In-Depth Review of Energy Efficiency Policies and Programmes:

BOSNIA AND HERZEGOVINA

Energy Charter Secretariat 2012

In-Depth Review of Energy Efficiency Policies and Programmes:

BOSNIA AND HERZEGOVINA

Energy Charter Secretariat 2012

Disclaimer

© Energy Charter Secretariat, 2012
Boulevard de la Woluwe, 56
B-1200 Brussels, Belgium

ISBN: 978-905948-103-9 (English PDF)

ISBN: 978-905948-101-5 (English hard copy)

INTRODUCTION

The State of Bosnia and Herzegovina (BiH) ratified the Energy Charter Treaty (ECT) and the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA) in 2001. By ratifying the Protocol, countries commit themselves to formulate and implement policies for improving energy efficiency and reducing the negative environmental impact of the energy cycle (Art. 5). The guiding principle of the PEEREA is that contracting parties shall cooperate and, as appropriate, assist each other in developing and implementing energy efficiency policies, laws and regulations (Art. 3). Fulfilling the country's commitments under the Protocol, the BiH authorities have submitted a Regular Review of Energy Efficiency Policies in 2008. The current in-depth energy efficiency review is the first for the country.

The country review process is a core activity in monitoring and facilitating the implementation of the Protocol. The in-depth energy efficiency reviews, implemented under the PEEREA, have proven to be an important tool in assessing the progress of member countries in fulfilling their commitments under the Protocol. They also provide peer guidance to governments in developing and implementing energy efficiency policies.

It has been agreed among member states that to effectively monitor the progress made by participating countries in implementing the PEEREA obligations, the in-depth reviews should be carried out after the completion of regular reviews and should be updated at regular intervals, at least every five years. The main principle of the Energy Charter's indicative schedule of reviews for 2010-2012, which was adopted in 2009, is to avoid overlap with other ongoing review processes and to focus on countries that stay outside the scope of other international organisation (IEA, APEC, etc.). The Energy Charter Secretariat is continuing its efforts to ensure an overall balance between the reviews of OECD and non-OECD countries.

The in-depth review of the energy efficiency policies of BiH was carried out by a team Comprised of officials from three countries that are Parties to the Protocol: Mr. James Acord from the UK Department of Energy and Climate Change, Ms. Lisa Lundmark from the Swedish Energy Agency and Mr. Corneliu Radulescu from the Romanian Regulatory Authority. The team also included Ms. Bilyana Chobanova and Mr. Boris Petkov from the Energy Charter Secretariat and Mr. David Taylor, consultant to the Secretariat. The team visited Sarajevo between 9 and 13 May 2011 and discussed a range of issues with government agencies and other stakeholders (listed in Annex IV).

Key sources of information on the energy efficiency policies and programmes included the previous Energy Charter Regular Review of Bosnia and Herzegovina (considered by the PEEREA Working Group in 2008), national policies as posted on ministry websites, information provided by institutions in BiH during the country visit, and other relevant publications of the State Government and the Governments of the Entities, international institutions such as the EBRD, IMF, World Bank and IEA, and the institutions of the EU.

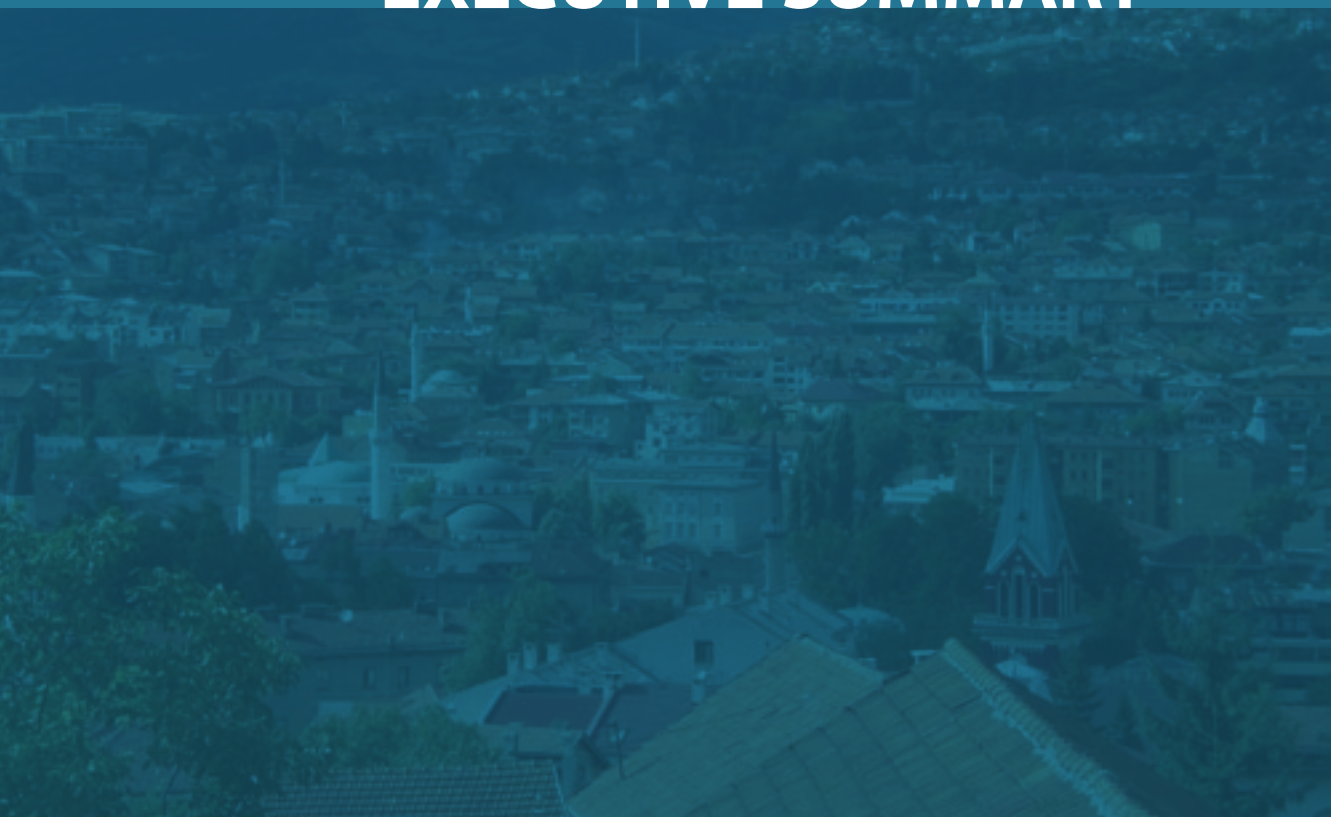
This in-depth review report was discussed and approved by the PEEREA Working Group in 2011 and the recommendations are submitted for endorsement by the Energy Charter Conference.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY



Background

The Dayton Peace Agreement of 1995 established a new constitution for Bosnia and Herzegovina – a State made up of two Entities, the Federation of Bosnia and Herzegovina (FBiH) and the Republika Srpska (RS).

Bosnia and Herzegovina, abbreviated in this report to BiH, occupies a land area of 51,209 sq km on the Balkan Peninsula in South-eastern Europe and is part of the Western Balkans. The country is contiguous with Croatia, Serbia and Montenegro. It has a short coastline to the Adriatic.

BiH's proven natural resources include deposits of minerals such as salt, manganese, silver, lead, copper, iron ore, chromium, as well as fossil fuels - mainly lignite and coal. Forest and woodland extend over 39% of the country with meadows and pastures accounting for a further 20%. About 14% of the land is arable, with 5% under permanent crops.

The war had a devastating impact on the country's infrastructure: 45% of industry, and 75% of its oil refining capacity, was damaged or destroyed. Unemployment was widespread, emigration accelerated and the population declined.

The Central Bank of Bosnia and Herzegovina was established in 1997 and the new national currency, the konvertibilna marka (KM), was introduced in January 1998. Registered unemployment is high at over 40% in 2008; in 2004 it was estimated at 45%, if the black economy was included, the true unemployment figure was between 25-30% in 2004.

According to the IMF, following several years of strong growth coupled with increasing external and internal imbalances, economic activity in BiH began to decelerate in late 2008. The downturn spread quickly in 2009 across all sectors, with the exception of refined petroleum and electricity production in the Entity of RS.

EU accession is a strategic priority for BiH and has chosen a way forward in the framework of the 2005 Energy Community Treaty (EnC) which expresses a shared commitment to market reforms and the development of a regional energy market.

Energy and Energy Efficiency Policy

The authorities believe that the energy sector, and within it, the electricity sector is one of the stronger sectors of the economy with the potential to contribute to economic development in the short and medium term. Accordingly, and with regard to its obligations under the EnC and its ambitions for EU membership, reform of the electricity sector figures prominently in the economic development plans of BiH. Functions of policy making and regulation are well on course for separation, still most of the energy assets have not been privatised.

While energy policy is within the competence of the two Entities of BiH there is, as yet, no fully articulated set of Entity policies, or a detailed energy framework at State level. The State of BiH has entered into agreements entailing commitments to the delivery of energy policy reforms with the EU and with other Western Balkan countries. In effect, these agreements determine many elements of practical energy policy in BiH. Policies with significant implications for security of supply or infrastructure provision have proved difficult to settle e.g., gas pipeline routes and capacity. To some extent this reflects the difficulty in reaching a shared understanding and acceptance of the tradeoffs implied in any major decision where tension between objectives is inevitable.

BiH has established the necessary institutions at State and Entity level to effect and oversee energy market reforms in accordance with the aquis communitaire of the EU. Regulatory authorities exist at State and Entity levels and certain Entity powers and responsibilities for tariff setting and energy efficiency have been assigned to the Entity energy regulators. Cross subsidies are being phased out and while there is broad endorsement with the direction of energy policy many international organisations are critical of the slow pace of reform.

Energy efficiency is evidently a factor considered in relation to large capital investments such as the repowering of power stations. There are EE and renewable energy champions but in general they lack the resources and the legislative mandate to really make a difference.

Useful progress in raising awareness through the demonstration of practical solutions at local and enterprise level has been made possible through the joint efforts of donors, IFIs and energy efficiency actors in BiH at National, Entity and Municipal levels.

The National Energy Efficiency Action Plan (NEEAP), like the necessary underpinning energy policy, is much delayed and there have been many calls for its finalisation and implementation. Resource constraints and other barriers have been cited as reasons for the delay.

However, the systematic diffusion of energy efficiency considerations as an integral part of policy, regulation and control has hardly begun in BiH. This could be addressed in the completion of the NEEAP and the creation of links that appeal to willing donors and so consolidate the desire to make practical progress that is evident on all sides.

Renewable Energy Policy

Traditionally the power sector in BiH has relied on large scale hydropower for a good portion of its supply capacity. It is an important carbon-free indigenous RE source and has in the past contributed to exports and power exchange. It is sufficiently large in scale and ultimate potential to be of interest to adjoining countries and

their electricity markets. Thus the Governments aspire to develop the hydro and other renewable energy sources.

The comprehensive mapping and economic evaluation of renewable energy sources is well underway, and there is a good understanding of some of the issues around woody biomass. Quantified resource assessments are available for hydro, wind, and solar energy and the areas of economic potential for wind and hydro power development are clearly designated. Feed-in tariffs are in place for electricity generation from a range of renewable sources.

According to Bosnia and Herzegovina's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), the limited exploitation of renewable energy sources (RES) in BiH is attributable to i) the high cost of energy systems using RES compared with those using fossil fuels; ii) the lack of a state/entity agent for RES and of an energy strategy promoting RES; and iii) various barriers to substantial long-term investments in RES-based energy systems.

Overall Assessment of Progress

Energy policy and its associated measures are evolving in Bosnia and Herzegovina against a complex political and economic backdrop which presents ongoing challenges in maintaining the authority and viability of the State. The institutional arrangements and the governance responsibilities in place acknowledge the difficulties; help manage the main forces at play, and aim to facilitate progress towards the shared goal of EU membership. Consequently, energy policy formulation and the creation of the enabling framework of laws, institutions and measures across two Entities and a District is complex and further complicated by issues of alignment and symmetry of powers.

The objectives of the Energy Community Treaty were formulated in mutual self-interest and in furtherance of the longer term aspiration to EU membership. In that respect Bosnia and Herzegovina is systematically adapting to the requirements of the acquis communitaire, albeit at a slower rate than its neighbours.

While realising the potential of indigenous renewable energy sources will contribute to economic development, it is recognised that such progress is contingent on inward investment, the availability of infrastructure, a business friendly environment, and competent market regulation. The lack of progress may be partially attributed to low electricity prices, which have the effect of lowering rates of return and thus damping interest in investment. Further work is required in all of these areas if RES targets are to be met.

The combination of relatively low energy prices and a degree of continuing electricity price subsidy is suppressing some economically efficient energy efficiency activity. It is by no means clear that electricity prices in BiH reflect the long run marginal cost of sustainable energy supply. Informed commentators

have stated that these factors combined with limited awareness of the potential savings reduce consumer interest in energy efficiency investment and activity.

The authorities are sensitive to the limited opportunities that exist to create virtuous and potentially self sustaining initiatives. These are believed to centre on the competitiveness of enterprise and the electricity sector as well as the potential for new sustainable supply chain development such as biomass. Well targeted initiatives in these areas will pay dividends.

On the other hand there are risks in the present course and as has been seen with the award of small hydro concessions. It is important not to underestimate the administrative sophistication that is required to successfully deliver systemic reform or initiatives such as the proposed energy rating of buildings in conformity with the Energy Performance of Buildings Directive.

It would be prudent to develop the capacity to model the energy sector as an aid to policy and investors alike. In this regard a well grounded and widely disseminated analysis of the likely development of electricity prices is in the interest of energy efficiency promotion as it would provide useful guidance to investors and policy makers.

The energy sector reform are ongoing in BiH and substantial progress has been made in several areas, for example, in reducing commercial losses and rebalancing of tariffs to reduce subsidies. The political and economic circumstances are without precedent, and the risks and the effort required is very large indeed. Success depends on political will and requires continuing adroit and effective leadership at all levels.

The National Energy Efficiency Action Plan (NEEAP), like the necessary underpinning energy policy is under preparation; however its finalisation has been delayed due resource constraints and other barrier. A number of local authorities have taken action to raise the profile of energy efficiency and renewable energy. The main lines of action have been: energy performance of public buildings, sustainability plans and demonstration actions such as retrofitting of insulation to building facades, upgrades to district heating and the regulation of new building energy performance.

Recommendations

The following recommendations are offered to promote energy efficiency in Bosnia and Herzegovina:

General Recommendations

- The Government of BiH should strive to improve the formulation, delivery, and on-going review of energy efficiency policy.

- The State Government should ensure that energy policy goals respect and fully reflect the potential of energy efficiency and renewable energy to contribute to wider political, economic, development and environmental goals.
- The potential of energy efficiency and renewable energy to contribute to wider goals should be effectively communicated by the State and Entity Governments so as to: i) command attention, ii) motivate stakeholders, and iii) allow for the reporting and the celebration of progress.
- The Entity Governments should ensure that future energy efficiency policy and strategy in BiH is results-focused, consistent with long-term goals, and aimed at delivering measurable benefits for all.
- The State and Entity Governments should: i) promote the setting of realistic and measurable energy efficiency targets for key sectors, ii) provide for the legal, financial and other means necessary to reach those targets and iii) make arrangements for evaluation and review of progress towards such targets.
- The State and Entity Governments should regularly assess the true economic and administrative implications of implementing energy efficiency policies and measures to ensure value for money and to capture the value for consumers and the economy.
- The Governments of BiH and of the Entities must act to promote the realisation of energy efficiency and renewable energy goals, and where market failure or other barriers exist, take remedial measures. Regulations, standards, tariffs and information provision are important in this respect.
- As the adaptation of the BiH energy markets to the requirements of the acquis communitaire is a clear priority, not alone for BiH but also for all Energy Community members their approaches should be closely monitored for lessons and replicated as appropriate by the BiH authorities.

Institutional Framework

- The Ministry of Foreign Trade and Economic Relations (MOFTER) should, with the assistance of other ministries and governmental bodies, advance the integration of energy efficiency considerations into all State policies.
- The completion of a National Energy Efficiency Action Plan and implementation of the Plan by the Entities must be progressed. Such progression would require adequate staff and resource allocation at both State and Entity level.
- The State Government should strengthen the energy efficiency focus and allocate a budget line within the MOFTER to lead the development of a coherent energy framework and to champion sustainable energy within the State and its Entity Governments.
- The Entity Governments should consider options for the establishment of an implementing institution for sustainable energy. However, given existing resource constraints the Entity Governments may decide, for the time being, to

draw on existing institutions for resources and concentrate on ensuring stable and transparent funding for a work programme.

- Both the State and the Entity Governments should continue to facilitate and, as far as is practical, ensure the on-going involvement of all relevant stakeholders, including public sector bodies; business and industry associations; NGOs; and consumer representatives in the implementation of measures stemming from their energy efficiency policies.

Energy Market and Pricing

- The State Government and in particular the Entity Governments should continue their efforts in the reform of energy markets in line with the principles of transparency, efficiency and cost-reflective energy pricing.
- Where the Entity Governments have concerns over the social impacts of increased energy prices, consideration should continue to be given to methods other than universal subsidies to address these concerns (e.g. direct financial compensation or tax adjustments to those directly affected).

Energy Efficiency Funding

- The State and Entity Governments should ensure that their policies and actions leverage the substantial international financing with domestic budget financing to best overall effect.
- Consideration should be given by the State Government together with the Entity Governments to establish an initiative with a focus on the industry sector and high impact return actions in the NEEAP as soon as possible. Robust governance arrangements could help access finance through the international donor network.
- The Entity Governments should give careful consideration to creating framework conditions to encourage the development of an active energy services market and investments in energy efficiency.

Specific Energy Efficiency Programmes and Measures

- The State and Entity Governments should take measures to raise awareness of the environmental and economic value and importance of energy efficiency within the public, consumer, business and industry sectors.
- Development and enforcement of regulations governing the energy performance of buildings should be a priority for action by the Entity Governments in the light of the dominant share of energy demand of the sector and the great potential for improved performance and the economic benefits that follow.

- Municipal and cantonal authorities should; strengthen their support for the refurbishment of the existing building stock by private and public actors; continue their support for relevant demonstrations of high efficiency buildings in order to raise awareness amongst consumers, investors and other key market players.
- Options for the improvement of energy efficiency and the reduction of environmental impacts in public transport fleets should be explored by the Entity Governments.

Renewable Energy Sources and CHP

- The State and Entity Governments should continue to strengthen their efforts to promote the development of renewable energy, and small hydro power in particular, with the emphasis on cost effectiveness and capturing the benefits of the hydro-power potential to meet future electricity needs and secure export revenue.
- The development of a transparent approach to setting feed-in tariffs by the Entity Governments, including rate impact analysis, will help ensure optimal long term outcomes, including a better return on investment in energy efficiency.
- The Entity Governments and their regulatory authorities should put in place sustainable incentives and mechanisms to facilitate foreign investment for the development of renewable electricity generation.
- Any biomass strategy at the Entity level should be developed with the engagement and support of the relevant policy makers and other stakeholders to ensure an integrated policy approach to the sustainable production and use of biomass.
- The Entity Governments should examine options for the possibilities of high-efficient combined heat and power including the establishment of renewable waste-to-energy power generation as an alternative to existing, environmentally damaging landfill practices.

Data Collection and Monitoring

- The State and Entity Governments should i) improve their data collection, ii) make suitable arrangements for its consolidation at State level and iii) further develop the capacity to analyse and assess energy efficiency. Energy data and indicators form an important basis for future policy development, including making informative decisions on financing.
- The Statistics Agencies needs to further develop capability in the area of energy statistics and should be adequately resourced as far and as soon as possible to ensure the accuracy, independence, and robustness of all economic and energy data.

BACKGROUND

Brief Country Overview

Bosnia and Herzegovina occupies a land area of 51,209sq.km situated on the Balkan Peninsula in South-eastern Europe, and is one of the countries that comprise the Western Balkans. The country is bounded to the north, west, and southwest by Croatia and to the east and southeast by Serbia and Montenegro respectively. It has a short coastline along the Adriatic Sea around the town of Neum.

Figure 1: Political Map of Bosnia and Herzegovina

Source: http://4.bp.blogspot.com

Figure 2: Physical Map of Bosnia and Herzegovina

Source: http://bih-x.info

Bosnia and Herzegovina is a mountainous country with 62% of its land over 700m above sea level. The Dinaric Alps cross the country from its western border with Croatia to the southeast. The north is heavily forested, while the south has flatter areas of fertile soil, for the most part in farmland.

Climate

The country is situated between the European continental and Mediterranean climatic zones, giving rise to three distinct local climatic areas. The northern inland territory has a moderate continental climate with warm summers and cold snowy winters. The mountain areas above 700 metres have a mountain climate with short, cool summers and long, severe winters with snow. The south has an Adriatic-Mediterranean climate with sunny, warm summers and short, mild, rainy winters. The average temperature in Sarajevo (continental zone), is minus 1°C in January and 20°C in July.

Bosnia and Herzegovina has abundant water resources, an increasingly important factor in future economic development. The main river is the Sava, which runs along the country's northern border with Croatia. The Sava and its tributaries – the Bosna which flows through Sarajevo, the Una, the Drina and the Vrbas – all flow to the north. Only a few rivers, notably the Neretva, drain towards the Adriatic Sea. The Sava and Neretva rivers characterise the country's two historical provinces; Bosnia lies in the Sava river valley and Herzegovina embraces the Neretva river basin and the upper reaches of the Drina.

Forest and woodland extend over 39% of the country with meadows and pastures together accounting for a further 20%. About 14% of the land is arable, with 5% under permanent crops. Before the war Bosnia and Herzegovina produced specialty agricultural products, such as fruit. Traditionally over 50% of food was imported. BiH's natural resources include deposits of minerals such as salt, manganese, silver, lead, copper, iron ore, chromium, as well as fossil fuels such as lignite and coal.

Population

In the last official census of 1991, Bosnia and Herzegovina had 4.365m inhabitants, equivalent to an average population density of 85.5 inhabitants per sq.km. There are extensive areas of low population in mountainous and densely wooded regions. Population trends have been downward reflecting the political and economic realities. Current estimates of population vary depending on the source but are generally around 3.84 million. The largest city is the capital Sarajevo (population 380,000) and is an important cultural and commercial centre. Next in size are the cities of Banja Luka (pop. circa or above 250,000), Mostar (140,000) and Zenica (135,000). Between 1991 and 2002 the urban population increased from about 40% to 60% of the total population.

The population of Bosnia and Herzegovina is comprised of three major ethnic groups: Bosniaks, Serbs and Croats. In 2006 the country's human development index,

measured by the United Nations Development Programme (UNDP), was 0.8 (on the scale of 0.0 to 1.0). Bosnia and Herzegovina was 62nd out of 177 countries reviewed.

Governance

The Dayton Peace Agreement of 1995 established a new constitution for Bosnia and Herzegovina. By it Bosnia and Herzegovina is established – as a state made up of two Entities, the Federation of Bosnia and Herzegovina and the Republika Srpska. The Brčko District is under direct jurisdiction of the State administration.

