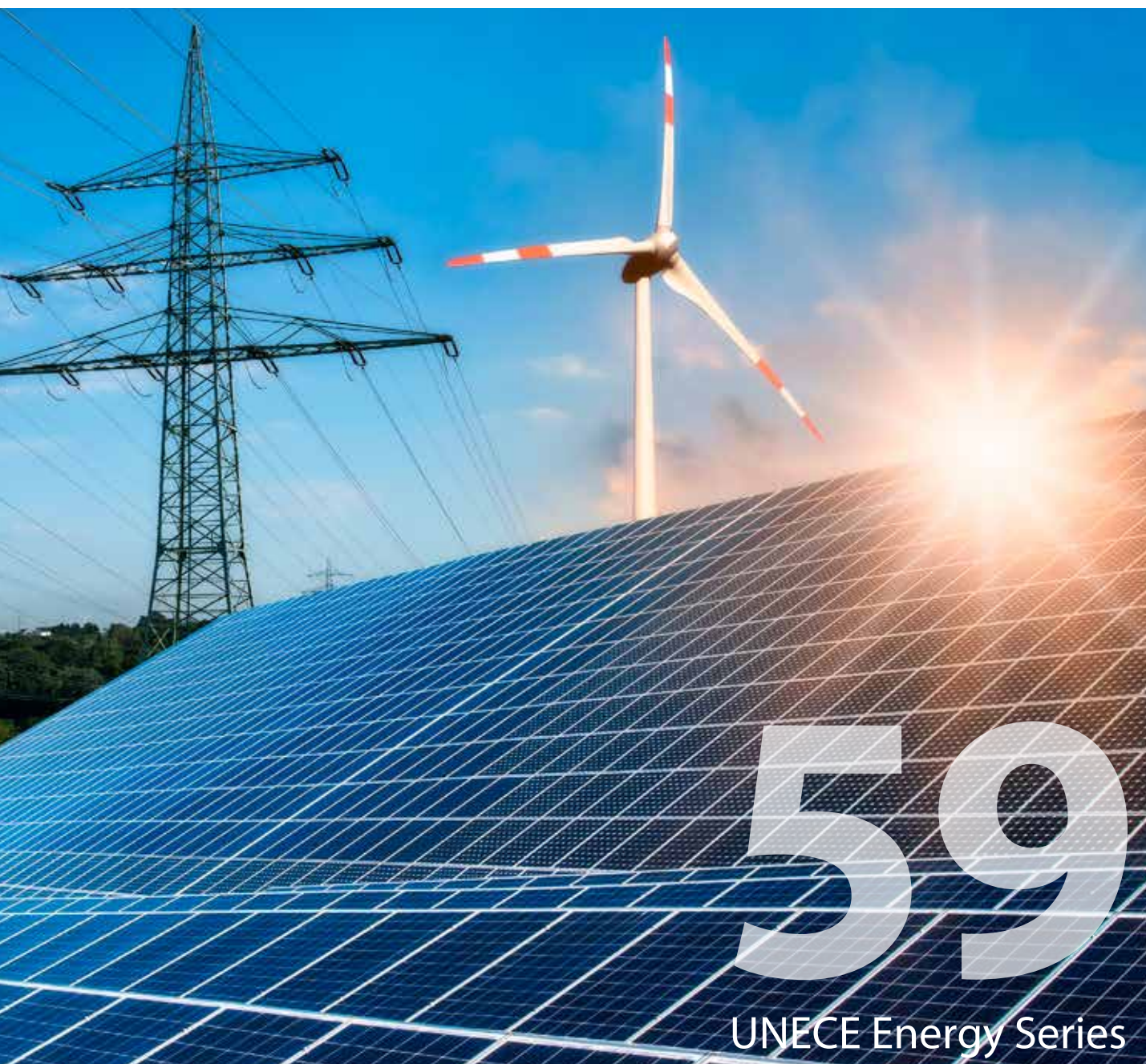


**UNECE**

# Progress in the Areas of Energy Efficiency and Renewable Energy in Selected Countries of the UNECE Region



59

UNECE Energy Series



**UNITED NATIONS**

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**Progress in the Areas of  
Energy Efficiency and  
Renewable Energy  
in Selected Countries  
of the UNECE Region**

**ECE ENERGY SERIES No.59**



**UNITED NATIONS**

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## FOREWORD

Sustainable Development Goal 7 calls for ensuring access to affordable, reliable, sustainable and modern energy for all by 2030. The targets of SDG 7 include increasing substantially the share of renewable energy in the global energy mix and doubling the global rate of improvement in energy efficiency.

This publication explores the progress in energy efficiency and renewable energy in selected countries of South-Eastern Europe, Eastern Europe, Central Asia, and in the Russian Federation. The study analyzes policy, legislative and regulatory frameworks, financial environment and level of awareness in the areas of energy efficiency and renewable energy from 2010 to the present. It also identifies existing gaps in the required frameworks and environment to promote energy efficiency and renewable energy investments in the respective country.

This study is intended to support countries in their ongoing efforts to improve energy efficiency and build a strong renewable energy base. It recommends necessary steps to achieve the countries' long-term objectives.

Progress in the countries is uneven. Energy intensities remain high despite reductions in recent years, and the countries have tremendous untapped renewable energy potential. Countries continue to face a number of legislative, policy, economic and financial barriers that impede significant improvements in energy efficiency and/or increased uptake of renewable energy. The Governments must address these barriers and deploy consistent and coherent energy policies and measures. Identifying and implementing such policies and measures can increase investment and financing flows to energy efficiency and renewable energy projects.



**Olga Algayerova**

Executive Secretary  
United Nations Economic  
Commission for Europe

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From 2007–2014, UNECE executed a project Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation. The final report of this project provides a basis for assessment of developments since 2010 in the areas of energy efficiency and renewable energy in selected countries.

Nadejda Khamrakulova is the main author of this study. Oleg Dzioubinski and Scott Foster contributed to this publication.

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- The UNECE Group of Experts on Energy Efficiency, the UNECE Group of Experts on Renewable Energy and respondents to the Survey on the Progress in the Areas of Energy Efficiency and Renewable Energy. In particular, contributions and comments from Miloš Banjac, Vladimir Berdin, Dimitar Dukov, Aleksandar Dukovski, Kostiantyn Gura, Zdravko Genchev, Željko Jurić, Artan Leskoviku, Artem Makarov, Pavel Manchev, Boris Melnichuk, Andrey Miniankou, Tatyana Pospelova, Yury Posysaev, Sergiu Robu, Antonela Solujić, Biljana Trivanovic, Dragomir Tzanev and Grigory Yulkin are gratefully acknowledged.
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## Acronyms and Abbreviations

<b>BFEE</b>	Budgetary Fund for Energy Efficiency
<b>BOOT</b>	Build–Own–Operate–Transfer
<b>CAGR</b>	Compound Annual Growth Rate
<b>CHLM</b>	Committee on Housing and Land Management
<b>CTCN</b>	Climate Technology Centre and Network
<b>DBRB</b>	Development Bank of the Republic of Belarus
<b>DTIE</b>	Division of Technology, Industry and Economics
<b>EBC</b>	European Business Congress
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>ECA</b>	Europe and Central Asia
<b>ECLAC</b>	Economic Commission for Latin America and the Caribbean
<b>ECOSOC</b>	Economic and Social Council
<b>EE</b>	Energy Efficiency
<b>EIB</b>	European Investment Bank
<b>ESCAP</b>	United Nations Economic and Social Commission for Asia and the Pacific
<b>ESCO</b>	Energy Service Companies
<b>ESCWA</b>	Economic and Social Commission for Western Asia
<b>ESIF</b>	European Structural and Investment Fund
<b>ETS</b>	Emission Trading System
<b>EU</b>	European Union
<b>FEEI</b>	Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation
<b>FFEM</b>	Fonds Français pour l’Environnement Mondial
<b>GDP</b>	Gross Domestic Product
<b>GEEE</b>	Group of Experts on Energy Efficiency
<b>GEF</b>	Global Environment Facility
<b>GERE</b>	Group of Experts on Renewable Energy
<b>GGF</b>	Green for Growth Fund
<b>GHG</b>	Greenhouse Gas
<b>HFHI</b>	Habitat for Humanity International
<b>IEA</b>	International Energy Agency
<b>IFC</b>	International Finance Corporation
<b>IRENA</b>	International Renewable Energy Agency
<b>KfW</b>	Kreditanstalt für Wiederaufbau (“Reconstruction Credit Institute”)
<b>NAP</b>	National Action Plan
<b>NEEAP</b>	National Energy Efficiency Action Plan
<b>NREAP</b>	National Renewable Energy Action Plan

<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PV</b>	Photovoltaics
<b>RE</b>	Renewable Energy
<b>REC</b>	Renewable Energy Certificate
<b>REN21</b>	Renewable Energy Network 21
<b>RES</b>	Renewable Energy Sources
<b>RISE</b>	Regulatory Indicators for Sustainable Energy
<b>SDG</b>	Sustainable Development Goal
<b>SE4ALL</b>	Sustainable Energy for All
<b>SHPP</b>	Small Hydro Power Plant
<b>TFC</b>	Total Final Consumption
<b>UN</b>	United Nations
<b>UNDA</b>	United Nations Development Account
<b>UNDP</b>	United Nations Development Programme
<b>UN ECA</b>	United Nations Economic Commission for Africa
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>UNEP</b>	United Nations Environment Programme
<b>UNF</b>	United Nations Foundation
<b>UNFIP</b>	United Nations Fund for International Partnerships
<b>UNIDO</b>	United Nations Industrial Development Organization
<b>UN RC</b>	United Nations Regional Commission
<b>VAT</b>	Value Added Tax
<b>WBIF</b>	Western Balkans Investment Framework
<b>WeBSEFF</b>	Western Balkans Sustainable Financing Facility

## Signs and Measures

<b>GWh</b>	Gigawatt-hour
<b>ktoe</b>	Kiloton of oil equivalent
<b>MW</b>	Megawatt
<b>PJ</b>	Petajoule

## EXECUTIVE SUMMARY

UNECE implemented a project “Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation” from 2007 to 2014. The long-term objective of the project was to promote an investment climate in which self-sustaining EE and RE projects could be identified, developed, financed and implemented. The geographic focus of the study was on selected UNECE member States from South-Eastern Europe, Eastern Europe, and Central Asia: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, North Macedonia, Republic of Moldova, Russian Federation, Serbia, and Ukraine. The project achieved most of its objectives and this final project report provides a basis for assessing progress since 2010.

The study explores policy, regulatory and institutional reforms; the capacity of stakeholders in countries to act; best practices; and awareness raising efforts. The study highlights gaps related to EE and RE in each of these areas and identifies number of barriers to significant improvements in EE and increased uptake of RE that remain.

### PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY

- Bulgaria and Croatia, as members of the European Union, were required to transpose the EU Directives’ provisions into their national laws to ensure major energy savings for both consumers and industry.
- Albania, Bosnia and Herzegovina, North Macedonia, Republic of Moldova, Serbia, and Ukraine are the contracting parties of the Energy Community and made legally binding commitments to adopt the EU energy legislation which boosted the development of policy, legislative and regulatory frameworks in these countries.
- Energy agencies have been established in Albania, Bulgaria, Croatia, North Macedonia, Republic of Moldova, Russian Federation, and Ukraine.
- Belarus, Kazakhstan and the Russian Federation also achieved significant progress in the areas of EE and RE since 2010.
- Countries have made significant progress on policies to promote EE and RE as dedicated framework legislation on EE and RE has been adopted in most of the project countries and secondary legislation was promulgated.

