

UNECE COMMITTEE ON SUSTAINABLE ENERGY

**SEMINAR ON POLICY REFORMS TO PROMOTE
ENERGY EFFICIENCY AND
RENEWABLE ENERGY INVESTMENTS**

Bosnia and Herzegovina

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7-9 October 2009

**Bosnia and Herzegovina Presentation
SEMINAR ON POLICY REFORMS TO PROMOTE ENERGY EFFICIENCY AND
RENEWABLES INVESTMENTS UNECE, Geneva, 7-9 October 2009**



Country overview

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- Balkan Peninsula
- Administratively consists from two entities:
FBiH and RS
- Capital Sarajevo
(population 380,000)



Country overview

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- Area 51,209.00 km²
- Mountainous country (62% of the land more than 700 m above sea level)
- Significant water resources
- Continental and Mediterranean climate
- Population 3.844 million
- GDP 5.866 billion US\$2000 (2005)
- GDP p/c 1,526.00 US\$ (2005)



Energy resources

Coal

- brown coal and lignite
- production 9,7 million tons in 2007
- the geological coal reserves are estimated at 5.6 billion tons
- approximately 45% of the country's primary energy supply in 2005
- main energy source for electricity production (about 85 % of coal is used in the TPPs)

Hydro

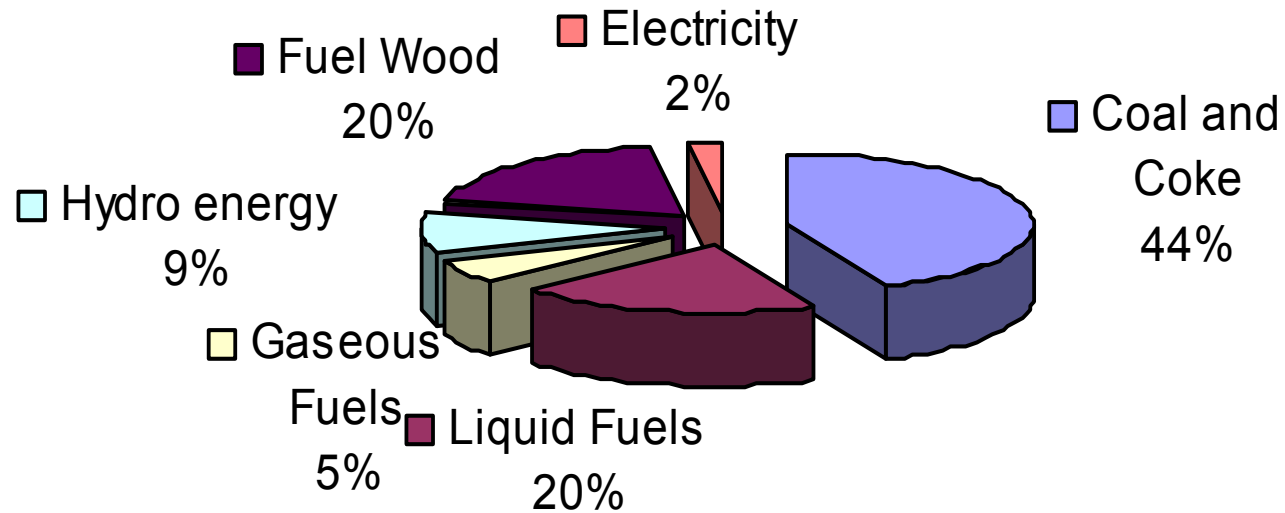
- total installed capacity in BiH 2,160 MW
- Utilizable HPPs potential is estimated to be 13 TWh/year
- big hydro potential - utilization level is 40 %