The Parliamentary Assembly has two chambers, the House of Representatives and the House of Peoples. The Parliamentary Assembly adopts laws and decides on the budget of the State institutions. The Presidency ratifies international treaties after approval of the Parliamentary Assembly. All legislation requires the approval of both houses. The Presidency is responsible for foreign policy and the Council of Ministers has power over foreign trade and foreign affairs, but in general all government functions not expressly given to the State government lie with the Entities.

The Federation of Bosnia and Herzegovina has its own constitution, a bicameral parliament and a government headed by a Prime Minister, who is nominated by the Parliament. The significant centres of political power in the Federation are the ten cantons, which have their own parliaments and governments.

Republika Srpska has a unified governmental structure, a single chamber People's Assembly and a directly elected President.

The highest judicial authority in the State of Bosnia and Herzegovina is the Constitutional Court. Both Entities have their Supreme Courts which are supplemented in the Federation of Bosnia and Herzegovina by cantonal and municipal courts, and by municipal courts in the Republika Srpska.

As a result of the Dayton Peace Agreement, the Office of the High Representative (OHR) was established to oversee civilian aspects of implementation and to coordinate the activities of the civic organisations operating in Bosnia and Herzegovina. Initially the OHR was a significant player in the governance of Bosnia and Herzegovina, however, as time progresses OHR is reducing its visibility and influence, including that of the High Representative. Indications are that the post of HR will be subsumed into new arrangements in the near future. At the same time as the OHR is preparing for its closure, the European Union is increasing its commitment to Bosnia and Herzegovina. The EU Special Representative, who has a mandate to promote overall EU political coordination, will remain in Bosnia and Herzegovina after the closure of the OHR.

EU accession is a strategic priority for Bosnia and Herzegovina. Energy sector reform aimed at integrating Bosnia and Herzegovina in the nascent single energy market of the South-eastern European countries, along with EU accession, are the drivers of Bosnia and Herzegovina's viable economic development. Energy sector reform

is being pursued in accordance with the listed priorities of the EU partnership approach. Thus with external, internal and future development considerations to the fore, the State clearly defines energy as a key element in the economic development of the country.

Economic Background

Before the war Bosnia and Herzegovina had an economic structure that was strongly product and commodity based. Industrial production (43% of GDP), Agriculture and Forestry (18%) and Mining (14%) together accounted for the main part of the GDP. Tourism was also well-developed. Yugoslavia's military industries were heavily concentrated in BiH, and the defence industry, which produced about 40% of Yugoslavia's armaments, was a significant part of the economy.

The war had a devastating impact on the country's infrastructure. Approximately 45% of BiH's industry, including about 75% of its oil refineries, was either damaged or destroyed. Transport infrastructure suffered greatly; about 35% of the main roads and 40% of the bridges were damaged or destroyed. The economic recovery began after the 1995 Dayton Peace Agreement. The end of the hostilities and the very low level of economic activity during the war caused GDP to grow dramatically by 54.2% in 1996 with the high growth phase lasting until 1999 before slowing to 3.7% in 2002. In common with many other countries, construction activity declined since 2008; in 2010 it fell by 15-20 % across the State.

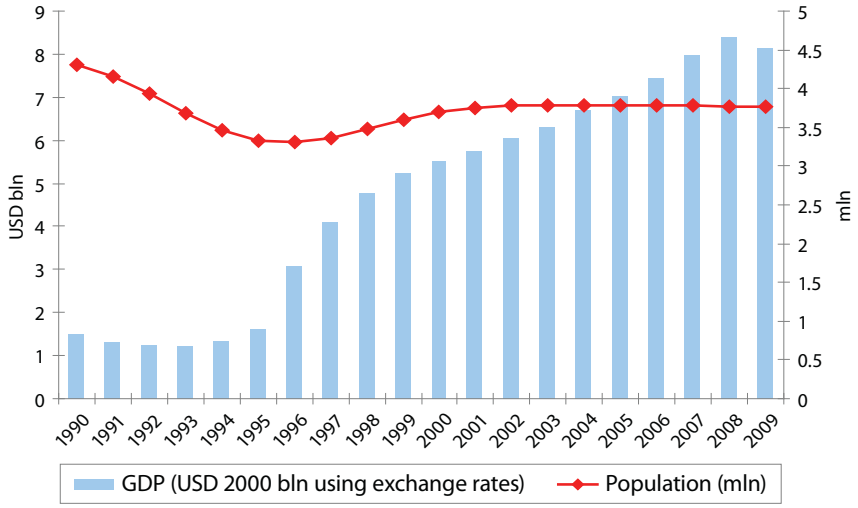
The Central Bank of Bosnia and Herzegovina was established in 1997 and the new national currency, the konvertibilna marka, was introduced in January 1998. The KM which was pegged originally to the deutsche mark is now fixed at KM 1.96 to the euro. Since 1997 inflation has been less than 10% and the consumer price index (CPI) figure for 2005 was 1.1% but rising to 4.4% in 2006 before moving into negative territory after the financial crisis of 2008. The changes in GDP and population since 1990 are shown in Figure 3 below.

The big industrial conglomerates that dominated the pre-war economy remain largely un-restructured, and are operating at a fraction of their production capacity. While 90% of registered companies are privately owned, the big conglomerates remain under State ownership.

According to the IMF, following several years of strong growth increasingly accompanied by external and internal imbalances, economic activity in BiH began to decline in late 2008. The downturn spread quickly across all sectors in 2009, except for refined petroleum and electricity production in the Republika Srpska.

Tightening credit conditions and the ensuing uncertainty put a further squeeze on spending on capital goods and consumer durables. Private consumption of non-durables softened to a lesser extent, on the back of moderate growth in wages and social benefits.

Figure 3: Changes in GDP and Population Figures



Source: IEA statistics, electronic version, 2011

Driven by a very good export performance, GDP in BiH grew 0.9% in 2010, which was above consensus expectations of 0.5%. According to recent projections by IHS Global Insight, the economy should expand 3.5% in 2011, and could reach growth levels as high as 6% – close to potential – in the years to come. The IMF is more cautious and expects an expansion of GDP of 2.2%. Average annual inflation returned is now positive again and reached 2.1%.

Energy Supply and Demand

In common with other countries of the Western Balkans, Bosnia and Herzegovina has chosen a way forward in the framework of the 2005 Energy Community Treaty, which expresses a shared commitment to market reforms and the development of a regional energy market. The objectives were formulated with mutual self-interest in mind, and the longer term objective of EU membership. In that respect BiH is systematically adapting to the requirements of the acquis communitaire, albeit at a slower rate than its neighbours, giving rise to concerns that the slow rate of progress in BiH could inhibit regional integration and synchronous admission to the EU.

A key challenge of adaptation is separating the functions of policy making, regulation, and ownership. All of the countries of the Western Balkans face this challenge; however, the issues in BiH are complicated by the dual Entity political and power structure. As well as engagement with this added complexity, the State must build its technical capacity and legal competence, commit additional resources, and ensure credible statistical data. To succeed, the project of adaptation must be politically supported, economically affordable, and socially acceptable.

Like all economies in transition, the future of Bosnia and Herzegovina is critically dependent on the performance of the energy sector in reliably and affordably providing sustainable and secure supplies of networked and traded energy to final customers. There are important benefits to be gained by aligned actions between neighbouring states leading to better utilisation of assets and infrastructure and ultimately greater security of supply for all. This is immediately important for electricity, and of great importance for securing gas supplies and developing renewable energy potential into the future.

In the light of these objectives, there are reporting frameworks and review mechanisms by which progress can be gauged, issues confronted, and new courses set to achieve the goals. The IEA, Energy Community, EU and Energy Charter are sources from which it is possible to form a rounded and updated view of progress, and the challenges ahead. This report draws on all of these sources and the Regular Review of 2008 which was conducted as part of the Energy Charter PEEREA process.

Energy Balances

BiH is endowed with basic energy resources, especially solid fuels, other fossil fuels and hydropower, as well as natural forest biomass and other renewable energies. Indigenous coal, lignite and hydropower are still predominating sources of primary energy consumption and they will retain a dominant long-term position in the future, although the share of natural gas is expected to grow. The 2008 energy balance for BiH is provided in Table 1 below.

BiH is currently exporting electricity with potential for producing more and becoming the main exporter in the region. The relative contribution of indigenous production and imports to total primary energy supply over the period 1990 to 2008 can be gauged from Figure 4 below. The contribution of indigenous production increased rapidly in the post conflict period to 1999 and thereafter grew at a faster rate than net imports. Import dependency was lowest in 2008 and was below that of the pre-conflict economy of 1990.

Coal

Coal is one of the most important energy resources in BiH. Major deposits of lignite and brown coal are sited all around the FBiH and the RS. Most of the existing coal mines fuel Thermal Power Plants (TPP) in both entities. There are significant differences between the coal mines in BiH, but with similarities as far as geological and technological conditions are concerned. Some mines still have huge coal reserves, whereas reserves of others are almost depleted beyond economic exploitability. The quality of coal varies in a wide range of heating value, content of moisture, ash and sulphur. All mines are facing numerous particular problems, but what they suffer in common is a time lag of funding required primarily for land remediation, infrastructure and equipment maintenance and replacement.

Table 1: BiH Energy Balances 2009, ktoe

	Coal	Oil products	Gas	Hydro	Comb. Ren. and waste	Electricity	Heat	Total
Production	3,706	0	0	537	183	0	0	4,474
Imports	598	424	186	0	0	248	0	2,455
Exports	-318	-46	0	0	0	-505	0	-869
Stock changes	-107	0	0	0	0	0	0	-107
Total primary energy supply	3,880	379	186	537	183	-257	0	5,953
Main activity producer electricity plants	0	0	0	-537	0	537	0	0
Main activity producer CHP plants	-3,047	-6	0	0	0	783	30	-2,239
Main activity producer heat plants	-30	-32	-40	0	-3	0	84	-21
Petrochemical plants	0	0	0	0	0	0	0	0
Liquefaction plants	0	0	0	0	0	0	0	0
Other transformation	0	0	0	0	0	0	0	0
Energy industry own use	-297	-25	0	0	0	-112	-2	-436
Losses	-3	0	-1	0	0	-161	-11	-177
Total final consumption	202	1,293	127	0	180	814	120	2,736
Industry	96	0	65	0	0	269	1	432
Transport	0	895	0	0	0	8	0	904
Residential	66	0	39	0	180	390	98	773
Commercial and public services	0	0	23	0	0	140	0	163
Agriculture/forestry	0	0	0	0	0	6	0	6
Non-specified (other)	40	215	0	0	0	0	21	276
Non-energy use	0	182	0	0	0	0	0	182

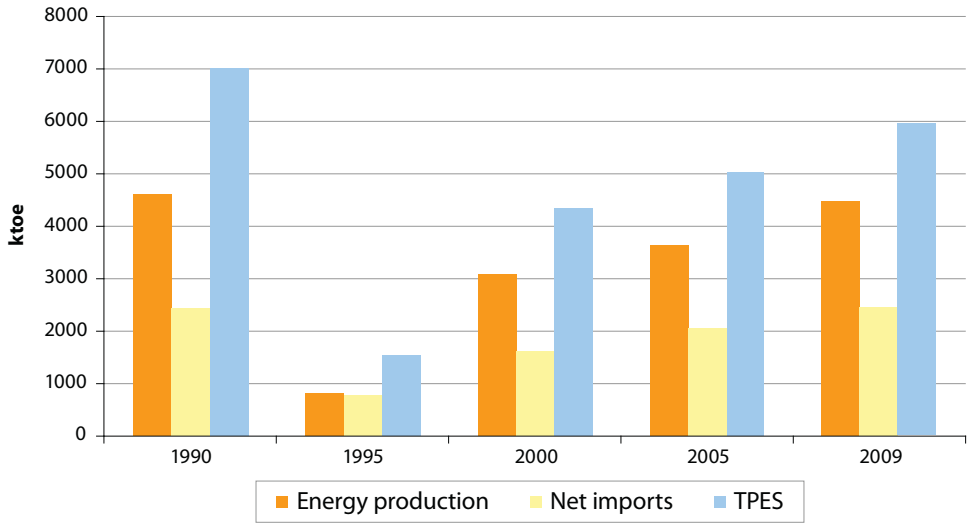
Source: IEA statistics, electronic version, 2011

Oil

While there is no domestic production of crude oil in Bosnia and Herzegovina, oilfield exploration before 1991 indicated significant reserves of oil mainly located in the north east of the country. Authorisation for exploration exists but there is no sign of prospecting activity.

The oil market in BiH has been fully opened and liberalised since 2000. The governments of the State and its Entities do not have any direct control or influence on the operation of any oil company beyond the normal regulation of industry and competition. Prices are set under market conditions and there is no price regulation of petroleum products.

Figure 4: Energy Production and Net Imports



Source: IEA statistics, electronic version, 2011

There are two oil refineries in the country at Bosanski Brod (diesel) and Modriča (lubricants); both rely on imported feedstock. The privatisation process was completed in accordance with the agreement concluded with the Russian Zarubezhnet company.

The refinery at Bosanski Brod in the Republika Srpska refines a wide range of distillate products with a theoretical capacity of 4.3mt/a from two production lines of 3mt/a and 1.3mt/a which is equivalent to 90,000 barrels per day. The refinery operated on a suboptimal basis until 2005 when it shut down. It reopened as a privatised entity in late 2008. Actual capacity is reported to be about 30% of rated capacty.

Gas

The gas sector is in the early stages of development and accounts for about 6% of primary energy consumption in BiH. The gas is mainly consumed by large industrial customers, with a smaller proportion (17%) going to residential customers, mainly for heating. Concerns have been expressed about the legislative base for regulating competition in the gas sector.

In the light of the convenience of gas, its low carbon intensity and local environmental advantages, its use in BiH would undoubtedly grow under suitable conditions. Various projections and forecasts of future gas consumption have been made. A high case scenario envisages 3 billion m^3 in 2020. Current consumption is 0.4 billion m^3.

The need to diversify the supply of gas in BiH is well-recognised and there are various proposals for new gas pipelines, which are in turn associated with strategic considerations across South Eastern Europe. Such implications for BiH need to be analysed, understood and factored into national energy policy. The development of the gas sector in BiH has the potential to deliver real benefits. However, issues of pace, security, affordability and overall energy sector impact remain to be elaborated before any definitive plan emerges.

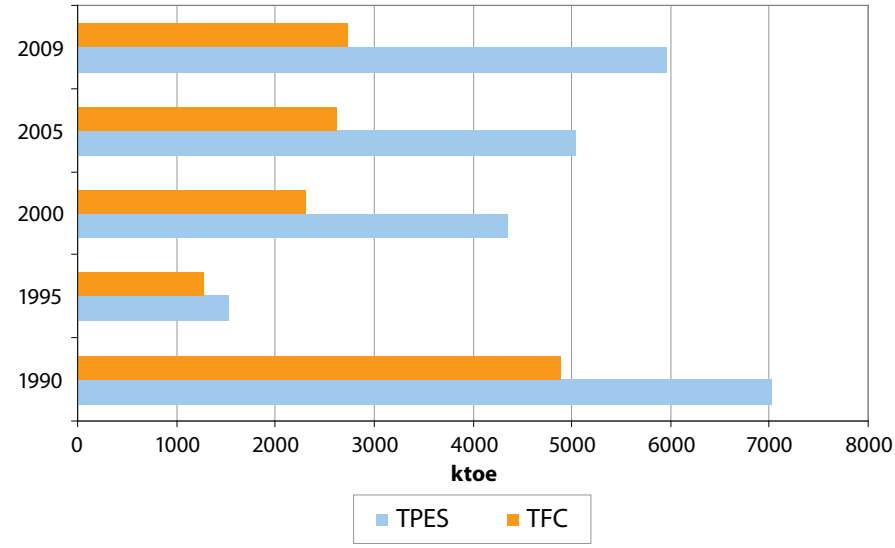
The legislative framework for the gas sector relies entirely on the level of the Entities. The Law on Gas in Republika Srpska and the Decree on Organisation and Regulation of the Gas Sector in the Federation of Bosnia and Herzegovina are both in force since autumn 2007. Two transmission system operators, one in each entity, have been established by Entities' statute. At this time, one transporter, one supplier (which is still bundled with transmission system operation), and four distribution companies are participating in the gas market.

Energy Supply and Final Consumption Trends

Bosnia and Herzegovina has the natural advantage of abundant reserves of lignite, coal and hydropower. These advantages are reflected in the primary energy supply mix development in Figure 4.

The progressive recovery in energy supply and demand since 1995 is illustrated in the histogram in Figure 5, where Total Primary Energy Supply (TPES) and Total Final Consumption (TFC) are compared at four five-year intervals beginning in 1990 and running to 2009.

Figure 5: Trends of TPES and TFC, ktoe

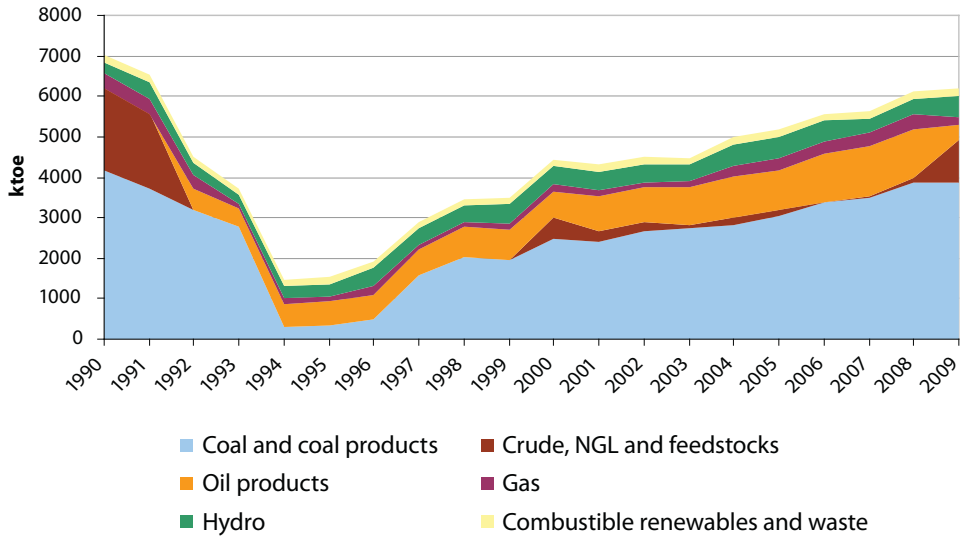


Source: IEA statistics, electronic version, 2011

While the most recent data show that total primary energy supply and total final energy consumption have yet reached their 1990 levels, the upward trend in TFC mirrors the recovery in the economy which proceeded at a steady pace from 2000 to 2009.

In completing this overview it is instructive to review the contribution of each of the primary energy sources to TPES and to see how it has grown and changed over time. The significance of coal is evident in Figure 6, as is the more modest contribution of crude oil refining activity. The steady growth in the contribution of oil and gas since 2003 is also clear.

Figure 6: Total Primary Energy Supply Trends for 1990-2009



Source: IEA statistics, electronic version, 2011

Energy Intensity

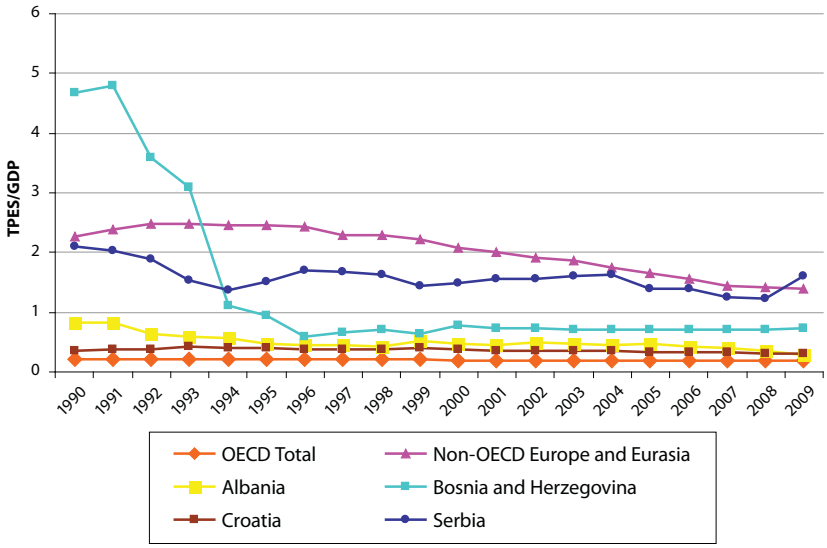
In the past the energy intensity of BiH was exceptionally high. This is illustrated in Figure 7 below where for a time in the early 1990's the energy intensity of GDP in BiH was over twice that of its nearest comparator Serbia. From about 1996 onwards the energy intensity of GDP in BiH has been close to the average of Albania and Croatia for example and well below that of Serbia and the average of non-OECD Europe and Eurasian countries.

Thus, the indigenous coal and coal products sector, which accounts for 62% of total primary energy supply, is of great economic importance.

The vast bulk of electricity requirements are met by coal and hydropower, for the most part with plant that is in need of refurbishment or replacement for a variety of operational, performance and environmental impact reasons. The combined contribution of hydropower and combustible renewable and waste exceeds 12%

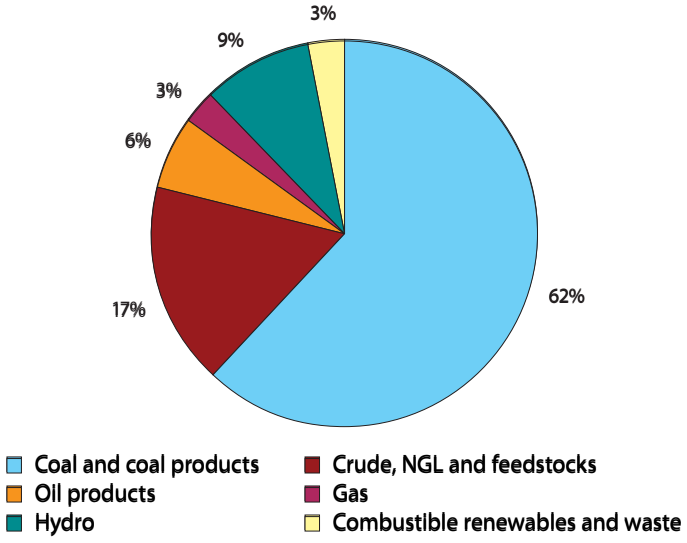
of TPES, which from a sustainable energy perspective is a relatively good starting point compared with other countries in the region.

