomir Majdandzic who was the first person in Croatia who equipped his house in Zagreb with a PV module<sup>4</sup>. He inspired other people like

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<sup>4</sup> It took him seven years to install the module and to get funding for his electricity and he needed 64 permits. Especially the agreement with HEP was very difficult to reach. Several other people tried to put PV, but "many

the owner of a Zagreb based factory who put the largest PV installation in Croatia so far on his factory roof. An initiative by NGOs, the Heinrich Böll Foundation and private individuals plans to form a solar cluster (Interview Piršić).

To conclude, a range of stakeholders is involved with RES matters. The government/ the main ruling party<sup>5</sup> is not explicitly against RES but does not stand out either with innovative concepts and suggestions. The parliament is very silent as well, owing to the fact that it has a weak role in the political system and only a few single parliamentarians are involved with the RES subject. The administration is somehow divided. The MINGORP section dealing with RES can be described as really trying to push RES but it is just a tiny unit within the ministry. The MZOPU, in many other countries playing a driving role for RES, seems to represent the more decelerating part in this context. Various active NGOs deal with the RES topic but due to the limitations explained above, their influence remains small. The expert community has been changing in the last years and mostly has a positive attitude towards RES. Several companies are willing to invest in RES and established channels of influence for improving the regulatory framework. The wind lobby is by far the strongest in this aspect. The energy monopolies – first and foremost HEP – want to maintain their status and are still very influential in terms of being close to the government. The public has a positive attitude towards RES and their positive environmental record but is largely inactive – restricted also by the policy framework – except for a few individuals who “fight” despite all difficulties sometimes for years to get their RE facilities installed and connected to the grid.

## **5. Discussion of the potential and obstacles**

To recapitulate, Croatia has very good natural conditions for energy production from RES. A high number of applications for gaining the status of an eligible producer and companies active in the field of RES demonstrate the economic potential and interest in the development of RES in Croatia. A legislative framework is in place and strategic targets are set. The Kyoto obligations are relatively tight – Croatia is committed to a 5% reduction until 2012 compared to 1990 – and might expose additional pressure on the relevant stakeholders. Croatia made positive experiences with RES supporting schemes, RES installations and the development of the corresponding industry in the 1970’s and 1980’s<sup>6</sup>. The Croatian population has a generally positive attitude towards environmental protection and RES. The country has little “dirty”

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gave up”. Mr. Majdandzic studied in German for several years (Interview with his daughter Ana Majdandzic, 9<sup>th</sup> of June 2009 in Zagreb).

<sup>5</sup> Since 2003 the HDZ (Croatian Democratic Union).

<sup>6</sup> Following the oil crisis, the communist government set up a progressive framework for fostering RES development, which was though dismantled with the war in the 1990’s.

industry and no coal production, and thus, path dependency is less strong than in countries with a big coal industry branch. One of the main economic sources in Croatia is tourism that is closely linked to an intact environment. There is a broad spectrum of NGOs, strongly engaged in campaigning. Professional energy expertise is quite high.

Despite the high potential, the share of new RES in energy production is staying marginal and up to now, no RES plants have been built.

The policy instrumentation mix is quite elaborate “on paper”. However, some aspects of design (see above) combined with features of the Croatian administrative organization in general entail several problems.

