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Steering Committee of the Energy Efficiency 21 Project

Ad Hoc Group of Experts on Energy Efficiency  
Investments for Climate Change Mitigation

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

Background paper

Note by the secretariat

**INTRODUCTION**

1. In accordance with the Work Plan (ECE/ENERGY/WP.4/GE.1/2009/6) and the Project Document on Financing Energy Efficiency Investments for Climate Change Mitigation, the Seminar on Policy Reforms to Promote Energy Efficiency and Renewable Energy Investments will be organized during the fourteenth session by the secretariat in close cooperation with Pöyry Energy Consulting AG, contractor for Regional Analysis of policy reforms to promote energy efficiency and renewable energy investments.

2. At the request of the secretariat, Pöyry Energy Consulting AG, has prepared a background paper summarizing the preliminary results of the regional analysis for policy reforms in selected countries of the United Nations Economic Commission for Europe (UNECE). The paper will serve as a basis for a discussion on recommendations of the Seminar for promoting further policy reforms and their implementation. Inputs from the discussions among seminar participants will be collected by Pöyry and consolidated into the final report of the Regional Analysis.

## **I. BACKGROUND OF THE ANALYSIS**

3. South-Eastern European, Eastern European and Central Asian countries are confronted with a wide range of economic and environmental problems caused by their inefficient and polluting energy systems. At the same time, their energy economies provide some of the most promising opportunities for reducing global greenhouse gas emissions. This will require the use of cost-effective energy efficiency improvements and renewable energy technologies – the main self-financing methods to implement climate change mitigation.

4. The investment potential for energy efficiency in these countries is so large that only the private sector can provide the capital needed to achieve meaningful results. This in turn will require a market for energy efficiency in which large investments can be made with low transaction costs at an acceptable ratio of risk-to-returns and within a reasonable period of time.

5. At present, private investors do not often finance energy efficiency projects in these countries because dedicated sources of financing are lacking and local banks are generally unfamiliar with such investments. Another obstacle to financing energy efficiency projects is the absence of policy and institutional support for their implementation. The lack of knowledge and experience on how to select and formulate energy efficiency investment projects is often a challenge for local experts.

6. In order to address these obstacles, in January 2008 UNECE began implementing the project on Financing energy efficiency for climate change mitigation, aimed at assisting participating countries to enhance their energy efficiency and reduce air pollution and greenhouse gas emissions in order to meet international obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and UNECE environmental conventions.

7. The goal of the project is to promote market formation so that self-sustaining energy efficiency and renewable energy projects can be identified, developed, financed and implemented locally in participating countries.

## **II. GOALS, SCOPE AND APPROACH OF THE ANALYSIS**

8. In the context of the above mentioned UNECE activities, the Regional Analysis for policy reforms to promote energy efficiency and renewable energy investments is conceived as a wide-ranging regional assessment, including case studies, expert workshops and senior policymaker seminars.

9. The scope of the analysis comprises 12 countries from Eastern Europe, South Eastern Europe and Central Asia: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia,

Kazakhstan, Republic of Moldova, Romania, Russian Federation, Serbia, the former Yugoslav Republic of Macedonia and Ukraine.

10. The main goal of the analysis is to provide recommendations addressed to the policymakers of the participating countries in order to develop and implement policy reforms that will support market formation and foster a favourable climate for investments in the sectors of energy efficiency and renewable energy sources. This goal is to be achieved by means of an interactive approach, thanks to the active involvement of the designated National Coordinators and National Participating Institutions from the project countries and the direct contributions from local and international experts which will be collected and consolidated in the final result.

### **III. LEGISLATIVE AND REGULATORY FRAMEWORK OF THE REGION**

#### **A. Progress of market liberalization**

11. All countries in the project region are in the process of deregulation and liberalization of their energy markets, with electricity markets having generally the highest degree of progress and gas and heat markets often lagging behind.

12. Energy market reforms such as unbundling of energy and grid assets and operations, establishment of independent grid operators, granting third party access to the power and gas grid and freedom for final customers to choose their energy supplier (at least for large customers) have been realized over the last years and provide an important framework for foreign investments.

13. As can be seen in Table 1, the progress in market liberalization varies greatly in the project region: while the two European Union (EU) member states Romania and Bulgaria, as well as the candidate state Croatia, have realized a full liberalization and deregulation of their electricity markets, most other countries are still in the early stages of market liberalization or, such as in the case of Belarus, have not started any market liberalization yet. Ukraine and Kazakhstan have undertaken a partial liberalization of the electricity market, since the market is entirely liberalized on the generation side but not on the final customer side.