### PROCESSES BENEFICIAL FOR THE COUNTRIES

Certain processes led by UNECE and the other United Nations Regional Commissions in the area of EE and RE have been particularly beneficial for countries and are recommended for replication and scaling up:

- Projects: “Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development”; “Promoting Renewable Energy Investments for Climate Change Mitigation and Sustainable Development”; and “Energy Efficiency Standards in Buildings in the UNECE Region.”
- Events: annual International Forum on Energy for Sustainable Development, organized since 2010; sessions of the UNECE Group of Experts on Energy Efficiency (GEEE); sessions of the UNECE Group of Experts on Renewable Energy (GERE); Renewable Energy Hard Talks; organized in the framework of GERE activities in selected member States (Georgia, Ukraine, Azerbaijan, and Kazakhstan in 2017-2018).

- Publications: Best Policy Practices for Promoting Energy Efficiency (2015 and 2017 (Second edition)); Analysis of National Case Studies on Policy Reforms to Promote Energy Efficiency Investments (2015); Experience in the Europe and CIS Region with Clean Energy – UNDP, GEF and UNECE (2016); Overcoming Barriers to Investing in Energy Efficiency (2017); UNECE Renewable Energy Status Report (two editions, 2015 and 2017).

## REMAINING GAPS

Energy subsidies persist in many of the reviewed countries. They discourage investment because energy tariffs remain below cost-recovery levels in several countries and do not provide investors with the opportunity to recoup their investment. Green certificates are not present in many of the reviewed countries. Auctions have been introduced only in Kazakhstan and the Russian Federation. Renewables portfolio standards or quota system exists only in Belarus. Guaranteed grid access for electricity generated from RE sources exists only in a few countries. Only Albania, Belarus and Ukraine have introduced net metering.

Commercial financing lacks incentives, while the investments in the selected countries are mainly driven by international donors and development banks in the form of debt financing or grants from the World Bank, EBRD, and KfW. The important lenders for countries in South-Eastern Europe are also the European Commission, the Council of Europe Development Bank, and EIB.

The reviewed countries still require additional capacity building activities on EE and RE. Areas in which education and awareness raising gaps are present include: further implementation of governmental measures on improvements in tariff policies; tenders to support the implementation of EE and RE projects; preparation of EE and RE project design documentation; assistance to participants in the energy management system; and popularization of EE and RE policies and opportunities for general public.

## RECOMMENDATIONS

To address the existing gaps in the reviewed countries, the study proposes the following recommendations:

### Policy, legislative and regulatory frameworks

- National EE Action Plans should be adopted in those project countries that have not done so yet (Belarus, Kazakhstan, and the Russian Federation). A National RE Action Plan should be adopted in the Russian Federation.
- Policy makers from the project countries should focus on development and subsequent enforcement of the secondary legislation on EE and RE.
- Development and implementation of EE and RE policies should be coordinated at the national, regional (provincial), and local levels. Absence of such coordination often leads to ineffectiveness of the adopted policies in the countries.
- Policy makers, business community, financial institutions, academia, and civil society should participate in formulation of EE and RE policies to achieve consensus and facilitate implementation of policies.
- EE and RE policy development requires consistent and sustained introduction of new measures and their constant improvement. Governments should introduce new regulations, update the existing ones and monitor their implementation.

- To be effective, EE and RE policies should be predictable and consistent over time, aligned with the existing energy market structure, and coordinated with other policies.
- Dedicated EE and RE governmental institutions or agencies should be created in those project countries where they do not exist yet to ensure implementation of energy policy in the country and improvements in EE and increased uptake of RE.

### **Financing**

- Further work needs to be done to improve the investment climate for EE and RE projects. Special efforts to attract investments should be a focus for governments.
- Countries introduce non-distorting incentive schemes (financial and non-financial) for EE and RE investments.
- Energy subsidies should be eliminated (while addressing energy poverty and ensuring that vulnerable segments of population have access to affordable and clean energy) as they discourage EE and RE investments and do not provide investors with expected returns on investment.
- Additional efforts should be made in the project countries to reduce perception of the commercial financial institutions that financing of EE and RE projects carries high risks.

### **Awareness raising**

- Awareness of EE and RE opportunities should be a priority for authorities to address obstacles.
- Information exchange activities and trainings should become an integral part of EE and RE development strategies.
- International development agencies can support activities aimed at increasing public awareness of EE measures and use of RE through public awareness campaigns and pilot projects.

# INTRODUCTION

A number of legislative, policy, economic, and financial barriers remain in order to significantly improve EE and increase uptake of RE. It is important to identify policies and measures that reduce barriers to increasing investment and financing flows to EE and RE projects, with an emphasis on commercial projects and private financing. A valuable aspect is transferability of successful measures in selected countries to other UNECE member States. Particular attention needs to be given to the reasons why EE improvement and uptake of RE are lagging behind what is necessary to achieve climate objectives and sustainable development goals.

In the period of 2007–2014, UNECE was executing the project Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation. The long-term objective of the project was to promote an investment climate in which self-sustaining EE and RE projects can be identified, developed, financed and implemented. The project achieved most of its objectives and the final project report has been prepared. This project provided a basis for the analysis of developments occurred in the beneficiary countries in the period from 2010 to present days. This study presents main findings and outcomes of the final report of the project and review the progress in the areas of EE and RE in the selected countries.

The study looks at policy, regulatory and institutional reforms; capacity of stakeholders in the countries; best practices developed and introduced; and awareness raising aimed at improving investments into EE and RE. It also looks at the processes in the area of EE and RE, which are particularly beneficial for the countries and can be recommended for replication and scaling up. It highlights the existing gaps related to EE and RE in the areas of policy, regulatory and institutional frameworks, financial environment, and education and awareness.

The geographic focus of the study is selected UNECE member States from South-Eastern Europe, Eastern Europe, and Central Asia. These are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, North Macedonia, and Serbia (South-Eastern Europe), Belarus, Republic of Moldova, and Ukraine (Eastern Europe), Kazakhstan (Central Asia), and Russian Federation.

The assessment of progress in the areas of EE and RE in the selected countries since 2010 is based on evaluation of responses from the survey and additional information provided by the national authorities. A survey was prepared and conducted over the period of 1 March – 30 April 2018. It was addressed to the responsible authorities for EE and RE in these countries. The survey was made available in English and Russian. Evaluation of responses from the countries was complemented by desk research to assess overall progress in the areas of EE and RE. The desk research relies on findings from the review of selected literature and available data on EE and RE in the countries.

The information cut-off date for this study is 31 December 2018.



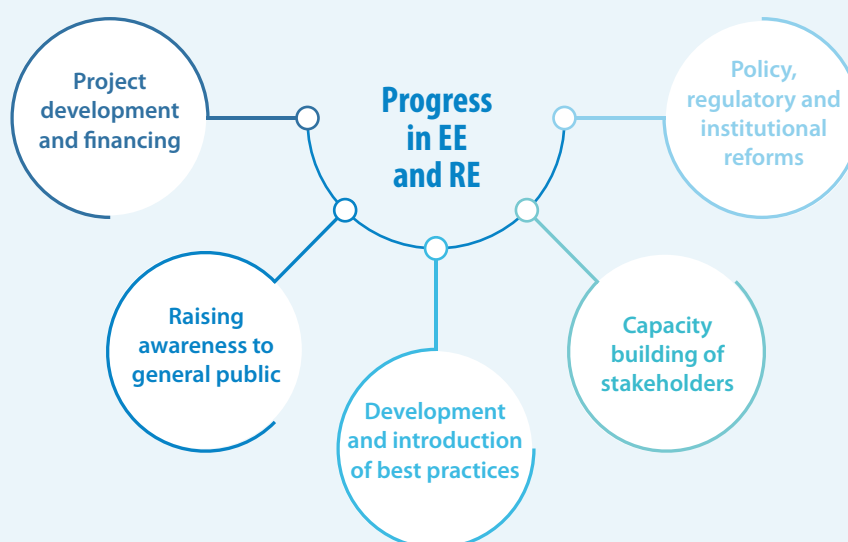
# CHAPTER I

## OVERVIEW OF PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY

# Chapter I: OVERVIEW OF PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY

This chapter aims to assess the progress in the areas of EE and RE in the selected countries since 2010. In particular it aims at identifying the policy reforms implemented, best practices developed, investment projects developed, financed and implemented, and capacity building achieved in the areas of EE and RE in the reviewed countries (Fig. 1).

**Figure 1.** Areas of Progress in Energy Efficiency and Renewable Energy in the Selected Countries



Nine completed surveys have been received from the responsible authorities in Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, North Macedonia, Russian Federation, Serbia and Ukraine. Information on the Republic of Moldova was provided at a later stage by the national authority responsible for EE and RE. Information on Kazakhstan is based on a review of available literature and data on EE and RE. The detailed country profiles on the progress in the areas of EE and RE since 2010 are available in the Annex II.

## Policy, Regulatory and Institutional Reforms

While most of the selected countries significantly progressed in increasing the use of RE and improving EE, some countries are among the top performers, and some others are in the middle tier (World Bank, 2017). As successful examples, Kazakhstan was identified as the top RISE (Regulatory Indicators for Sustainable Energy) performer for RE, and the Russian Federation was the top performer for EE. The progress includes creating the necessary policy and regulatory framework, such as adopting national targets, policies and regulations (UNECE and REN21, 2017).

This part of the study aims to assess the development and improvement of policy, regulatory and institutional frameworks in the selected countries.

### *Framework legislation and main policy documents*

An overview of the framework legislation and main policy documents for EE and RE in the countries shows that the reviewed countries made significant progress in the policy area to promote EE and RE since 2010. Examples of such developments can be seen in the adoption of and amendments to the laws on EE and RE, energy development strategies, national action plans on EE and RE in the countries.

Two reviewed countries – Bulgaria and Croatia – are the members of the European Union (EU). Bulgaria and Croatia joined the EU in 2007 and 2013 respectively. As the EU member countries, they are required to use energy more efficiently at all stages of the energy chain from its production to its final consumption.

The 2012 Energy Efficiency Directive establishes a set of binding measures to help the EU reach its 20 per cent EE target by 2020. Under this Directive, all EU countries were required to transpose the Directive's provisions into their national laws. New national measures have to ensure major energy savings for both consumers and industry (EUR-Lex website).

Bulgaria identified its EE targets in the Energy Strategy to 2020 and indicated that EE is “the highest priority in the energy policy of the country” (EC website). The national ambitious goals were set up on this basis. The National Energy Efficiency Action Plan (NEEAP) adopted “indicative national targets to 2020 for additional energy savings of 716 ktoe per year in final energy consumption and 1,590 ktoe per year in primary energy consumption below the reference scenario of trends for energy consumption in Bulgaria...from 2013” (ODYSSEE-MURE, 2015).

Croatia assumed the obligation of increasing EE to achieve the objective of saving 20 per cent of primary energy consumption by 2020. The country adopted its Energy Strategy, National Energy Efficiency Programme, NEEAP and “aimed at reducing its final energy consumption in 2016 by 19.77 PJ. The sectoral distribution of the target was revised in the third NEEAP in accordance with the amended projections for final energy consumption and the savings potentials per sector” (EIHP, 2015).

