

UN Economic Commission for Europe

Policy Reforms to Promote Energy Efficiency
and Renewable Energy Investments
in **Bosnia and Herzegovina**

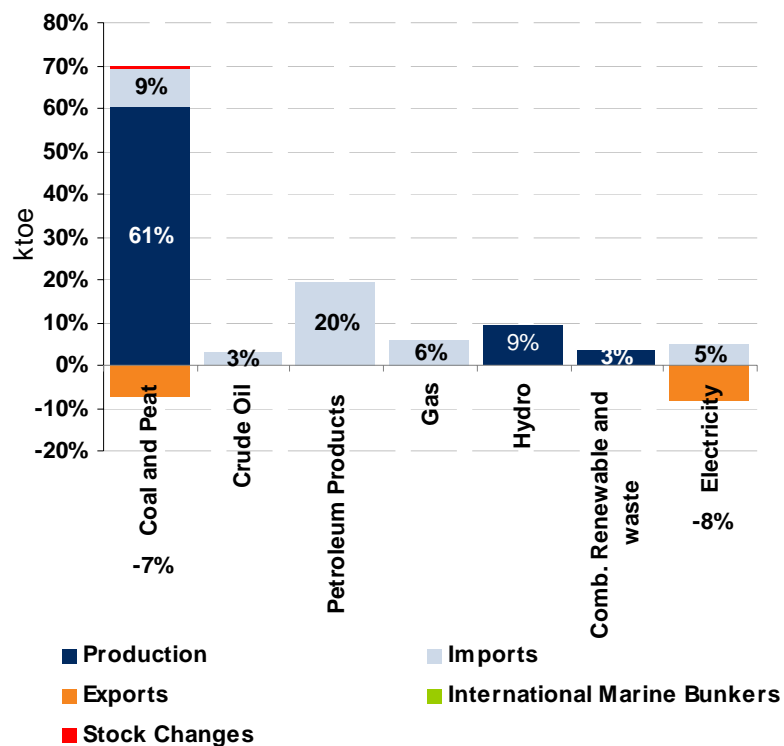
Seminar on Policy Reforms to Promote
Energy Efficiency and Renewable Energy Investments

Geneva, October 7.-8., 2009

Energy Balance of Bosnia and Herzegovina

Bosnia and Herzegovina has a large availability of coal and hydropower and therefore only a modest primary energy deficit of 26%

Energy Balance



Comments

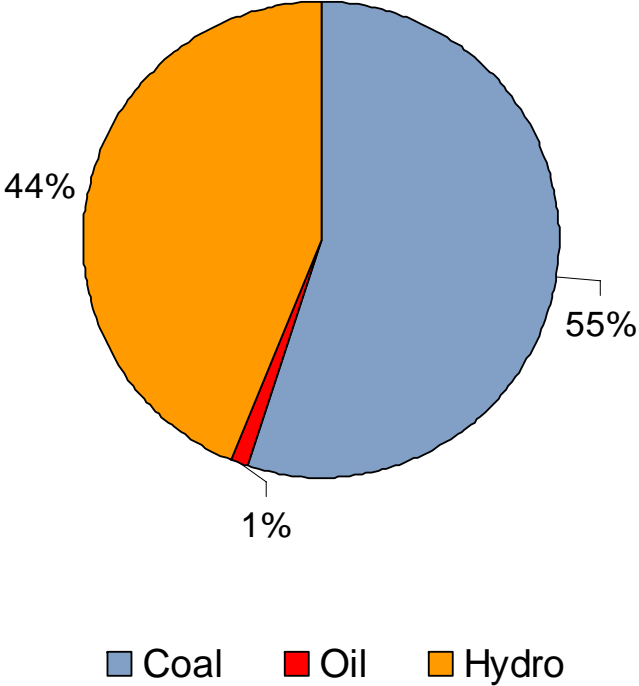
- Bosnia and Herzegovina imports mainly crude oil, petroleum products and gas
- Due to its substantial coal resources, Bosnia and Herzegovina is to a large extent auto sufficient from an energy point of view; furthermore, it exports coal in the amount of 7% of the total energy balance
- The power system of Bosnia and Herzegovina was developed to supply the other parts of the former Yugoslavia: based on its electricity surplus and good interconnection, the country still exports electricity to neighboring countries