Table 1. Progress of electricity market liberalization in the project region

<b>Progress of liberalization</b>	<b>Countries</b>
Full liberalization	Bulgaria, Croatia, Romania
Partial liberalization	Kazakhstan, Ukraine
Early stage liberalization	Albania, Bosnia and Herzegovina, Republic of Moldova, Russian Federation, Serbia, the former Yugoslav Republic of Macedonia
Liberalization process not yet started	Belarus

14. Privatization of energy assets (in the electricity and gas sector) and unbundling and restructuring of former national monopolies is an ongoing process in nearly all project countries. In countries like Albania, Bulgaria, Republic of Moldova, Romania, Russian Federation and the former Yugoslav Republic of Macedonia, foreign investors could enter the markets of generation and distribution of electricity as asset owners or at least shareholders.

15. At the same time, in Belarus, Bosnia and Herzegovina, Croatia and Serbia the presence of a state monopoly or the market domination by state-owned companies is still a factor limiting the degree of market competition and hindering the entrance of independent operators in these markets.

## B. International commitments and treaties

16. Several international treaties exist between the project countries and the neighbouring countries or international institutions, with different implications on the development of energy markets. In the following, the most relevant international commitments and treaties are reviewed: the United Nations Framework Convention on Climate Change (and the related Kyoto Protocol), relationships with the European Union, the Energy Community Treaty as well as the Energy Charter Treaty.

### **1. United Nations Framework Convention on Climate Change and Kyoto Protocol**

17. All project countries are signatories of the UNFCCC and have ratified the Kyoto Protocol.

18. Table 2 shows the affiliation status of the project countries to Annex 1 of the UNFCCC and to Annex B of the Kyoto Protocol.

Table 2. Commitment to the Kyoto Protocol of project countries

Kyoto Protocol affiliation	Countries
Annex B countries	Bulgaria, Croatia, Romania, Russian Federation, Ukraine
Non-Annex B countries	Albania, Bosnia and Herzegovina, Republic of Moldova, Serbia, the former Yugoslav Republic of Macedonia
Unclear status	Belarus, Kazakhstan

19. Five countries of the project region are Annex B parties to the Kyoto Protocol and are therefore eligible for Joint Implementation (JI) projects with other Annex B countries as well as for the trading of emission certificates. While five other countries are non-Annex B parties to the Kyoto Protocol and are therefore eligible for Clean Development Mechanism (CDM) projects with Annex B countries, for Belarus and Kazakhstan the status is still unclear:

- (a) Belarus signed the UNFCCC as an Annex 1 country and ratified the Kyoto Protocol in 2005 as a non-Annex B country. Subsequently, Belarus adopted the Amendment to Annex B of the Kyoto Protocol but has not been included in Annex

B yet, since this requires ratification by 75 per cent of the parties of the Protocol (by the end of 2008 only five of the 175 signatories had ratified this provision);

- (b) Kazakhstan signed the Kyoto Protocol in March 1999 as a non-Party to Annex 1 of the UNFCCC and as a non-Party to Annex B of the Kyoto Protocol; in April 1999, Kazakhstan stated its intent to accede to Annex 1 to the UNFCCC. In early 2009, Kazakhstan ratified the Kyoto Protocol and still aims at becoming an Annex 1 country. However, the reduction target foreseen by Annex B has not yet been determined.

20. CDM and JI projects are powerful instruments to attract foreign investors in the countries, since many utilities from the European Union are eager to compensate their CO<sub>2</sub> emissions with Certified Emission Reductions (CER) and Emission Reduction Units (ERU) tradable within the European Emission Trading System. Therefore, project countries should push forward the implementation of CDM/JI projects, despite the current uncertainty about the future development of these mechanisms after 2012.

## **2. Relationships with the European Union**

21. Integration in the European Union is a major driver for policy reforms aiming at the establishment of market-based energy systems. The implementation of the *acquis communautaire* (for member states as well as for candidate states) with the related sets of guidelines and regulations strongly supports the creation of a transparent and reliable regulatory framework as well as favourable conditions for the entrance of foreign capital in the country (investors, market players, project partners).

22. Tables 3 and 4 show the current relationships of the project countries with the EU.

Table 3. EU membership status of project countries

<b>EU membership status</b>	<b>Countries</b>
Full membership	Bulgaria, Romania
Candidate states	Croatia, the former Yugoslav Republic of Macedonia
Application for membership submitted	Albania
Expressed interest in membership	Bosnia and Herzegovina, Republic of Moldova, Serbia, Ukraine
No negotiations on membership	Belarus, Kazakhstan, Russian Federation

23. Besides integration in the EU, several bilateral or multilateral agreements regulate the cooperation with the EU and support the implementation of common policy practices and

regulatory standards. The most relevant agreements for cooperation with the European Union are shown in Table 4.