Figure 7: Energy Intensity for 1990-2009



Source: IEA statistics, electronic version, 2011

Figure 8: Total Primary Energy Supply for 2009



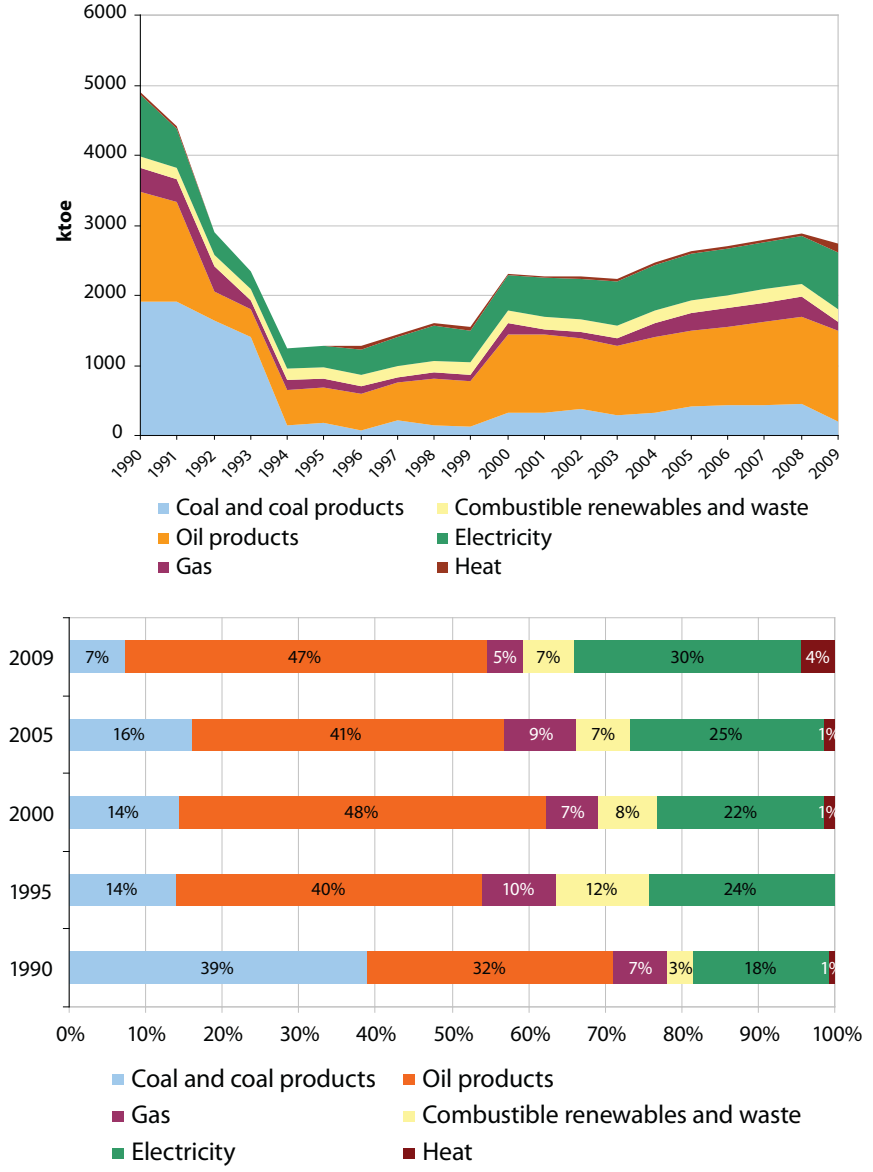
Source: IEA statistics, electronic version, 2011

Figure 9 below, categorises final energy consumption by energy carrier and shows the dependence of the economy on oil (42%). While this dependence is large it is

much lower than many EU member countries. Electricity ranks second as an energy carrier and accounts for more final energy than coal and gas combined.

The evolution of total final consumption by fuel since 1990 is shown in Figure 9 where the importance of electricity and oil is clear. An expanding transport sector has seen oil demand grow since 2000. The growth in demand for of gas is also evident.

Figure 9: Total Final Energy Consumption for 1990-2009



Source: IEA statistics, electronic version, 2011

Table 2: Structure of Total Final Consumption, ktoe

	1990	1995	2000	2005	2008
Coal and coal products	1,912	178	329	420	202
	39%	14%	14%	16%	7%
Oil products	1,562	511	1113	1,076	1,293
	32%	40%	48%	41%	47%
Gas	349	123	155	246	127
	7%	10%	7%	9%	5%
Combustible renewables and waste	163	155	180	184	180
	3%	12%	8%	7%	7%
Electricity	874	310	504	665	814
	18%	24%	22%	25%	30%
Heat	33	0	29	37	120
	1%	0%	1%	1%	4%
Total	4,893	1,278	2,309	2,627	2,736

Source: IEA statistics, electronic version, 2011

Thus, in view of the relative importance of electrical energy in TFC and the implications for affordability and competitiveness there is a clear need for a strong energy policy focus on the effectiveness of the electricity supply and end-use system. The current relatively modest contribution of gas, which was at about 10% in 2008 to TFC, points to the importance of evaluating its place and planning for its future contribution to a sustainable TFC mix.

Electricity Supply

Power generation in BiH is carried out by three electricity companies, Elektropriveda (EP) BIH, Mixed Holding Company Electropriveda Republike Srpske (EP RS) and EP Hrvatske Zajednice Herceg Bosne d.d. Mostar (EPHZHB), which are independent in decision making, especially on construction of new power plants, and responsible for customer supply in their respective areas of operation. All three electricity companies are in majority owned by the entities (FBiH, RS). In addition, there are other privately-owned companies and initiatives for construction of new generation capacities.

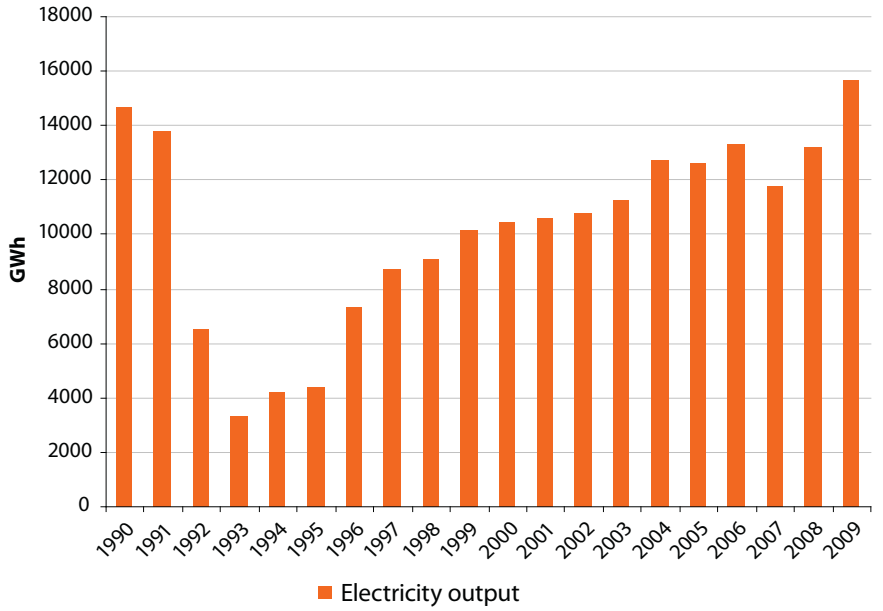
The entire electricity generation in Bosnia and Herzegovina is produced by hydropower and thermal plants. Most of the facilities were put in operation between 1955 and 1989 during a period of intensive construction of power facilities in Bosnia and Herzegovina. All thermal power plant blocks are dimensioned to operate with domestic coals of the energy value of 8,000-12,000 kJ/kg (lignite) and 14,000-17,000 kJ/kg (brown coal).

Out of 3,834 MW installed in total, more than 98% of generation capacities are in possession of the three dominant companies: EP BiH, EP HZHB and EP RS. The rest encompasses independent generators owning some twenty small hydropower plants and generators producing electricity for self-consumption with surplus being placed in the power system: Natron-Hayat Maglaj, GIKIL Lukavac, Birač Zvornik and KJKP Rad Sarajevo.

According to the applicable regulations, independent generators can conclude contracts on electricity sale with a tariff customer supplier or a licensee with a license for trade and supply of customers in the territory of Bosnia and Herzegovina.

Within the Mixed Holding Company "Elektroprivreda Republike Srpske" generators operate as dependant legal persons. Part of electricity generated by these companies in the public service system, in proportion to their share in total generation, is intended for supply of tariff customers with a surplus being placed by the Company in the market based on bilateral sales contracts concluded by the parent company with traders or electricity suppliers. Table 3 gives an overview of installed generation capacities by type and ownership.

Figure 10: Electricity Generation in BiH during the Period 1990-2008



Source: IEA statistics, electronic version, 2011

Total generation of 14,561.52 GWh was realised in Bosnia and Herzegovina in 2009, of which 99.48% was produced by the dominant generators (EP BiH, ERS and EP HZHB), with the rest of 0.48%, that is, 76.28 GWh being produced by independent generators. Table 4 provides a structure of electricity generated in Bosnia and Herzegovina in 2009.

Table 3: Overview of Installed Generation Capacity, by Type and Ownership (MW)

Power plants	EP BiH	EP HZHB	ERS	Independent generators	Total
Hydro power plants > 5 MW	514.400	792.600	720.000	-	2,027.000
Hydro power plants < 5 MW	3.366	-	5.900	20.141	28.973
Thermal power plants	1,125.000	-	600.000	-	1,725.000
Industrial power plants	-	-	-	52.500	52.500
Gas power plants	-	-	-	0.298	0.298
Total	**1,642.766**	**792.600**	**1,325.900**	**72.939**	**3,834.205**

Source: State Electricity Regulatory Commission

Table 4: Structure of Electricity Generation, MWh

Power plants	EP BiH	EP HZHB	ERS	Independent generators	Total
Hydro power plants > 5 MW	1,682.566	1,939,820	2,596.860	-	6,219.246
Hydro power plants < 5 MW	10.351	-	29.012	63.237	102.600
Thermal power plants	5,233.604	-	2,993.025	-	8,226.629
Industrial power plants	-	-	-	13.040	13.040
Gas power plants	-	-	-	-	0.000
Total	**6,926.521**	**1,939,820**	**5,618.897**	**76.277**	**14,561.515**

Source: State Electricity Regulatory Commission

Thermal generators need repairing and investment, and with refitting are expected to expand their output and need for fuel production. For example, the CEZ Group decided to pursue common interests to mutual benefit with TPP Gacko. Most recently the TPP Tuzla signed a strategic partnership agreement with the Swiss company Alpiq for the construction of a 450 MW facility, which is to involve more than €100 million investment in its first phase originally scheduled to start in early 2011.

BiH is an electricity exporter – according to data from the State Electricity Regulatory Commission (SERC) it exported 3,921 GWh in 2009 and 4,898 GWh in 2010, and it is most probable that the same situation will continue as far as the investment plans on HPPs and coal based units will be implemented in the forthcoming years.

Heat Supply

District heating systems were and are still in place in major cities. Before the war most of urban population was connected to district heating systems as source of heating. Today most of these systems are in bad conditions, they are poorly maintained and obsolete, and require considerable modernisation. Most

existing district heating schemes face multiple technical, market, and commercial challenges in the form of old and inefficient plant, competition from cheap fuels and weak billing and payment discipline that impact on revenue and profitability. The legacy district heating systems are severely constrained and in most cases are fighting for their existence.

All district heating systems in the territory of BiH are used only for space heating, in rare cases as industrial processing heat, and not for warm water heating. Opening of this segment in the future would significantly influence the expansion of district heating market.

Sarajevo district heating system is in a specific situation. The relevant company is the only one in the FBiH that uses gas (also in Zvornik in the RS) as a fuel. Also, in the FBiH only Sarajevo district heating has its own local boiler units and separate heating network. This system also received the largest modernisation investments. Experimental consumption metering is introduced locally as a basis for future consumption-based billing. The other district heating systems also consider this billing scheme. The price of natural gas is high and Sarajevo district heating system approximates real market costs and prices.

On the contrary, in Konjic the district heating system, which has its own heating installation of relatively large capacity, "inherited" from a pre-war industrial installation, due to the poor bill collection situation cannot launch infrastructure renovation, modernisation and expansion of the heating network.

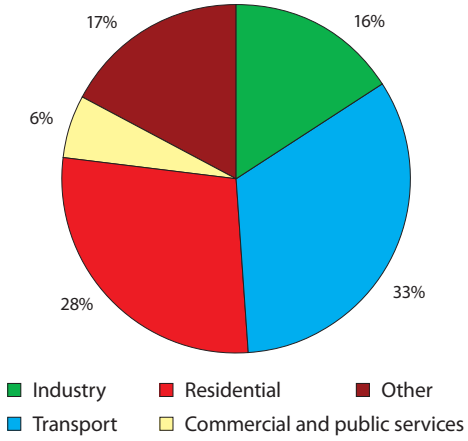
An Alliance to Save Energy (ASE) project addressed district heating reform. District heating operators in BiH are faced with low bill collection rates. The low levels of payment do not adequately provide for the maintenance and upgrade of the system. A recently adopted Law on Consumer Protection states that the supplied energy is to be paid in accordance with consumption itself rather than by square meter as is now the case. This prelude to individual heat metering is a major priority in terms of better quality of service and better management of district heating system.

Energy Consumption Trends by Sector

Figure 11 gives a snapshot of TFC by sector in 2009. The Transport sector now accounts for the bulk i.e., 33% of final energy consumption. All of this demand is satisfied by imported oil. Residential sector is second with 28 %, followed by industry – 16% and other sectors 17%. The Commercial and Public Sector which is slated to grow rapidly into the future accounts for only 6% of total final energy consumption.

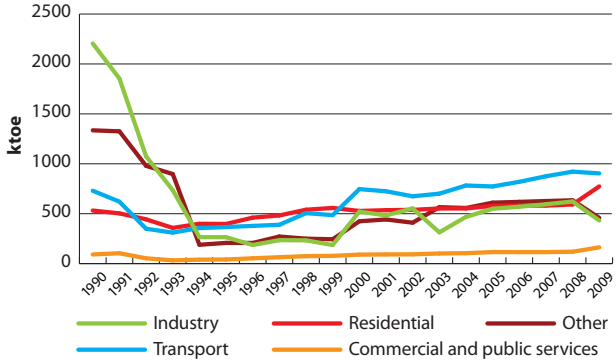
Figure 12 shows the evolution of the share of final demand of the Industry, Transport, Residential and Tertiary (Commercial and Public) sectors and the non classified 'Other' since 1990.

Figure 11: Total Final Consumption, by Sector



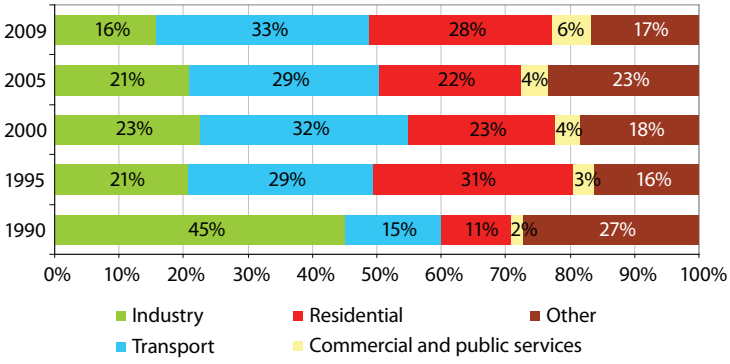
Source: IEA statistics, electronic version, 2010

Figure 12: Development of Total Final Consumption, by Sector (ktoe)



Source: IEA statistics, electronic version, 2010

Figure 13: Development of Total Final Consumption, by Sector (%)



Source: IEA statistics, electronic version, 2011

Industry

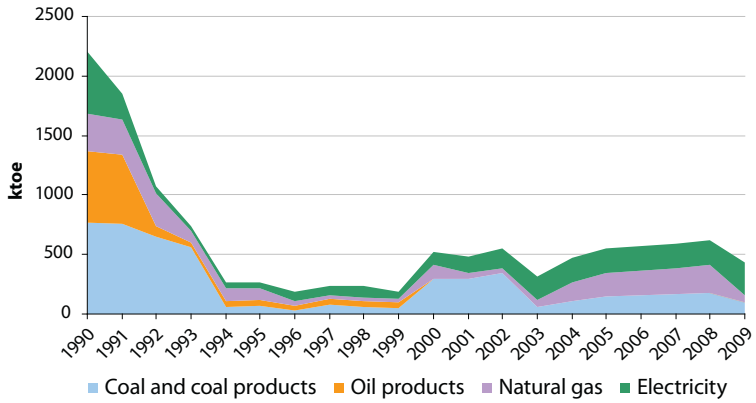
The total industry consumption in 2008 is 625 ktoe, which is 21% of total final consumption in the country and is almost 3.5 times less the consumption in 1990 (Table 5).

Table 5: Energy Consumption in the Industry Sector, ktoe

	1990	1995	2000	2005	2008
Industry	2,290	265	521	549	432
Share in TFC	35%	21%	22%	21%	16%

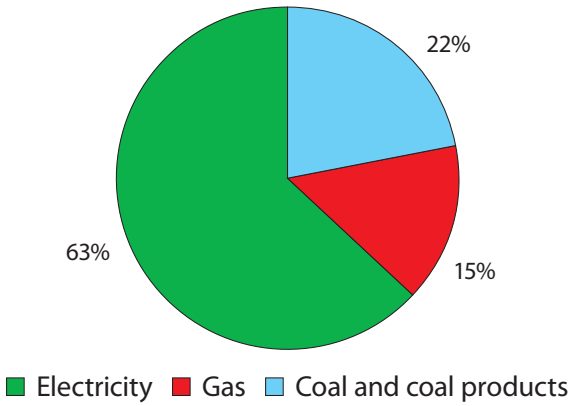
Source: IEA statistics, electronic version, 2011

Figure 14: Development of Final Energy Consumption in the Industry Sector, by Fuel



Source: IEA statistics, electronic version, 2011

Figure 15: Final Energy Consumption in the Industry Sector in 2009, by Fuel

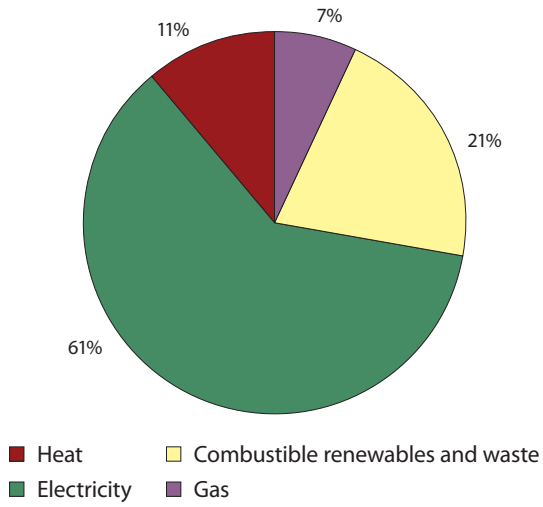


Source: IEA statistics, electronic version, 2011

Residential and Services Sectors

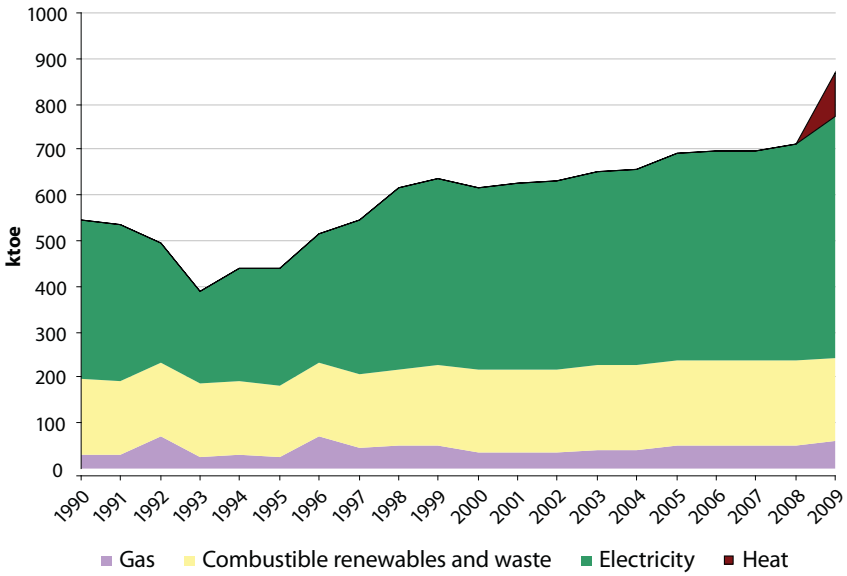
Residential and service sectors together consume 34% of the total final consumption and uses mainly electricity, heat, wood and gas.

Figure 16: Final Energy Consumption in the Residential and Services Sectors in 2009, by Fuel



Source: IEA statistics, electronic version, 2011

Figure 17: Development of Energy Consumption in the Residential and Services Sectors, by Fuel



Source: IEA statistics, electronic version, 2011

ENERGY POLICY

Strategy

In addition to the State and Entity laws there are international treaties and agreements that shape energy policy and its implementation in BiH. Among the international treaties are; the EnC for South East Europe which came into force on the 1st of July 2006; the Energy Charter Treaty with its Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA), and to take one additional example; the Kyoto Protocol.

The basic goals of the EnC are consistent with EU energy market reform and envisage the creation of a stable and single regulatory framework and market space in Southern and Eastern Europe (SEE). This is to enable a reliable supply of energy and also to attract investments into the energy sector, especially the electricity and natural gas sub-sectors. The societal objective is to improve the availability and security of energy supply to citizens in the countries of SEE and achieve a corresponding improvement in the quality of life.

All thermal generation of electricity in BiH is fueled by either brown coal or lignite. Brown coal and lignite reserves of various quality and quantity are available in four basins where power stations have been built in Gacko, Ugljevik, Tuzla and Kakanj. Thus coalmines and power plants have a mutually dependent relationship. Much of the thermal generation power fleet is in need of repair and investment.

Environmental protection, energy efficiency and conservation are seen as integral to the process, one which should also provide for the development of renewable energy resources. Competition, phasing out of subsidies in liberalised energy markets, diversified lines and sources of supply are the recognised key enablers.

The contracting parties of the Western Balkans are formally committed to establishing common regional electricity and gas markets which will facilitate trade among themselves. In the case of BiH, this is to be achieved by the staged adoption of the acquis communitaire (legal heritage) of the EU, pertaining to energy, environment protection and competition. Progress is to be assessed on implementation of relevant EU directives and regulations for energy and environment protection.

Bosnia and Herzegovina is currently the biggest and only exporter of electricity among the countries of former Yugoslavia. It has the potential to remain in this position and is disposed to develop further capacities, especially renewable sources.

In 2004, the Council of Ministers of BiH adopted the following medium-term objectives:

- Attract domestic and foreign investments
- Ensure reliable energy supply, according to defined standards and the lowest price possible

- Integrate with international markets by developing consolidated markets for electricity and gas, and by introducing competition and transparency
- Protect the interests of consumers
- Enhance rational and efficient use of energy resources
- Ensure environmental protection, according to domestic and international standards
- Increase the use of renewable energy
- Fulfil the commitments of the Energy Charter Treaty, as well as other international agreements and conventions.

The Coordination Board for Economic Development and European Integration in 2007 made a decision that, after the Medium-Term Development Strategy 2004-2007, the preparation of the Strategy of Development and the Strategy of Social Inclusion should follow.

Coordinator of preparation of Strategy of Development of BiH was the Directorate for Economic Planning BiH. Coordination of these activities was going on in partnership with the governments of the Federation BiH, Republika Srpska and Brčko District, as well as a number of NGO sector and civil society participants.