Source: IEA 2006

Power Generation in Bosnia and Herzegovina

Coal and hydro power are the main sources of electricity generation in Bosnia and Herzegovina

Energy Sources for Power Generation



Comments

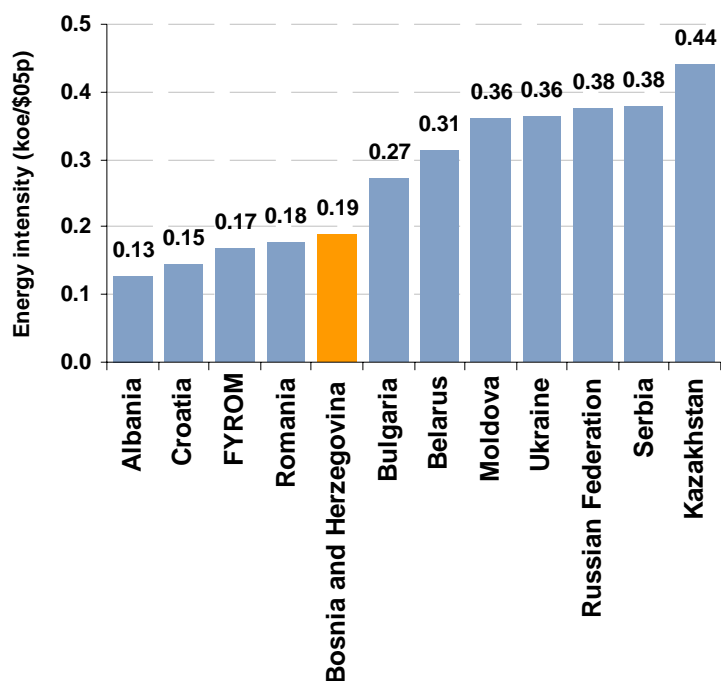
- Bosnia and Herzegovina generates 55% of its electricity based on its brown coal and lignite reserves
- There is no electricity generation from gas and oil-based electricity generation is negligible
- Hydro power plants with an installed capacity of 2'411 MW account for 44% of the total electricity generation (5.8 TWh)
- New renewable energy sources have currently no impact on the electricity generation of the country

Source: IEA 2006

Energy Intensity in Bosnia and Herzegovina

There is no reliable database on energy consumption in Bosnia and Herzegovina; however, the overall energy intensity is rather low.

Energy Intensity



Comments

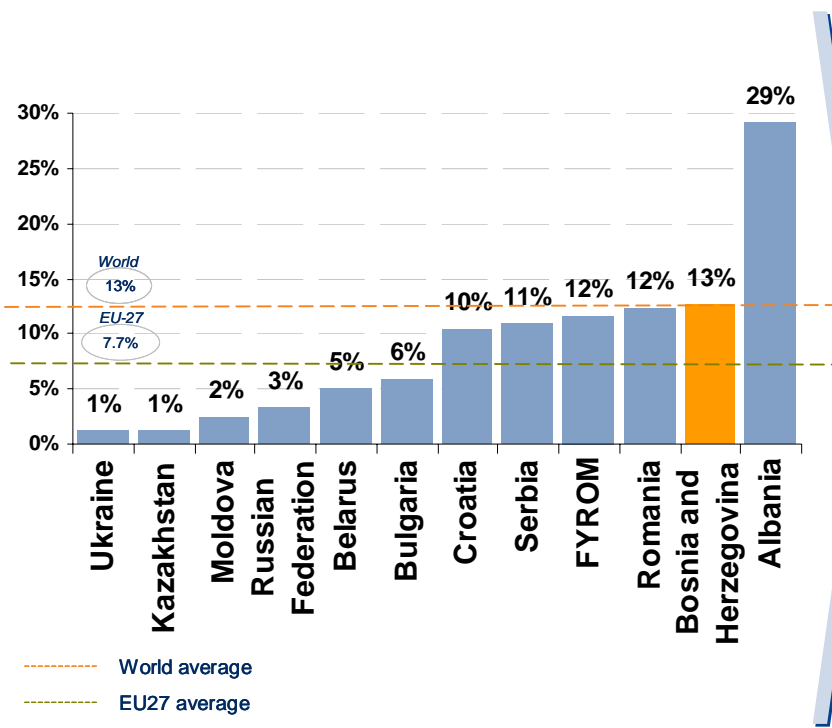
- As of today, no detailed data on Bosnia and Herzegovina energy efficiency are available - the lack of a reliable database on energy consumption is one of the major barriers to EE projects
- Bosnia and Herzegovina's energy intensity is well below the project region average but above the EU-27 average
- The main sources of inefficiency can be found in the district heating as well as in the housing sector