No significant oil or gas resources



Total Primary Energy Supply

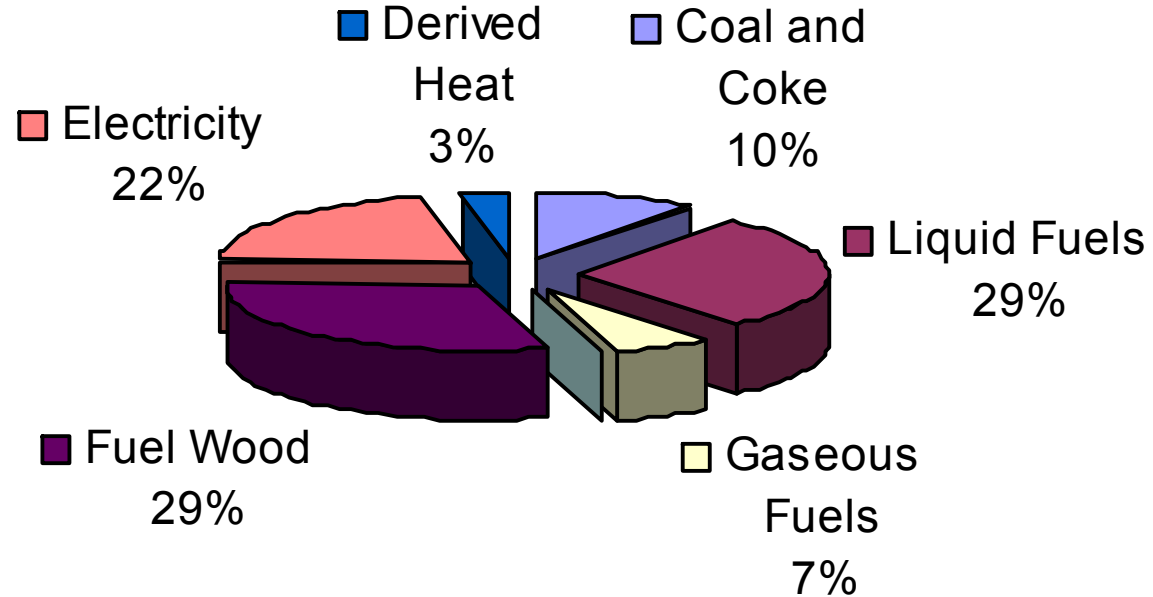
TPES in 2005



Total Final Consumption

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TFC in 2005



Electricity

- Total installed capacity 3,845 MW (HPP 54.6%, TPP 45,4%)
- In 2008, total annual production 13.797 TWh (64% from TPP, 35% from HPP, 1% from SHPPs and industrial plants)
- 2008 exported 5,000 GWh (ISO data)

Gas Sector

- relatively small.
- consumption in 2007 was 315,7 mcm

Oil Sector

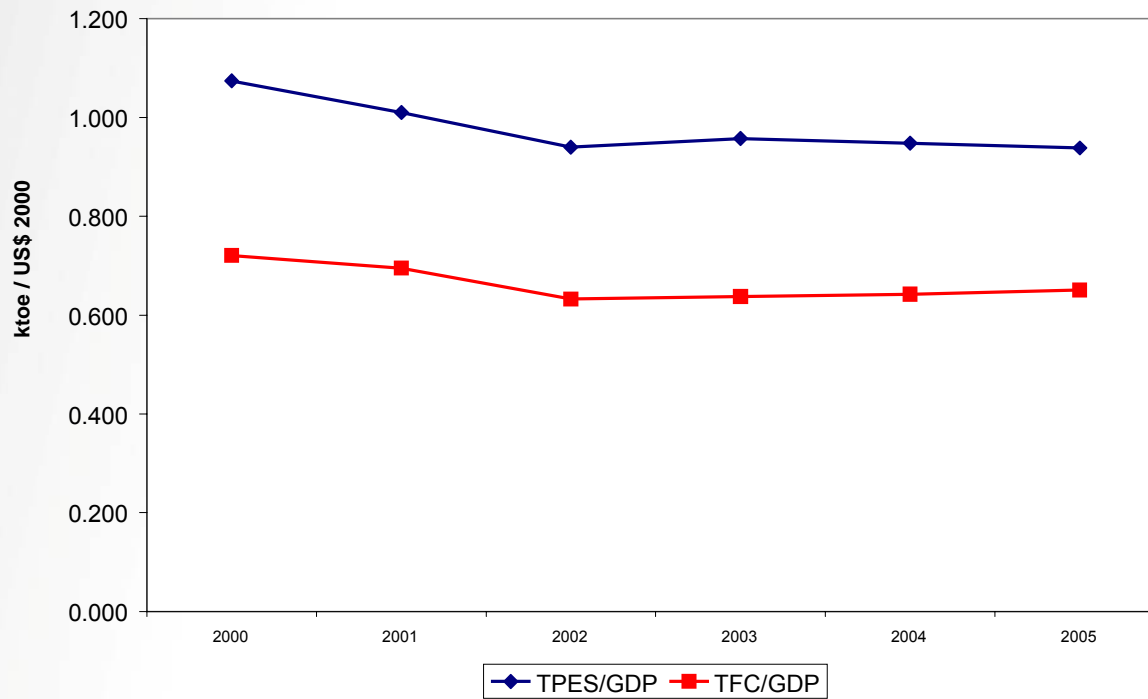
- The petroleum products market is almost fully dependent on import
- Oil Refinery Bosanski Brod and Lube Refinery Modrica.
- consumption in 2005 was 1.3 million tones



Energy Intensity

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0.938 ktoe/US\$ 2000 (2.5 more than EU 27)
Overall Energy Intensity



Potential of renewables (1)

Small hydro

- SHPP most promising RES
- EIHP Study identified an economic potential close to 300 MW, other assessments estimate that can reach even 1000MW

Wind

- Currently there are no wind power plants installed
- Economic potential for developing approximately 600 MW (GTZ) or 900 MW (EIHP) if wind measuring is developed
- 12 locations marked as having good potential close to Croatian border

Biomass

- most significant source is wood mass from forestry and wood waste from the wood processing industry
- it is used mainly in rural and sub-urban areas as the primary source for heating and cooking purposes



Potential of renewables (2)

Solar

- The total potential of solar energy is estimated at 67.2 PWh
- there are no solar and PV power plants (apart from a small PV installation)
- use of solar energy for hot water and heating in the residential sector is insignificant

Geothermal

- Geothermal potential of 9.25 MWt for heating in 42 sites
- Significant research is required still, however the temperature at the known locations is too low ($< 90\text{ }^{\circ}\text{C}$)
- No indication for power generation potential



Potential of Energy Efficiency

Residential and Services

- The building sector, including households and service industry, is the single most important energy consumer with 56% of final energy consumption in 2005

Industry

- Systematic and continuous effort for better energy management and harmonization to modern efficient technology will result to energy savings of more than 20% of current consumption in most cases

Transport

- Appropriate implementation of 14 measures shall save up to 8% of fuel consumption by 2020 in comparison to the 2005 consumption.