Table 4: Current EU relationships of the project countries

<b>Current EU relationships</b>	<b>Countries</b>
Stabilization and Association Agreements	Albania, Bosnia and Herzegovina, Croatia, Serbia, the former Yugoslav Republic of Macedonia
European Neighbourhood Policy	Belarus, Republic of Moldova, Ukraine
European Union – Russian Federation Common Spaces	Russian Federation
Partnership and Cooperation Agreements	Kazakhstan, Republic of Moldova, Russian Federation, Ukraine

### 3. Energy Community Treaty

24. The Treaty establishing the Energy Community (also known as Energy Community South East Europe Treaty or ECSEE) was signed in Athens in late 2005 and entered into force on 1 July 2006. It aims at establishing a single regulatory framework across southeast Europe and the EU on the same terms.

25. The treaty will ensure that the signatory states will adopt EU single market regulations regarding energy (the *acquis communautaire* in the relevant fields of energy, environment, competition and others). The timetable for implementation of the Treaty is as follows:

- (a) 1 July 2007: implementation of the two EU energy market directives and regulation on cross-border network access;
- (b) 1 January 2008: liberalization of the markets for all non-household customers;
- (c) 31 December 2011: reduction of the sulphur content of certain liquid fuels;
- (d) 1 January 2015: market liberalization for all final customers;
- (e) 31 December 2017: limitation of emissions of certain pollutants into the air from large combustion plants.

26. Table 5 shows the current membership status to the Energy Community of the project countries.

Table 5. Membership of the Energy Community of project countries

<b>Membership status</b>	<b>Countries</b>
Member states	Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia, the former Yugoslav Republic of Macedonia
Observer states	Republic of Moldova, Ukraine
Non-members	Belarus, Kazakhstan, Russian Federation

#### **4. Energy Charter Treaty**

27. The Energy Charter Treaty is an international agreement originally based on integrating the energy sectors of the former Soviet Union and Eastern Europe into the broader European and world markets.

28. Following the political declaration of principles contained in the Energy Charter of 1991, the legally-binding Treaty was signed in Lisbon in late 1994, together with the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA). The Treaty and the Protocol, which came into effect in April 1998, focus on four broad areas:

- (a) Protection of foreign investments, based on the extension of national treatment and protection against key non-commercial risks;
- (b) Non-discriminatory conditions for trade in energy materials, products and energy-related equipment;
- (c) Resolution of disputes between participating states and between investors and host states;
- (d) Promotion of energy efficiency and attempts to minimize the environmental impact of energy production and use.

29. Table shows the current membership status to the Energy Charter Conference of the project countries. Belarus and the Russian Federation have accepted provisional ratification of the Treaty to the extent that it is consistent with their own constitutions, law and regulations, while Serbia, which signed the Energy Charter in 2001, holds the status of bserver within the Energy Charter Conference.

Table 6. Membership of the Energy Charter Conference of project countries

<b>Membership status</b>	<b>Countries</b>
Member states	Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, Republic of Moldova, Romania, the former Yugoslav Republic of Macedonia
Observer states	Serbia
Members with pending ratification	Belarus, Russian Federation

#### **C. Dedicated regulation for energy efficiency and renewable energy sources**

30. Regulations and provisions regarding the energy sector are available in all project countries; however, the structure, the goals and the extent of the national legislations can differ significantly between the countries. The project countries that are currently in negotiations for accession to the European Union have developed a regulatory framework which is oriented to the implementation of the *acquis communautaire*, while the countries of the former Soviet Union have regulatory frameworks that are generally based on the former regulation of the Soviet Fuel and Energy Complex.

31. A peculiar situation is given in Bosnia and Herzegovina where, according to the Dayton Agreements of 1995, the regulation of the energy activities does not fall under the responsibility of the national administration but is in the competence of the two separated entities in which the country is subdivided; this represents a major obstacle to the development of a harmonized and consistent national energy policy.

32. Furthermore, all project countries have long-term national strategic programmes in place, which describe the government vision and targets for the development of the national energy sector. In most countries, targets referring to energy efficiency and renewable energy sources are mentioned. However, these national strategic programmes often contain ambitious targets without any clarity the planned measures for implementation of the programmes and frequently there are no implementation plans and/or no entities responsible for monitoring the implementation progress.