Within the Strategy of Development of BiH the fourth strategic goal is: Sustainable development, and in the Section 4.2. Environment and renewable sources of energy the following priorities regarding renewable energy and energy efficiency development are given:

1. Priority 1: Use of renewable and non-renewable natural resources, creating conditions for sustainable development
2. Priority 4: Stimulate development of the energy sector
3. Priority 5: Stimulate development of all renewable sources of energy

For each of above mentioned priorities list of measures are also given, together with Action plan for their implementation. These objectives have yet to be formulated into specific and coherent actions and programmes at the national and Entity level.

At the Entity level:

- the government of FBiH adopted (2005) the Plan for Power Capacities Development on new electricity generation plants;
- Federation of BiH adopted the Strategic Plan and Programme for the Development of Energy Sector in Federation of BiH
- In the Republika Srpska Energy Strategy is already prepared, and now it needs to pass by National Assembly of Republika Srpska

In the November 2008 Chairman of the Council of Ministers and the two entity premiers signed the Agreement on principles of energy policy. The Agreement defines the principles of energy policy in the areas of transport and distribution of petroleum and petroleum products, transport and distribution of natural gas, production, transmission and distribution of electricity and clean coal energy and bio-diesel. In accordance to this Agreement it is agreed that after Entity Energy strategies have been finished, development of State energy strategy will start. State Energy strategy will be the tool for development, monitoring, evaluation, of a common energy policy in Bosnia and Herzegovina.

In the Republika Srpska Energy Strategy is already prepared, and now it needs to pass by National Assembly of Republika Srpska. In Federation of BiH there is no Energy Strategy document, but there is the Strategic Plan and Programme for the Development of Energy Sector in Federation BIH which passed by FBIH Parliament as final document. This document, together with the Energy Strategy of the RS, will be basis for the design of State Energy Strategy.

One of the most recent documents, the Energy Sector Study in Bosnia and Herzegovina led by the Energy Institute Hrvoje Pozar from Croatia, contains a review and synthesis of previous energy studies and reports on new investigations. The published Study reports on all findings and provides recommendations for reforming and strengthening the energy sector with a view to assisting Bosnia and Herzegovina in establishing a national energy strategy with the ultimate aim of effective integration of Bosnia and Herzegovina into the European Union.

The Study provides background and analyses relevant to the preparation of a strategy that would promote energy efficiency and sustainable energy use, and to maximise supply from renewable energy sources. It ranked policy objectives as follows; (i) Increase utilisation of indigenous primary energy sources; (ii) Diversify fuel sources; (iii) Reduce total final consumption/GDP; (iv) Reduce dependency on energy imports and (v) Reduction of CO_2.

Legislative Framework

In terms of governing law, there are a number of laws that are fundamental to the development of the electricity sector in Bosnia and Herzegovina. At State level the following have been adopted:

- Law on Transmission of Electric Power, Regulator and System Operator of Bosnia and Herzegovina (Official Gazette Bosnia and Herzegovina 7/02)
- Law Establishing an Independent System Operator for the Transmission System of Bosnia and Herzegovina (Official Gazette Bosnia and Herzegovina 35/04)
- Law Establishing the Company for the Transmission of Electric Power in Bosnia and Herzegovina (Official Gazette Bosnia and Herzegovina 35/04)

- Grid Code (Official Gazette Bosnia and Herzegovina 48/06)
- Market Rules (Official Gazette Bosnia and Herzegovina 48/06).

At the Entity level, the following laws have been adopted:

- Federation of Bosnia and Herzegovina Law on Electricity (Official Gazette Bosnia and Herzegovina 38/05)
- Republika Srpska Law on Electricity (Official Gazette RS 92/09)
- Bases of Energy Policy of Republika Srpska (Official Gazette RS No. 117/08)
- Republika Srpska Law on Energy(Official Gazette RS No. 49/09).

Action Plans for Restructuring the Power Sector were adopted by the respective Entity parliaments in 2002 (RS) and 2004 (FBiH). The Action plan for Restructuring the Power Sector of RS has been in force since 2003 (Official Gazette 69/03) and Action Plan for Restructuring the Power Sector of FBiH was updated and revised and it has been in force since June 2005.

Energy Sector Reform

The process of electricity sector reform in Bosnia and Herzegovina began with the signing of the Statements of the Entity governments on electricity policy (in 2000), and continued with the adoption of the Act on Transmission of Electric Power, Regulator and System Operator of Bosnia and Herzegovina and the Entity laws on electricity (in 2002).

With the adoption in 2004 of the Law Establishing the Company for Transmission of Electric Power in Bosnia and Herzegovina, and the Law Establishing an Independent System Operator for the Transmission System, Bosnia and Herzegovina commenced the reform of the electricity sector in practice. The laws formalise the approach to power sector restructuring and the principles of reform and identify the authorities responsible for their implementation:

- Ministry of Foreign Trade and Economic Relations of BiH
- Entity Ministries in charge of energy
- State Electricity Regulatory Commission
- Entity Regulatory Commissions and
- All of the power entities.

Wholesale Market

The power sector of Bosnia and Herzegovina is characterised by functioning of the "Independent System Operator", Sarajevo (ISO BiH) and the Company for Transmission of Electric Power– "Elektroprenos Bosne i Hercegovine" a.d., Banja

Luka (Elektroprenos BiH). These companies were established in July, 2005 and February, 2006 respectively.

Three power utilities

- JP Elektroprivreda Bosne i Hercegovine – d.d., Sarajevo (EPBiH),
- MH "Elektroprivreda Republike Srpske" a.d., Trebinje (ERS), and
- JP "Elektroprivreda Hrvatske zajednice Herceg Bosne" d.d., Mostar (EP HZHB),

are the most relevant entities in the power sector of Bosnia and Herzegovina. All three power utilities perform the activities of generation, distribution, trade and supply in their respective license areas.

Generators, traders and suppliers are present as players in the wholesale electricity market of Bosnia and Herzegovina providing that they are granted the relevant licenses for performance of their activities which are issued by the Regulatory Commissions in BiH in line with their jurisdictions.

As there is no trade in an organised, that is, institutionalised market (exchange) in Bosnia and Herzegovina, trade in electricity is performed on the basis of bilateral contract, thus, it can be said that a bilateral wholesale market exists.

Figure 18: Map of the Power System of BiH

Source: State Electricity Regulatory Commission

Retail Market

In the area of RS, five companies operate within the structure of MH "Elektroprivreda Republike Srpske" Trebinje, with licenses for supply of tariff customers, and at the same time they are distribution system operators in this area. In the Federation of BiH, Elektroprivreda BiH Sarajevo and Elektroprivreda HZHB Mostar are granted licenses for supply of tariff customers. These two entities also have licenses for performance of the activity of electricity distribution. The activities of distribution and supply in Brčko District of Bosnia and Herzegovina are performed by JP "Komunalno Brčko" d.o.o., Brčko.

Suppliers of eligible customers are holders of licenses for performance of the activities of trade and supply of electricity in the territory of Bosnia and Herzegovina issued by Regulatory Commission for Energy of the RS (RERS) as well second-tier licenses issued by Regulatory Commission for Electricity in FBiH (FERC). These licenses imply electricity sale, including resale.

The State Electricity Regulatory Commission Decision on the scope, conditions and time schedule of electricity market opening and FERC and RERS Rules on obtaining eligible customer status of 2006 prescribe conditions, criteria and procedures for obtaining of eligible customer status, and define the rights and obligations of eligible customers and suppliers of eligible customer. These Rules enabled the opening of the retail electricity market, which by then, as far as customers were concerned, was based on sale of electricity to exclusively non- eligible (tariff) customers at regulated prices determined by the Regulatory Commissions in line with the adopted methodologies.

According to the Rules on obtaining eligible customer status and the prescribed time schedule of the market opening, as of January 1, 2008 all customers, excluding household customers, have obtained that status. In an interim period of the market opening, the eligible customer has the right to choose the mode of supply and the right to be supplied as a tariff customer again if he previously used the right to choose and was supplied as an eligible customer. The interim period shall last until January 1, 2012.

In 2009, only one customer used the possibility to purchase electricity in the market, for a part of its needs. That customer was "Aluminij" d.d. Mostar that purchased 876 GWh in the market, while it purchased the rest of 616.5 GWh as a tariff customer. Hence, all eligible customers are still supplied as tariff customers in accordance with provisions of the Rules which provided that possibility during the interim period.

USAID's Regulatory and Energy Assistance Project (REAP) is working to integrate the BiH energy sector into regional and European Union (EU) markets; creating a legal and regulatory framework for the gas sector; developing an open electricity market; restructuring and commercialising state energy companies; and providing information to the public about their stake in the energy sector.

To date it claims to have:

- Assisted with developing an Internal Action Plan that details BiH's obligations to meet the requirements of the Energy Community Treaty.
- Organised the first-ever conference on electricity markets. The conference provided the foundation for further energy sector reforms, giving decision makers an understanding of the direction in which BiH must go to fulfil the treaty's requirements.
- Facilitated a better understanding of energy issues through its technical assistance on the development of the Federation Draft Electricity Law and work with parliamentarians, media and NGOs that has contributed to the preservation of the regulator's independence.

REAP's current activities include: i) restructuring the gas sector, including drafting gas legislation that is harmonised with EU directives; ii) monitoring and assisting with the restructuring of the public energy companies in BiH's Federation entity; iii) assisting with the implementation of the Internal Action Plans to meet treaty obligations; iv) providing public relations and media related assistance to counterparts to raise public awareness, and v) providing technical information on the sector to parliamentarians, media and NGO representatives.

Components of the REAP project, which will last from 2007 to 2011, are as follows: i) continuous support to the Independent System Operator in BIH, including further development of the Grid Code and the Market Rules with further integration of BIH market into the regional and internal EU markets pursuant to the obligations form the Treaty Establishing the Energy Community, ii) Monitoring of and assistance with the implementation of action plans, and iii) Further assistance with the unification of regulations, including the completion of all activities pertaining to the development of a new gas law and necessary modifications of the state and entity electricity laws. REAP's current activities include: i) restructuring the gas sector, including drafting gas legislation that is harmonised with EU directives; ii) monitoring and assisting with the restructuring of the public energy companies in BiH's Federation entity; iii) assisting with the implementation of the Internal Action Plans to meet treaty obligations; iv) providing public relations and media related assistance to counterparts to raise public awareness, and v) providing technical information on the sector to parliamentarians, media and NGO representatives.

Energy Pricing Policy

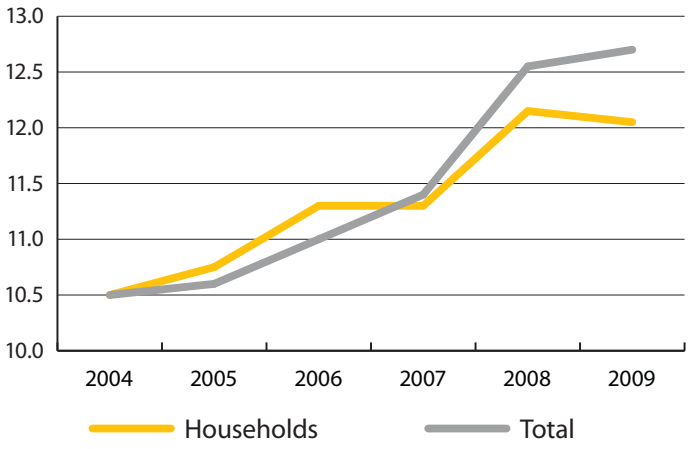
Energy prices were traditionally set by the Governments of the Entities and kept artificially low, especially for households for social reasons. This approach is now undergoing change. In the FBiH some prices are set at canton level.

Electricity

Electricity regulators are established at the State and Entity levels. The state regulator is responsible for the electricity wholesale supply market, while the entity regulators are responsible for generation, distribution and supply at the retail levels.

Figure 19 illustrates the trend of average realised electricity prices for end consumers in BiH.

Figure 19: Average Realised Prices in BiH, Pfening/kWh



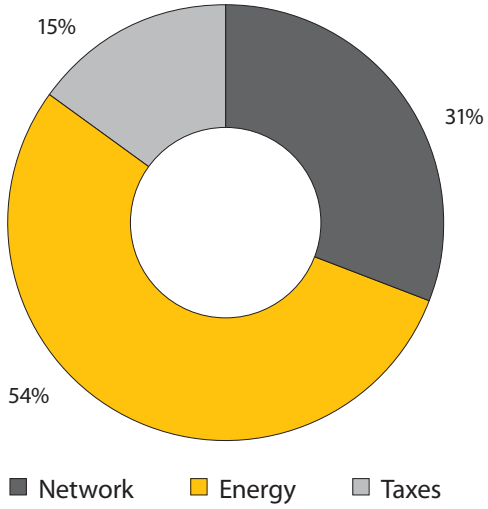
Source: State Electricity Regulatory Commission

Electricity prices are set by the Entity Regulators FERC (FBiH) and RERS (RS). The prices vary for each EP or utility's service area. Tariffs are dependent on time of day, as well as on seasons. In 2009, an average realised electricity price for end customers amounted to 12.65 pfennig/kWh or 6.47 €c/kWh (1BAM=100pfennig). An average realised price for households amounted to 12.04 pfennig/kWh or 6.16 €c/kWh. In the period 2004-2009 the average realised electricity price was increasing by the rate of 3.8%, while the rate for households was lower amounting to 2.7%.

Pursuant to a new methodology for electricity price monitoring, Figures 20 and 21 illustrate shares of individual components in the electricity price for an average industrial customer connected to the voltage level of 10 kV and an average customer in the category of households respectively.

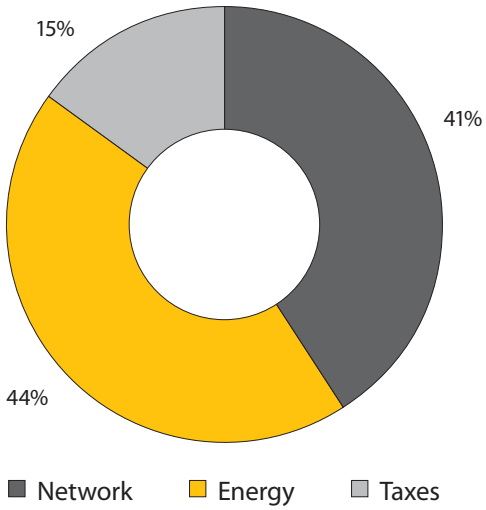
Approved methodologies of tariff determination are in place. The tariff setting methodology aims to progressively reduce cross subsidy, while having regard to the needs of the most vulnerable consumers. In the context of a discussion on energy poverty, it has been observed by the IEA that electricity prices in Bosnia and Herzegovina are uniformly low, facilitating access to energy services but distorting the operation of the energy market.

Figure 20: Share of Individual Components in the Price for Industrial Customers at 10 kV



Source: State Electricity Regulatory Commission

Figure 21: Share of Individual Components in the Price for Households

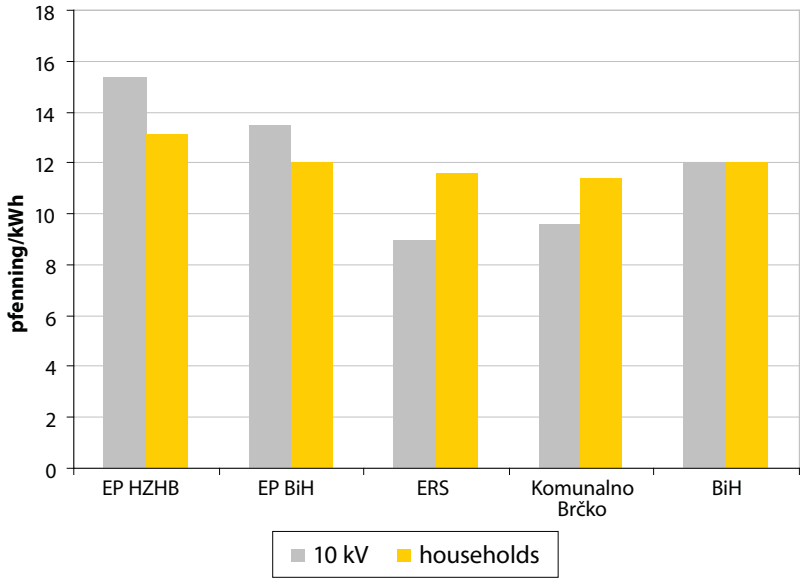


Source: State Electricity Regulatory Commission

Figure 22 provides average prices (without VAT) for industrial customers (10 kV) and households in 2009.

The supplier EP HZHB has the highest electricity prices both for industrial customers and households. The lowest prices for industry have customers supplied by the distribution companies which are part of ERS, while regarding households, the lowest prices have household customers in Brčko District BiH.

Figure 22: Average Electricity Prices



Source: State Electricity Regulatory Commission

Gas

The jurisdiction of the Regulatory Commission in Republika Srpska extends over the whole gas sector. In the Entity of FBiH, the ministry is responsible for gas. The intention is to harmonise the gas sector regulatory framework to comply with the Energy Community Treaty.

All natural gas is imported and prices are dictated by the contract with the supplier (from the Russian Federation), by transport (through Ukraine, Hungary and Serbia) and distribution expenses. The main consumer of natural gas is the Canton of Sarajevo. Natural gas is slightly cheaper for households than for large consumers.

Coal

The Entity Government determines the price of coal for electric energy generation in the Federation of Bosnia and Herzegovina.

According to a FBiH government decision of 2006, the price of coal used for thermal power production needs was 4.5 KM/GJ (about 2.25 EUR/GJ). This price can be reduced if coal is used for exported electricity and it is the subject of contract between the EP BiH and the mines.

The mines in the RS are parts of a single company, together with the thermal power plants, and the price of coal is included in the price of electricity, at the cost determined by the energy balance for each year. The price of coal used for other purposes is liberalised, and depends on the type of coal and its heating value.

Oil

Oil and oil products are imported. The markets for oil products are fully liberalised and prices reflect the costs of imported oil and oil products. The additional elements in final prices to the cost of import are custom duties, commercial margin, and taxes.

The Council of Ministers of BiH, in September 2002, adopted the Decision on the Quality of Liquid Oil Fuels governing the importation of fuels to meet EU quality standards. This Decision defines the quality parameters which liquid fuels used in internal combustion engines and liquid fuels used for heat generation must fulfill across the entire territory of the State of BiH.

Energy Poverty

Energy and poverty in the Western Balkans are interrelated in complex ways. Studies, including that of the UNDP (2004), estimate that over 16% of people in the Western Balkans experience energy poverty i.e., they cannot afford sufficient energy services to ensure a healthy lifestyle for themselves and their families.

In BiH the cumulative effect of high energy prices and low end use efficiency (due to inadequate building insulation and low-efficiency appliances, particularly stoves and boilers) puts heavy pressure on the household budget of the least well-off segments of the population, often leaving insufficient funds for adequate food, clothing and education.

Subsidisation programmes for most vulnerable electricity consumers are established in:

- Republika Srpska
- from 2011 in Federation of BiH
- and Brčko District BIH.

Although issues of protection of vulnerable customers, related to electricity expenses and electricity affordability for vulnerable customers are not directly related to regulatory jurisdiction, RERS has actively participated in the definition and development of Programme for protection of vulnerable electricity customers in RS, where subsidies are defined for a specified purpose and earmarked for electricity.

Tables 6 and 7 show the total number of subsidy users and realised amount of subsidies in 2009 per quarters and by power distribution areas.

Compared to 2008 when, 28,000 and 35,000 users applied on a quarterly basis, in 2009 the number of users was between 35,000 and 38,000, consequently, the amount of subsidies was significantly higher: 7,701,730.56 BAM in 2009 against 5,560,495 BAM spent in 2008 for subsidies.

Table 6: Number of Users and Amount of Subsidies per Quarters in 2009

Period	Number of users	Unit subsidy amount (in BAM)	Total amount of subsidy (in BAM)
I quarter of 2009	35,183	59.28	2,085,648.24
II quarter of 2009	36,648	45.60	1,671,148.80
III quarter of 2009	37,451	45.60	1,707,765.60
IV quarter of 2009	37,739	59.28	2,237,167.92
TOTAL			7,701,730.56

Source: State energy regulatory commission

Table 7: Number of Subsidy Users, by Power Distribution Areas

Power Distribution Area	Number of users to whom subsidy is remitted			
	I quarter		I quarter	
Elektrokrajina	13,819	14,404	14,691	14,689
Elektro Doboj	6,060	6,308	6,480	6,587
Elektro-Bijeljina	7,479	7,882	8,137	8,351
Elektrodistribucija Pale	4,595	4,749	4,786	4,730
Elektro-Hercegovina	3,230	3,305	3,357	3,382
TOTAL	35,183	36,648	37,451	37,739

Source: State energy regulatory commission

ENERGY EFFICIENCY POLICY

Overview of Energy Efficiency Policies and Legal Framework

The recent economic and political history of BiH has quite understandably resulted in an ordering of personal and political priorities around survival, reconstruction and rebuilding of the economy. Of necessity, reconstruction and repair of war damage has gone hand in hand with energy market restructuring and in that context the promotion of energy efficiency.

Already, in the light of the economic downturn since 2008, there is a sense of an opportunity lost to improve the energy efficiency of the additions to the building stock. Thus, in some quarters there is a heightened awareness of the importance of factoring-in energy efficiency at the early stages of investment appraisal and reconstruction.

As we have seen, the energy intensity of the economy of BiH is high when compared with that of the EU; when the comparison is with other countries in the Western Balkans region the State of BiH compares rather well. However, in absolute terms the consumption of energy per capita in BiH is not, for the time being, high.

Nevertheless, as growth in the economy resumes and as incomes rise there is the risk that, without the right mix of policies in place electricity consumption could increase at a rate that would stretch the available investment towards meeting private consumption at a time when the competitiveness needs of industry and the economy would benefit most from low energy prices.

Electricity prices in the Western Balkans and in BiH in particular are, compared with the EU, low and this poses problems for new investment in energy efficiency and renewable energy sources. On the other hand, incomes are also low and unemployment is high so that energy poverty is widespread. Energy is in effect rationed by affordability – an outcome that is not in the medium or long term interests of industry, consumers and utilities.

Thus, as is well-recognised by the BiH Authorities, reform of the energy sector has to be accompanied by an effective poverty reduction policy.

Policy Goals

According to the regular review and from what the team has seen, there is, as yet, no energy efficiency policy in place. However, the National Environmental Action Plan and the Mid-term Development Strategy emphasise that environmental protection and energy savings are important in the fight against poverty. As stated before sustainable development and use of renewable energy sources are among the priorities of the Strategy of Development of BiH.

The NEAP proposes the development of a programme of stabilisation and gradual decrease in the emission of greenhouse gases by improving energy efficiency through technology restructuring, better use of energy sources,

and increased use of renewable energy sources. Neither the State nor the Entities have taken concrete steps to develop such programmes and action the strategies implied in the NEAP.

A recent Energy Sector Study in BiH, among other things, puts an emphasis on the need to provide for the institutional and legislative framework at State and Entity levels. This was seen as one of the essential prerequisites for the implementation of energy efficiency measures and the use of renewable energy sources. The Study found, from other countries' experiences, that it is extremely difficult, if not impossible, to implement costly energy efficiency measures without government incentives.