Source: Enerdata 2007

Renewable Energy Sources in Bosnia and Herzegovina

Bosnia and Herzegovina has the second highest share of renewable energy sources in the total primary energy supply of all project countries

Renewable Energy Sources



Comments

- Bosnia and Herzegovina has a relatively high share of renewables of 13% in the total primary energy supply
- Nearly half of the electricity production of the country is based on (large) hydro power plants
- Use of firewood for heating and cooking purposes is widespread and makes up for 4% of the energy balance
- The highest potential for future deployment of RES is within small hydropower; apart from that, the country has a promising potential for wind, solar and geothermal energy

Source: IEA 2006

Barriers for Investments in EE and RES in Bosnia and Herzegovina

Bosnia and Herzegovina faces several barriers which are related to the administrative structure in the country

**Legal,
institutional
and
administrative
barriers**

- **Energy policy implementation is conducted in parallel and without coordination at the entity level**
- **There is no reliable database on energy consumption**
- **There is a lack of secondary legislation for project development and policy implementation**

**Economic and
financial
barriers**

- **Current low energy prices hinder the development of renewables**
- **The comparatively low feed-in-tariffs for electricity from RES are not a motivation factor for foreign investors**

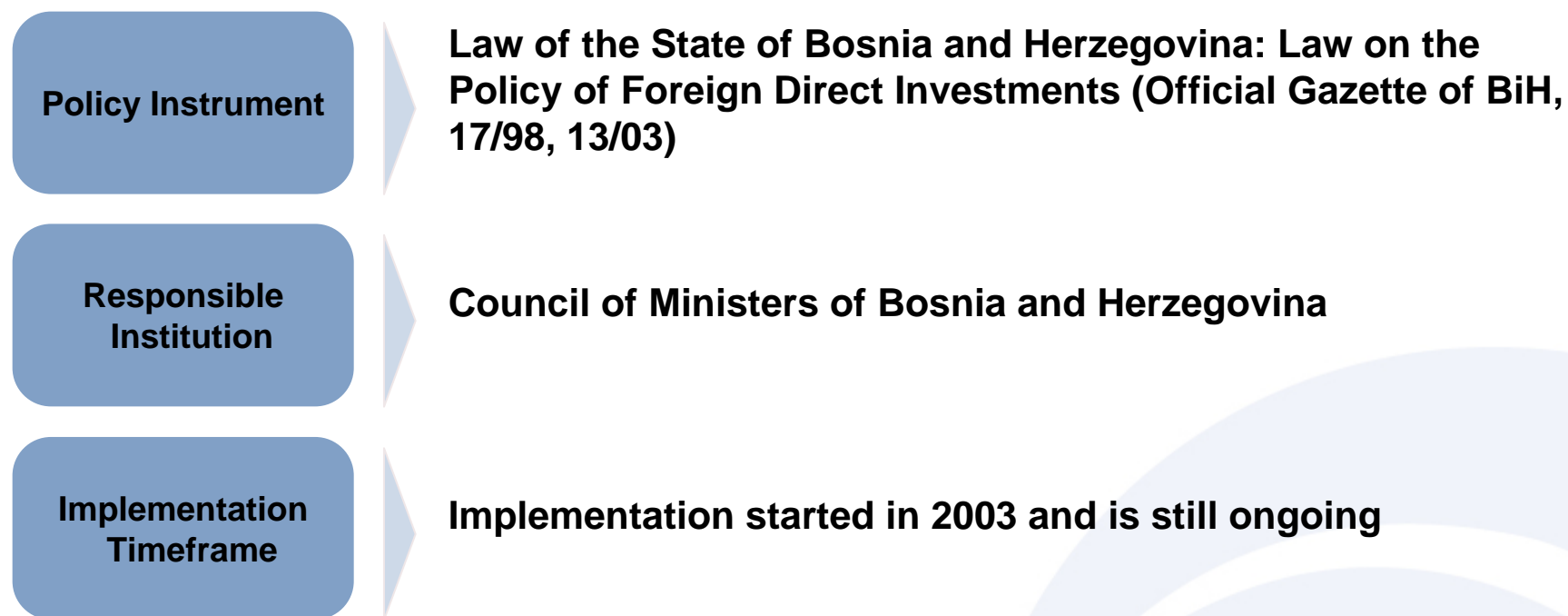
**Lack of
awareness,
human
capacities and
professional
skills**