33. Regarding dedicated regulation for support of energy efficiency and renewable energy sources, there are broad differences among the project countries. Tables 7 and 8 list the project countries according to the presence of a dedicated regulation for energy efficiency and renewable energy sources, respectively. Except for Kazakhstan and Belarus, all project countries have a dedicated governmental agency in place, which is responsible for the development and implementation of energy efficiency and renewable energy policy.

Table 7. National legislation for energy efficiency

<b>Status of dedicated legislation</b>	<b>Countries</b>
Dedicated legislation and secondary legislation implemented	Bulgaria, Romania
Dedicated regulation in place but partial implementation or lack of secondary legislation	Albania, Belarus, Republic of Moldova, Russian Federation
Regulatory provision from other regulatory framework but no dedicated legislation	Bosnia and Herzegovina <sup>a</sup> , Croatia, Serbia, the former Yugoslav Republic of Macedonia
Regulation currently under development or under major revision	Kazakhstan, Ukraine

<sup>a</sup> For Bosnia and Herzegovina only legislation at the entity level is available

Table 8. National legislation for renewable energy sources

Status of dedicated legislation	Countries
Dedicated legislation and secondary legislation implemented	Bulgaria
Dedicated regulation in place but partial implementation or lack of secondary legislation	Kazakhstan, Republic of Moldova, Russian Federation
Regulatory provision from other regulatory framework but no dedicated legislation	Belarus, Bosnia and Herzegovina <sup>a</sup> , Croatia, Romania, Serbia, the former Yugoslav Republic of Macedonia
Regulation currently under development or under major revision	Albania, Ukraine

<sup>a</sup> For Bosnia and Herzegovina only legislation at the entity level is available

#### **D. Dedicated incentive mechanisms for energy efficiency and renewable energy sources**

34. Important institutional financing mechanisms for energy efficiency and renewable energy projects are national funds for energy efficiency projects, especially when complementing the availability of a premium tariff for producers of electricity from renewable energy sources (linked with the obligation for the grid operators to connect renewable power plants to the electricity grid).

35. Tables 9 and 10 show the availability of incentive mechanisms for energy efficiency and renewable energy sources in the project countries. A comparison between the two tables shows that while, as can be seen in the previous section, the legislation for energy efficiency appears to have a higher degree of development than the regulation for renewable energy sources, regarding the implementation of national incentive mechanisms, renewable energy sources are clearly more advanced than energy efficiency.

36. On the one hand, this may relate to the fact that financing of the premium tariffs is generally done through special tariff components included in the price for electricity paid by final consumers of electricity, while the financing of national energy efficiency funds relies upon the availability of dedicated national and/or municipal budgets. On the other hand, premium tariffs for electricity from renewable energy sources cover a narrower range of activities and technologies, while funds for financing energy efficiency projects may require a much broader range of technical and financial competences as well as a higher amount of human resources for the management of the fund, therefore presenting more complexities and challenges for operational implementation.

Table 9. Availability of national funds for energy efficiency in the project region

Status of dedicated legislation	Countries
National energy efficiency fund established and operational	Bulgaria, Croatia, Romania
National energy efficiency fund partially established or with limited operational activities	Republic of Moldova, Serbia, Ukraine
No national energy efficiency fund	Albania, Belarus, Bosnia and Herzegovina <sup>a</sup> , Kazakhstan, Russian Federation, the former Yugoslav Republic of Macedonia

<sup>a</sup> for Bosnia and Herzegovina, only legislation at the entity level is available

Table 10. National legislation for renewable energy sources

Status of dedicated legislation	Countries
Premium tariff system developed and implemented	Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Romania <sup>a</sup> , Russian Federation <sup>b</sup>
Premium tariff system developed but not implemented or not yet operational	Albania, Republic of Moldova, the former Yugoslav Republic of Macedonia, Ukraine
No premium tariff system available	Kazakhstan, Serbia

<sup>a</sup> Romania has implemented an incentive system with obligatory shares of renewable energy sources and an underlying market for green certificates

<sup>b</sup> The Russian Federation provides a premium applied to the current market price

#### IV. NEEDS FOR INVESTMENTS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SOURCES

##### A. Energy efficiency

37. Figure 1 represents the overall energy intensity of the project countries (expressed as kilograms of oil equivalents per US\$ at purchasing power parity). As the energy intensity is one of the main indicators for energy efficiency, the chart points out the strong need for improvement of energy efficiency in the majority of the project countries. With the exception of Albania and Croatia, all other countries are above the EU-27 average. It should be noted, however, that the low energy intensity of some countries, in particular Albania, is more related to the growth of the gross domestic product due to foreign aid and remittances from abroad over the years, as well as to the collapse of heavy industries following the economic crises of the early 1990s rather than to improvements in energy efficiency.