The Study aimed to: present the current situation; arrive at some conclusions and make proposals for energy efficiency. It proceeded along the following lines:

- Considerations on integrating energy efficiency into BiH's electric power strategy
- Energy efficiency principles in the building sector (residential and non-residential), transport and industry sectors and recommendations for implementing EE measures
- Competitiveness analysis of energy services and energy use in households
- The benefits of EE measures for environment protection and CO_2 reduction.

It was intended that the "Energy Sector Strategy and Energy Efficiency Action Plan" would define the means to achieve the above. However, there is as yet no Energy Efficiency Master-plan, Programme or Strategy in BiH at any authority level (State, Entity). In addition, no detailed feasibility study aiming at developing such documents has been carried out in the last decade. The Study reported that an initial document for energy efficiency was being prepared in Sarajevo Canton.

It is acknowledged that there is a growing requirement for BiH to address energy efficiency issues in line with its adoption of the EnC Treaty and Energy Charter. The energy efficiency policy is expected to be an integral part of the energy strategy now being developed. The Authorities recognise that in ratifying PEEREA, BiH has committed to establish EE policies and legal and regulatory frameworks which promote, inter alia, the efficient functioning of market mechanisms, including market-oriented price formation.

The Energy Community Secretariat (EnC Secretariat) established the Task Force on Energy Efficiency in January 2008 to produce a detailed plan for tackling energy efficiency issues in the EnC countries. BiH is a member of this Task Force. The aim is to:

- Present a comprehensive state of play of the situation among Contracting Parties and Observers in terms of energy efficiency
- Identify the concrete areas where improvement is needed and/or feasible, with a proper prioritisation of these areas according to a cost/benefit analysis

- Identify the EU legislation on energy efficiency that could be extended to EnC members and would produce the largest impact
- Propose immediate concrete actions (together with a timetable and a budget estimation) allowing the improvement of the energy efficiency in the region
- Propose concrete measures/indicators to monitor progress in terms of energy efficiency.

According to the Regular Review, the main drivers of energy efficiency in BiH are expected to be its obligation vis-à-vis its European commitments, opportunities for electricity export, its own competitiveness and the increasing price of energy in the region and the relatively high proportion of household income expended on energy.

There is anecdotal evidence of the low efficiency and safety of passenger cars in BiH. Press reports have picked up on the findings of the Institute of Economic Engineering in Zenica, to the effect that the average age of passenger cars in BiH in 2009 was over 16 years. As for the cars in the Federation, in 2010 there was an extremely large percentage of vehicles older than 20 years (from the 1990s and earlier), up to 40%. Based on data which notes the number of services carried out in the Federation in 2010, 19,606 defective vehicles were noted, most of which had problems with brakes, axles, wheels etc.

Legal Framework

There are no energy efficiency laws in place at the state or entity level in BiH. However, energy efficiency is indirectly covered in other legislation. Regulators, for example, have the responsibility of considering both environmental and energy efficiency issues in tariff setting as well as in investment approval regulations and decisions.

There are no energy efficiency targets in place at State level. The assumption at this stage is that Bosnia and Herzegovina will aim to comply with EU efficiency targets and applicable EC Directives. The establishment of credible energy efficiency targets is difficult by reason of the scale of structural change in the economy, the relatively depressed state of industry, and the reliability of baseline statistics.

Energy efficiency and environmental policy are closely linked. The coal mining and power generation sectors are closely coupled and together have significant environmental impact.

Coal mining impacts include: soil destruction as a result of opencast mining, land filling of overburden and disposal of washing residue from the mines. Opencast mines alone are estimated to cover approximately 12,800 ha and waste from mining operations is estimated to occupy some 6,000ha. Furthermore, effluent from the washing of coal and other mining operations as well as leaks from dumps are

polluting water bodies and threatening groundwater, because effluent treatment plants are virtually non-existent.

The energy sector in BiH is responsible for between 66% and 72% of CO_2 emissions to the atmosphere and much of this is from coal fired electricity generators. Before the war, heavy industry, such as the chemical or steel industry, was a major air polluter. Many of these factories are now closed, leaving thermal power generation as the biggest emitter.

At the same time, the coal and power industries are significant sources of employment while the overall unemployment level is estimated to be above 40%. Harmonisation of the relevant energy legislation at State and Entity levels with the requirements of EU energy directives, and in that context with efficiency and renewable energy resources, is a complex task requiring a coordinated and interdisciplinary approach across willing institutions. The evidence of commitment the BiH and Entity Authorities to leadership and effective implementation of energy efficiency policy and measures is presented in the following section.

Energy Efficiency Implementation

The Authorities, in line with national and international analyses of the energy efficiency potential of BiH, believe that because of the low efficiency of the residential sector and its high share of total energy use, it has the potential to return the greatest savings.

However, cost effectively converting that potential into actual energy savings does depend on the availability and cost of finance in addition to market capacity to deliver cost effective solutions – all of which are affected by the prevailing low energy prices for indigenous energy in BiH.

Industrial policy, to facilitate industrial development through the modernisation of exporting industry with growth potential, has focused on a narrow range of sectors, including commodities and food processing. According to EBRD, it will increase its investment in the private sector in 2010, particularly in industries where BiH has a competitive advantage, such as wood and forestry management, property and tourism, agribusiness and manufacturing.

The higher energy intensity of these sectors, as compared with the wider buildings and residential sector should hold out the prospect of a higher rate of return on scarce investment capital. Recognising that some sectors are expanding and actively investing to enhance their competiveness by informed equipment selection and good energy management practice, it would be surprising were they not to receive priority in policy.

MoFTER is actively seeking donor support for a targeted initiative with the capacity to address several dimensions of policy and contribute to energy and

environmental policy goals while enhancing the competiveness of internationally trading industry.

A study of energy use in Sarajevo concluded that the scope for energy saving in industry was large; mainly due to the advanced age and in some cases inefficient design and operation of energy plant and equipment much of which was in state owned enterprise. The same study estimated energy use in industry at 11% of total demand.

Space heating, particularly in the household sector, and control of energy consumption associated with district heating are areas where major improvements are expected. This is the focus of several projects lead by municipalities and in several cases with the direct involvement of the district heating company.

The BiH authorities also believe that, as Bosnia and Herzegovina attempts to develop its export potential, reducing domestic demand in the power sector can be a key driver; efficient lighting and product labeling are seen to be important areas in this regard.

Local Actions

Stimulated by the results of studies and informed by several energy audit programmes, EU awareness raising activities such as the Covenant of Mayors and donor priorities, a number of local authorities have taken action to raise the profile of energy efficiency and renewable energy.

The local authorities' interest centers in the first instance on benefits to citizens as consumers, but as importantly on the potential for employment creation and local industry development. The main lines of action have been: energy performance of public buildings, sustainability plans and demonstration actions such as retrofitting of insulation to building facades, upgrades to district heating and the regulation of new building energy performance.

Barriers such as lack of awareness and capacity deficits in the market are being systematically addressed in a series of donor supported actions such as; i) energy awareness and training events, ii) technology and solution demonstrations and iii) in the case of biomass energy, supply chain development projects focused on meeting the heating needs of public buildings such as schools.

Plans for the refurbishment of a district heating system in Banja Luka are understood to be proceeding and to be yielding worthwhile results for the local authority owned district heating company and its customers. An ambitious four strand project (DELTER) flowing from an EU Instrument for Pre-Accession Assistance (IPA) supported structured appraisal and gap analysis, designed to build effective capacity is about to commence. It proposes to:

- Demonstration solutions in a small number of municipalities
- Engage in capacity building and meeting training requirement

- Communicate effectively on the basis of current awareness and needs
- Identify and help close the EE and RE legislation gap.

The review team was apprised of several examples of IFI and donor coordination on agreed priorities and points of intervention all of which auger well for the future application of donor and other resources.

Institutional Set-Up

Government Institutions

The key institutions involved in policymaking, managing and operating the energy sector are:

At the State level, the key ministries are:

Ministry of Foreign Trade and Economic Relations; in accordance with the Law, MoFTER's responsibility is "for activities and tasks within the jurisdictions of Bosnia and Herzegovina and which are related to policy defining, basic principles, coordination of activities and harmonisation of entities' authoritative bodies and institutions on the international level in the field of agriculture, energy, environment protection, development and usage of natural resources and tourism."

At the Entity level, the key government ministries are:

Federal Ministry of Energy, Mining and Industry (FMEMI): The Federal Ministry of Energy, Mining and Industry implements the policy and enforces the laws as determined by the legislative body, executes the administrative supervision of implementation of the laws and other regulations, proposes and gives recommendations in the field of legislation, answers to questions of the legislative authorities, and performs tasks of administrative and professional nature

Ministry of Industry, Energy and Mining of RS (MEED): Five sections within the Ministry have energy related responsibilities: section for energy and energy related power utilities, section for energy and fuels, section for development of energy and mining, thermo energetic inspection, and electric power inspection.

At the State level, the key institutions established by statute are:

State Electricity Regulatory Commission responsible for regulating transmission, transmission-related activities, and international trade. Commissioners rotate on an equal basis the position of Chairman each year. As of August 1, 2004, SERC has operated at full capacity, with 17 staff members. The SERC is financed by regulatory fees paid by regulated companies. SERC has its office in Tuzla.

Transmission System Operator (TRANSCO) responsible for transmission, maintenance and construction was registered and started operating in February 2006. Independent System Operator (ISO) responsible for the management and control

of the transmission network, directing, scheduling and coordinating maintenance, planning and development of the grid, development of the indicative generation plan with TRANSCO.

At the Entity level, the key institutions responsible for regulating generation, distribution and supply are:

Federal Electricity Regulatory Commission – offices in Mostar

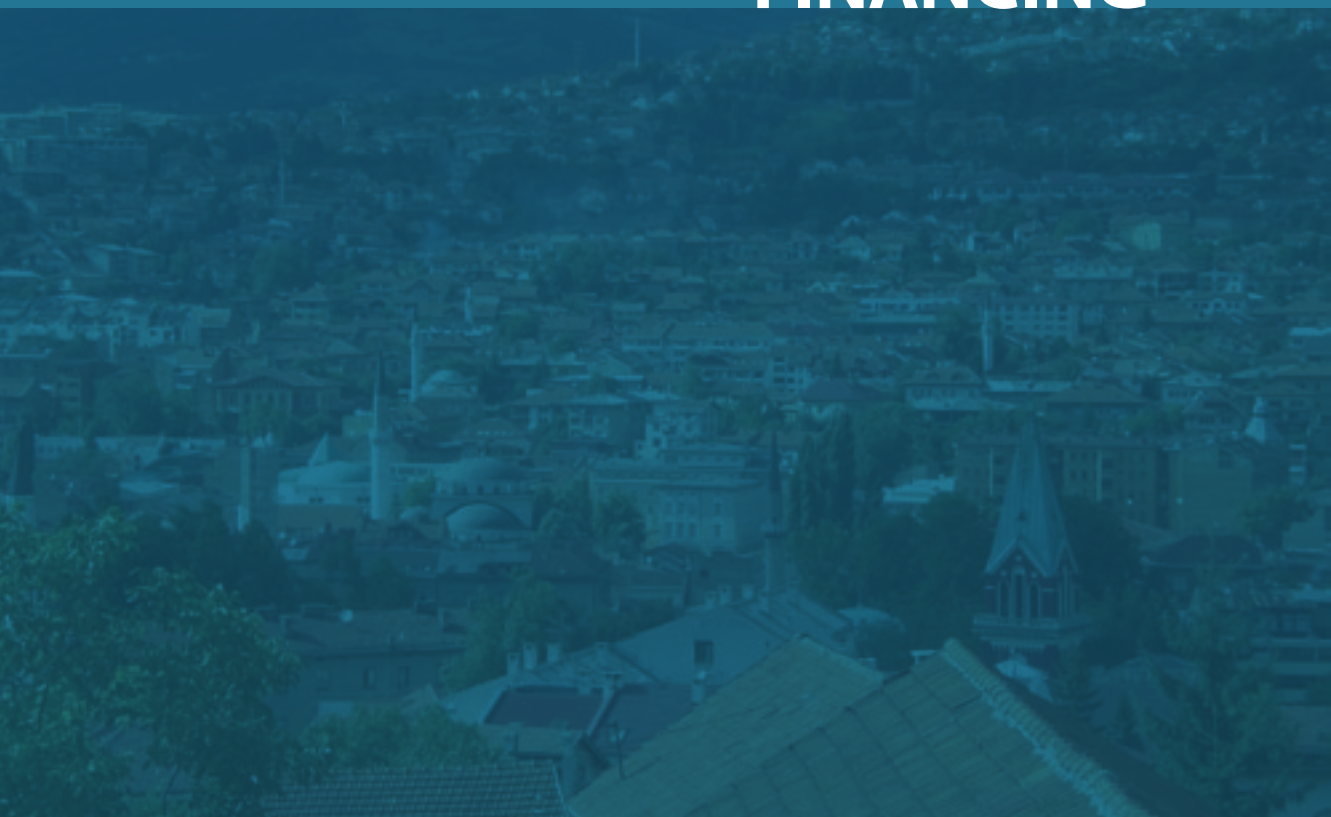
Regulatory Commission for Energy of RS – offices in Trebinje

A regulatory framework for sustainable energy exists only indirectly. Energy efficiency and sustainable energy are covered in other legislation. Regulators, for example, have the responsibility of considering both environmental and energy efficiency issues in their tariff making and investment approval regulations and decisions.

International Organisations

There is a wide range of international organisations active in BiH and co-ordination is reported to be increasing with a view to improved targeting and aid efficiency. The principal sources of funds and assistance in implementing reforms of the energy sector include global bodies, the EU and bi-lateral initiatives from many countries. Aid and other assistance is received from the EBRD, EU (CARDS, IPA), Federal German Agency GIZ (former GTZ), KfW Norway, Swedish SIDA, UNDP and USAID. Other valuable assistance comes by way of the panning, verification and peer review processes of treaties such as the Energy Charter and the EnC.

ENERGY EFFICIENCY FINANCING



The State and Entity budgets available for addressing energy efficiency issues are very limited and compete with other critical areas of the economy for scarce funds. The primary source of finance for energy efficiency investments is, for the time being, and aside from direct donor financed programmes, retained earnings and commercial loans. Interest rates on medium to long-term loans range from 6% to 12%. These have limited attractiveness for investors with significant risk exposure. This, when coupled with limited awareness and the difficult financial situation of many companies in industry and the services sector, can result in energy efficiency investments ranking unduly low in priority.

Government Actions

The Government of FBiH has established an instrument known as the "Fund for Environmental Protection". Its purpose is to finance and support projects aiming at reducing emissions and the impact on the environment.

While the fund is not fully operational it is considered that energy efficiency and renewable energy could be financed through this fund. It is intended to finance the instrument from fines on pollutants (vehicles, industry, energy plants, etc.). A similar situation, in terms of financing energy efficiency projects exists in the Republika Srpska.

EBRD

The EBRD sees significant potential for improvements in the energy efficiency of the industrial sector in BiH. In the private sector, the EBRD signed eight projects providing finance for banks and microfinance institutions, as well as the private corporate sector.

The EBRD provided a €10 million loan to finance energy efficiency and renewable energy projects by private companies in BiH. The credit to Raiffeisen Bank will be used for lending to companies investing in sustainable energy projects.

It is part of the EU/EBRD Western Balkans Sustainable Energy Credit Line Facility, which is a wider joint programme of the EBRD and the European Commission to provide up to €60 million in loans to banks involved in lending for energy efficiency and renewable energy projects in Serbia, Bosnia and Herzegovina, FYR Macedonia and Montenegro.

EU and IPA Support

The European Commission has directly supported the energy sector of BiH in the process of reform through the funding of several successful CARDS (Community Assistance for Reconstruction, Development and Stabilisation) projects.

Through the new instrument of assistance, the Instrument for Pre-Accession Assistance, the European Commission (over the period 2007-2010) aims to support

BiH to harmonise its legislation according to the EU acquis, particularly in regard to the Energy Performance of Buildings Directive as well as the Energy End-use Efficiency and Energy Services (including renewable energy) Directives.

The EU/EBRD facility is complemented by €13.5 million of EU grant funding from the Instrument for Pre-Accession Assistance (IPA), which will be used for technical assistance to support energy efficiency projects and to provide incentives to kick-start investments. Further technical cooperation will be funded by the EBRD "Western Balkans Multi-donor Fund" to the amount of €2.5 million.

The IPA 2007 funded a project aimed to address the current legal and policy gap for EE and RE in BiH by combining a top-down approach creating a legal and institutional framework at state and entity level and a bottom-up approach by capacity measures at the local level (within specific municipalities) thus providing models for replication in other municipalities and raising awareness nationwide about the potential for practical implementation of EE and RE measures. This work is believed to have contributed to the DELTER project referred to above.

In addition, the National IPA focuses on increasing public awareness of energy efficiency and the potential for energy savings and the reduction of carbon dioxide emissions.

UNECE

Bosnia and Herzegovina is one of the 12 countries participating in the UNECE Project Energy Efficiency Investments for Climate Change Mitigation. This project is to promote a self-sustainable investment environment for cost-effective energy efficiency projects and use of renewable energy sources. Through successful implementation of the project BiH will:

- Develop the skills of the private and public sectors to identify, develop and implement energy efficiency and renewable energy investment projects at local level;
- Provide assistance to municipal authorities and national administrations for economic, institutional and regulatory reforms needed to support these investment projects; and
- Stimulate opportunities for banks and commercial companies to invest in these projects through professionally managed investment funds.

Other Financing Sources

Additional and limited funds have been made available through the Unated Nations Development Programme (UNDP) and USAID. The UNDP Efficient Housing Programme (2004/2005) aims to introduce low cost methods of saving energy when building or reconstructing buildings, thus mitigating the emissions

of greenhouse gases while at the same time reducing the operational costs and increasing the comfort level of the buildings.

A representative project is focused on dissemination of know-how and hands-on experience by training local municipal officials, representatives from housing maintenance companies and homeowner associations in energy efficiency i.e., design, principles, management, and planning. One to three buildings will be selected and renovated according to an energy efficiency plan that is to be developed during the practical part of the training. A feasibility study will explore the potential for using individual small biomass boilers using local wood waste in rural households.

USAID Enterprise Energy Efficiency project (3E), in cooperation with UNDP BiH and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ – former GTZ), organised its "Energy Efficiency Kick-off Workshop" under the banner of "Banja Luka Energy Days" for representatives of the public and private sector. This was the third of three such workshops organised after similar successes in Sarajevo and Mostar.

The earlier USAID Municipal Energy Management project (MUNEE) which started in 2002 addressed the lack of a legal and political basis for efficient decision-making and for the delegation of responsibilities for energy and energy efficiency to different levels of government. Knowledge about energy management in the municipalities is scarce.

The ASE developed a Municipal Energy Efficiency Committee which brought together representatives from 25 municipalities to train municipal leaders and managers in the basics of energy and water management concepts. The programme includes; development of business plans and strategies for energy efficiency improvements in municipalities; help to develop and implement energy efficiency pilot projects in schools, hospitals, and water utility companies; help the Alliance understand where legislative changes or clarifications are needed to encourage municipal utilities to achieve full cost-recovery and provide incentives for municipal buildings to reduce energy costs; and promote energy efficiency on the municipal level.

The ASE implemented a pilot project in the residential sector in 2007-2008 to demonstrate the savings that can be achieved using low-cost weatherisation techniques in residential buildings with district heating. The project was co-financed by the host municipality and implemented by the District Heating Company of Sarajevo. The results show that individual metering and low-cost weatherisation are the easiest ways to achieve strong energy savings, reduce energy bills, improve quality of service and increase collection rates.

RENEWABLE ENERGY POLICY

Overview of Renewable Energy Policies and Legislation

The State Energy Policy, Laws and Regulations and Strategy issues are under the jurisdiction of the two Energy Departments within MoFTER. These two departments work very closely with the two Entity ministries and the industry to develop energy sector strategies.

At Entity level it is the Federal Ministry of Energy, Mining and Industry and the Ministry of Industry, Energy and Mining of RS who are responsible for policy in relation to the production and transmission of energy.

Bosnia and Herzegovina is party to a number of international treaties and other obligation which, like the EU obligatory protocol which has committed BiH to 20% renewable energy in energy consumption by 2020, will determine many of the goals and targets of renewable energy policy. Hydropower, biomass, wind and solar energy are expected to contribute significantly to delivering on the commitments of the above EU Directives, treaties and protocols.

The principal promotional measure is a tariff for electricity produced from renewable sources. The feed-in tariff for electricity from renewable sources with installed power up to 5 MW is 5.8 €c/kWh on the 10 kV voltage for the BIH utility, and a 6.6 €c/kWh on the 10 kV voltage for EPNZHB utility. Tariff adjustment coefficients have been established which vary by technology and are as follows:

- Small hydro power plants: 0.80
- Biogas, biomass, waste dump power plants: 0.77
- Wind and geothermal power plants: 1.00
- Solar power plants: 1.10.

The State Energy Policy, Laws and Regulations and Strategy issues are under the jurisdiction of the two Energy Departments within theMoFTER. These two Energy Departments of MoFTER works very closely with the two Entity ministries and the industry to develop energy sector strategies.

At Entity level it is the Federal Ministry of Energy, Mining and Industry and the Ministry of Industry, Energy and Mining of RS who are responsible for policy in relation to the production and transmission of energy.

Bosnia and Herzegovina is party to a number of international treaties and other obligation which, like the EU obligatory protocol which has committed BiH to 20% renewable energy in energy consumption by 2020, will determine many of the goals and targets of renewable energy policy. Hydropower, biomass, wind and solar energy are expected to contribute significantly to delivering on the commitments of the above EU Directives, treaties and protocols.

The principal promotional measure is a tariff for electricity produced from renewable sources. The feed-in tariff for electricity from renewable sources with installed

power up to 5 MW is 5.8 €c/kWh on the 10 kV voltage for the BIH utility, and a 6.6 €c/kWh on the 10 kV voltage for EHZHB utility. Tariff adjustment coefficients have been established which vary by technology.

In Table 8 the tariff coefficient adopted by the Government of the FBiH are shown (according to the Regulation on the use of renewable energy sources and cogeneration "Official Gazette of the Federation BiH ", No. 36/10 and Regulation Amending the Regulation on the use of renewable energy and cogeneration "Official Gazette of Federation BiH" No. 11/11).

In the RS Draft Rule on stimulating electricity generation from renewable sources and efficient co-generation is in its final stage and will define:

- system of incentives (terms and conditions and procedure to have
- incentives, validity period of incentives),
- operational implementation of the system of incentives,
- Methodology of calculation of the feed-in tariff,
- "fee" – as a method of collection of means for the premium payment.

According to the First National Communication, "technologies for application renewable energy resources including hydropower, wind energy, geothermal energy, solar energy and biomass have long been known in Bosnia and Herzegovina. RES were utilised to a certain extent, but without significant state planning and without being based on the newest technologies. There are several reasons for that, and only the basic ones are listed here:"

- the cost of energy systems using RES is considerably higher for those using fossil fuels
- there is no state/entity for RES, nor is there an energy strategy that would promote RES
- there is a low level of exploration of RES potentials in BiH
- there is an absence of quality statistical (primarily climatic) data that would be necessary to use RES
- there are various barriers to more serious investments in RES-based energy systems.