- **Institutions involved in energy projects at the entity and state level face a lack of personnel**
- **Low electricity prices and electricity surplus have contributed to a low awareness for energy efficiency among the population**

Successful Policy Reforms in Bosnia and Herzegovina

One example of a successful policy reform in Bosnia and Herzegovina is the introduction of the Law on the Policy of Foreign Direct Investments

THE LAW ON DIRECT FOREIGN INVESTMENTS GRANTS EQUAL TREATMENT TO FOREIGN INVESTORS AND ESTABLISHES THE FOREIGN INVESTMENT PROMOTION AGENCY (FIPA)



The Law on the Policy of Foreign Direct Investments in Bosnia and Herzegovina

The introduction of the Law on the Policy of Foreign Direct Investments allowed Bosnia and Herzegovina to attract foreign investors in renewable energy sources sector

Description

- Foreign investors have the same rights and obligations as residents in Bosnia and Herzegovina
- Following this law, several international investors and project developers invested in small hydro projects in the country
- Foreign investors, who are guaranteed national treatment
- Government and population of Bosnia and Herzegovina benefit from economical and employment returns from foreign investors
- Market environment of Bosnia and Herzegovina is competitive thanks to the presence of both domestic and foreign investors

Beneficiaries

Results

- Based on the Law on the Policy of Foreign Direct Investments several international investors decided to invest in the construction of small hydro power plants in Bosnia and Herzegovina

Long-Term Effects

- The long-term positive effects are a steady increase of foreign direct investments in the country as well as the continuous development of renewable energy sources

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

The main recommendation for Bosnia and Herzegovina concerns measures to share information and develop common policies among the current administrative structures

Legal, institutional and administrative barriers

- **Establishment of communication council**
- **National energy strategy**
- **Creation of energy database**
- **Public procurement guidelines**

Economic and financial barriers

- **Financial incentives for energy efficiency and renewables in the industry and residential sector**
- **Adaptation of existing feed-in-tariff for electricity from renewable energy sources**
- **Tariff reform for electricity and heat**

Lack of awareness, human capacities and professional skills

- **National education, training and public awareness program**
- **Capacity building for policy makers**
- **Capacity building for local financing institutions**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Legal, institutional and administrative barriers (1/4)

Establishment of Communication Council

- **Parallel procedures, guidelines and regulatory frameworks of the two Bosnian entities, i.e. the Federation of Bosnia and Herzegovina and the Republika Srpska, are major barriers towards promotion of energy efficiency and renewable energy in Bosnia and Herzegovina. To overcome this barrier, the establishment of a Communication Council in charge for energy and energy related issues (such as climate change policy, spatial planning, etc.) is recommended.**
- **The Communication Council shall service to increase transparency, and facilitate and promote cooperation between the Federation of Bosnia and Herzegovina and the Republika Srpska, in particular concerning the elaboration and implementation of a national energy strategy, the elaboration of national energy statistic database, and the harmonization of investments. In addition, the Communication Council may be used as transparency platform to make public relevant information, which investors deem to be of key importance for the realization of energy projects.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Legal, institutional and administrative barriers (2/4)

National energy strategy

- **No common energy strategy exists so far in Bosnia and Herzegovina at the national state level. Therefore, the elaboration and implementation of a national energy strategy based on the relevant energy policy framework of the two autonomous entities is recommended. It will be the tool for development, monitoring, evaluation and constant further development of a common energy policy in Bosnia and Herzegovina.**
- **The National Energy Strategy should have the following content:**
 - **indicative overall and intermediate targets,**
 - **measures for achieving the targets,**
 - **specific targets and measures for the promotion of renewable energy and energy efficiency, and**
 - **a timetable for implementation, monitoring and reporting of the strategy.**
- **The Communication Council should be responsible for the elaboration, overall control, monitoring and reporting of the National Energy Strategy.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Legal, institutional and administrative barriers (3/4)