38. Furthermore, the figures have to be regarded cautiously since some countries feature a consistent share of shadow economy (for example, in case of Ukraine this is estimated to be as high as 40 per cent). These activities are not considered in the calculation of the energy intensity levels and it can therefore be speculated that the actual energy intensity levels might be lower than officially reported.

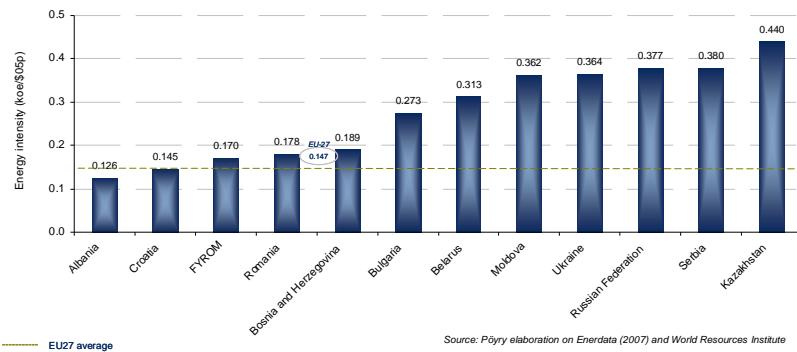


Figure 1: Overall energy intensity of the project countries

39. As indicated in Figure 2, the overall energy intensity of the project countries decreased, with exception of Albania, significantly in the period of 1997 to 2007. Nevertheless, as shown in Figure 1 the energy intensity levels of some countries are still significantly high.

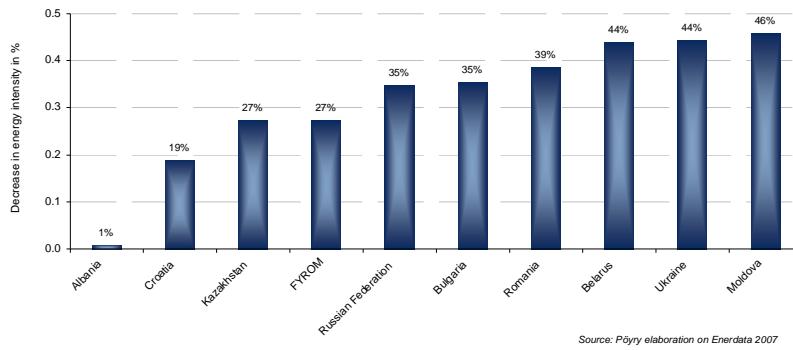


Figure 2: Decrease of the overall energy intensity from 1997 to 2007

## B. Renewable energy sources

40. The current deployment of renewable energy sources (defined as a share of the total primary energy supply) is depicted in Figure 3. The major contribution to renewable energy sources comes from hydro and biomass, while other renewable energy sources (geothermal, solar, wind) have only a negligible share. The high share of renewable energy in the Balkan

region comes from the widespread use of hydro for the generation of electricity, while the other large contribution derives from the use of wood for heating purposes.

41. While a rather satisfactory situation can be observed with respect to deployment of renewable energy sources in many project countries (at least in comparison with the EU-27 average value), it must be noted that the counting of large hydro power plants among renewable energy sources is a very disputed issue and in most European countries no financial incentives are available for these technologies.

42. Similarly, the extended use of wood for heating purposes might pose a potential conflict with respect to the efficiency of heating generation compared to other, more efficient energy sources (primarily gas) and moreover, depending on the technology used and on the fuel sourcing strategy in place, it may be in conflict with other environmental standards (forest conservation and/or air pollution). Therefore, the development of “cleaner” renewable energy sources such as solar, wind or small hydro power should be strongly encouraged by policymakers.

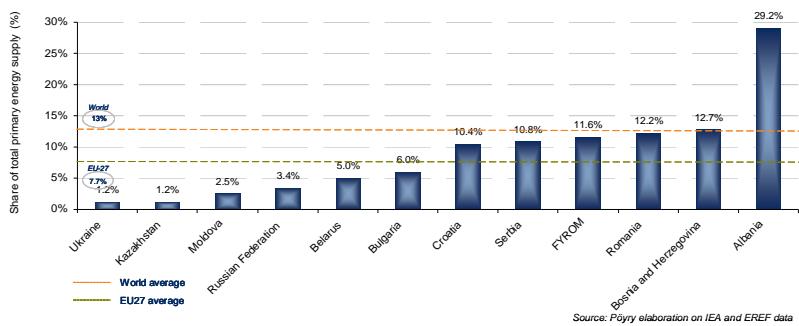


Figure 3: Deployment of renewable energy sources in the project countries (as % of total primary energy supply)

43. Figure 4 indicates the share of renewable energy sources in the electricity generation of the project countries. While Albania generates almost all its electricity by hydro power plants, Belarus’ energy production is nearly entirely based on fossil fuels. However, as noted in the previous section, the main contributions come from large hydro projects for electricity generation (especially in the Balkan region).