Albania, Bosnia and Herzegovina, North Macedonia, Republic of Moldova, Serbia, and Ukraine are the contracting parties of the Energy Community. By adopting the Energy Community Treaty, the contracting parties make legally binding commitments to adopt the EU energy legislation, the so-called “*acquis communautaire*.” The treaty and its *acquis* evolve constantly to incorporate new sectors as well as update or replace older acts. To stay on track with evolution of the EU law, the treaty allows adaptation of the *acquis* and implementing of possible amendments. This ensures that the Energy Community contracting parties keep pace with the EU developments and continuously align their regulatory frameworks in the energy and related sectors to those of the EU. Table 1 provides an overview of developments in legislative and policy framework on EE and RE in the contracting countries.

The survey also looked at the progress in policy and regulatory framework for EE and RE in the countries. According to responses, the dedicated framework legislation on EE and energy saving has been adopted in Albania (2015), Belarus (2015), Bosnia and Herzegovina (Federation of Bosnia and Herzegovina in 2013, Republika Srpska in 2013), Bulgaria (2016), Croatia (2014), Kazakhstan (2014), Republic of Moldova (2010), Russian Federation (2009 with latest amendment in 2014), Serbia (2013), and Ukraine (2011).

The laws on RE have been adopted in Albania (2017), Belarus (2010), Bosnia and Herzegovina (both entities in 2013), Bulgaria (2011, amended in 2017), Croatia (2015, amended in 2017), Kazakhstan (2013), Republic of Moldova (2016, amended in 2017), and Ukraine (2003 with the latest amendment in 2017). In Serbia, there is no particular law dealing with RE, however RE is regulated through the Law on Energy from 2014 and relevant secondary legislation.

Since 2010, the Energy Development Strategies until 2030 have been developed and adopted in Albania (2018), Bosnia and Herzegovina (Republika Srpska in 2012), Bulgaria (2011), Croatia (draft of 2017), North

**Table 1.** Main Policy Documents Related to EE and RE in the Selected Countries

Project country	Law on EE		Law on RE		Energy Development Strategy		NEEAP		NREAP	
<b>Albania</b>	<b>2015</b>		<b>2017</b>		<b>2018</b>		<b>2011*</b>		<b>2016</b>	
<b>Bosnia and Herzegovina</b>	2017 (BiH)	2013 (RS)	2013 (BiH)	2013 (RS)	2009 (BiH)	2012 (RS)	2017 (BiH)	2009 (RS)	2016 (BiH)	2016 (RS)
<b>North Macedonia</b>	—		—		2010		2010/2014/2017**		2015	
<b>Republic of Moldova</b>	2010		2016		2013		2013/2016***		2013	
<b>Serbia</b>	2013		—		2015		2010/2013/2016****		2013	
<b>Ukraine</b>	2011		2003, amended in 2017		2017		2015		2014	

\* 1<sup>st</sup> NEEAP was adopted in 2011. The decision on adoption of the 2<sup>nd</sup> NEEAP was taken on 11.12.2017

\*\* 1<sup>st</sup> NEEAP was adopted in 2010. 2<sup>nd</sup> NEEAP was adopted in 2014. 3<sup>rd</sup> NEEAP was adopted in 2017 but not published

\*\*\* 1<sup>st</sup> NEEAP was adopted in 2013. 2<sup>nd</sup> NEEAP was adopted in 2016.

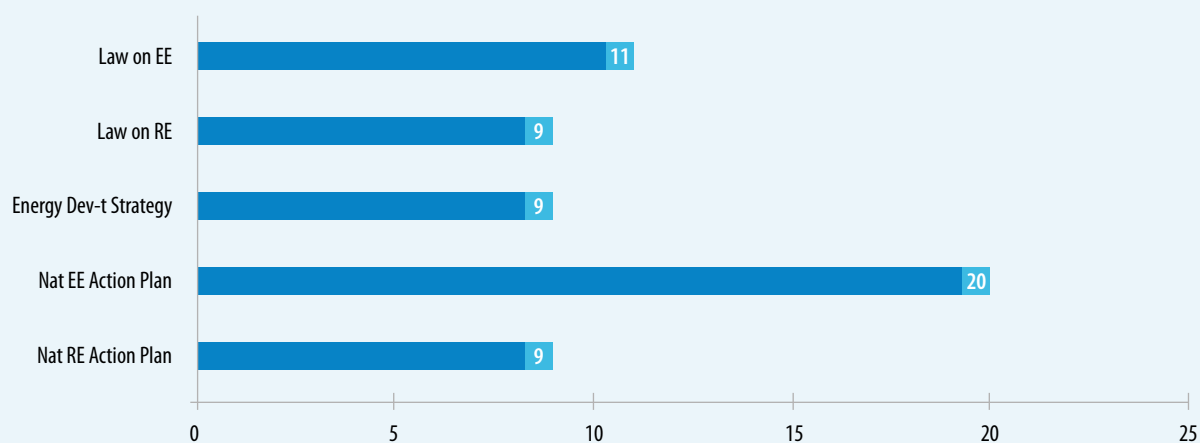
\*\*\*\* 1<sup>st</sup> NEEAP was adopted in 2010. 2<sup>nd</sup> NEEAP was adopted in 2013. 3<sup>rd</sup> NEEAP was adopted in 2016.

Source: Energy Community Treaty Secretariat website (<https://www.energy-community.org>)

Macedonia (2010), Republic of Moldova (2013), Russian Federation (2009), and Ukraine (2017). In Serbia, the Energy Sector Development Strategy by 2025 with projections by 2030 was adopted in 2015.

The National Energy Efficiency Action Plans (NEEAP) have been developed in Albania (second NEEAP in 2017), Bosnia and Herzegovina (Federation of Bosnia and Herzegovina in 2017), Bulgaria (fourth NEEAP adopted in 2017), Croatia (fourth NEEAP adopted in 2017), North Macedonia (third NEEAP in 2017), Republic of Moldova (second NEEAP adopted in 2016), Serbia (third NEEAP adopted in 2016), and Ukraine (2015).

The National Renewable Energy Action Plans (NREAP) have been developed in Albania (2016), Bosnia and Herzegovina (Federation of Bosnia and Herzegovina in 2016), Bulgaria (2012), Croatia (2013), Kazakhstan (2013), North Macedonia (2015, amended in 2017), Republic of Moldova (2013), Serbia (2013), and Ukraine (2014). Fig. 2 below provides an overview in total numbers of laws and policy documents adopted in the selected countries since 2010.

**Figure 2.** Framework Legislation and Policy Documents Related to EE and RE in the Countries Adopted since 2010

According to the World Bank’s RISE, the selected countries have taken steps towards putting national EE strategies in place. Being scored in the green zone (above or equal to 66.6 out of a possible 100), average scores for national EE planning were among the highest in the ECA (Europe and Central Asia) region. ECA region in RISE included assessment of the situation in Belarus, Kazakhstan, Russian Federation and Ukraine among other countries, with the overall score of 92 for Belarus, 100 for Kazakhstan, 92 for the Russian Federation, and 67 for Ukraine.

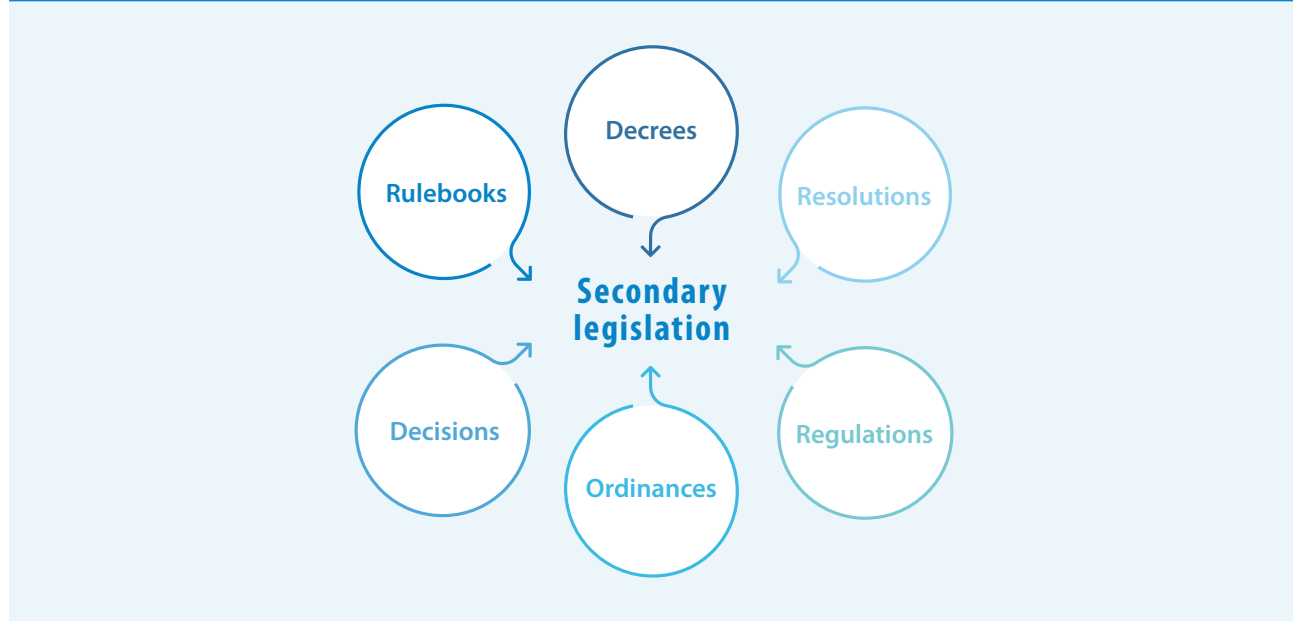
**Box 1. The RISE traffic light system** conveys a country’s aggregate score in sustainable energy on each pillar and indicator, categorizing countries into green, yellow, and red zones. A green light for a pillar, for example, indicates that the policy framework addresses many of the key areas that will help attract the type of investments the government seeks, and is a strong indication that the government has prioritized that pillar and devoted resources to support its growth. A country with a red light usually has enormous scope for improving its policy space (World Bank, 2017).

The UNECE RE Status report in 2017 points out that planning and targets for RE continue to be a primary means for governments to express their commitment to RE deployment. Targets for RE remain widely used in the countries. Albania, Bosnia and Herzegovina, Kazakhstan, North Macedonia, Republic of Moldova, Serbia, and Ukraine have adopted their RE action plans at the national level. Republic of Moldova approved the Law on the Promotion of Energy from Renewable Sources in 2016. In the Russian Federation, a government resolution prioritizes the development of RE within the country’s energy strategy.

**Secondary legislation**

The development of the secondary legislation was boosted in all selected countries since 2010. According to responses of the survey, secondary legislation is comprised of various types of by-laws produced by different governmental bodies. In particular, they include Presidential decrees, Governmental resolutions and decrees, resolutions of National Commissions, rulebooks, ordinances, regulations, specific decisions and rules. Fig. 3 shows the types of by-laws that form a base for the secondary legislation in the countries to promote EE and RE developments.

**Figure 3.** Types of By-laws Existing in the Area of EE and RE in the Selected Countries



The issues covered by the secondary legislation to promote of EE and RE developments include (i) production and use of RE, (ii) production of electricity from RES, (iii) purchase of electricity from RES, (iv) RE targets and indicators, (v) energy saving, (vi) energy security, (vii) efficient cogeneration, (viii) EE improvements, (ix) EE in buildings, (x) energy performance in buildings, (xi) green tariffs, (xii) energy audits, (xiii) energy management, (xiv) energy certification, (xv) measurement and verification of energy savings, (xvi) energy consumption, (xvii) energy labelling of household appliances, (xviii) energy service contracts, (xix) energy conservation, and (xx) urban development. Fig. 4 illustrates in the form of mosaic a variety of topics covered by the recently developed secondary legislation in the reviewed countries.