Creation of energy database

- **Lack of centralized information sources is another consequence of the political division of Bosnia and Herzegovina and a barrier towards the realization of sustainable energy projects. However, systematic and comprehensive data gathering is crucial to the adoption of sustainable energy practices and investments in the country as well as for developing benchmarks and best practices to demonstrate the potential benefits.**
- **The statistics office and line ministries of both entities need to develop uniform and user-friendly methods for recording, reporting and aggregating individual, firm, sector-wide, and regional data on energy production, also on a project basis, and consumption. All data shall be aligned to the international OECD, EUROSTAT and UNECE standards and thus be internationally comparable.**
- **The recommended Communication Council could coordinate the elaboration of the energy statistics database. Additional statistical bodies shall receive the capacity to collect, process and publish comprehensive sets of energy statistics in accordance with the above mentioned international standards.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Legal, institutional and administrative barriers (4/4)

Public procurement guidelines

- **The public sector should set a good example regarding investments, maintenance and other expenditure in energy efficiency and renewable energy use. Therefore, it is recommended that the Government of Bosnia and Herzegovina should endeavor to use sustainable energy criteria in tendering procedures for public procurement of e.g. electrical appliances (e.g. light bulbs, computers etc.), heating devices and energy services, or when renting, purchasing or refurbishing buildings.**
- **Sustainable public procurement, once implemented, will contribute to increase the awareness for energy efficiency and renewable energy and to decrease public expenditures in the medium term.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Economic and financial barriers (1/4)

Financial incentives for energy efficiency and renewables in the industry sector

- **Limited availability of public funding and/or dedicated operational credit lines is an economic barrier for energy efficiency and renewable energy projects in Bosnia and Herzegovina. The establishment of a public fund supporting sustainable energy projects is recommended.**
- **Funding could support renewable heating systems, cogeneration as well as energy efficiency measures in the industry and service sector and shall be open to industrial companies, utilities and energy distributors, installers, energy service companies as well as public companies (e.g. hospitals, schools, municipalities etc.). The support of accompanying measures such as energy audits and the installation of metering devices is highly recommended.**
- **The key areas of support and key sectors should be selected based on the available energy savings potential as well as the cost-benefit ratio to be evaluated when developing the National Energy Strategy.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Economic and financial barriers (2/4)

Financial incentives for energy efficiency and renewables in the residential sector

- **With a share of 21% of final energy consumption, the residential sector shows a high potential for energy efficiency measures as well as for renewable heating. Therefore, the introduction of financial incentives for the residential sector is recommended.**
- **Funding could be focused on least cost-measures such as:**
 - **switch from electricity to central heating (biomass, heat pumps or gas (if applicable))**
 - **installation of efficient/renewable central heating devices in new buildings**
 - **solar thermal,**
 - **energy efficiency measures in existing buildings such as improving insulation, tightening or changing windows.**
- **Both funds should be managed by the same authority or agency to be nominated on a national level. Co-funding by international institutions such as the United Nations Economic Commission for Europe (UNECE), the European Bank for Reconstruction and Development (EBRD) or the United States Agency for International Development (USAID) is an option which should be considered.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Economic and financial barriers (3/4)

Adaptation of existing feed-in-tariff for electricity from renewable energy sources

- **Two of the three power utilities in Bosnia and Herzegovina are obliged to purchase electricity from renewable energy sources. The existing feed-in tariff is rather low in comparison to the high technology costs and is considered not to be sufficiently attractive for foreign investors.**
- **The revision of the existing feed-in tariff, taking into consideration technology-specific and size-specific tariffs, is highly recommended for Bosnia Herzegovina. Additionally, the introduction of a feed-in tariff for “high efficiency” combined heat and power generation should be evaluated.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Economic and financial barriers (4/4)