44. The contribution of the so-called “new renewable sources”, which are generally characterized by higher environmental sustainability (solar, wind, geothermal, small hydro power) is negligible in all project countries, despite the presence of significant untapped potential. Hindering factors in the development of renewable energy projects are the availability of cheap conventional fuels as well as the absence of an attractive feed-in tariff for electricity produced from renewable energy sources (in order to ensure a positive return for investors) and finally, in certain cases, the difficulties for independent power producers to get a connection to the power grid.

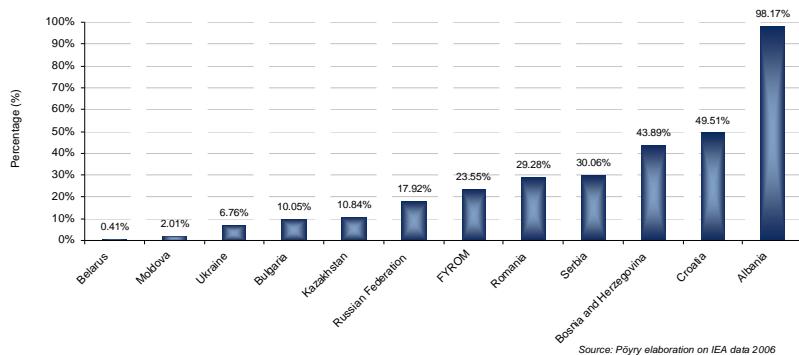


Figure 4: Deployment of renewable energy sources in the project countries (as % of total electricity supply)

45. However, several project countries dispose of significant untapped renewable energy resources and intend to exploit it in the near future. Alone in Croatia, new wind power plants with a significantly high potential capacity of 5'000 MW are being considered for development

46. As for electricity generation, the use of renewable energy sources for heating purposes is negligible. Only Albania has a significant amount of solar thermal power for heating, which accounts for 37% of the total heat generation. Furthermore Belarus (4%), Romania (1%), the Russian Federation (1%) and the former Yugoslav Republic of Macedonia (1%) feature a small share of biomass in their heat generation.

## V. REGIONAL BARRIERS TO IMPLEMENTATION OF INVESTMENT IN ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECTS

47. A number of main barriers to successful financing of energy efficiency and renewable energy investments are common to the entire project region, even if at different levels, and need to be addressed in all participating countries. In the following sections, a summarized overview of those barriers which appear to be common to the entire project region is provided.

### A. Legal, institutional and administrative barriers

48. Barriers at the institutional and administrative levels can be manifold and very complex to address because of the different administration and policymaking levels involved. The most frequently encountered barriers of this kind in the project region are:

- The complexity of the regulatory framework, which is often distributed over a range of laws, decrees, programmes and ordinances without a clear, coordinated structure and creates lack of transparency and hinders foreign investors from gathering the necessary information on regulatory framework conditions;

- (b) In addition to the complexity of regulations, political instability, which may be caused either by a political instability in the country (such as frequent elections, changes of government and subsequent change of executive staff in the ministries) or by an excessive legislative fervour by policymakers, which may update and revise the current regulations very frequently. Both factors may lead to regulatory risks and to arbitrariness in administrative procedures that are likely to prevent investors from becoming active in the project countries;
- (c) Lack of secondary legislation and operational instructions, tools and procedures necessary to implement primary legislation or strategic programmes: labelling and construction standards, specifications for energy audits, penalties or sanctions for the non-observance of obligation to perform energy audits and implement subsequent measures;
- (d) Complex and cumbersome authorisation procedures for projects, both for energy efficiency and renewable energy projects, frequently involving the duplication of documents and information and the involvement of many different administrative entities at the local, regional and national level;
- (e) Absence of dedicated procurement rules to support acquisition of energy efficient equipment and the demand for energy services in the public administration;
- (f) Absence or limited use of public tendering processes for projects; furthermore, the tendering processes are often characterized by lack of transparency and certainty of project implementation after the tender;
- (g) Lack of cooperation between different ministries and agencies involved in energy policy as well as between ministries and local administrations due to the lack of instructions and procedures on exchange of information and to the absence of dedicated agencies at the local level;
- (h) Property issues in multi-resident building blocks, which may significantly limit the efficacy of energy efficiency investments.