It is claimed that for all of the above reasons there is a very small number of energy systems based on renewables in BiH, other than large hydropower plants.

Recent activities in determination of wind energy potential in BiH have resulted in two main strategic documents, at the state and FBiH level, and the development of a Wind Atlas of BiH funded by Germany. In March 2010, the Government of the FBiH announced that the energy sector is a top priority for the country`s further development and economic policy.

Table 8: Tariff Adjustment Coefficients in FBiH

SOLAR POWER PLANTS	Tariff coefficient
Up to 10 kW	7.50
From 10 kW to 30 kW	6.60
From 30 kW to 150 kW	6.00
From 150 kW to 1 MW	4.20
From 1 MW to 10 MW	3.80
Above 10 MW	3.00
WIND POWER PLANTS	Tariff coefficient
Up to 150 kW	1.25
From 150 kW to 1 MW	1.25
From 1 MW to 10 MW	1.25
Above 10 MW	1.25
HYDRO POWER PLANTS	Tariff coefficient
Up to 150 kW	1.170
From 150 kW to 1 MW	1.014
From 1 MW to 10 MW	1.010
Above 10 MW	NO
SOLID BIOMASS FROM FORESTRY AND AGRICULTURE	Tariff coefficient
Up to 150 kW	1.47
From 150 kW to 1 MW	1.45
From 1 MW to 10 MW	1.43
Above 10 MW	1.41
SOLID BIOMASS FROM WOOD PROCESSING INDUSTRY	Tariff coefficient
Up to 150 kW	1.43
From 150 kW to 1 MW	1.41
From 1 MW to 10 MW	1.39
Above 10 MW	1.37
GEOTHERMAL POWER PLANTS	Tariff coefficient
Up to 150 kW	1.55
From 150 kW to 1 MW	1.52
From 1 MW to 10 MW	1.49
Above 10 MW	1.45
BIOGAS AND LIQUID FUEL POWER PLANTS	
Up to 150 kW	1.21
From 150 kW to 1 MW	1.19
From 1 MW to 10 MW	1.17
Above 10 MW	1.15
LAND FILL GAS POWER PLANTS	
Up to 150 kW	1.24
From 150 kW to 1 MW	1.23
From 1 MW to 10 MW	1.22
Above 10 MW	1.21

Source: MoFTER

Construction of the Federation's first wind farm is underway. According to another source, the political goal of using wind energy by 2015 can be placed anywhere in the interval 0 to 900 MW. Because of the global trend of significant increase in the use of wind energy, the goal for BiH is somewhat optimistic in order to give a (too) positive signal to potential investors. Assessment is that a realistic goal of using wind power in 2015 should be set between 400 and 600 MW.

Renewable Energy Sources Potential

Hydropower

Bosnia and Herzegovina's geography includes fast-flowing mountain streams and powerful rivers that are well suited to hydroelectricity production. Existing hydroelectric power stations have a generating capacity of around 6,500MW. Most of these are over 30 years old and modernisation of existing plants is planned.

It is estimated that Bosnia has a total annual hydropower potential of 23,400 GWh. Most of the potential is located within the Drina, Neretva and Trebisnjica river basins. The Drina River alone is estimated to have a potential of 6,000 GWh. The FNC estimates the economic hydropower potential of major water streams in BiH at about 18,000 GWh/year compared with current production of 6-7,000 GWh/year.

Bosnia and Herzegovina, is reported to have the potential to support 356 large and small hydroelectric power stations. According to the Law on Concessions in FBiH, Cantons are in charge of awarding concessions for the electricity plants up to 5MW. Concessions for larger (>5 MW) plants are handled by the Entity government. Since 2006, a total of 120 licenses have been issued for new mini hydroelectric power stations (i.e., capacities of 10 MW or less).

The Republika Srpska awards concessions for all electricity plants. It is estimated that the total technical hydropower potential of all the stream flows in BiH is approximately 6.13 GW, or 22TWh of electrical energy.

The construction of small hydropower plants in BiH is certainly economically competitive with current technologies, and with the fewest challenges and limitations of all RES. Given the tradition of construction and exploitation of HPPs (small and large ones) in BiH, the availability of this source, the level of training of power utility and construction companies personnel (with a tradition in constructing these facilities), it is important that this trend continues.

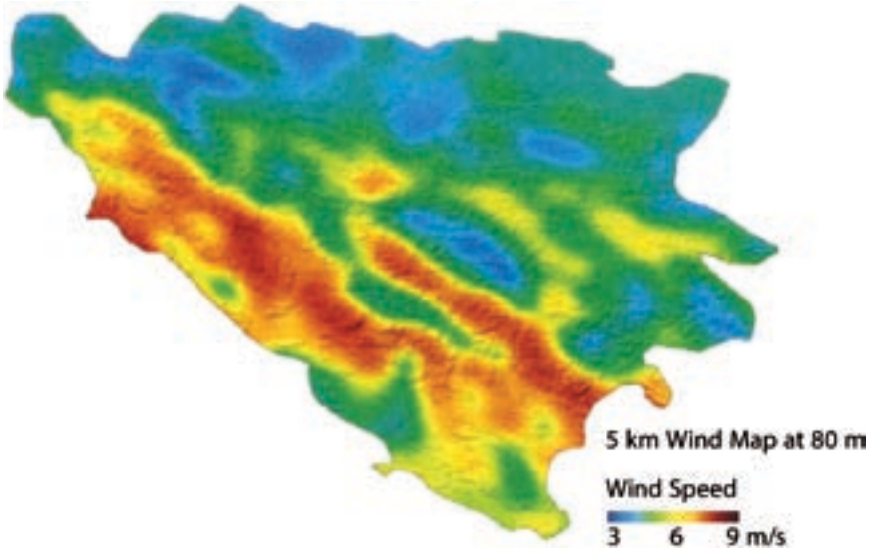
Wind Power

Recently a number of investors expressed their interest in construction of wind power plants. Some research studies to explore the wind conditions for the South-Eastern region of Herzegovina and for Bihac region have been done. Since wind

power has the potential to increase the share of electricity produced by renewable sources it is considered to be an important project.

A wind atlas for Bosnia and Herzegovina was recently established. The assessment shows that Bosnia and Herzegovina has useful potential for wind power generation. One source estimated that the total wind power potential capacity is about 2,000 MW, but because of the difficulty of grid access only 900 MW are usable. With the exception of one 40MW project underway, this potential remains unexploited. The following Figure 23 displays the wind velocities at a height of 80 meters throughout Bosnia and Herzegovina.

Figure 23: Wind map of BiH



Source: www.3tier.com

As shown, the wind potential is greatest in the western portion of the country where the velocities can reach up to 9 m/s (all above from B&V profile).

Biomass

The Bosnia and Herzegovina Biomass Energy for Employment and Energy Security Project aims to save 120,000 tonnes of CO_2 equivalent over 15 years by retrofitting or installing biomass-fired boilers in 20 schools across the country.

According to the UNDP Human Development Report, biomass and waste currently make up 3.7% of Bosnia's energy supply. It is estimated that 1 million cubic meters of biomass per year are available for energy production (Plan Bleu, 2007).

Forests and forestland include around 43% of Bosnia and Herzegovina's territory or around 2.7 million hectares. The forest decreases in size by around 0.1% each year.

It is estimated that wood waste in Bosnia and Herzegovina can annually produce approximately 5,200 GWh of electricity with an additional 600 MW of installed capacity. Regarding landfill gas, a pilot project has been developed in Sarajevo that has 350 kW of electric capacity (Trade Council of Denmark, 2008).

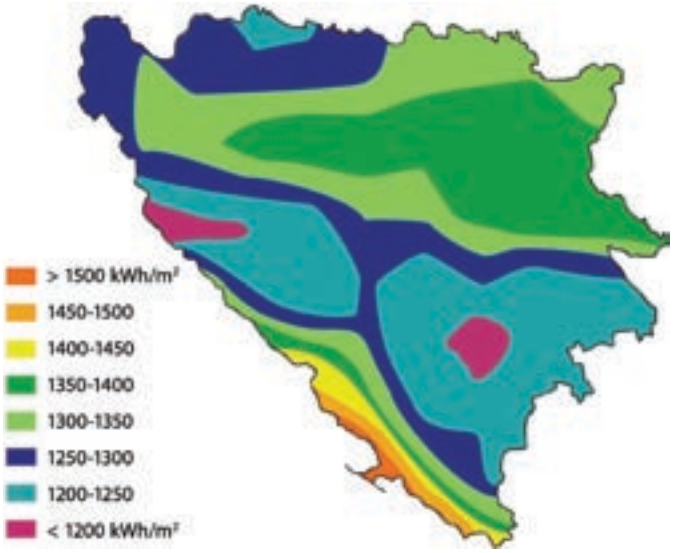
Regarding residues from field crops, fruit tree plantations, and livestock activities, it is reported that there should be a significant potential for their collection and utilisation, along with wastes including manures from intensive farms with recourse to incineration or anaerobic digestion.

Detailed studies and surveys would have to be carried out to determine location, logistics, size of units, economics and viability, likewise with MSW (Municipal Solid Waste) and the waste of sewage (sewage sludge).

Solar

The southern coast of BiH has a typically Mediterranean climate, and the climate in the north is similar to central Europe. The solar irradiation values vary accordingly with about 1,240kWh/m^2 in the north to 1,600kWh/m^2 in the south where the number of sunny days can reach 270 days per year with a solar thermal potential of approximately 1,900 TWh.

Figure 24: Average Annual Sum of Horizontal Plane Irradiation (kWh/m^2)



Source: ADEG project

Measures

The Government is seeking foreign investors to help develop the country's hydroelectric potential. The Austrian Power & Environment Technology GmbH has

assisted Elektoprivreda BiH with the construction of four hydropower stations with a total capacity of 200 MW.

Many other foreign investors have been reported as taking an interest in hydroelectric development in BiH (Wein International, 2007). However it is observed that overcoming the complexities of political administration in Bosnia and Herzegovina is a challenge faced by potential investors in the energy sector.

Large and Small Hydropower Projects

There are differences in approach of the Entity Governments of the Federation and the RS to developing large and small hydropower projects.

In the RS, EPRS has been reported as being active in identifying and developing large and small hydropower projects, ideally with finance to be secured from IFIs including the World Bank and the European Investment Bank.

In the FBiH an invitation process resulted in the selection of an Austrian-based consortium to develop four new small hydropower projects on a build-operate-transfer basis, three with EPBH and one with EPHZHB. In addition, several other concessions to develop small hydropower projects on the Upper Neretva River Basin were granted to local private interests.

Mini Hydropower Projects

Concessions awarded for mini hydropower plants are the subject of a review as the cumulative capacity and output of concessions awarded could, if fully developed, be substantial.

For example, 100 mini-hydropower concessions have been granted by the RS authorities with a total potential capacity of 230 MW.

In the Federation, the EPBH was currently pursuing some 29 municipality awarded mini-hydro concessions (total potential capacity of 30 MW) and similarly for the EPHZHB, about 12 mini-hydro concessions in three river basins. It is now deemed necessary to assess the technical, financial and regulatory safeguards to facilitate sustainable development of mini hydropower plants in the river basins of BiH, taking into account lessons of experience in the Energy Community.

Recent press reports of the RS Entity Audit Office findings suggest that the process of granting concessions is not without its problems. A local newspaper reported that the Entity of Republika Srpska suffers an estimated annual loss of BAM 62.5 million because of the number of small hydro that had been contracted, but never built, according to the Entity's audit office for the public sector. Auditors' review of the concessions granted for small hydro developments in the period 2005-2009 shows that BAM 60 million is lost in a year on production potential

foregone and another BAM 2.5 million on concession receipts not collected by central and local governments.

Wind Energy

According to the national strategic consideration for development of wind projects, the assessment of potential sites for wind power has identified 27 locations in the southern part of BiH in a band of about 50 km along the border with Croatia.

The total potential of these sites is about 900 MW.

The first wind farm to be constructed is the 44 MW Mesihovina project which is financed by the German Development Bank, KfW, and is owned by Elektroprivreda HZHB.

Solar Energy

While PV is too expensive for widespread utilisation, applications using solar for thermal applications (e.g. solar collectors for hot water) may be competitive with traditional sources.

Geothermal

Studies suggest significant potential in B&H for heat production. Currently one of the biggest potential investments is the exploitation of geothermal energy in the northeast of the country, now being evaluated by a Danish company".

Biomass

Biomass traditionally includes fuel wood, wood waste (for heat and/or electricity) and landfill gas. According to latest surveys in the energy sector, biomass is one of the most promising renewable sources in BiH, especially wood biomass and agricultural biomass.

Because BiH has a developed wood industry sector, there is considerable forest waste and wood processing industry waste both of which are potential low cost sources for RE production. Animal waste / biogas production, agricultural waste and synthetic fuels are the biggest sources for agricultural biomass.

ENVIRONMENTAL POLICY RELATED TO ENERGY

General Trends and Objectives

The core issues of environmental and energy policy in BiH are both local and global.

Local Issues

The most pressing local issues are associated with the use of lignite and brown coal. The extraction, beneficiation and conversion to electricity of these fuels in relatively old and inefficient power plant give rise to acute local impacts. Particulate emissions in the form of suspended ash (mainly from flue gases) adversely affect the health and quality of life of local communities. This pollution is the focus of several remedial efforts. There are reports of success with the retro-fitting of bag filters and of the planned deployment of electrostatic precipitators in power stations.

It was reported in January 2011 that after nearly one year of strategic planning efforts by the local governments and their socio-economic partners, the drafts of the newly developed integrated local strategies of some twenty municipalities were adopted by the Municipal Councils/Assemblies in December 2010. These local development strategies represent a new generation of strategic documents in Bosnia and Herzegovina. The plans were developed with the support of the Integrated Local Development Project (ILDP) and based on the new unified local development planning methodology recommended by both entity Governments in late 2009.

Global Considerations

The global dimension of power production from lignite and brown coal is the high CO_2 intensity of power generated from high carbon content fuel and its relatively inefficient conversion to electricity. Remedial works are costly and where treatment of sulphur emissions becomes necessary there are further energy efficiency and CO_2 penalties. Thus, the repowering of solid fuel fired generation plant is capital intensive and costs will need to be recovered over time through charges that will in turn drive consumer prices. For the time being the availability of low cost indigenous solid fuels, along with its hydro resources, makes a strong contribution to the reliability and economy of power production in BiH.

The BiH Authorities believe that the preparation and submission of the country's Initial National Communication (INC) to the United Nations Framework Convention on Climate Change (UNFCCC) ensures that Bosnia and Herzegovina has improved its understanding, and is a step towards addressing climate change issues. The INC is held to be a landmark document, the product of cooperation across scientific disciplines and geographic regions. However, it is recognised this is but a first step in addressing the challenges represented by climate change and its effects.

Three recommendations have emerged from the findings of the report to support continued work in this area: i) Develop a national climate change mitigation strategy

and action plan; ii) Take steps to implement commitments under the South East European Climate Change Framework Action Plan for Adaptation (CCFAP, 2008); and Iii) Begin preparations for the Second National Communication as soon as possible.

CDM and Renewable Energy Development

As BiH has adopted its first National Communication Strategy under the UN Framework Convention on Climate Change in early 2010, CDM projects represent a great opportunity to invest in the energy sector of Bosnia and Herzegovina, according to a report of the Danish Trade Mission to the BiH. Improving productivity of existing energy capacities and developing additional capacity is a commercial opportunity for companies with the necessary expertise.

Waste

Waste is one of the most important environmental issues in Bosnia and Herzegovina. Rural municipalities are generally not included in waste collection. There are claims that large quantities of waste are dumped illegally at roadsides, rivers, abandoned mines and similar places, posing threats to public health and the environment.

The Solid Waste Management Strategy suggests the establishment of multi-municipal solid waste management districts. A project of the World Bank, started in 2002, was intended to help mitigate environmental problems caused by inadequate waste policy, and to improve services and capacities for solid waste management in the country. Exact data on the quantities of waste generated in BIH does not exist. It is, however, possible to assume that the general pattern is an increase in waste quantities as in most other countries.

Environmental Policy

In addition to the obligations arising from established international treaties and protocols, there is a new requirement to co-ordinate policy and its delivery with regional treaties designed to assist the development of the Western Balkans as a whole. For example, one of the objectives of the Energy Community Treaty for SEE, signed in 2005, is to improve the environmental situation in relation to networked energy markets and related energy efficiency, to foster the use of renewable energy, and to set out the conditions for energy trade in a single regulatory space. Inter alia, each Contracting Party to this treaty is obliged to:

- implement the *acquis communautaire* on energy, environment, competition and renewable energy sources;
- accede to the Kyoto Protocol;
- implement the IPPC, EIA, birds and large combustion plants Directives and the Directive on sulphur content of certain liquid fuels;
- secure compliance with the *acquis communitaire*.

CDM

The Danish Trade Mission has opined that after establishment of the UNFCC Focal Point, the current challenge is to create the Designated National Authority (DNA) for BiH. It noted that the Council of Ministers has adopted a decision on the establishment of the DNA body on entity level, which decentralises the processing of applications from the relevant Ministry of Foreign Trade and Economic Relations (MoFTER) currently tasked with communicating with the Convention Secretariat in Bonn. It noted that the current search for strategic partnership for more than 150 energy projects is ongoing in 2011, and asserted that 2011 is expected to be the starting year of international investments in the strategically strongest sector – energy.

Bearing in mind that the Ministries for Environment of the Federation and RS and the Department of Planning and Property Affairs within Governemt of Brcko District have, according to the same source, insufficient knowledge and capacity about processing of applications and operational activities, there is a strong need for capacity building and education. Institutions such as UNDP and Delegation of European Commission have expressed willingness to support activities in this field.

Waste

The State Government has identified solving the waste management problem as one of the priorities in the country's development. A Nationwide Solid Waste Management Strategy was prepared. The main focus of the Strategy is household waste management.

The Strategy proposes forming multi-municipal waste management districts, each serving a minimum of 200,000 people. There would be multi-municipal landfill sites to centralise the waste of several urban and rural municipalities at one disposal site.

Although the funds for the implementation of the strategy are limited, the State is expecting to raise resources for its implementation, most probably through environmental funds such as the IPA for EU pre-accession countries.

Local Planning

It is recognised that the greatest challenge for local governments and their partners will be the actual and implementation of the local strategies, in order that the first results for the local communities are evident by the end of 2011. In that light, in 2011 the ILDP will continue to support implementation of the strategies by providing help to local governments in strengthening their organisational set-up and enabling successful management of development activities, as well as by funding some priority projects originating from the 2011 strategy plans.

According to BiH sources, for the first time in local planning practice, local strategies are encompassing social, economic and environmental aspects of development in an integrated manner. Furthermore, local strategic priorities are vertically aligned with the policies and priorities of higher government levels, thus enabling long-term coherent development efforts. Importantly, the local strategies have operational frameworks comprising implementation plans, monitoring indicators and realistic financial plans, aimed at effective realisation. These planning efforts achieved a breakthrough, in that the 2011 financial frameworks of the strategies aligned with the 2011 municipal budgets and their development components, immediately positioning the local governments in implementation mode.

All municipalities actively engaged experts from economic, social and environmental fields, local communities and socio-economic stakeholders in every step of the planning process. Participatory policy-formulation enabled embedding of the priorities, needs and projects of citizens into the plans. Special attention was paid by the local planning teams in encouraging the engagement of socially excluded and vulnerable groups in the strategic planning process and their needs were also captured within the local strategic documents.

Power Sector

It was reported that there have not been any significant investments in power system facilities in BiH since the war. Nonetheless, there is large private sector interest in harnessing the substantial and relatively diversified energy resource base in BiH to expand power generation capacity to meet growing electricity supply deficit within the region of the Energy Community. The status of new generation projects (both coal-fired thermal power and hydropower plants) under consideration for implementation within BiH is summarised below. It is an urgent issue to develop and adopt a state-wide, uniform and transparent procedure for construction of new generation plants on the basis of recommendation from EU Directive 2003/54.

Large Thermal Power Generation Projects

A total of seven coal-fired thermal power generation projects are identified by the Federation and RS Entity Government and the EPs, with most of the incremental electricity production capacity (approximately 1,600-1,800MW from rehabilitation and expansion of the existing facilities at Gacko, Kakanj, Tuzla and Ugljevik plus about 1600MW from entirely new coal mine/power generation plant complexes to be established at Stanari, Bugojno and Kongora) earmarked for export. The Federation and RS Entity Governments are following a number of approaches to solicit strategic investment in coal-fired thermal power generation projects.

For example, in the RS Entity, the Stanari project is being developed as a build-own-operate concession by a private strategic investor whilst the rehabilitation and capacity expansion projects at Gacko and Ugljevik are structured as joint

ventures between EPRS and strategic investors. By contrast, the rehabilitation and capacity expansion projects at Kakanj and Tuzla and the development of the green-field project at Bugojno are structured on a build-operate-transfer basis with EPBH. Similarly, a build-operate-transfer structure with EPHZHB is proposed for the development of the green-field project at Kongora.

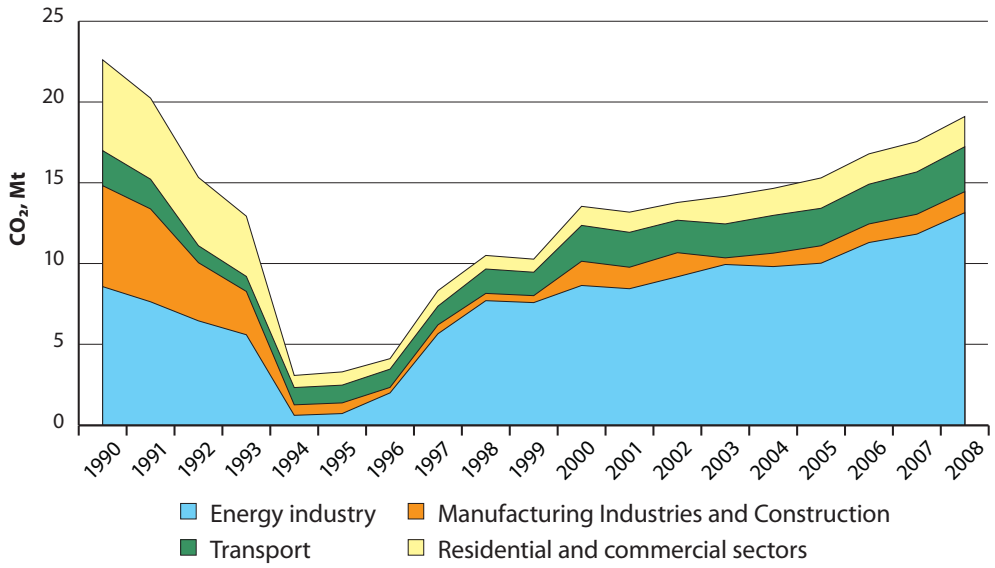
Waste to Energy

The following assessment by the Danish Trade Mission is instructive as regards the developing potential for renewable resource exploitation and the associated commercial opportunities. "Regarding landfill gas utilisation, there is a pilot project in the Sarajevo area (350 kW of electric capacity). The expansion of productivity at existing capacities and development of new ones could provide additional opportunities for companies.