Tariff reform for electricity and heat

- **Low-price policy in the energy sector has been identified to be one of the main economic and financial barriers in Bosnia and Herzegovina. Prices and tariffs are considered too low to ensure an adequate return on investment for renewable energy and energy efficiency projects.**
- **Furthermore, Bosnia and Herzegovina does not take into consideration environmental costs (e.g. CO₂, SO_x, or NO_x emissions released) associated with mainly coal-based energy production and consumption. By not accounting the environmental costs, Bosnia and Herzegovina artificially lowers the energy costs.**
- **In Bosnia and Herzegovina, a tariff reform will mean not just higher tariffs but also the introduction of different tariff structures and charges which specifically encourage energy efficiency and renewable energy:**
 - **The tariff level, customer classification, and tariff design must reflect as closely as possible the costs as the utility incurs them.**
 - **The tariff must internalize environmental externalities on energy prices.**
 - **Reform determination of service cost in order to encourage improvements in operating and maintenance efficiency as well as capital investments.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Lack of awareness, human capacities and professional skills (1/3)

National education, training and public awareness program

- **Lack of awareness and of capacities to successfully develop energy efficiency and renewable energy projects have been identified to be one of the main bottlenecks at all administrative levels as well as among energy customers.**
- **The National Government in cooperation with both entities and under supervision of the Communication Council shall develop a suitable information, awareness-raising, guidance and training program in order to inform about the benefits and practicalities of developing and using energy from renewable sources and energy efficiency measures.**
- **Information dissemination needs to be tailored to the end-user in order to be effective. Activities comprise advertising campaigns, energy labels and standards, energy performance certificates for buildings and capacity building programs.**
- **In Bosnia and Herzegovina a specific need for technical skills on energy saving measures has been identified. The implementation of a nationwide training and promotion initiative for energy efficiency is highly recommended.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Lack of awareness, human capacities and professional skills (2/3)

Capacity building for policy makers

- **Lack of awareness of the relevance of energy efficiency and renewable energy issues at the state and entity level hampers the introduction of a sustainable energy policy. Formulation, analysis and enforcement of both sustainable energy strategy and policy depend, in turn, on adequate staff and financial resources, as well as reliable and regular statistical data.**
- **Energy administrators and policy makers need to be reinforced to ensure that they have the capacity and means to develop strategies and implement policies promoting energy efficiency and renewable energy. Employment conditions need to be adequate to attract and retain staff with the required skills and knowledge. Institutions also need to build capacity and enhance mechanisms to increase transparency and public consultation on strategy and policy development, particularly in seeking input from academia and international institutions.**
- **Therefore, in order to fulfill the increasingly complex range of tasks at national, entity and regional levels, it is necessary to provide adequate funding and training for the staff of ministries, regulators and other government agencies with responsibilities in the energy sector of Bosnia and Herzegovina.**

Recommendations to overcome barriers for investments in EE and RES in Bosnia and Herzegovina

Lack of awareness, human capacities and professional skills (3/3)

Capacity building for local financing institutions

- **Commercial financing institutions are reluctant to financing energy efficiency and renewable projects, due to lack of experience in evaluation such type of projects. Development banks such as the European Bank for Reconstruction and Development (EBRD) allocate in the framework of the Western Balkans Sustainable Energy Direct Financing Facility long-term credit lines dedicated to energy efficiency and renewable energy investments to local banks in Bosnia and Herzegovina.**
- **Support to local banks in terms of assistance and training in refining, standardizing and evaluating loan applications and appraisal procedures is highly recommended to overcome this barrier and increase the number of commercially funded energy efficiency and renewable energy projects in Bosnia and Herzegovina.**

Conclusions

Bosnia and Herzegovina is in the phase of defining energy strategies development at the state and entity level; however, the country benefits from domestic and foreign investment in infrastructure and energy sector

- **Thanks to its domestic resources of coal, which accounts for 55% of the total electricity generation, Bosnia and Herzegovina, has a modest energy import dependency**
- **Hydro power accounts for 44% of the total electricity generation and is expected to increase based on the high untapped potential in Bosnia and Herzegovina**
- **Bosnia and Herzegovina boasts of one of the highest shares of renewable energy sources in the primary energy supply and will further increase this share based on the continuous inflow of foreign direct investments in this sector**
- **Lack of energy strategies development and insufficient harmonization 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 main recommendation for Bosnia and Herzegovina concerns measures to share information and develop common policies among the current administrative structures**

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The background of the slide features a close-up, artistic photograph of a green plant stem with a small globe of the Earth resting on it. The lighting is dramatic, highlighting the textures of the plant and the globe. At the bottom of the slide, the word "PÖYRY" is written in a large, bold, light-colored sans-serif font, with a double slash symbol above the 'Y'.

PÖYRY