49. In addition to these barriers, which specifically relate to the energy sector, the presence of non-transparent regulations, language barriers, inefficient bureaucracy and corruption may generally limit the possibilities for foreign investors to enter and operate in the project countries.

## **B. Market inefficiencies, economic and financial barriers**

50. Many economic barriers that hinder the financing and the realization of attractive project come from inefficiencies in the structure of the energy markets:

- (a) Excessive state intervention on price formation, artificially low tariffs for final customers and cross-subsidies between customer segments hinder the establishment of a competitive market environment;

- (b) Low energy tariffs limit the profitability of energy efficiency projects and do not offer any incentive for a change of behaviour on behalf of the customers. At the same time, while considering reforms of tariff and pricing policies, their impact on social weak categories must be considered, in order to avoid the spreading of fuel poverty. Furthermore, tariff policies must be considered in an integrated context, i.e. by considering the impact of tariff changes on the utilization of substitution fuels, in order to avoid triggering fuel competition, which may lead to enhanced energy inefficiency (e.g. when electricity is used for residential heating in the presence of a district heating infrastructure);
- (c) The presence of a state monopoly or the market domination by state-owned companies (which constitutes a de facto monopoly even when the market is formally open) hinders the entrance of independent operators, who have a direct interest in infrastructural improvement and may be able to implement best-practices and advanced technologies, into the energy markets;
- (d) Environmental and economic efficacy of energy efficiency and renewable energy projects is hindered by obsolete and insufficient infrastructure for transport and distribution of energy (such as grid losses, lack of adequate grid connection, lack of metering), even if the business case for the project itself may be positive;
- (e) At the same time, local utilities and distribution companies, who are facing serious profitability problems in face of insufficient payment rates and/or unprofitable regulated customer tariffs, do not have adequate financial means for infrastructure improvement and are therefore reluctant to support or push forward even promising energy projects. Public ownership of the energy companies creates a conflict of interest between economic profitability of the company and the pursuing of political interests through favourable pricing policies, and hinders the establishment of optimized and advancement asset management practices;
- (f) A major barrier to the development of energy efficiency and renewable energy projects is the unavailability of public funds for financing of initiatives and programmes: premium tariffs for renewable energy sources are developed but are then often not operational and frequently they are of limited extent (e.g. they apply only to certain technologies or have restrictive requirements). Energy efficiency funds, if they are operational, have limited resources; no alternative incentive measures such as softened dedicated credit lines, tax exemptions or support schemes for third-party financing are in place.

51. Local banks may, under certain circumstances, be inclined to finance energy efficiency and renewable energy projects; however, the interest rates applied to mid- or long-term loans and the severe requests for collaterals are a significant barrier for newly established, independent project developers.

### C. Lack of awareness, human capacities and professional skills

52. The last cluster of barriers to investments concerns the lack of awareness, of human capacities and of professional skills to identify, develop, finance and realize energy efficiency and renewable energy projects. These barriers involve all stakeholders of the projects and require extensive work of awareness-raising and capacity-building which may take several years into account before showing tangible benefits:

- (a) Lack of political commitment to implement the necessary policy reforms: long-term programmes and energy strategies frequently are more declaratory than operational;
- (b) Local public administrations' lack of human resources and professional expertise for implementation of identified projects;
- (c) Commercial banks lack experience in financing schemes as well as awareness of possible economic benefits arising from energy efficiency and renewable energy projects; this lack of experience is also related to the lack of standards within the banks, imposing an environmental and energy screening on all projects prior to financing;
- (d) Lack of training and education possibilities for the formation of professionals with adequate skills for the preparation of energy audits, identification of attractive project opportunities and preparation of bankable project proposals;
- (e) Lack of awareness on the part of consumers, who are used to considering energy more like a public service than a valuable good and are very reluctant to change their consumption behaviour unless this implies a tangible improvement of their living standard;
- (f) Limited demand for energy service company (ESCO) services, showing a lack of awareness on the part of many customers (especially small and medium-sized enterprises) on the potential economic benefits and increase in productivity that may result from energy efficiency investments.