CO_2 Emissions

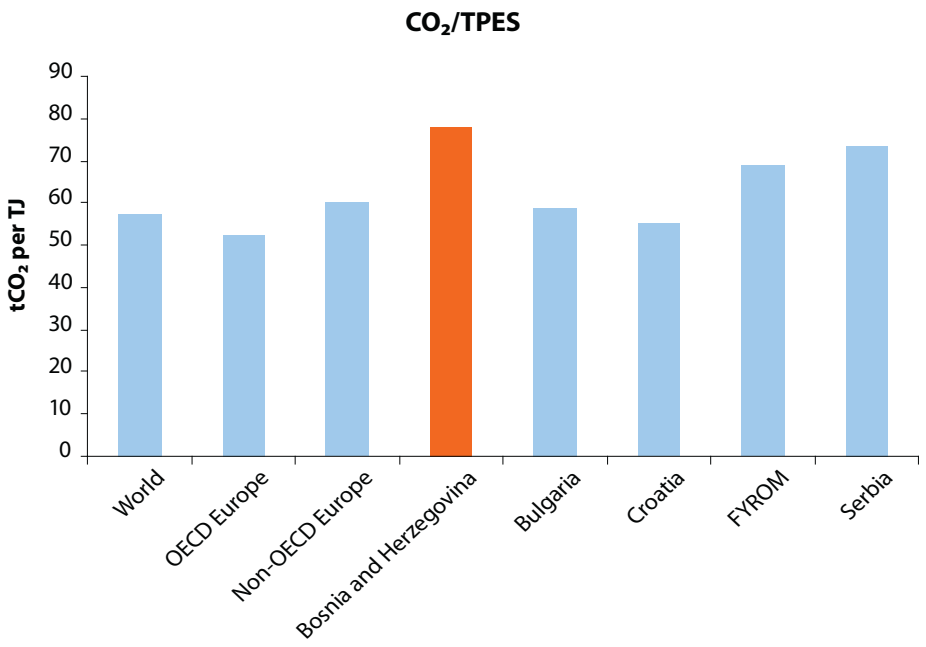
In 2008, BiH CO_2 emissions was 19.55 $MtCO_2$, with the energy sector being the largest emitter comprising 67% (13.15 $MtCO_2$) of total emissions. The CO_2 emissions per capita were 5.18 tons CO_2. Comparison of CO_2 emissions per TJ ranks BiH above the Europe average and the neighbouring countries, but this is expected for BiH because the main energy source is coal, accounting for over 60% of all energy sources in energy production.

Figure 25: CO_2 Emissions from Fuel Combustion in BiH, by Sector



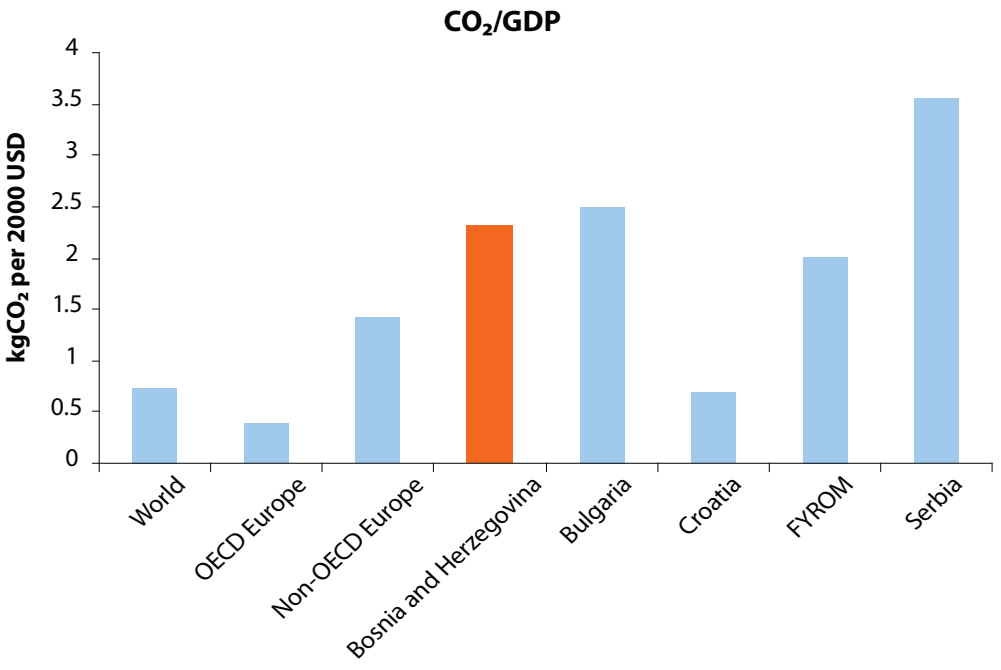
Source: IEA online energy statistics, 2010

Figure 26: CO_2 Emissions Comparison, by Country (TPES)



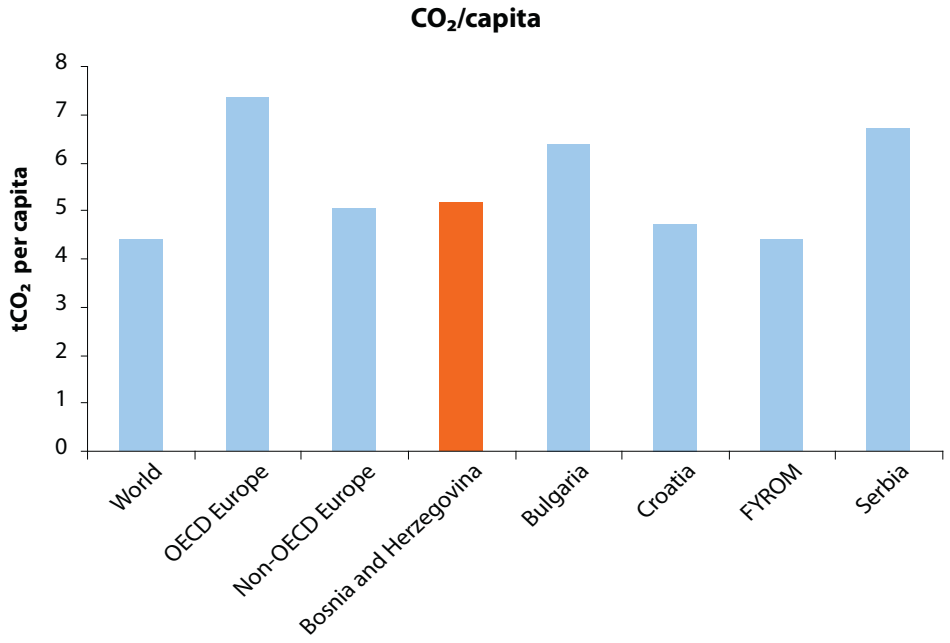
Source: IEA online energy statistics, 2010

Figure 27: CO_2 Emissions Comparison, by Country (GDP)



Source: IEA online energy statistics, 2010

Figure 28: CO_2 Emissions Comparison, by Country (per Capita)



Source: IEA online energy statistics, 2010

OVERALL ASSESSMENT OF PROGRESS

Energy policy and its associated measures are evolving in BiH against a Complex political and economic backdrop which presents ongoing challenges in maintaining the authority and viability of the State. The institutional arrangements and the governance responsibilities in place acknowledge the difficulties; help manage the main forces at play, and aim to facilitate progress towards the shared goal of EU membership. Consequently, energy policy formulation and the creation of the enabling framework of laws, institutions and measures across two Entities and a District is complex and further complicated by issues of alignment and symmetry of powers.

Energy Efficiency Policy and Institutional Framework

The objectives of the Energy Community Treaty were formulated in mutual self-interest and in furtherance of the longer term aspiration to EU membership. In that respect Bosnia and Herzegovina is systematically adapting to the requirements of the *acquis communitaire*, albeit at a slower rate than its neighbours.

International commitments already entered into have the potential (to the extent that the BiH Authorities allow) to address issues which are in the long term best interests of the people of BiH. The processes entailed are important not just in demonstrating commitment and progress, but can also help to analyse the current status, identify the priority issues and structure the most appropriate policy response.

This review has taken note of a number of studies and reviews of energy and energy policy in BiH. The overwhelming impression is of much analysis and review of the principal issues, mainly by international bodies from the perspective of their specific interests and responsibilities. Common to most of the reports is the need for faster progress along the reform path. This is a serious issue for BiH as it has run-on consequences for investment flows, economic recovery and its ability to align with the interests of peer states in the region.

Work on the formulation of energy strategies is reportedly underway. The strategies are expected to be strongly linked to the obligations of Bosnia and Herzegovina to transpose and implement the *acquis* on energy efficiency.

The National Energy Efficiency Action Plan (NEEAP), like the necessary underpinning energy policy is under preparation; however its finalisation has been delayed due resource constraints and other barrier. A number of local authorities have taken action to raise the profile of energy efficiency and renewable energy. The main lines of action have been: energy performance of public buildings, sustainability plans and demonstration actions such as retrofitting of insulation to building facades, upgrades to district heating and the regulation of new building energy performance.

Lack of energy strategies development and insufficient harmonisation in the implementation of energy policies, is a significant barrier for the further development of energy efficiency and renewable energy sources in the country. The fact that

there are no State and Entity support measures for pursuing energy efficiency opportunities and investments is, in the view of MoFTER, a serious obstacle and a formidable problem to be addressed.

Many existing and planned donor and IFI schemes (EU, GIZ, EBRD, UNECE, UNDP, USAID, World Bank etc.) are available to support BiH in the transposition and implementation of the energy efficiency directives and the preparation and implementation of energy efficiency projects. The IPA project 'Technical assistance support to meet the requirements of the Energy Community Treaty for SEE' was planned to start in June 2010 and includes, among others, capacity building and development of a legal and institutional framework for energy efficiency at the State and Entity levels.

Energy Pricing

Energy prices were traditionally set by the Governments of the Entities and kept artificially low, particularly for the household sector for social reasons. Cross subsidies between consumer categories exist, mainly from the larger consumer towards the smaller consumer, although these are being addressed in the electricity sector and modified over time.

The current social and economic context of low incomes and high unemployment limits the acceptability of taxes on energy necessities, which in many cases are already exposed to the price volatility of energy markets.

Electricity regulators are established at the State and Entity levels. The state regulator is responsible for the wholesale supply market, while the entity regulators are responsible for generation, distribution and supply at the retail levels. Approved methodologies of tariff determination are in place. The tariff setting methodology aims at reducing cross subsidies, while at the same time taking into account the needs of the most vulnerable consumers.

BiH is well down the road of reform in separating the functions of policy, ownership, and regulation of the energy sector. This is evident from the growth of private ownership of energy assets and public sector market structuring and regulatory bodies. While much as been achieved, many commentators and review bodies have questioned the pace of change and the effectiveness of several of the changes.

Renewable Energy

BiH submitted its plan to implement Directives 2001/77/EC and 2003/30/EC to the Ministerial Council in June 2007, however it is reported that material steps have yet to be taken at State level to transpose the two Directives.

Despite action at Entity level on incentives to support electricity produced from RES there is no indicative target set or strategy adopted at State level. While

realising the potential of indigenous renewable energy sources will contribute to economic development, it is recognised that such progress is contingent on inward investment, the availability of infrastructure, a business friendly environment, and competent market regulation. The lack of progress may be partially attributed to low electricity prices, which have the effect of lowering rates of return and thus damping interest in investment. Further work is required in all of these areas if RES targets are to be met.

RECOMMENDATIONS

The following recommendations are offered to promote energy efficiency in Bosnia and Herzegovina:

General Recommendations

- The Government of BiH should strive to improve the formulation, delivery, and on-going review of energy efficiency policy.
- The State Government should ensure that energy policy goals respect and fully reflect the potential of energy efficiency and renewable energy to contribute to wider political, economic, development and environmental goals.
- The potential of energy efficiency and renewable energy to contribute to wider goals should be effectively communicated by the State and Entity Governments so as to: i) command attention, ii) motivate stakeholders, and iii) allow for the reporting and the celebration of progress.
- The Entity Governments should ensure that future energy efficiency policy and strategy in BiH is results-focused, consistent with long-term goals, and aimed at delivering measurable benefits for all.
- The State and Entity Governments should: i) promote the setting of realistic and measurable energy efficiency targets for key sectors, ii) provide for the legal, financial and other means necessary to reach those targets and iii) make arrangements for evaluation and review of progress towards such targets.
- The State and Entity Governments should regularly assess the true economic and administrative implications of implementing energy efficiency policies and measures to ensure value for money and to capture the value for consumers and the economy.
- The Governments of BiH and of the Entities must act to promote the realisation of energy efficiency and renewable energy goals, and where market failure or other barriers exist, take remedial measures. Regulations, standards, tariffs and information provision are important in this respect.
- As the adaptation of the BiH energy markets to the requirements of the acquis communitaire is a clear priority, not alone for BiH but also for all Energy Community members their approaches should be closely monitored for lessons and replicated as appropriate by the BiH authorities.

Institutional Framework

- The Ministry of Foreign Trade and Economic Relations (MOFTER) should, with the assistance of other ministries and governmental bodies, advance the integration of energy efficiency considerations into all State policies.
- The completion of a National Energy Efficiency Action Plan and implementation of the Plan by the Entities must be progressed. Such progression would require adequate staff and resource allocation at both State and Entity level.

- The State Government should strengthen the energy efficiency focus and allocate a budget line within the MOFTER to lead the development of a coherent energy framework and to champion sustainable energy within the State and its Entity Governments.
- The Entity Governments should consider options for the establishment of an implementing institution for sustainable energy. However, given existing resource constraints the Entity Governments may decide, for the time being, to draw on existing institutions for resources and concentrate on ensuring stable and transparent funding for a work programme.
- Both the State and the Entity Governments should continue to facilitate and, as far as is practical, ensure the on-going involvement of all relevant stakeholders, including public sector bodies; business and industry associations; NGOs; and consumer representatives in the implementation of measures stemming from their energy efficiency policies.

Energy Market and Pricing

- The State Government and in particular the Entity Governments should continue their efforts in the reform of energy markets in line with the principles of transparency, efficiency and cost-reflective energy pricing.
- Where the Entity Governments have concerns over the social impacts of increased energy prices, consideration should continue to be given to methods other than universal subsidies to address these concerns (e.g. direct financial compensation or tax adjustments to those directly affected).

Energy Efficiency Funding

- The State and Entity Governments should ensure that their policies and actions leverage the substantial international financing with domestic budget financing to best overall effect.
- Consideration should be given by the State Government together with the Entity Governments to establish an initiative with a focus on the industry sector and high impact return actions in the NEEAP as soon as possible. Robust governance arrangements could help access finance through the international donor network.
- The Entity Governments should give careful consideration to creating framework conditions to encourage the development of an active energy services market and investments in energy efficiency.

Specific Energy Efficiency Programmes and Measures

- The State and Entity Governments should take measures to raise awareness of the environmental and economic value and importance of energy efficiency within the public, consumer, business and industry sectors.

- Development and enforcement of regulations governing the energy performance of buildings should be a priority for action by the Entity Governments in the light of the dominant share of energy demand of the sector and the great potential for improved performance and the economic benefits that follow.
- Municipal and cantonal authorities should; strengthen their support for the refurbishment of the existing building stock by private and public actors; continue their support for relevant demonstrations of high efficiency buildings in order to raise awareness amongst consumers, investors and other key market players.
- Options for the improvement of energy efficiency and the reduction of environmental impacts in public transport fleets should be explored by the Entity Governments.

Renewable Energy Sources and CHP

- The State and Entity Governments should continue to strengthen their efforts to promote the development of renewable energy, and small hydro power in particular, with the emphasis on cost effectiveness and capturing the benefits of the hydro-power potential to meet future electricity needs and secure export revenue.
- The development of a transparent approach to setting feed-in tariffs by the Entity Governments, including rate impact analysis, will help ensure optimal long term outcomes, including a better return on investment in energy efficiency.
- The Entity Governments and their regulatory authorities should put in place sustainable incentives and mechanisms to facilitate foreign investment for the development of renewable electricity generation.
- Any biomass strategy at the Entity level should be developed with the engagement and support of the relevant policy makers and other stakeholders to ensure an integrated policy approach to the sustainable production and use of biomass.
- The Entity Governments should examine options for the possibilities of high-efficient combined heat and power including the establishment of renewable waste-to-energy power generation as an alternative to existing, environmentally damaging landfill practices.

Data Collection and Monitoring

- The State and Entity Governments should i) improve their data collection, ii) make suitable arrangements for its consolidation at State level and iii) further develop the capacity to analyse and assess energy efficiency. Energy data and indicators form an important basis for future policy development, including making informative decisions on financing.
- The Statistics Agencies needs to further develop capability in the area of energy statistics and should be adequately resourced as far and as soon as possible to ensure the accuracy, independence, and robustness of all economic and energy data.

ANNEX 1: GENERAL ECONOMICS AND ENERGY DATA

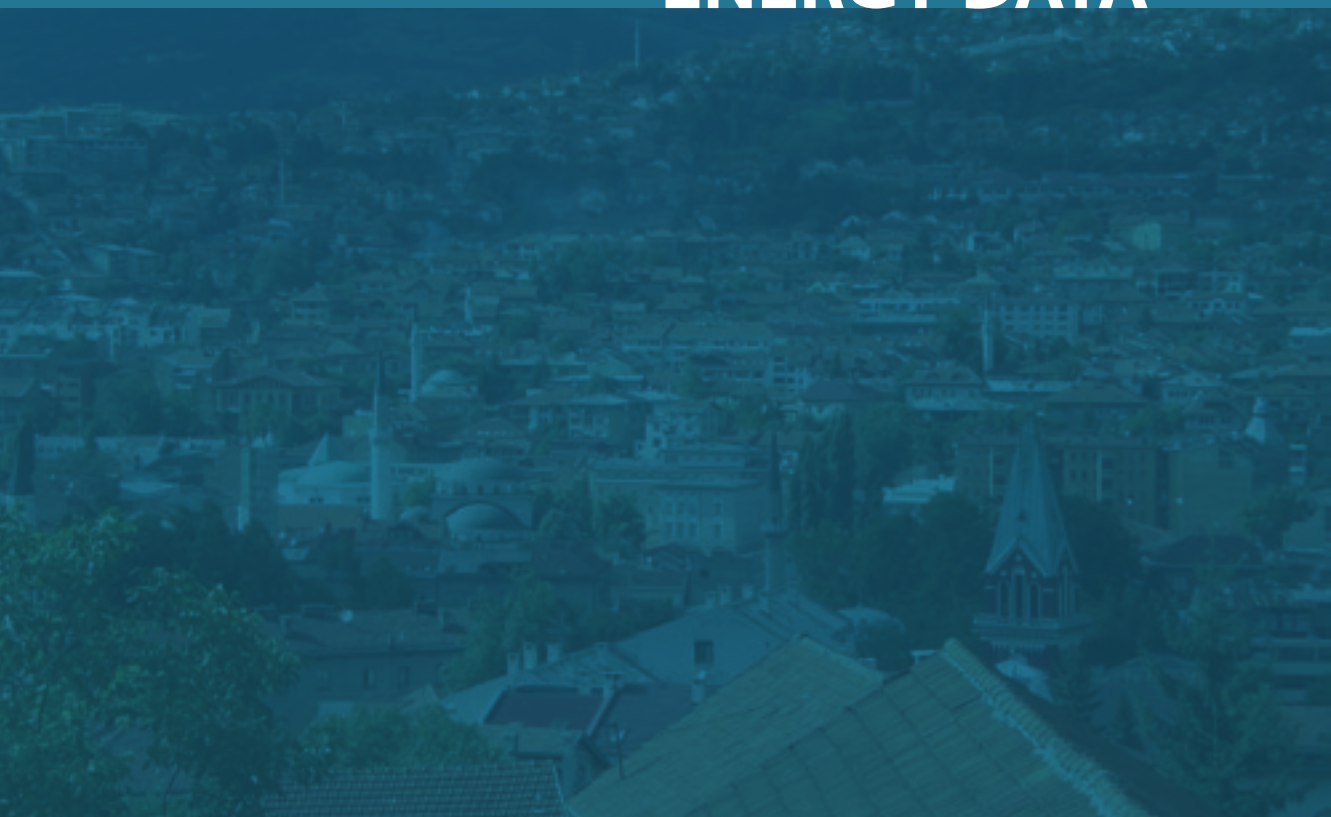


Table 9: Energy Balances, ktoe

Indicator	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Primary Energy Production	4,604	817	3,096	3,311	3,485	3,589	3,646	3,964	3,947	4,349	4,474
Net imports	2,439	715	1,159	1,088	926	1,229	1,384	1,412	1,626	1,610	1,585
TPES	7,018	1,532	4,209	4,415	4,408	4,816	5,047	5,393	5,590	5,975	5,953
TFC	4,893	1,278	2,278	2,269	2,233	2,465	2,627	2,705	2793	2,890	2,736

Source: IEA statistics, Electronic version, 2011

Table 10: Total Primary Energy Supply Structure, ktoe

Products	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal and coal products	4,178	348	2,410	2,651	2,729	2,819	3,030	3,364	3,512	3,860	3,880
Crude, NGL and feed-stocks	2,042	0	270	251	83	188	149	19	16	107	1,046
Petroleum products	-26	582	864	849	944	1,024	985	1,186	1,250	1,224	379
Natural gas	397	123	131	123	161	254	302	318	336	351	186
Nuclear	0	0	0	0	0	0	0	0	0	0	0
Hydro	263	313	446	453	387	514	516	504	344	391	537
Geothermal	0	0	0	0	0	0	0	0	0	0	0
Solar/wind/other	0	0	0	0	0	0	0	0	0	0	0
Combustible renewable & waste	163	155	182	184	184	184	184	184	184	183	183
Electricity	0	10	-94	-96	-80	-167	-118	-181	-52	-142	-257
Total Primary Energy Supply	7,018	1,532	4,209	4,415	4,408	4,816	5,047	5,393	5,590	5,975	5,953

Source: IEA statistics, Electronic version, 2011

Table 11: Total Final Energy Consumption Structure, ktoe

Products	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal and coal products	1,912	178	329	381	283	325	420	429	439	448	202
Petroleum products	1,562	511	1,107	1,014	1,004	1,086	1,076	1,128	1,189	1,241	1,293
Natural gas	349	123	83	75	103	197	246	258	272	284	127
Combustible renewables &waste	163	155	182	184	184	184	184	184	184	183	180
Electricity	874	310	545	584	620	636	665	668	667	690	814
Heat	33	0	31	31	39	38	37	39	41	44	120
Total Final Consumption	4,893	1,278	2,278	2,269	2,233	2,465	2,627	2,705	2,793	2,890	2,736

Source: IEA statistics, Electronic version, 2011

Table 12: Basic Energy-Related Indicators

Indicators	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Population (mln)	4.308	3.332	3.748	3.776	3.783	3.782	3.781	3.781	3.778	3.773	3.767
GDP (US$ 2000 bln)	1.502	1.622	5.748	6.053	6.295	6.679	7.013	7.448	7.957	8.388	8.144
GDP (US$ 2000 bln PPP)	6.108	6.598	23.38	24.619	25.603	27.165	28.523	30.292	32.363	34.117	33.125
Primary Energy Intensity (TPES/GDP) (toe per US$ 1,000)	4.67	0.94	0.73	0.73	0.7	0.72	0.72	0.72	0.7	0.71	0.73
Primary Energy Intensity (TPES/GDP PPP) (toe per US$ 2000 thousand PPP)	1.15	0.23	0.18	0.18	0.17	0.18	0.18	0.18	0.17	0.18	0.18
TPES/Population (toe per capita)	1.63	0.46	1.12	1.17	1.17	1.27	1.33	1.43	1.48	1.58	1.58
Electricity Consum/GDP (kWh/US$ 2000)	8.73	2.26	1.35	1.3	1.33	1.31	1.28	1.21	1.13	1.11	1.33
Electricity Consum/ Population (kWh per capita)	3,044	1,102	2,073	2,083	2,221	2,311	2,380	2,375	2,373	2,458	2,868
Energy related CO_2 Emissions (Mt) (from fuel combustion)	23.63	3.35	13.66	13.34	13.99	14.38	14.94	15.66	17.17	17.96	n.a.

