1 ENERGY POLICY

1.1 General issues

At the beginning of 1991, the Croatian National Parliament accepted the Energy Sector Development Strategy the goal of which was to analyse Croatian energy sector as an independent subject on the basis of at the time expected legislative, political, industrial and other reforms. However, the war in Croatia imposed other priorities and instead of development, the current energy sector suffered serious losses, the effects of which are still to overcome.

The Strategy covers the period until 2030. Such a long time span includes both contemporary and future technologies, as well as changes in energy management and a changed status with respect to the European Union – once the country becomes an EU member. The period will see dramatic changes and significant differences, as well as a major breakthrough in energy production and transformation technologies.

The national energy sector development strategy is oriented towards accomplishing the following objectives:

1. An increase in energy efficiency,
2. Security of supply,
3. Energy sources diversification,
4. Use of renewables,
5. Real energy prices and the development of energy market and private enterprise,
6. Environmental protection.

The strategy foresees three scenarios of the energy sector development which share the same base – the rate of economy growth, the economy structure, and the number of consumers. The scenarios differ in terms of care level and the government activities related to the organized energy management system, use of new technologies, increase in energy efficacy and the use of renewable energy sources. The major differences between the scenarios are as follows [Pešut et al, 2001]:

- Total energy demands in 2030 range from 597.58 to 668.43 PJ;
- Electric energy production in 2030 varies from 29,770 to 34,219 GWh;
- Renewables-derived energy in 2030 ranges from 103.9 to164.4 PJ;
- The share of imported energy in 2030 varies from 65 to 78 percent.

Having signed and ratified the United Nations Framework Convention on Climate Changes (UNFCCC), Croatia has committed itself to keep greenhouse gases emission under the 1990 level. According to the Kyoto Protocol, on the other hand, a minimum 5 percent decrease in the average greenhouse gases emission should be achieved in the period between 2008 and 2012 as compared to the base year.

The Kyoto Protocol level overrun may be expected as soon as 2004. The implementation of Kyoto commitments would, however, be significantly facilitated if the proposed adjusted

emission level is accepted for the base year (1990). In that case, all the scenarios envisage a somewhat lower 2010 CO_2 emission level than the one expected by the Kyoto Protocol, which however would be overrun after 2010.

39 measures for reducing greenhouse gases emission, both within and beyond the energy sector, have been discussed within the framework of the National Report on Climate Changes. The measures within the energy sector refer mainly to efficiency increase in electric energy production, transport and distribution; use of renewables (including biomass); energy savings by demand side management (DSM); road transport measures; and the shift to lower carbon level fuels (natural gas). The fact that – notwithstanding the above measures – Croatia can hardly meet the expectations of either the Convention or, especially, the Kyoto Protocol is yet another strong argument in favour of a rapid increase in the use of renewable energy sources

1.2 Programmes

At the beginning of 1994, the Government of the Republic of Croatia adopted a new scientific-research programme PROHES - Development and Organisation of Croatian Energy Sector. The first results (published in 1995) have shown that for the complete realisation of the programme goals it is necessary to elaborate a detailed study on the development of Croatia, on the global level as well as on the level of sectors. This document is the first to contain the idea for launching the National Energy Programmes (NEP) as an important precondition for elaboration of the new strategy for energy sector. The National Energy Programmes, launched by the Croatian Government in March 1997 consist of the following:

- **PLINCRO**- Croatian natural gas programme
- **KOGEN** - co-generation programme
- **MIEE** - industrial energy efficiency network
- **MAHE** - small hydro power plants construction programme
- **SUNEN** - solar energy utilisation programme
- **BIOEN** - biomass and waste utilisation programme
- **ENWIND** - wind-energy utilisation programme
- **GEOEN** - geothermal energy utilisation programme
- **KUEN**$_{zgrada}$ - programme for energy efficiency in building construction
- **KUEN**$_{cts}$ - programme for energy efficiency in centralised heating systems

1.3 Market deregulation

The current legislative and institutional energy sector framework, conditions and principles of its business operations, activities in the sector and all issues regarding protection of consumer, environment and market effects are stipulated in several regulations. The Croatian Parliament accepted the new future legal energy sector framework in July 2001 (in force from 2002). The framework, regarding opening of energy market, network access and consumer protection, is regulated by the following acts: Act on Energy, Act on Energy Service Regulation, Act on Electric Power Market, Act on Gas Market, Act on Oil and Petroleum Products Market.