Obstacles for RES development are mostly connected to the difficult and time-consuming procedure. This stems from the fact that lots of different ministries and institutions are involved and there is no unified procedure when it comes to the building of RES facilities. The investor is faced with a time-consuming procedure as he/she has to ask for permits from several institutions, on the state and local level, and has to obtain permits from different departments, e.g. there are lots of requirements in construction legislation. Just the first of the various steps, to obtain a preliminary energy approval, takes circa three months, whereas e.g. in Austria the whole procedure lasts about two months. Obtaining a location permit takes a minimum of one year. Wind farms need a sanitation permit although recently all wind turbines have an electronic system instead of a gearbox. There used to be only one person in Croatia who is allowed to issue sanitation permits. A project company must be founded before obtaining the preliminary energy approval, whereas the normal way goes vice versa. In general, it is estimated that 10-15 % of the total investment costs are preparation costs related to administrative procedures what is much higher than in other European countries. Another problem is the unresolved legal ownership of land. In many cases, it is not clear who owns the land. A further problem is that an environmental impact assessment study is required even for small facilities, which significantly hinders the development of small-scale-projects as they usually lack adequate financial resources to conduct such a study. Moreover, the development of small-scale projects is obstructed due to the lack of definition of the status for natural persons. At the moment there is no procedure in place how a private person can install RES devices. According to the legislation, also natural entities can obtain the status of an eligible producer but several provisions are problematic for natural persons, e.g. bills need to be delivered to the market operator and regarding the law on craft it is necessary to have the status of a craftsmen/women for selling energy.

Reasons for that may be found in the policy styles and character of the Croatian administration and of important political actors. Inter-sector policy integration in a vertical as

well as in a horizontal sense is weakly developed. Party cliques are prevailing, the administration is politicized and interdisciplinary thinking is just slowly entering into the political scene. The Croatian state is very centralized, the local communities are “atomized” and very often not willing to cooperate, what might also hinder the development of RES as local initiatives and capacity to deal with RES projects are missing. The vertical cooperation between the ministries and the local level lacks coordination and information exchange (Interview Künzel). Also, the cooperation between the private and the public sector is weak. Draft laws are not made public and the public is barely included in decision-making processes. Owing to the weak role of the parliament, initiatives by single parliamentarians or parliamentary groups are difficult and not very likely to occur. Real political will in the government is missing. It is striking that the main ruling party did not include any far-reaching strategic position on how to develop RES in its party programme. The administrative capacity is very low: there are only six permanent employees and one external person working for the division for RES and EE. Although the staff is very “young” and “enthusiastic” their small number is a serious obstacle for conducting a sound RES policy (Interview Bukarica). One of the reasons for this inadequate level of human resources are the anti-recession provisions of the government which forbid new public employment. The second reason is that well-educated persons are not attracted by an employment in a ministry as salaries are much higher in the private sector (Interview Validžić). Strict hierarchies further lower the administrative capacity. For example, the head of the RES division has to consult the head of the directorate on every issue, slowing down the speed of all processes. According to some observers, the minister is highly involved in the construction business. It is, like MINGORP, very hierarchical as lots of issues are addressed on the ministry level. Furthermore, its governing style is ruling by prohibition instead of conducting a more proactive environmental policy. The ministry issued e.g. an ordinance not to allow to build wind power plants neither on shore at a distance less than 1000 m to the coastline nor on islands, what is considered as one of the main obstacles for the development of wind facilities. The communication between different ministries on climate change issues, mostly connected to RES and EE, is described as ad-hoc and characterized by “confusion as to who is doing what” (UNDP 2009: 217).

Revising the FiT tariff, the producers can get the payments for just 12 years, compared to 20 years in e.g. Germany and Spain. The “domestic factor” is especially criticized by foreign investors stating that the technology in the country is not fully developed and much more expensive than abroad. On the other hand, the majority of the Croatian interviewees stressed the importance of that provision, which would create more local jobs and foster the development of the domestic industry. Another weakness is the limitation for PV. The

producer is only eligible for the incentive price until the whole installed capacity reaches 1 MW. This puts a serious barrier in front of an energy source, which has great potential in Croatia and where the technology is steadily getting cheaper and more advanced worldwide. The barriers for solar energy seem to be highest.

Prices for fossil energy are subsidized. The low energy prices hinder the development of RES and prevent technological development in the energy sector in general. Regulated prices of some oil products provide a certain protection to the Croatian consumer, however, they also limit competition and subsidise consumption.