## VI. INTERIM CONCLUSIONS AND PROPOSALS FOR DISCUSSION

53. While the overall analysis work is still ongoing and more in-depth understanding of country-specific challenges and barriers regarding energy efficiency and renewable energy investments is required, the present overview of the development of the energy markets and of progress in policy reforms allows the first conclusions to be drawn:

- (a) All countries in the project region have gone a long way in their transition from central planned to market economies; after severe economic crises and downturns

at the end of the 1990s, all countries have experienced significant economic growth with real growth values of the gross domestic product well above the world average. However, poverty is still a significant issue in some of the project countries, as well as the persistence of strong economic inequalities not only between one country and another but, which may even more relevant, within the countries themselves. Therefore fuel poverty is expected to remain a major issue in the project region and should be especially considered in the definition of price policies;

- (b) Integration in the European Union is a major driver for policy reforms aiming at the establishment of market-based energy systems. The implementation of the *acquis communautaire* (for member states as well as for candidate states) with the related sets of guidelines and regulations strongly supports the creation of a transparent and reliable regulatory framework as well as favourable conditions for the entrance of foreign capital in the country (investors, market players, project partners);
- (c) A complex, unstable and non-transparent regulatory framework is associated with regulatory risks for investors and may support arbitrary and discriminatory administrative procedures and therefore provides no favourable environment for private foreign investments;
- (d) National strategic programmes often contain ambitious targets for energy efficiency and renewable energy sources, but in some cases there is no certainty regarding the implementation of the programmes: commitment by the government to target achievement, definition of clear responsibilities for implementation and establishment of a realistic time schedule as well provision of adequate budgets are crucial factors determining the success of such strategic programmes;
- (e) Nearly all countries in the project region have liberalized their energy markets partially or entirely. Energy market reforms such as unbundling of energy and grid activities, establishment of independent grid operators, granting third party access to the power and gas grid and freedom for final customers to choose their energy supplier (at least for large customers) have been realized in the last years and provide an important framework for foreign investments. At the same time, price regulation, artificially low tariffs for final customers and cross-subsidies between customer segments hinder the establishment of a true market competition and therefore de facto energy monopolies still exist in most of the investigated countries;
- (f) Environmental and economic efficacy of energy efficiency and renewable energy projects at a national level is hindered by obsolete and insufficient infrastructure for transport and distribution of energy (such as grid losses, lack of adequate grid connection, lack of metering), even if the business case for the project itself may be positive. At the same time, local utilities and distribution companies, who are facing serious profitability problems in the face of insufficient payment rates and/or unprofitable regulated customer tariffs do not have adequate financial

means for infrastructure improvement and are therefore reluctant to support or push forward even promising energy projects;

- (g) In general, there is a high awareness of the relevance of energy efficiency issues and policies supporting energy efficiency programmes are under way in most of the project countries. Unfortunately, often the energy efficiency policies are not implemented and/or there are no economic incentives for the realization of energy efficiency projects; in addition, artificially low energy tariffs provide no motivation for final customers to change their consumption behaviour and to implement energy saving measures. As a result, the situation with respect to energy efficiency remains dramatic in the majority of the project countries;
- (h) Concerning renewable energy sources, the main contributions come from large hydro projects for electricity generation (especially in the Balkan region) or from the utilization of fuel wood in residential heating. Apart from these two renewable sources, the contribution of the so-called “new renewable sources”, which are generally characterized by higher environmental sustainability (solar, wind, geothermal, small hydro power) is negligible in all project countries, despite the presence of significant untapped potential. Hindering factors in the development of renewable energy projects are the availability of cheap conventional fuels as well as the absence of an attractive feed-in tariff for electricity produced from renewable energy sources (in order to ensure a positive return for investors) and finally, in certain cases, the difficulties for independent power producers to get a connection to the power grid;
- (i) Clean Development Mechanisms (CDM) and Joint Implementation (JI) projects are powerful instruments to attract foreign investors in the countries, since many utilities from the European Union are eager to compensate their CO<sub>2</sub> emissions with Certified Emission Reductions (CER) and Emission Reduction Units (ERU) tradable within the European Emission Trading System. Therefore, project countries should push forward the implementation of CDM/JI projects, despite the current uncertainty about the future development of these mechanisms after 2012;
- (j) A major barrier to the development of energy efficiency and renewable energy projects is the unavailability of public funds for financing of initiatives and programmes (especially for large programmes such as the implementation of a feed-in tariff for renewable energy projects or upgrading of the electric grid infrastructure which may not provide a direct financial return). This unfortunate situation is expected to worsen even further as a consequence of the present financial crisis, which is posing severe problems to the national economies in Eastern Europe;

- (k) Lack of awareness on the side of public administrations, banks and final customers as well as lack of experience and economic as well as technical capabilities to develop bankable projects both hinder the development of energy efficiency and renewable energy projects. While capacity building and know-how transfer programmes are ongoing in many of the project countries, governmental campaigns directed at raising public awareness of the relevance of energy issues and the importance of establishing financial means to support initiatives and programmes are of crucial importance in establishing a public climate which is open to investments in energy efficiency and renewable energy sources.
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