The survey responses also illustrated that norms, standards and technical regulations are completing the regulatory framework related to EE and RE in the reviewed countries. The systems of technical standardization and conformity assessment in energy consumption, conservation and saving are being developed and implemented in certain countries. The process of harmonization with European Union standards is also on the way. The new standards are being developed to improve EE in buildings, develop and improve energy management and energy audits, as well as standards covering RE technologies, energy passports of industrial consumers, EE measurement and verification procedures.

**Figure 4.** Topics Covered by the Secondary Legislation Related to EE and RE

Energy certification	Energy security	EE improvements	Energy management	Purchase of electricity from RES
Production of electricity from RES	Energy saving	EE in buildings	Energy labelling	Energy consumption
Use of RES	Energy service contracts	RE targets, indicators	Energy performance	Energy audits
Energy conservation	M&V of energy savings	Efficient cogeneration	Urban development	Green tariffs

### *Institutional framework*

Most of the reviewed countries have EE entities in place despite not all having a national action plan or targets for EE activities (World Bank, 2017). According to the RISE assessment, the average scores for ECA region topped those for all other regions with 100 score for Belarus, Kazakhstan and Russian Federation, and 71 score for Ukraine.

The institutional framework is formed by the institutions at the national and local levels acting in the areas of EE and RE in the reviewed countries. Table 2 provides a list of key institutions responsible for promoting EE and RE in each country at the national and local levels.

As per assessment of these institutions, in nine countries, the Ministries of Energy are responsible for the energy policy, including the overall supervision of EE and RE developments. In North Macedonia and Republic of Moldova, the Ministries of Economy are the designated ministries for energy related policies.

The energy agencies are established in Albania, Bulgaria, Croatia, North Macedonia, Republic of Moldova, Russian Federation, and Ukraine. The established entities are dedicated to setting RE support schemes, EE standards, certifying compliance with equipment EE standards, selecting and/or approving third party auditors to certify compliance (World Bank, 2017).

Table 2. National and Local Institutions Acting in the EE and RE Areas in the Selected Countries	
Country	Name of the institution
Albania	<ul style="list-style-type: none"> <li>■ Ministry of Economy, Trade and Energy</li> <li>■ Ministry of Energy and Infrastructure</li> <li>■ National Agency of Natural Resources</li> </ul>
Belarus	<ul style="list-style-type: none"> <li>■ The Ministry of Energy</li> <li>■ The Ministry of Anti-Monopoly Regulation and Trade</li> <li>■ Department of EE of the State Standardization Committee</li> </ul>
Bosnia and Herzegovina	<ul style="list-style-type: none"> <li>■ The key authorities at the state level:</li> <li>■ Ministry of Foreign Trade and Economic Relations</li> <li>■ State Electricity Regulatory Commission</li> <li>■ Elektroprenos BiH</li> <li>■ Independent system operator for BiH</li> <li>■ The Federation of Bosnia and Herzegovina:</li> <li>■ Federal Ministry of Energy, Mining and Industry</li> <li>■ Federal Ministry of Physical Planning</li> <li>■ Elektroprivreda BiH</li> <li>■ Elektroprivreda HZHB</li> <li>■ The Republika Srpska:</li> <li>■ Ministry of Industry, Energy and Mining</li> <li>■ Ministry of Spatial Planning, Civil Engineering and Ecology</li> <li>■ Elektroprivreda RS</li> </ul>
Bulgaria	<ul style="list-style-type: none"> <li>■ Ministry of Energy</li> <li>■ Ministry of Regional Planning and Public Works</li> <li>■ Ministry of Environment and Waters</li> <li>■ Sustainable Energy Development Agency</li> </ul>
Croatia	<ul style="list-style-type: none"> <li>■ Ministry of Environment and Energy</li> <li>■ Croatian Energy Regulatory Agency</li> <li>■ Croatian Energy Market Operator</li> </ul>
Kazakhstan	<ul style="list-style-type: none"> <li>■ The Ministry of Energy.</li> <li>■ The Committee for Regulation of Natural Monopolies and Protection of Competition</li> </ul>
North Macedonia	<ul style="list-style-type: none"> <li>■ Ministry of Economy</li> <li>■ Ministry of Environment and Physical Planning</li> <li>■ Regulatory Commission (regulator for energy, support scheme)</li> <li>■ Energy Agency of the Republic of Macedonia</li> </ul>
Republic of Moldova	<ul style="list-style-type: none"> <li>■ The Ministry of Economy and Infrastructure</li> <li>■ The Ministry of Agriculture, Regional Development and Environment</li> <li>■ The National Agency for Energy Regulation (ANRE)</li> <li>■ Energy Efficiency Agency</li> <li>■ Regional Development Agencies are responsible for development and implementation of Regional Programs on Energy Efficiency.</li> </ul>
Russian Federation	<ul style="list-style-type: none"> <li>■ Ministry of Energy of the Russian Federation</li> <li>■ Ministry of Economic Development of the Russian Federation</li> <li>■ The Federal state budgetary institution "Russian Energy Agency"</li> </ul>
Serbia	<ul style="list-style-type: none"> <li>■ Ministry of Mining and Energy</li> <li>■ Ministry of Construction, Transport and Infrastructure</li> <li>■ Energy Agency of the Republic of Serbia</li> </ul>
Ukraine	<ul style="list-style-type: none"> <li>■ The Ministry of Energy and Coal Industry</li> <li>■ The Ministry of Regional Development, Construction, Housing and Utilities</li> <li>■ The State Environmental Investment Agency of Ukraine</li> <li>■ The State Agency on Energy Efficiency and Energy Saving</li> <li>■ The National Commission for the Regulation of State Energy Markets</li> <li>■ The National Commission for the Regulation of Municipal Services Markets</li> </ul>

## Enhanced Capacity of Stakeholders in the Countries

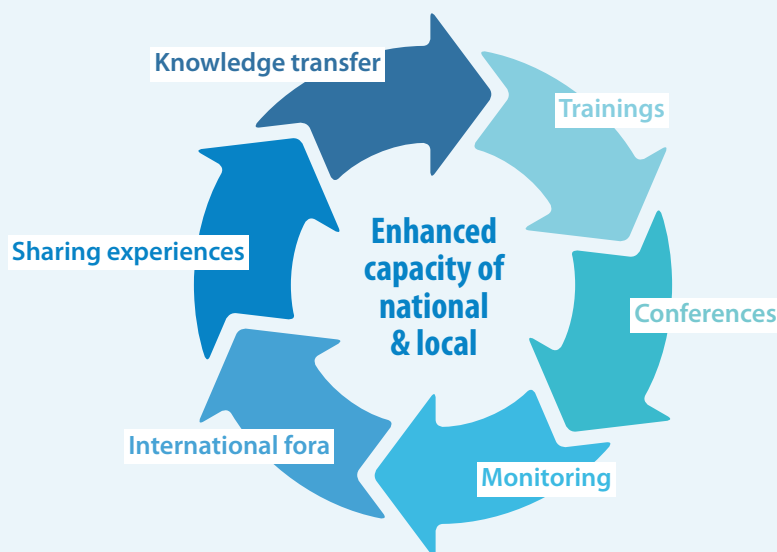
The conducted survey also aimed at identifying and analysing capacity building activities for promoting EE and RE investments. The participants were requested to assess the capacity building process in their countries. According to respondents, the countries enhanced capacity of stakeholders in their respective countries.

To assess progress by the reviewed countries in this area, the survey respondents were requested to describe activities since 2010, which improved the capacity of the following groups of stakeholders in the area of EE and RE investments:

- In public sector (ministries, government agencies, other public institutions, and municipalities);
- In utilities, ESCOs, consulting firms, and energy audit companies;
- Among end-users (industrial, commercial, and residential);
- Within financial services (private and public banks, trust funds, investment facilities, international financial institutions (IFIs), and other financial institutions).

According to respondents, the activities which helped improving capacity of authorities in the public sector included the following (Fig. 5):

**Figure 5.** Type of Capacity Building Activities in the Public Sector Conducted since 2010



- Organization of trainings for the staff in the ministries, governmental agencies and municipalities (North Macedonia);
- Conferences on EE and RE policies and project development, international fora on sharing knowledge and experiences in EE and RE areas (Russian Federation);
- Trainings on energy management (Croatia, Serbia);
- Knowledge transfers among managers at mid- and senior levels (Belarus, North Macedonia);
- Activities on internal monitoring of implementation of the EE and RE related projects by the staff (Bosnia and Herzegovina).



**Box 2. The Annual International Forum on Energy Efficiency and Energy Development** held in the Russian Federation since 2011 can be an example of capacity building activities in the public sector. This is a major event in the field of development, introduction and implementation of EE technologies and energy development. The main objective of the event is to provide a common platform for exchange of experience to facilitate improvement of EE in the national economy. In 2016, the international meeting of mayors for EE and sustainable urban development was organized within the framework of the Forum. The meeting gathered the heads of more than twenty Russian cities, as well as delegates from Germany, Greece, Hungary, Indonesia, Ireland, Italy, Kyrgyzstan, Slovakia, and the United Kingdom. The participating mayors of Russian cities signed a joint statement on EE and sustainable development, as well as the Declaration on comprehensive development of social infrastructure in sparsely populated and remote areas.

The survey also revealed that capacity building activities for stakeholders in utilities, ESCOs, consulting firms, and energy audit companies included the following:

- Trainings on EE and RE for energy producing and consulting companies (North Macedonia);
- Development of the model contract for ESCOs (Serbia);
- Explanation of regulations and procedures for ESCO companies (Croatia);
- International exhibition and forum for introduction of the eco-friendly best available technologies (Russian Federation);
- Annual International Conference “Renewable Energy Development in the Russian Far East” (organized in Yakutsk since 2013) for the authorities of the Far East, energy companies and energy equipment producers (Russian Federation);
- Round Table on “Financing Renewable Energy Projects in Russia” (November 2017) for regulators, international manufacturers and suppliers (Russian Federation);
- Introduction of the management system and standards for consulting companies (Bosnia and Herzegovina);
- Introduction of institutional reorganization of utilities (Belarus).

The following activities helped the end-users to enhance their capacity on EE and RE:

- Development of the support programmes for financing in industry and residential sector (Belarus);
- Introducing energy management process in the residential system (Bosnia and Herzegovina);
- Adoption of programmes for energy renovation of single-family houses and multi-apartment buildings (Croatia);
- Organization of international conferences, such as “Environmental Safety in Gas Industry” and “Renewable Energy Development in the Russian Far East” (Russian Federation).

Activities, which enhanced capacity on EE and RE investments within the financial services included:

- Dissemination of information on the existing international technical assistance for EE and RE projects (Belarus);
- Dissemination on information on possibilities for commercial and non-commercial project financing (Bosnia and Herzegovina);
- Transfer of know-how and expertise on EE and RE among bigger banking groups (Croatia);
- Technical assistance on EE and RE project development and financing to the financial service companies and final users/project developers (Croatia);

- Organization of the capacity building events, such as Annual International Forum on Energy Efficiency and Energy Development, the Round Table on “Financing Renewable Energy Projects in Russia” (2017), Second International Forum Clean Energy (2017), and the Round table on “Green Finance: International experience and Russian practice” (2018).