Institutional Framework in BiH (1)

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I – State level

BiH

MOFTER

Energy

- MOFTER
- SERC
- TRANSCO
- ISO

II – Entities

F BiH

RS

Energy

- MINISTRIES
- FERC, REERS
- Utilities

MEMI

MIEM

III – Cantons

1,2... 10

IV – Local level

City / Municipality

City / Municipality



Institutional Framework in BiH (2)

State level

- Ministry of Foreign Trade and Economic Relations (MoFTER)
- Transmission System Operator (TRANSCO)
- Independent System Operator (ISO)
- State Electricity Regulatory Commission (SERC)

Entity level

- Ministry of Energy, Mining and Industry of FBiH (MEMI)
- Ministry of Industry, Energy and Mining of RS (MIEM)
- Federal Electricity Regulatory Commission (FERC)
- Regulatory Commission for Energy of RS (RERS)
- Three power utility companies

Canton and Municipal Level

- Cantonal Governments
- Municipality Authorities



Policy Framework (1)

There is no national or entity Energy Efficiency and Renewables policy under implementation

- **NEAP** (National Environmental Action Plan)
- **PRSP** (Poverty Reduction Strategy Papers)
- **Energy Sector Study**
 - clearly present the current situation and proposed recommendations regarding EE and RE

Energy Strategy is necessary

- to define means to achieve the above mentioned recommendations



Policy Framework (2)

Key international treaties

- In the absence of official energy strategies and policies, **the reforms in the energy sector are driven mainly by the fulfilment of the international commitments of BiH**, i.e. within the frame of implementation of the international multilateral agreements undertaken or accepted by BiH;

- **Energy Community Treaty for South East Europe (EnC)**
 - Task Forces on Energy Efficiency and Renewables
 - Identify the concrete areas where improvement is needed and/or feasible
 - Identify the relevant EU legislation
 - Propose immediate concrete actions
 - Propose concrete measures/indicators
 - To help accelerate the process of implementation



Policy Framework (3)

- **Energy Charter Treaty** and the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA)
- **UNFCCC** (United Nations Framework Convention on Climate Change) and the **Kyoto Protocol**
 - The nation-wide action plan for the implementation of the Convention is in the preparation phase
- **The Stabilization and Association Agreement (SAA)** between EU and BiH (1 July 2008):
 - By signing this agreement BiH takes on the responsibility to **gradually harmonise its legislation with the EU.**



Financing Opportunities

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The funds available for addressing energy efficiency issues are very limited

- The **Funds for Environmental Protection** (EE is included)
- **IPA** - the Instrument for Pre-Accession Assistance (EC Project)
- **UNECE** Project Energy Efficiency Investments for Climate Change Mitigation
- Limited funds have been made available through the **UNDP and USAID**
- Banking system reluctant to support due to high risk and low viability of investments – **new EBRD initiative** to lend investment capital through local banks



Obstacles and Problems

- Lack of an overall and **coordinated energy policy** at the state and at the entity levels
- Non existence of **specific legal** (RES selling tariffs) and **institutional** (Energy Agency) framework regarding EE and RES
- Lack of **incentives and support measures** for pursuing energy efficiency and renewable energy investments
- Lack of **awareness** regarding EE and RES



Needs for immediate intervention

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- **Energy strategy** especially on EE and RES
- Accomplishment of **institutional and legislative framework** at the state and entity levels
- Introduction of **public incentives** to support the use of renewable energy investments and the implementation of energy efficiency measures
- **Raising of awareness** regarding the required energy sector reform process based on EE and RES at all levels (state, entity, local level and broad public)
- Increase **international cooperation** in the field of EE and RES





Conclusions

- BiH is self sufficient in electricity generation, and it is a net electricity exporter
- Bosnia and Herzegovina has significant water resources, which should be a key factor in the economic development of most areas in the near future:
 - In total electricity generation approximately 40% electric energy is from hydro
 - Total installed capacity is 2100 MW from conventional hydro, and potential is up to 1000 MW in mini hydro
 - 40 % of hydro potential is exploited to date
 - Good wind and biomass potential
 - EE i RE projects more likely at the municipal level
 - district heat, street lighting, building insulation, building control
- In accordance with EnC Bosnia and Herzegovina has to define targets for EE and RE, develop a methodology and system for establishing baseline data and data tracking and reporting to comply with international commitments