HEP is the only supplier of electricity to eligible and regulated customers. The company has a monopoly in generation, transmission and distribution. Although third party access has been granted, the company's control of generation hinders the free choice of the consumers. Consumers do not have the incentive to change to alternative sources of energy supply. Such a monopoly position stands contrary to the decentralized nature of RES energy production. Potential producers of RES are complaining that HEP is putting obstacles to the connection with the grid. The utility requests them e.g. to invest in the update of the local grid, which should normally be the responsibility of the utility. The reason for the slow realization of liberalizing the energy market may be found in the powerful monopoly position of the main utilities and the government, which still seeks to keep its influence on the market.

Although RES have been considered in many physical planning documents, spatial planning for RE facilities is non-existent; nor is a strategic energy technology plan, which could include also the development of RES and EE technologies.

Many actors criticize the strong preference of wind in the legislation and in the new strategy, connect this to lobbyism of German wind companies and assume that therefore, solar energy and small-scale projects are neglected. The rationale behind the limitation for PV is supposed to be the technology's relative high price, which the Croatian state was not willing and able to pay for. A second reason might be the weak interest groups pushing for solar energy.

The fund is described to have a significant amount of money that could also trigger RES development. But one problem is that the majority of its means goes to waste management and not to RES development. According to the fund's annual working programme from 2009, until the end of 2008 it has paid off 381.5 million Euro, out of which 371 million Euro for environmental protection projects (mainly for waste management and the remediation of landfills) and 10.5 million Euro for EE projects. Renewable projects fall in this category, and they have been awarded 3 million Euro (REPUBLIKA HRVATSKA 2008: 6). The administrative hurdles for getting money from the fund are high. Similarly problematic, the fund does not provide money for individuals, it has so far just given financial aid to legal persons which again creates a big obstacle for small projects and private initiatives.

Commercial banks have not yet developed specific loan facilities for RES, although the banks could receive EBRD lines of credit for RES projects. The fund is supposed to pay 2 percent interest on commercial loans but it has been reported that banks are not accepting the fund's subsidy. In commercial banks, the process of negotiating and obtaining loans can take up to 4 years what is especially critical for small investors (SEEDW 2007: 9). No use of fiscal policy is made and there are no tax exemptions for the use of RES. The world financial and economic crisis puts further restrictions on RES funding.

Innovation networks or advocacy networks are relatively weak. The academic experts or producers are not united in any cluster of interest. Competition within the pro-RES stakeholder community prevails and the topic is not systematically addressed (Interview Lay).

## **6. Policy recommendations for domestic and external stakeholders**

- The administrative procedures for installing RES facilities as well as for gaining the status of an eligible producer have to be simplified. Especially small-scale projects would benefit from introducing a unified procedure and reducing the administrative requirements. In this context, it could be considered to switch to a generalized FiT.
- Not every time, when a new RES plant is being built, an environmental impact study should be required. The need to found a company in order to get the preliminary energy approval should be abolished as this entails severe financial hurdles for the potential RES producers.
- The administrative capacity in the field of RES could be improved e.g. by employing more people, providing a better salary and RES related education. Capacities for improving the horizontal and vertical inter-administrative cooperation should be installed.
- Access to credit should be made easier and faster. Some money should be provided for small projects what would also enhance the number of private initiatives. More means of the fund should be therefore directed to RES projects, especially to small-scale ones, and natural persons should also be made eligible for financing.
- A national agency for RES and EE could be established. For strategic purposes and to insure a better realization of the RES targets, the RES action plan, which is already formulated, should be adopted.
- The regulative framework should be improved, such as to ensure the exploitation of the abundant solar potential. It is crucial not to leave aside this RES source and just to focus on wind energy that has less favourable conditions.