### Best Practices Developed and Introduced

Responses to the conducted survey allowed analysing development and introduction of best practices related to EE and RE in the selected countries. The responses provided by experts suggest that countries implement effective policies and measures to better realize the potential of EE and importance of use of RE.

#### Best policy practices

The identified best policy practices in the reviewed countries include the following:

- Adoption of the state policy on energy saving; adoption of relevant EE and RE regulations and institutional structures based on the territorial-sectoral principle; introduction of a continuous system of education, training and professional development of personnel (Belarus).

**Box 3. The Republican Programme on Energy Conservation for 2011-2015 in Belarus** (approved by the Resolution of the Council of Ministers of the Republic of Belarus of December 24, 2010, No. 1882) builds on the base of the Energy Conservation law above, setting out a medium-term strategy with targets for 29-32 per cent reduction in energy/GDP intensity during 2011 to 2015 and a further 20 per cent during 2016-2020 (UNECE, 2015).

- Adopting and updating EE and RE action plans in both entities (Bosnia and Herzegovina).
- Adoption of the National Energy Efficiency Programme for Multifamily Residential Buildings, which is intended to turn into a long-term housing renovation initiative (Bulgaria).

**Box 4. National EE Programme for Multifamily Residential Building in Bulgaria** is based on the grounds of analysis of the state of the residential building stock. Predictability and clear objectives are important conditions for the Programme to build up trust and ensure public support for its implementation. A long-term strategy for renovation of the existing building stock and a roadmap for its development are envisaged. On this basis, it would be possible to plan the necessary long-term investments and the political and financial tools for building the most appropriate socio-economic environment to maximize the effects of the Programme (BPIE, 2016). This is a 100 per cent grant program for which the stage is already completed. The program has a strong demonstration effect, and for the next stages the homeowners will be gradually involved in the investment process.

- Establishment of the Environmental Protection and Energy Efficiency Fund for financing of the preparation, implementation and development of programmes and projects in the field of EE and RE (Croatia).

**Box 5. The national EE programme in Croatia** was launched in 2005 with funding from GEF, managed by the UNDP. The programme was designed to remove barriers to EE in the country. “In 2011-2012 it helped to reduce the Government’s energy costs by USD 20 million, while greenhouse gas emissions have been cut by 12 per cent in more than 8400 involved buildings. Between 2006 and 2010 1069 energy audits in 1346 buildings were conducted, stimulating a new thriving industry. Many public authorities and institutions committed to implementing systematic energy management, while UNDP has also created a web-based Energy Management Information System, which covers 8400 public buildings” (Dena, 2017).

- Introduction of the National Climate Doctrine which brought climate change risks into focus of the long-term sustainable development of the national economy across the sectors, especially the energy complex; the adoption of the Russian Government Decree No. 449 of 28 May 2013 on the Mechanism for the Promotion of Renewable Energy on the Wholesale Electricity and Capacity Market (Russian Federation).

**Box 6. Climate Doctrine of the Russian Federation** (approved by the Decree of the President of the Russian Federation of December 17, 2009 N 861-p) serves as a foundation for development and implementation of future climate policy, covering issues related to climate change and its consequences. It is based on fundamental and applied scientific knowledge and is a political document recognizing the challenges and issues surrounding climate change. It serves as a blueprint to harmonize domestic climate-related legislation with international standards, improve climate monitoring, stimulate the adoption of stronger environmental standards, adoption of EE measures, as well as greater use of RES. Comprehensive Implementation Plan of the Climate Doctrine of the Russian Federation for the period up to 2020 was adopted on 25 April 2011 (IEA website, Russia).

- Introduction of Energy Management System based on the Japanese experience; introduction of energy labelling scheme aligned with the EU practice (Serbia).
- Establishing the feed-in support scheme for RE and ESCO/PPP contracts in the public sector (North Macedonia).

**Box 7.** Facilitation of a practical dialogue on EE and RE policies can be done through the Hard Talk format, at the heart of which is the discussion paper, a “problem/solution” format document. A review of the RE situation in the host country is undertaken with the view to identify issues which could potentially interfere with uptake of RE sources and, particularly, with private sector investments. Subsequently, recommendations are formulated, based on international experience and good practices that could contribute in de-blocking private investment by addressing the issues identified (Dena, 2017).

**The Renewable Energy Policy Hard Talk in Kazakhstan** was held on 26-27 April 2018 in Nur-Sultan. This multi-stakeholder dialogue was jointly organized by the Ministry of Energy of Kazakhstan, UNECE, European Commission, USAID and KAZENERGY Association. It was focused on how to increase the deployment of RE in Kazakhstan with main objective to contribute to the ongoing national dialogue on the best methods to realise the vast RE potential in Kazakhstan through the identification of the key barriers that are blocking private sector investments, and the setting-up of a well-functioning and stable RES auctions system.

### **Best practices in project development**

The best practices in project development in the selected countries, among others, include:

- Energy audits, development of pre-project and design estimates carried out strictly in accordance with the current regulations (Belarus).
- Implementation of alternative energy project in small rural communities where the Ministry of Foreign Trade and Economic Relations and municipalities jointly developed and implemented sustainable action plans, project proposals and proposed infrastructure projects (Bosnia and Herzegovina).
- Introduction of feed-in tariffs for electricity generation from RES installations (except large hydropower plants); existence of EE co-financing programmes, especially in building sector (which have led to development of many EE projects); operation of the Environmental Protection and Energy Efficiency Fund with national funding until 2016 (Croatia).

**Box 8. The Environmental Protection and Energy Efficiency Fund** in Croatia was established under the provisions of the Environmental Protection Act and the Energy Act for the purpose of securing additional resources for financing of projects, programmes and similar activities in the field of conservation, sustainable use, protection and improvement of the environment. The Fund is established for participating with its resources in the financing of national energy programmes, with a view to achieving EE and use of RE. It aims to finance preparation, implementation and development of programmes and projects in the field of EE and RE. This is an extra-budgetary fund where financial sources for its operation are not secured from the state budget. They are secured from different kinds of environmental fees, all of which are following the ‘polluter-pays’ principle. There are a number of environmental fees imposed of Croatia, such as fees for environmental emissions, charges on burdening the environment with waste, and special environmental charge for motor vehicles. Based on these environmental fees, the annual incomes of the Fund are at the level of approximately 200 million Euros (<http://www.fzoeu.hr/>).

- Projects by energy companies on increasing EE of their major activities, especially in oil and gas upstream and downstream as well as in the power sector; working on improving its scientific research capabilities on RE, for example, foundation of a solar technology center focusing on thin film technologies in February 2012 (Russian Federation).

**Box 9. The project “Energy and Biomass”** started in 2011 in the Republic of Moldova in partnership with the UNDP and EU. It had a priority to implement the potential of biomass. The project helped to install modern biomass heating systems in 209 schools, health facilities and community centers in rural areas, and let over 194, 000 people benefit directly from the improved heating in the buildings. Additionally, heating costs have fallen by at least 30 per cent. Overall, the biomass production increased 10 times, raising to 30000 tons of fuel production per year. ([www.biomasa.md](http://www.biomasa.md), 2018).

- Operation of the Budgetary Fund for Energy Efficiency; introduction of feed-in-tariffs (Serbia).
- Introduction of support schemes for installation of solar water heaters, replacement of windows, feed-in tariff for RE (North Macedonia).

#### **Best approaches to investments into EE and RE projects**

The identified best approaches to investments into EE and RE can be seen in:

- Adoption of by-laws on investments; functioning of regulatory regimes to stimulate investments in EE; preferences and incentives for investments in RE (Belarus).
- Establishment of the Energy Efficiency and Renewable Sources Fund; operation programmes “Competitiveness” and “Regional Development” (Bulgaria).

**Box 10. Energy Efficiency and Renewable Sources Fund in Bulgaria** is the result of a public-private partnership, which has the combined capacity of a lending institution, a credit guarantee facility and a consulting company. It provides technical assistance to Bulgarian private and public institutions in developing EE projects and supports their financing directly or by acting as the guarantor for financing by other institutions (UNECE, 2017a) The Fund was created with the support of World Bank and grant funding from the Global Environment Facility (GEF), the Austrian and Bulgarian governments. The Fund operating successfully as revolving already 14 years and considered as a good practice in the field, repaying the investments from the savings.

- Ensuring co-financing options on the national and EU levels for promoting of EE investments; transparent and long-term (14 years) support mechanism for feed-in tariffs followed by the premium system in case of RE investments (Croatia).
- Existence of auction system as RE support mechanism; launch of governmental policies to promote improving EE; adoption of the new Energy Strategy for the period up to 2035, which sets a target of reducing energy intensity by 40 per cent between 2010 and 2020 (Russian Federation).

**Box 11.** The Decree No. 449 of the Government of Russian Federation from 11 June 2013 established **a mechanism to support renewable electricity deployment through capacity markets**. Selected renewable power projects receive capacity payments for a period of 15 years for maintaining readiness to generate electricity on demand. In the case when power plants will not be able to meet previously agreed availability requirements, their capacity remuneration levels will be reduced accordingly. Auctions are being held on an annual basis to award these capacity remuneration contracts. Wind, solar PV and small hydropower plants are eligible to participate. In order to be eligible to participate in the auctions, the proposed projects must be equal to or exceed 5 MW; and hydropower plants cannot be larger than 25 MW. Contracts are awarded to projects with the lowest capital costs (IEA website).

- Introduction of the electronic auction system managed by a dedicated operator to select new RE projects, define electricity prices based on the national renewable location plan (Kazakhstan).
- Reducing the administrative procedures for issuing licenses for RE projects; increasing capacities of the public sector for EE; increasing awareness of the households in EE (North Macedonia).

#### *Innovative financing instruments*

The examples of innovative financing instruments in the reviewed countries include:

- Establishment of a revolving fund to finance projects to convert boiler plants to biomass under the project of the Government of the Republic of Belarus, UNDP/GEF “Biomass Energy for Heating and Hot Water Supply in the Republic of Belarus”. Funding from the fund is carried out on a revolving basis and on preferential terms (Belarus).

**Box 12.** The full-scale project **“Biomass Energy for Heating and Hot Water Supply in Belarus”** was funded by GEF whose investment totalled USD 3.37 million. The main objective of the project was to secure a global impact of reduction of greenhouse gas (GHG) emissions through replacement of fossil fuels by renewable wood biomass. The project is playing a key role in removing the barriers to large-scale diffusion of climate-neutral technologies. The five demonstration sites have been developed under the project, including one heat-only boiler house, three mini-range combined-heat-and-power plants which run on wood-waste, and one enterprise engaged in logging, processing and delivery of wood chips. In addition, a revolving fund for biomass energy has been established with initial capitalization over USD 3 million. The fund’s resources are allocated for financing of biomass energy and EE projects.

- The functioning of specialized financing institutions for EE and RE projects under the Energy Efficiency and Renewable Sources Fund (established in June 2005 with the support of World Bank and GEF) and the National Trust Eco Fund (established in October 1995; the fund manages assets from the state budget, including under the Debt-for-Environment and the Debt-for-Nature swaps) using different financial products or combination of products as direct loans, grant financing, partial credit guarantees to commercial banks, third party financing for energy performance contracts (Bulgaria).