Source: IEA statistics, Electronic version, 2011

Table 13: Electricity Generation, GWh

Products	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal and coal products	10,500	722	5,365	5,381	6,628	6,623	6,498	7,330	7,667	8,536	5,365
Petroleum products	1,074	36	92	136	137	132	141	159	156	173	92
Natural gas	0	0	0	0	0	0	0	0	0	0	0
Nuclear	0	0	0	0	0	0	0	0	0	0	0
Hydro	3,058	3,643	5,181	5,268	4,501	5,979	5,998	5,857	4,001	4,552	5,181
Solar/wind/other	0	0	0	0	0	0	0	0	0	0	0
Combustible renewables and waste	0	0	0	0	0	0	0	0	0	0	0
Total electricity generation	14,632	4,401	10,638	10,785	11,266	12,734	12,637	13,346	11,824	13,261	10,638

Source: IEA statistics, Electronic version, 2011

Table 14: Heat Production, TJ

Products	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal and coal products	0	0	0	0	0	497	1,513	1,607	1,717	1,820	0
Petroleum products	0	310	499	525	546	579	608	646	690	731	499
Natural gas	1,368	0	1,289	1,315	1,650	1,585	1,529	1,623	1,734	1,838	1,289
Nuclear	0	0	0	0	0	0	0	0	0	0	0
Hydro	0	0	0	0	0	0	0	0	0	0	0
Solar/wind/other	0	0	0	0	0	0	0	0	0	0	0
Combustible renewables and waste	0	0	0	0	0	0	0	0	0	0	0
Total heat production	1,368	310	1,788	1,840	2,196	2,661	3,650	3,876	4,141	4,389	1,788

Source: IEA statistics, Electronic version, 2011

ANNEX 2: SELECTED END-USE DATA TABLES

Table 15: Total Final Energy Consumption, by Sector (ktoe)

Sectors	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Residential	532	397	536	538	552	553	578	582	581	593	773
Industry	2,205	265	483	553	313	468	549	570	595	623	432
Commercial and public services	92	41	92	93	101	104	116	115	115	119	163
Transport	730	367	725	674	701	783	773	819	875	921	904
Other	1,335	208	442	410	565	557	611	619	627	634	458
Non-energy use	0	0	0	0	0	0	0	0	0	0	0
Total	4,362	880	1,742	1,730	1,681	1,912	2,049	2,123	2,212	2,297	1,957

Source: IEA statistics, Electronic version, 2011

Table 16: Final Energy Consumption in the Residential Sector, ktoe

Energy products	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal and coal products	0	0	0	0	0	0	0	0	0	0	66
Electricity	259	218	321	325	332	332	349	353	352	364	390
Natural gas	32	25	32	30	36	37	45	45	45	45	39
Heat	0	0	0	0	0	0	0	0	0	0	98
Petroleum products	77	0	0	0	0	0	0	0	0	0	0
Combustible renewables and waste	163	155	182	184	184	184	184	184	184	183	180
Total Residential Sector	532	397	536	538	552	553	578	582	581	593	773

Source: IEA statistics, Electronic version, 2011

Table 17: Final Energy Consumption in the Industry Sector, ktoe

Energy products	1990	1995	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal and coal products	765	71	300	342	60	108	148	157	168	177	96
Petroleum products	600	44	0	0	0	0	0	0	0	0	0
Natural gas	318	98	47	42	60	154	194	206	220	232	65
Combustible renewables and waste	0	0	0	0	0	0	0	0	0	0	0
Electricity	523	51	136	170	193	205	207	207	207	214	269
Heat	0	0	0	0	0	0	0	0	0	0	1
Total Industry Sector	2,205	265	483	553	313	468	549	570	595	623	432

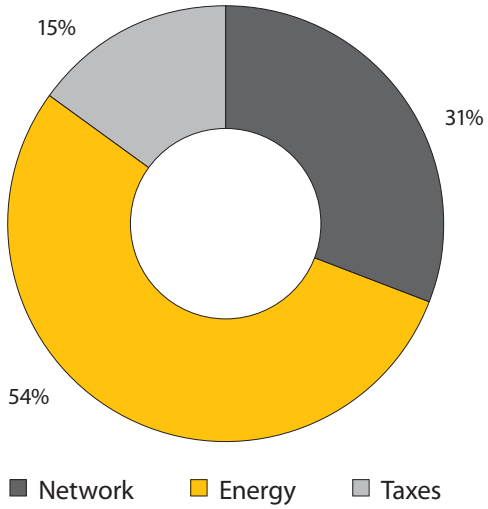
Source: IEA statistics, Electronic version, 2011

ANNEX 3: ENERGY PRICES

Electricity

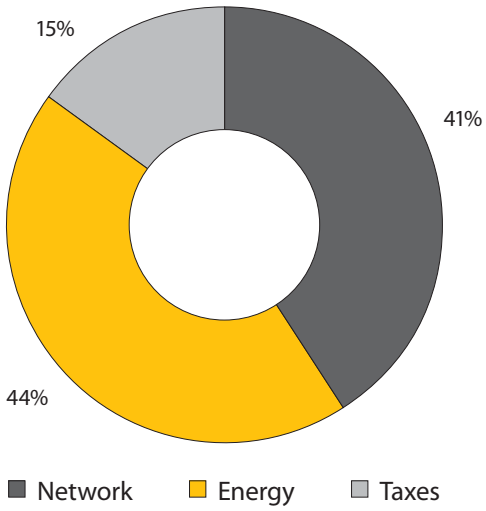
Pursuant to a new methodology for electricity price monitoring the following Figures 27 and 28 illustrate the shares of individual components in the electricity price for i) an average industrial customer connected to the voltage level of 10 kV and ii) an average customer in the category of households, respectively.

Figure 29: Share of Individual Components in the Price for Industrial Customers at 10 kV



Source: State Electricity Regulatory Commission

Figure 30: Share of Individual Components in the Price for Households

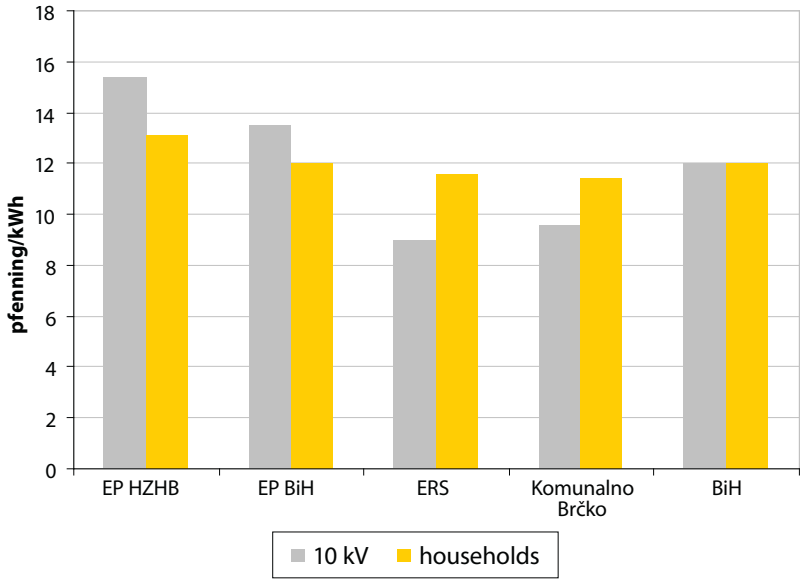


Source: State Electricity Regulatory Commission

The share pertaining to network fee of the average household customer is higher than the corresponding share of the industrial customer, while the share of fee for energy and supply is lower.

Figure 31 shows average prices (net of VAT) for industrial customers (10 kV) and households in 2009.

Figure 31: Average Electricity Prices



Source: State Electricity Regulatory Commission

The supplier EP HZHB has the highest electricity prices both for industrial customers and households. The lowest prices for industry have customers supplied by the distribution companies which are part of ERS, while regarding households, the lowest prices have household customers in Brčko District BiH.

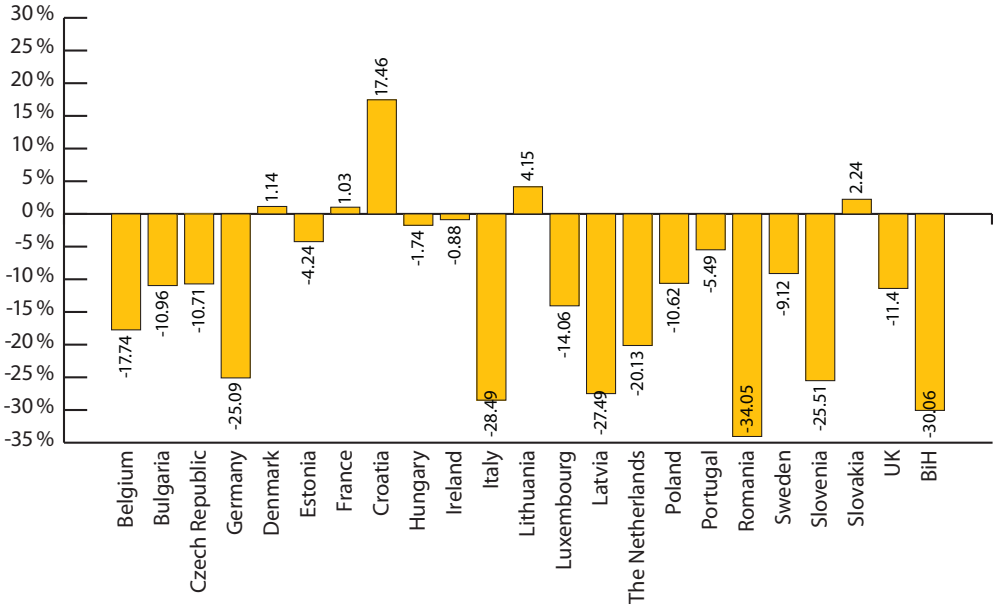
Gas Prices

The following Figures 32, 33 and 34 provide benchmarking of gas prices and trends for typical customers from the categories of households and industry. It should be noted that the Eurostat methodology defined several typical customers, and here there are benchmarking data for the household of category D2, characterised by the annual consumption between 20 and 200 GJ and industrial customer I1 characterised by the annual consumption of less than 1,000 GJ. The presented prices exclude taxes, and refer to the second half of 2009.

Figure 32: Average Gas Prices for Households and Industry in the 2nd Half of 2009

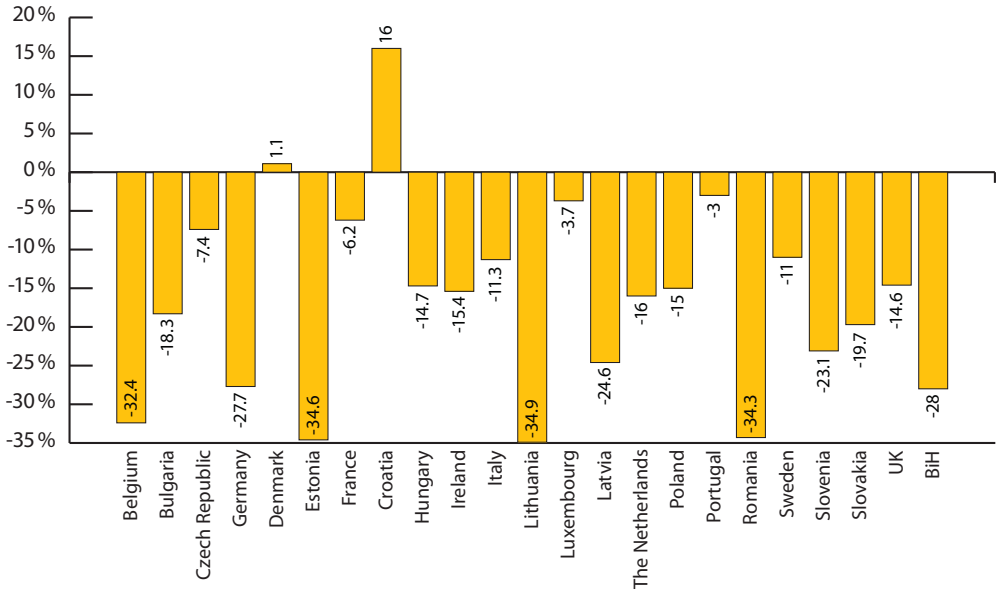
Source: State Electricity Regulatory Commission

Figure 33: Ratio of Gas Prices for Households in 2009 and 2008



Source: State Electricity Regulatory Commission

Figure 34: Ratio of Gas Prices for the Idustry in 2009 and 2008



Source: State Electricity Regulatory Commission

The subsidising of the most vulnerable energy consumers has become a widely accepted practice in most European countries. The main problems here are the identification of subsidy beneficiaries, the level of subsidisation, funds and the manner of implementation. Lack of initiative and coordination as the major shortcoming of up-to-date activities makes logical that the main stakeholders in the future should be the ministries competent for social protection with the support of other competent authorities, including the regulatory commissions.

In 2010, SERC continued to make efforts to protect electricity customers, especially vulnerable categories of the population, by active participation in all initiatives of the institutions at the state level within the authority vested in it by law. SERC gave a significant contribution to the development of the Social Action Plan for BIH, acting within the Working Group of the BIH Ministry of Civil Affairs which gathered representatives of the relevant ministries at the state and entity levels as well as representatives of employers, unions etc. The Social Action Plan for Bosnia and Herzegovina in connection with the Memorandum of Understanding on Social Issues, which had been previously approved by the governments, that is, the relevant ministries of the Federation of BIH, Republika Srpska and Brčko District BIH, was finally approved at the session of the BIH Council of Minster on 25 March 2010.

ANNEX 4: ORGANISATIONS CONTACTED DURING THE SARAJEVO MISSION

Banja Luka City

Centre for Economic, Environmental Technological Development (CETEOR)

CESC – Chamber of Economy of Sarajevo Canton

Chamber of Economy of Sarajevo Canton (CESC)

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

DVOKUT-PRO Company

EBRD – European Bank for Reconstruction and Development

ELEKTROPRENOS BIH – Company for the transmission of electric power in BiH

ENOVA Company

EP HZ HB – Power Utility "Elektroprivreda Hrvatske zajednice Herceg Bosne"

ERS – Power Utility of the Republika Srpska

EU DELTER Project

FERK – Regulatory Commission for Electricity in Federation of Bosnia and Herzegovina

FIPA – Foreign Investment Promotion Agency of Bosnia and Herzegovina

FMEMI – Federal Ministry of Energy Mining and Industry

FMET – Federal Ministry of Environment and Tourism

FMF – Federal Ministry of Finance

FMPP – Federal Ministry of Physical Planning

ISO BiH – Independent System Operator in Bosnia and Herzegovina

KfW Bank

KJKP Toplane Sarajevo – District Heating Company Sarajevo

LIR Company

MFRS – Ministry of Finance of the Republika Srpska

MFT BIH – Ministry of Finance and Treasury of BiH

MIEM RS – Ministry of Industry, Energy and Mining of the Republika Srpska

MoFTER – Ministry of Foreign Trade and Economic Relations of BiH

MSPCEE RS – Ministry for Spatial Planning, Civil Engineering and Ecology of Republika Srpska

RERS – Regulatory Commission for Energy of the Republika Srpska

SERC – State Electricity Regulatory Commission

UNDP – United Nations Development Programme

University of Banja Luka

USAID – United States Agency for International Development

ANNEX 5: INFORMATION SOURCES

Bosnia and Herzegovina 2010 Progress Report COM(2010) 660, EC, Brussels

Bosnia and Herzegovina Profile (May 2010) and Strategy at www.ebrd.com/bosnia

Country Report No. 10/101 April 2010; International Monetary Fund, Washington, D.C.

Energy-policy Framework Conditions etc., including RE; GTZ, Eschborn (2004)

Energy & Environment Sector Analysis – Trade Council of Denmark Sarajevo, (Nov 2010)

Energy Sector Study BiH; EIHP, Croatia et al., sponsored by World Bank (March 2008)

Energy in the Western Balkans: The Path to Reform and Reconstruction: IEA, Paris

Energy in the Western Balkans; Gould T., (IEA), at Second SEE Dialogue (May 2008)

Enlargement Strategy and Main Challenges 2009-2010, COM(2009) 53 final; EC, Brussels

Energy affordability etc., – EBRD Working paper No. 32 Fankhauser S., et al., (May 2005)

Environmental Fund of the Federation of Bosnia and Herzegovina at www.eco-finance.org

Financing EE and RE – Dzioubinski, O., at UNECE , Geneva (June 2010)

Implementation Status and Results, Report No. ISR 2268: The World Bank (2010)

Implementation of the Acquis under the EnC – Energy Community Secretariat, Vienna (2010)

Initial National Communication of BiH under the UNFCC – Banja Luka, October 2009

Integrated Local Development Project – Municipal Councils/Assemblies, December 2010

IPA National Programme 2008, Fiche 18 Energy, EC, Brussels

Policy Framework on EE in Buildings – Bratic, L., from NEEAP at Vienna (May 5-6)

Policy Reforms to Promote EE and RE – Poyry at conference UNECE, Geneva, 2009

Power Sector Development Programme –paper; Jenko J., WB Forum, Athens (2007)

Prime Minister of Bosnia and Herzegovina, Speech at Regional Energy Forum, Sarajevo 2009

Regular Review of Bosnia and Herzegovina, Energy Charter, Brussels (2008)

Regulation and Policy Template; REEEP at website

RES Policy Development – Mujcinagic, A., SERC presentation (Vienna 2009)

Renewable Energy Country Profile – for EBRD by B&V et al., (2002 – 2010)

Seminar on Policy Reform; Trivanovic, B., at UNECE Committee (October 2009)

SEE Climate Change Framework Action Plan for Adaptation – ESSFBiH, 2008

Status of EE in the Western Balkans – A Stocktaking Report; World Bank, 2010

Strategy for Bosnia and Herzegovina 2010-2013, EBRD September 2010

USAID Enterprise Energy Efficiency Programme; at website www.eee.ba

USAID's Regulatory and Energy Assistance Project (REAP) – March 2007-2011

UNECE and project websites: http://unece.org/energy/se/pdfs/eneff/eneff_pub/EE21_FEEI_RegAnl_Final_Report.pdf

In addition the following government and regulatory authority websites were consulted and drawn on for the finalisation of the report:

Ministry of Foreign Trade and Economic Relations (MoFTER)

Federal Ministry of Energy, Mining and Industry (FMEMI)

Ministry of Industry, Energy and Mining of RS (MIER RS

State Electricity Regulatory Commission (SERC)

Transmission System Operator (TRANSCO)

Independent System Operator (ISO)

Federal Electricity Regulatory Commission (FERC)

Regulatory Commission for Energy of RS (RERS)

ANNEX 6: LIST OF ABBREVIATIONS

ASE	Alliance to Save Energy
BiH	Bosnia and Herzegovina
CDM	Clean Development Mechanism of the Kyoto Protocol
CETEOR	Centre for Economic, Environmental Technological Development
CCFAP	Climate Change Framework Action Plan for Adaptation
CPI	Consumer Prise Index
DNA	Designated National Authority
EBRD	European Bank for Reconstruction and Development
ECT	Energy Charter Treaty
EnC	Energy Community
EP	Elektropriveda
FBiH	Federation of Bosnia and Herzegovina
FERC	Regulatory Commission for Electricity in FBiH
FMEMI	Federal Ministry of Energy, Mining and Industry
GEF	Global Environment Facility
GHG	Greenhouse gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HPP	Hydro Power Plant
EPHZHB	Elektropriveda Hrvatske Zajednice Herceg Bosne d.d. Mostar
ILDP	the Integrated Local Development Project
IPA	Instrument for Pre-Accession Assistance
ISO	Independent System Operator
KM	Konvertibilna Marka
MIER RS	Ministry of Industry, Energy and Mining of RS
MOFTER	Ministry of Foreign Trade and Economic Relations
NEEAP	National Energy Efficiency Action Plan
OHR	Office of the High Representative
PEEREA	Protocol for Energy Efficiency and Related Environmental Aspects

REC	Regional Environmental Centre
RERS	Regulatory Commission for Energy of the RS
RES	Renewable energy sources
PRSP	Poverty Reduction Strategy Paper
RS	Republika Srpska
SEE	Southern and Eastern Europe
SERC	State Electricity Regulatory Commission
SME	Small and medium-sized enterprise
TFC	Total Final Consumption
TPES	Total Primary Energy Supply
TPP	Thermal Power Plant
TRANSCO	Transmission System Operator
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention for Climate Change

In-Depth Review of Energy Efficiency Policies and Programmes: BOSNIA AND HERZEGOVINA

Bosnia and Herzegovina ratified the Energy Charter Treaty and the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA) in 2001. By ratifying the Protocol, countries commit themselves to formulate and implement policies for improving energy efficiency and reducing the negative environmental impact of the energy cycle (Art. 5). The guiding principle of the PEEREA is that contracting parties shall cooperate and, as appropriate, assist each other in developing and implementing energy efficiency policies, laws and regulations (Art. 3).

The country review process is a core activity in monitoring and facilitating the implementation of the Protocol. The in-depth energy efficiency reviews, implemented under the PEEREA, have proven to be an important tool in assessing the progress of member countries in fulfilling their commitments under the Protocol. They also provide peer guidance to governments in developing and implementing energy efficiency policies.

This in-depth review of energy efficiency policies of Bosnia and Herzegovina was carried out in 2011, following a regular review report submitted by the Bosnia and Herzegovina authorities in 2008.

Energy Charter Secretariat
2012

ISBN:
978-905948-101-5 (English Paperback)
978-905948-103-9 (English PDF)

Energy Charter Secretariat
Boulevard de la Woluwe, 56 · B-1200 Brussels · Belgium
Tel.: +32-2-775-98-00 · Fax: +32-2-775-98-01
E-mail: info@encharter.org · www.encharter.org