The concept of energy sector reform covered by the new legislation contains the following:

- market and competition imply the increase in production, effectiveness and stronger international co-operation among energy sector subjects;
- reorganisation, liberalisation, privatisation, i.e. ownership changes are crucial factors for further activities in the sector;
- competition, i.e. market demonopolisation shall be achieved pursuant to the principle of regulated open access to the network of transport and gas and electric energy distribution. Tariffs regarding network access should be predefined and accessible for the public for all network users (i.e. they should be published). In the long run, this shall enable users to chose energy suppliers;
- guidelines regarding foreign investors protection, trade relations for energy material and equipment, energy transit in the open and non-discriminatory access to transfer and transport infrastructures are defined pursuant to adopted Agreement on European Charter on Energy (*Official Gazette of the Republic of Croatia* [*N.N.*] no. 15/97) and the Protocol on Energy Efficiency and Corresponding Environmental Problems (*Official Gazette of the Republic of Croatia* [*N.N.*] no. 7/98),
- regulation of energy sector subjects shall be performed by the Agency for Energy Services Regulation, the competence of which is defined by the Act on Energy Service Regulation;
- co-ordination with the EU Directives for Liberalisation of Electric Power and Gas Market, respectively. These two documents shall become mandatory for the Republic of Croatia upon its accession to the Union. Thus, in view of harmonising Croatian legal and institutional framework with the corresponding European one, new Croatian legislation shall gradually incorporate provisions stemming from the Directives into national legal and economic system.

The transition process in Croatian energy sector commences with the following companies:

- INA, state owned company; the sole company producing and importing oil and gas, producing petroleum products and transporting gas covering 70% of primary energy sources in Croatia;
- HEP, state owned company; the sole company producing and importing, transmission and distributing electrical energy for the market: One segment of electric energy is produced in the economy sector for personal purposes and a rather small quantity of electric energy is produced by two private hydroelectric power plants;
- JANAF, partly state owned company and partly owned by companies that are state owned themselves; the company transporting imported oil from Omišalj to Sisak, Slovenia, Hungary and FR Yugoslavia;
- 50 companies for gas distribution owned by local communities, mainly on the municipal and district level.

1.4 Attention for renewable energy

Analyses have shown that two crucial impediments have so far stood in the way of the realisation of RES projects in Croatia: the non-existence of a stable legislative framework with a pre-defined obligation to purchase electric energy at an acceptable price (i.e. compensation for the delivered energy purchase), and the 5-MW-limit to the facility power from which the Croatian Electricity Utility undertakes energy purchases. The compensation offered or the purchase price for the generated electric energy prevents the realisation of a larger number of RES projects with an acceptable investment repayment rate. Hence, under the present conditions only a small number of projects can be realised - those resulting in the optimum harmony of all factors, meaning primarily the energy potential of a locality as well as the existing infrastructure.

A proposal for feed-in tariffs for electricity produced from renewables is being elaborated within the Ministry of economy. At this stage it is hard to predict the exact level of support in EUR/kWh of electricity produced, but it is strongly believed that this will be a major break-trough for renewables in Croatia.

The foreseen changes in the markets of grid-based energy systems in the Republic of Croatia, which include restructuring, privatisation and alterations in the whole energy sector, are going to affect significantly the possibility of introducing RES and their enhanced utilisation. After the ratification of the Energy Law and three Energy Market Laws as well as the Energy Activity Regulation Law, there still remains a demanding task of the elaboration of numerous legislative documents, which precisely define all instruments of the state policy as regards renewable energy sources. Energy Law foresees the elaboration of RES Regulations that would define rights and obligations relate to renewables, price for the energy delivered as well as other forms of incentive mechanisms. It should be stressed that this Law, for the first time, precisely articulates the positive attitude of the Republic of Croatia toward renewable energy sources, thus representing a small but significant shift in view of a positive message to the investors interested. A key step as regards the legislative treatment of RES is also included in the Law on Electricity Market that establishes the legislative obligation of electric energy purchase generated from renewable energy sources. The quota, i.e. the minimum RES share for the energy entity supplying electric energy as a public service, will be determined by a special direction of the Croatian Government.

Several projects in Croatia should be offered direct support in order to encourage and allow further investments. The government has made a proposal to invite public tenders for the construction of two kinds of power plants in the country: cogeneration power plants and wind farms whose total installed electric power should not exceed 30 MW per project. Tender offers will be evaluated and selected by a board of experts on the basis of a series of predetermined criteria; tender soliciting will be carried out in two phases: pre-selection and final selection. The selected projects will be granted direct government support.

1.5 Specific bioenergy issues

In the past biomass had never taken an important place in the energetic policy of the Republic of Croatia. However, in course of last few years Croatian scientists and engineers have undertaken much research and developed different technologies for energy production from biomass. In the area of briquetting significant results have been achieved and in some Croatian regions, briquettes are available on the market. Research have been conducted on briquetting (wood waste, saw dust and maize stalks), biogas engine development and biomass fired boiler construction.

When a national energy programme BIOEN was launched in 1997, Croatian bioenergy future took a new image. The BIOEN Programme vision is that by 2030 at least 15% of Croatian energy needs will be derived from biomass and waste. Although the BIOEN Programme was launched only in March 1997, significant results already have been achieved and included in the recently published Energy Strategy of the Republic of Croatia where bioenergy, unlike other renewables has a significant position in all analysed scenarios.