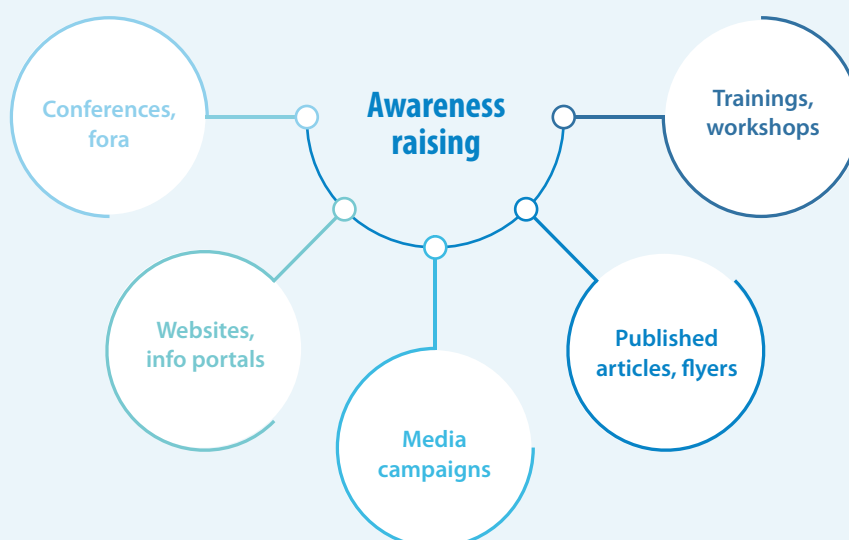
- Establishment of financing of EE measures under the Budgetary Fund for EE. In 2014, the first public call was issued for financing of EE projects in municipal buildings. In 2016, two public calls for investment in EE projects in municipal buildings were launched. In 2018 a public call was also launched (Serbia).

**Box 13.** In order to achieve its international obligations and strategic goals through support for implementation of EE investments, the Republic of Serbia has established a **Budgetary Fund for Energy Efficiency** (BFEE). This Fund became effective from 2014. The working principles and implementation mechanisms are defined in the adopted Rulebook on conditions for distribution and use of the Budget Fund and the criteria for exemption from the obligation of performing the energy audit (EC, 2014). BFEE is a line in the budget of the Republic of Serbia operated by the Ministry of Mining and Energy, funded through the budget of the Republic of Serbia and donations. Beneficiaries could be both legal and private persons. This Fund awards financing through public calls, in accordance with the Annual programme adopted by the Government each year. At this stage, BFEE has mainly demonstration and awareness raising effect, however its operation clearly indicates that with properly set technical requirements the savings of 40 per cent may be achieved (UNECE, 2018).

### Awareness Raising among General Public

This section provides an overview of activities undertaken in the selected countries to raise awareness on EE and RE measures among general public. Such activities at the national and local levels were identified, and their results were briefly described. Fig. 6 provides an overview of the types of activities implemented in the countries. Table 4 provides more details on activities in some countries (based on the responses of the survey).

**Figure 6.** Types of Awareness Raising Activities Implemented in the Countries



**Table 3.** Awareness Raising Activities on EE and RE Measures in the Selected Countries

Albania	
Raising awareness at national level	Organizing conferences for promotion EE and RE and raising awareness on the recently adopted related legislation.
Raising awareness at local level	Organizing workshops for promotion of EE and RE.
Results of raising awareness	Increase in a number of application for investment to the hydro, solar and wind energy projects.
Belarus	
Raising awareness at the national level	<ul style="list-style-type: none"> <li>■ Providing information on the websites of state authorities, and in the media;</li> <li>■ Holding international and national conferences, fora and exhibitions;</li> <li>■ Publishing thematic magazines and brochures.</li> </ul>
Raising awareness at the local level	<ul style="list-style-type: none"> <li>■ Implementation of demonstration projects;</li> <li>■ Posting information on local authorities' websites;</li> <li>■ Holding regional seminars, permanent and traveling exhibitions;</li> <li>■ Systematic work on raising awareness of the population, information campaigns in the regional media.</li> </ul>
Results of raising awareness activities	<ul style="list-style-type: none"> <li>■ Sufficiently high competence and interest of the population in saving energy resources and using RE technologies.</li> <li>■ Use of energy-saving equipment by households, use of EE building materials and structures for individual construction and home improvement as well as refurbishment of existing buildings.</li> <li>■ Enhanced culture of energy use.</li> </ul>
Bosnia and Herzegovina	
Raising awareness at the national level	Activities related to EE and RE are taking place at all levels from state to local and include workshops, seminars and conferences with varied topics. Raising awareness on EE and RE is mainly through implementation of various projects.
Results of raising awareness	Increased interest of public in introducing EE measures and using RES.
Croatia	
Raising awareness at national level	<ul style="list-style-type: none"> <li>■ Establishment of the National Energy Efficiency Portal in 2016 as a central point for informing all stakeholders about possibilities for improvement of EE and utilization of RE (<a href="https://www.enu.hr/">https://www.enu.hr/</a>)</li> <li>■ National media campaigns related to EE and RE (on energy renovation of single-family buildings and multi-apartment buildings, electric vehicles, and EE appliances).</li> <li>■ Implementation of project "Removing Barriers to Energy Efficiency in Croatia" (2005-2013) which evolved in two national components: the "Systematic Energy Management in Cities and Counties in Croatia" for the local and regional level; and the Croatian Government Programme "House in Order" for the central government.</li> </ul>
Raising awareness at local level	<ul style="list-style-type: none"> <li>■ Establishment of the National Energy Efficiency Portal to inform regional and local governments as well as businesses about the importance of EE and RE, legal requirements and available programmes to encourage EE and RE project implementation.</li> <li>■ Establishment of the EE information centres operational in many local administrations with the aim to assist population with providing advice on energy savings.</li> </ul>
Results of raising awareness	Improvement of EE and higher utilization of RE.
North Macedonia	
Raising awareness at national level	<ul style="list-style-type: none"> <li>■ Media marketing campaign "Energy mathematics" that provided households with practical examples on how to save energy. The campaign produced eight short TV episodes broadcasted eight times a day, billboards, flyers, etc.</li> <li>■ Published guidelines for development of RE projects.</li> </ul>
Raising awareness at local level	Municipalities' support schemes for refurbishment and reducing taxes on EE buildings.
Results of raising awareness	<ul style="list-style-type: none"> <li>■ Reduction of energy intensity of the national economy.</li> <li>■ Reduction of energy consumption in the household sector.</li> </ul>
Russian Federation	
Raising awareness at national level	<ul style="list-style-type: none"> <li>■ Organization of regular seminars, conferences and participation of official representatives in various events to discuss current challenges and future prospects of the sustainable energy development.</li> <li>■ Cooperation with the International Renewable Energy Agency (IRENA) on raising awareness for representatives of energy businesses, scientific and expert communities.</li> <li>■ Participation in the World Festival of Youth and Students and presentation of vision of the energy industry of the future there.</li> <li>■ Systematic support of EE increase and RE development at various open events held during the Climate Week in 2017.</li> <li>■ Updates on progress made in EE and RE status regularly published on the website of the Ministry of Energy.</li> </ul>

**Table 3.** Awareness Raising Activities on EE and RE Measures in the Selected Countries

Raising awareness at local level	<ul style="list-style-type: none"> <li>■ Energy companies publish regular reports disclosing the implementation and results of measures to enhance energy services and projects, presenting information about the objectives set and results achieved.</li> <li>■ EE and RE projects have become a major agenda item of many technical seminars, conferences and meetings with public held by energy companies in both southern and northern regions of the country.</li> </ul>
Results of raising awareness	<ul style="list-style-type: none"> <li>■ The energy end-users became more aware of benefits arising from new opportunities of energy supply.</li> <li>■ Cooperation on EE and RE issues between academia, business community and local authorities across the country has been increased.</li> </ul>
<b>Serbia</b>	
Raising awareness at national and local levels	<ul style="list-style-type: none"> <li>■ Participation in various events explaining EE and RE policy to the general public.</li> <li>■ Maintaining website (<a href="http://www.mre.gov.rs">www.mre.gov.rs</a>) where relevant EE and RE information may be found by the population and investors. For the RE, the guidelines for investors are prepared.</li> <li>■ In accordance with the Law on Housing and Maintenance of Buildings Official Gazette 104/2016, with regard to the improvement of the performance of buildings, the local self-government units are obliged, at least once a week, to provide advisory assistance on improvement of EE of buildings to the citizens/ housing communities.</li> <li>■ Training program with the module on EE for professional managers to maintain the multi-family buildings.</li> </ul>
Results of raising awareness	Increased investments into EE and RE.

**Box 14.** The website of the Russian Energy Agency of the Russian Ministry of Energy can be used as **the Russian-language information resource on EE** (<http://rosenergo.gov.ru>) The Russian Energy Agency cooperates with the UN, IEA and IFC. It also has partnership relations with UNIDO, OECD, the Baltic Sea Region Energy Cooperation, and the International Partnership for Energy Efficiency Cooperation (UNECE and REN21, 2017)

## Developed and Financed Projects

The survey looked at the current state of the EE and RE project development and financing in the selected countries. Overall, the respondents indicated that progress in this area has been seen in preparation of the pipeline of EE and RE related project proposals, raising knowledge and awareness of top and middle management on tools for financing projects and activities in the field of EE and RE, increasing the capacities of public institutions and the private sector in development of EE and RE projects from financial assessment and bankability conditions point of view.

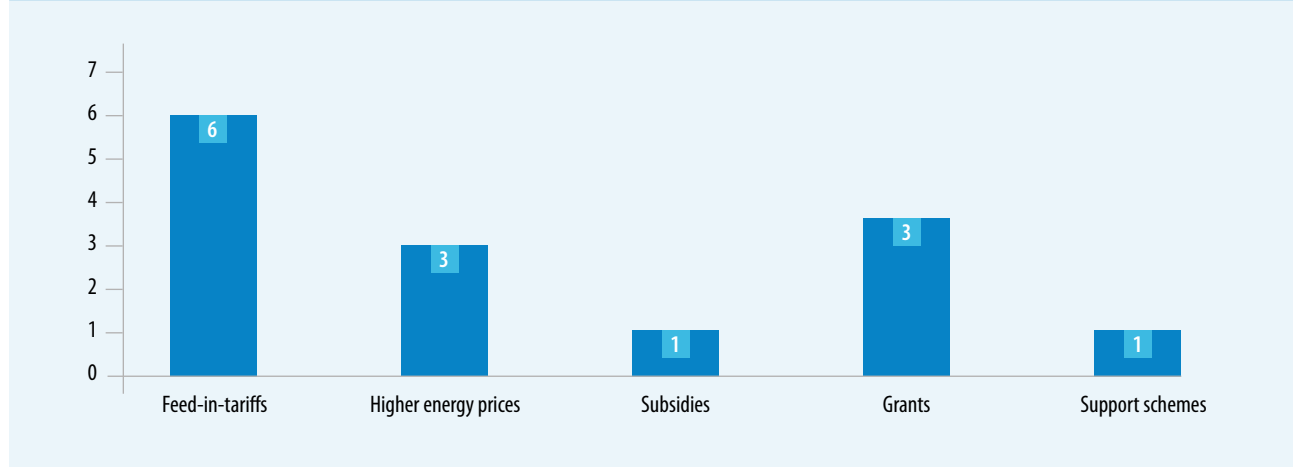
### *Main incentives for development of the EE and RE projects*

According to respondents, among main incentives for development of EE and RE projects (Fig. 7) are the following:

- Introduction of the feed-in-tariff for RE projects in Bosnia and Herzegovina, Croatia, Kazakhstan, North Macedonia, Serbia, and Ukraine;
- Feed-in premium in case of production of energy for personal use or free market trade in Bosnia and Herzegovina (and is being developed in North Macedonia);
- Trend of the tariffs' growth for traditional energy resources in Belarus, Kazakhstan, and Ukraine;
- Provision of subsidies in the form of non-refundable financing from the budget in Bosnia and Herzegovina;
- Provision of grants for EE projects from the dedicated funds in Bosnia and Herzegovina, Croatia, and Serbia;
- Provision of support schemes for installation of solar water heaters and for replacement of windows in North Macedonia.