- The phasing out of subsidies and cross-subsidies for fossil fuels is crucial for RES development. In Croatia this concerns first and foremost the energy prices set on a very low scale by the government.
- In order to give the consumers the choice to opt for purchasing only electricity from RES, HEP could for example offer a green electricity package and the inclusion of other energy utilities into the market should be fostered.
- A further possibility might be to provide training for public actors and private persons to write fund applications and project proposals as it was shown that applying for EU funds as well as for the FZOEU causes difficulties to stakeholders. Information about the possibilities for private persons on how to install RES facilities on their domiciles has to be spread.
- Existing networks between actors promoting RES could be strengthened and new ones initiated. This holds both for business networks, small producers and political actors like NGOs.
- It is important to find a balance between free trade or the requirements of the European internal market and social development in Croatia. In order to strengthen domestic know-how and to guarantee social sustainability and domestic growth, it is important to integrate Croatian companies in joined European R&D projects. The Croatian government should enhance R&D activities in the field of new technologies in general.
- The shortcomings in the effective realization of the rather elaborated regulatory framework indicate that it is crucial that supporting measures like financial assistance by the EU and other external stakeholders concentrate on supporting the implementation process and to tackle the problems described above. The actors striving for RES development should be strengthened and connected.

Although different domestic and external conditions in the other WB countries prevail, one could draw some implications from the Croatian case for other WB countries, especially in relation to the EU's and ECT's activities.

- Croatia could take a stronger leadership role regarding RES, share experience and motivate the other countries to follow its example. At the same time one has to make sure not to repeat the same “mistakes” or flaws of the Croatian legislation.
- Especially in the ECT context it is important to ensure regulatory and support schemes for RES together with liberalizing the energy market. Priority projects should not just be based on fossil fuel as many path dependencies would evolve and probably hinder RES development for years to come.

- International stakeholders have also to keep in mind that the ECT alone might not be a sufficient trigger to foster energy reform. If the EU membership is too far away, “carrots & sticks”, i.e. a strong leverage for reform might be missing.
- Although energy efficiency is of utmost importance in this context, international stakeholders should address RES much more than it is being done to date. The fact that the projected rising energy demand might easily overtake energy saving potentials and the crucial role RES play for tackling problems like climate change are strong arguments for not only approaching the reputed “easier” issue of EE, but also addressing the large-scale introduction of RES facilities.

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## List of Interview Partners

1. Vesna Bukarica, Faculty of Electrical Engineering and Computing  
Department of Power Systems, University of Zagreb and former expert of RELEEL  
project, interview 8th of June 2009 in Zagreb
2. Stjepan Car, Head of Končar Institute, Interview 8<sup>th</sup> of June 2009 in Zagreb
3. Rafael Bellon Gomez, Task Manager EC Delegation to BiH, interview, 2<sup>nd</sup> of June  
2009, Sarajevo
4. Mirela Holy, Member of Parliament (SDP), vice president of the Parliamentary  
Committee for Environment, Interview 5<sup>th</sup> of June 2009 in Zagreb
5. Branka Jelavić, Energy Institute Hrvoje Pozar, RE department, Interview 9th of June  
2009 in Zagreb
6. Ulrich Künzel, GTZ Zagreb, Interview 5<sup>th</sup> of June 2009 in Zagreb
7. Vladimir Lay, Professor of Sociology, Institute for Social Sciences Ivo Pilar, Zagreb,  
Faculty Croatian Studies, teaches on Sociology and Social Ecology, telephone  
interview 7<sup>th</sup> of July 2009
8. Davor Percan: Task Manager - Environment, Energy and Natural Resources, EU  
Delegation Zagreb, Interview 4<sup>th</sup> of June 2009 in Zagreb
9. Vjeran Piršić, NGO EKO KVARNER, Interview 4<sup>th</sup> of June 2009 in Zagreb
10. Vlasta Toth, Spokesperson of the party “Green List”, Interview 5<sup>th</sup> of June 2009 in  
Zagreb
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12. Marijan Hohnjeć, Renewable Energy Advisory Facility and Domagoj Validžić, head  
of the RE division  
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