**Figure 7.** Number of Countries Introduced Incentives for Development of EE and RE Projects (by type of incentive)



According to the World Bank, requiring energy consumption tracking is a major step in moving towards EE, whether a country chooses an incentive-based approach to action or has a program of mandatory targets (World Bank, 2017). According to RISE, the countries in ECA region have uneven scores in this area where 67 is for the Russian Federation, 33 for Belarus, and 5.6 for Ukraine, subsequently dispersing them in three different zones: green zone (for Russian Federation), yellow zone (for Belarus), and red zone (for Ukraine).

**Project financing**

With a variety of existing options for financing RE projects the prevalent approach is largely dependent on the government’s policy for RE development. In some countries, the financing of RE projects goes through the development finance; the others select the market-based approach as the model for project financing. In the absence of a mature capital market, the mechanisms include government grants, subsidies and credit emerge as basic options for financing RE projects (CIGI, 2017).

Different financial instruments for EE projects can be introduced to address the challenges for investments. They usually include grants, preferential loans, guarantees, and equity. The dedicated EE funds can also be among financial instruments to support EE investment because of their attractiveness to socially responsible investors and investors interested in gaining exposure to EE opportunities.

An overview of government programmes and funds, financial schemes, available commercial financing and development finance in the selected countries is presented below. It is based on initial responses from the conducted survey and backed up with the desk research on available financing instruments in the countries since 2010.

**Government, public programmes and funds supporting EE and RE investments**

The initiatives by governments are identified in adoption and implementation of the following programmes and funds:

- The State Programme “Energy Saving”, which determines the sources of financing for EE and RE projects. The funds of the national budget allocated for financing can be channeled to the implementation of EE measures to organizations of the state and municipal forms of ownership according to the procedures established by the State Committee for Standardization (Belarus).
- Environmental Protection and Energy Efficiency Fund of the Republika Srpska, which is responsible for fundraising activities and financing preparations, implementation and development of programmes and projects in the area of sustainable use, protection and improvement of the environment, EE, and use of RES (Bosnia and Herzegovina).

- Environmental Fund of the Federation of Bosnia and Herzegovina, which is a non-profit financial institution in charge of mobilizing and distributing funding for environmental programmes, including EE and RE projects. The Fund finances infrastructural EE projects in the public sector and detailed energy audits. In 2016, the Fund has created the Revolving Fund for financing EE projects. The Revolving Fund is open to all interested parties in the building sector (both private and public), industry, public lighting and utility services (Bosnia and Herzegovina).

**Box 15.** Both entities in Bosnia and Herzegovina have their own **environmental funds** achieving operational status in 2010 after a long process started by the Republika Srpska in 2002 and by the Federation of Bosnia and Herzegovina in 2003. These funds are excellent tools for an economic approach to environmental problems. Cooperation between the funds functions well and there is a mutual understanding of priorities for improving the environment in Bosnia and Herzegovina. They perform a variety of tasks from raising money for the funds through project evaluation and financing to policy development (UNECE, 2011).

- The Environmental Protection and Energy Efficiency Fund, which is a national institution responsible for implementing financial support programmes in different sectors. It provides information on available possibilities for co-financing the EE improvements and the use of RE installations. Within co-financing, the Fund also provides technical information and advice on possibilities that citizens, public and private sector companies and organizations have for improving EE or introducing RE systems (Croatia).
- The State Programmes “Energy Efficiency and Energy Development” and “Economic Development and Innovative Economy” (Russian Federation).

**Box 16.** State Programme on Energy Efficiency and Energy Development of the Russian Federation, adopted in 2014, has its main objective to “ensure reliable supply of the country’s fuel and energy resources, increase the efficiency of their use, and reduce anthropogenic impacts of the energy sector on the environment”. It aims at 40 per cent decrease of energy intensity of the economy between 2007 and 2020 but changes the 4.5 per cent share of electricity generation from RE sources target to 2.5 per cent by 2020 (excluding large hydropower over 25 MW). “A number of documents behind the State Programme address topics such as energy strategy, gas, oil, coal sectors development and concept of socio-economic development by 2020, general scheme on allocation of power generation facilities. The Programme calls for diverse measures to attain those targets, including: evaluating technological and economic potential of efficient renewables use, providing subsidies from the state budget in order to compensate for the costs of grid connection for renewables, installation of smart meters, increasing the availability of energy infrastructure, raising public awareness on energy conservation and energy efficiency” (LSE database). Energy Efficiency Budgetary Fund (Serbia).

- The support scheme for installation of solar water heaters where the Ministry of Economy subsidizes 50 per cent of the price of installed solar water heater or up to 300 Euros per installation, as well as the support scheme for replacement of windows where the Ministry of Economy subsidizes 50 per cent of the cost of replaced inefficient windows with energy efficient ones or up to 500 Euros per installation (North Macedonia).

The World Bank’s RISE report stresses the importance of public sector programmes to countries’ potential portfolios of EE policies and measures. It suggests that “once countries decide to adopt this approach, they tend towards the range of good practice” (World Bank, 2017).

### Financing schemes

The global assessment reveals that “the most prevalent public EE financing mechanisms...were the tax incentives, credit lines and energy services agreements. Among private EE financing mechanisms (i.e. operating without the need for government involvement), the most common methods were credit lines and energy service agreements” (World Bank, 2017).

In the selected countries, the existing financing schemes and mechanisms include the following (as per evaluation of the survey responses):

- Funds of the national and local budgets, credit resources of local banks and the open joint-stock company “Development Bank of the Republic of Belarus” (Belarus)

**Box 17. Development Bank of the Republic of Belarus (DBRB)** is a specialized financial institution established in accordance with Decree of the President of the Republic of Belarus № 261 dated 21 June, 2011. The Bank is founded by the Council of Ministers and the National Bank of the Republic of Belarus and is formed as a legal entity (not a classical credit financial institution in the definition established by the Banking Code of the Republic of Belarus). Creation of the DBRB was carried out in close cooperation with the leading international financial institutions, such as the International Monetary Fund and the World Bank, and based on the analysis of international practice of the similar institutions’ functioning. The main objective of DBRB is elaboration of financing system for government programs and implementation of socially significant investment projects. Three main goals set to the DBRB include (i) financing of long-term and capital-intensive investment projects in the framework of government programs and activities; (ii) supporting small and medium-sized enterprises by means of special credit products granted through a network of partner banks; (iii) extension of concessional export credits to support large (over USD 1 million) projects of domestic exporters. To achieve its goals, the DBRB is authorized to perform certain active and passive operations, which are typical for commercial banks (lending, budget fundraising to deposits, placing of funds on the market, opening of accounts, clearing transactions, foreign exchange transactions) but without obtaining the National Bank’s license thereto. The DBRB is granted the exclusive right to act as the Government’s agent bank to serve and repay external government loans. In 2018, the DBRB and KfW IPEX-Bank GmbH had signed a Framework Agreement on conditions for granting long-term loans to the DBRB for supporting implementing large-scale projects in the field of infrastructure, transport, environmental protection and RE sources (<https://brrb.by/en/>).

- Special environmental fee on registration of motor vehicles, which is allocated to the Environmental/Energy Efficiency Funds and then channeled to appropriate EE projects with the ratio of 70 per cent to the cantonal account and 30 per cent to the Fund (Bosnia and Herzegovina).
- The EU structural funds which are being used for stimulating EE and RE projects in public buildings, residential buildings, industry, trade, tourism, public lighting and district heating (Croatia).

**Box 18.** “With a budget of EUR 454 billion for 2014-2020, the **European Structural and Investment Funds (ESIF)** are the European Union’s main investment policy tool. The ESIF combine five Funds: European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund.

Through four national programmes, Croatia has been allocated EUR 10.74 billion from ESIF over the period 2014-2020. With a national contribution of EUR 1.9 billion, Croatia has a total budget of EUR 12.67 billion to be invested in various areas...ESI Funds in Croatia, among others, will also be invested in RE production” (EC, 2016).

- Introduction of the “green tariff” and tax incentives (corporate profit tax, value added tax and import customs duties, land tax or land lease payments), as well as the governmental programme of “warm loans” (Ukraine).

**Box 19. “The Green Tariff”** policy is a feed-in tariff scheme for electricity generated from RE sources that was introduced in Ukraine in 2009. The scheme will be open until 1 January 2030. “The Law on Electrical Energy Industry” of 16 October 1997 created a legal framework for such scheme. The National Commission for State Energy Regulation is responsible for management of the scheme, modification of the tariffs, granting and distributing financial support to the eligible parties. Support from the “Green Tariff” scheme can only be obtained upon the completion of a power plant. Technologies eligible for the support include solar PV, wind, hydro energy (with capacity no larger than 10MW), and biomass energy (IEA website, Ukraine).

**Box 20. “Warm” Loans Government Programme:** The State Agency on Energy Efficiency and Energy Saving of Ukraine works with local authorities to assist in the development of local compensation programmes. As a result, local compensation schemes top-up the state-run incentive programme. As of 1 July 2016, 172 programmes were established: 24 regional, 89 district and 59 municipal ones. Among them, 74 programmes were approved to be funded for a total amount of 42 million Ukrainian hryvna. “Warm lending” offers a certain compensation when purchasing EE equipment by consumers, condominiums or household cooperatives: 20 per cent (individuals), 40 per cent (condominiums or household cooperatives) and 70 per cent (recipients of public subsidies). (GIZ Ukraine, 2016).

### Commercial financing

The required capital for the up-front cost of building a RE project can be obtained through a debt and/or equity financing. “There are a large number of ways to structure loan agreements, and debt can be obtained through public markets (bonds) or private placements (bank loans and institutional debt)” (KfW, 2005).

EE is considered to be an important area with considerable potential for investment for commercial financing, although it has lacked the scale and attractiveness of RE, particularly to the lending community (UNEP FI, 2009).

In the reviewed countries, different instruments were used for financing EE and RE projects. They vary, for example, from credit financing and loans in Belarus and Bosnia and Herzegovina to grants in Ukraine and North Macedonia. Commercial loans through local banks and microcredit foundations in Bosnia and Herzegovina offer the end-users more favorable terms (lower interest rates) than standard commercial loans.

**Box 21. The Western Balkans Sustainable Financing Facility (WeBSEFF)** is a financing facility under which the European Bank for Reconstruction and Development (EBRD) provides credit lines to partner banks in the Western Balkans to on-lend to businesses and municipalities wanting to invest in EE and small-scale RE projects. WeBSEFF is part of the Regional Energy Efficiency Programme for the Western Balkans, which uses a combination of financing instruments (such as WeBSEFF), technical assistance and policy support to create a sustainable market in the region.

In Bosnia and Herzegovina, Raiffeisen Bank and UniCredit Bank Mostar are the partners in this programme. Loans are available to both public and private sector. Interest rates are equivalent to commercial interest rates and potentially negotiable. The programme offers incentive bonuses and KfW credit line (where Raiffeisen Bank is the project partner and operates a 1 million EUR credit line for EE projects). Loans are approved for a maximum period of seven years, including a grace period of up to three years. The additional advantage for investors is that the cost of preparation of the project documentation is included in the cost of loan (<http://www.webseff.com>).

In Croatia, a combination of project and corporate financing is used where majority of large banks have introduced special purpose credit lines in retail segment of their business. The largest commercial banks on the Croatian market use the specialized loan facilities provided by the international financial institutions, such as EBRD, EIB, and KfW.

In Ukraine, there are several mechanisms for providing loans to improve EE. Most programmes are financed by donors and international finance institutions. Bank loans are a promising instrument for funding energy saving measures, although not used widely in the country. “Banks are very slow with the development of special loan products for improving EE. The existing interest rates in the market are very high and no reimbursement for interest payments are provided, so bank loans cannot compete with special EE funding programmes, such as “Warm Loans.” Commercial banks in Ukraine have almost no programmes of their own for funding energy saving projects” (UNDP, 2017)

Commercial banks in North Macedonia offer financing opportunities for EE and RE projects directly to companies (MOEPP, 2010). Some of them are Sparkasse Bank Makedonija, Komercijalna Banka AD Skopje, Stopanska Banka AD Skopje, NLB Tutunska Banka AD Skopje, NLB Lizing, Ohridska Banka AD Ohrid, Unibanka AD Skopje, Procredit Banka, Izvozno kreditna Banka AD Skopje, Steiermaerkische Sparkasse Bank (Invest Banka) AD Skopje, TTK Banka AD Skopje. However, “commercial banks are reluctant to lend to public sector entities. Several municipalities have taken commercial loans, but the majority have problems accessing commercial financing due to lack of information and, possibly, issues with collateral” (World Bank Institute, 2012)

**Box 22. The EE refurbishment loans in North Macedonia** is an example of a typical project when Ohridska Banka Société Générale and Sparkasse Bank Makedonija have signed up as the first two local partner financial institutions, with credit lines of EUR 2 million each for on-lending to homeowners. An additional EUR 4 million in financing is about to be committed with other local banks. These investments help households to become more EE, decrease their greenhouse gas emissions and improve their living standards.

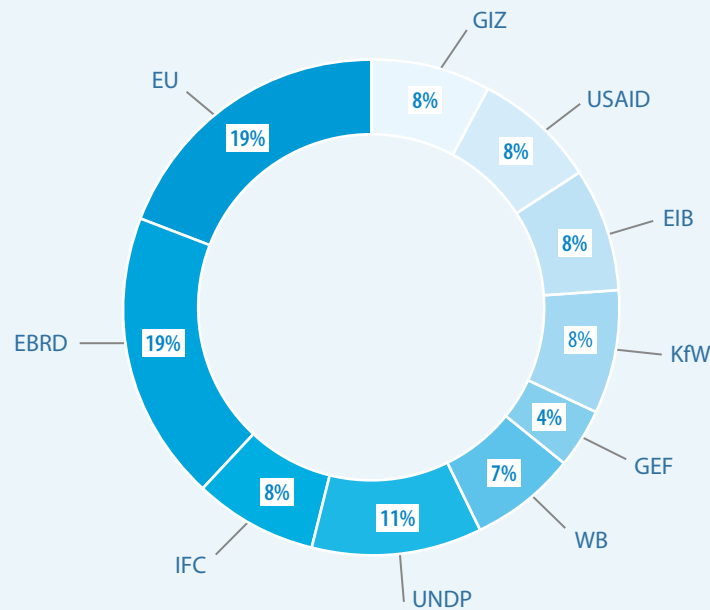
#### *Technical assistance for project development, implementation and financing*

According to respondents of the survey, technical assistance for development and implementation of EE and RE projects is an important factor in strengthening human and technical capacities of institutions, informing end-users, and strengthening their capacities for absorption the implementing mechanisms and EE measures. Although it does not provide direct financing of EE measures, technical assistance for EE and RE projects boosts the development of project pipelines.

Technical assistance for project financing is usually provided through allocation of grant funds to bring viable EE and RE projects to bankability to enable financing from domestic and international financial institutions, development banks, commercial banks and other sources of debt or equity financing. Fig. 8 presents an overview of institutions indicated by the survey respondents on providing technical assistance for development and implementation of EE and RE projects in their respective countries.

International donors and development banks continue to be an important source of debt financing and grants for RE and EE projects. Development finance institutions and local financial institutions also strive to come up with effective financial instruments suitable to specific needs, and mechanisms to bundle small projects. Where circumstances require, they initiate activities to reach out end-users to increase demands through awareness campaigns or promoting energy audits.

**EBRD** leads RE financing in the UNECE region, providing more than USD 1.8 billion in lending to RE (including large-scale hydro) projects between 2010 and 2016. The total cost of the projects was USD 3.9 billion. During 2015 and 2016, the EBRD’s activity was spread across several countries in the UNECE region. Kazakhstan received the highest amount, USD 390 million, of which USD 1.18 billion is dedicated

**Figure 8.** Institutions Providing Technical Assistance in the Countries (by type of institution)

\* WB-World Bank; UNDP-United Nations Development Programme; IFC-International Finance Corporation; EBRD-European Bank for Reconstruction and Development; EU-European Union; GIZ-Deutsche Gesellschaft für Internationale Zusammenarbeit; USAID-United States Agency for International Development; EIB-European Investment Bank; KfW- Kreditanstalt für Wiederaufbau; GEF-Global Environment Facility.

to utility-scale solar projects. The wind projects supported by EBRD were financed in Serbia and Ukraine. EBRD also announced of providing the EUR 200 million financing to private RE projects in Kazakhstan within the next five years, with a total generating capacity of 300 MW. It also allocates EUR 160 million to the construction of generating capacity (wind, solar, small hydro plants or biogas) and EUR 40 million to electricity grid modernization (UNECE and REN21, 2017).

**Box 23. The Eastern Europe Energy Efficiency and Environment Partnership (ESP)** is a multi-donor fund initiated by the EU Swedish Presidency in 2009 to improve EE in Eastern Partnership countries. Pledges to the fund total EUR 92 million, of which the EU has pledged EUR 40 million. Based on its initial success in Ukraine, the ESP expanded into other countries, including Republic of Moldova among others (EBRD website: [www.ebrd.com](http://www.ebrd.com)).

In the countries of South East Europe, the Western Balkans Investment Framework (WBIF) continues to channel investment from several international donors and multilateral banks, including the European Commission Instrument for Pre-Accession, CEB, EBRD, EIB, KfW and the World Bank.

**Box 24. The Western Balkans Investment Framework (WBIF)**, launched in 2009, provides technical assistance, grant co-financing and other grant-funded instruments to support sustainable growth in the region. It pools resources from international financial institutions, such as the EBRD and 19 bilateral donors for investment in the transport, energy, environmental and social sectors and in private sector development. The Regional Energy Efficiency Programme, which secured EUR 23.35 million of WBIF financing in 2012, was helping national governments to meet their Energy Community Treaty commitments and implement their NEEAPs in the public and private sectors. In private sector development, the Enterprise Expansion Fund, managed by the EBRD under the WBIF-funded Enterprise Development and Innovation Facility, became fully operational in 2014 ([www.ebrd.com](http://www.ebrd.com)).

The WBIF provided EUR 256 million to Bosnia and Herzegovina for small hydro projects (9.75 MW of installed capacity in Kruševo, 2.12 MW in Zeleni Vir and 11.5 MW in Babino Selo) and wind projects (50 MW of installed capacity in Vlašić-Travnik and increasing installed capacity to 108 MW in Poklečani). The Republic of North Macedonia received EUR 131 million from WBIF for the 36.8 MW Bogdanci wind farm. It also allotted EUR 875,000 EUR for a regional study on biomass-based heating in the Western Balkans (UNEE 2017a).

**The Green for Growth Fund (GGF)** is “complementary to the WBIF because it addresses EE and RE specifically, whereas the WBIF is a cross-industry facility. The GGF provides refinancing to financial institutions to enhance their participation in the EE and RE sectors. It also makes direct investments in non-financial institutions with projects in these areas. The GGF has disbursed nearly EUR 300 million since its inception in December 2009, with 19.1 per cent of the use of renewables for commercial energy generation and 3.4 per cent for the use of renewables by households and businesses” (UNECE and REN21, 2017).

**World Bank** financed USD 152 million in RE projects in the UNECE region between 2010 and 2016, where more than 50 per cent of this was financing for a single biomass district heating project in Belarus. The World Bank is funding biogas development in the Republic of Moldova too. From 2011 to 2017, the World Bank supported EE project in Ukraine. The objective of this action was to contribute to improved EE by industrial and commercial companies, municipalities, municipal sector enterprises and energy service companies by facilitating sustainable financial intermediation for the financing of EE investments. The project provided a loan to the financial intermediary, the State Export-Import Bank of Ukraine (USD 200 million) to on-lend the funds to support to EE subprojects at interest rates and repayment periods that were more attractive than those being provided by Ukraine’s commercial banking sector, because the identified savings would be more than sufficient to repay the loans (UNECE and REN21, 2017).

**KfW** covers the funding of RE projects in the South Eastern Europe. “Since 2010, KfW financed the Podvezlje wind farm in Bosnia and Herzegovina with a EUR 65 million loan and the Bogdanci wind farm in North Macedonia with a EUR 33 million (USD 35 million) loan. In North Macedonia, KfW also provided EUR 32 million for the rehabilitation of six hydropower plants” (UNECE, 2017a).

**The Global Environment Facility** has been in operation since 1991 and provided financing for both EE and RE projects. The GEF provides investment from several international development partners, where multilateral development is leveraged through additional co-financing from the EBRD, UNIDO, UNDP or the World Bank.

**Box 25. GEF supported project to improve energy management in industry in Ukraine**

by promoting widespread implementation of energy management systems complying with international energy management system standard ISO 50001. The project being is implemented by UNIDO within a period of 2013-2019. The total project budget, including co-financing, is USD 39.5 million. The project activities include preparing and detailing a strategy to accelerate the adoption of energy management system standard in Ukrainian industry, including collection of supplemental data, review of the relevant legal and regulatory framework, as well as detailed capacity needs assessment ([www.thegef.org](http://www.thegef.org))

**The Climate Investment Funds** is one source that can be leveraged for RE investment. It has USD 8.3 billion available that can be leveraged further through private and public co-financing. 13 per cent of the funds are allocated for projects in the Eastern Europe and Central Asia countries. The implementation of some project has already started in Kazakhstan and Ukraine (UNECE and REN21, 2017).

**The State Secretariat for Economic Affairs of the Swiss Confederation (SECO)** has defined funds in the amount of 15,000,000 CHF for the period 2018-2021, in the Swiss Cooperation Strategy with Serbia, to provide grants (donations) in the field of sustainable energy and resilient cities. SECO also operates in the other countries in the region.

### *Energy service market*

**Box 26. Energy service companies (ESCOs)** offer a range of services to develop and implement EE investments for their clients. They provide or arrange financing for these investments. “Repayments from savings in energy allow clients to compensate ESCOs for financing the investments, for ongoing savings monitoring and measurement and verification costs, and adoption of risks through energy performance contract or third-party financing.”

ESCOs may guarantee full, partial or none of the risk depending on the financier of the project. This can be the ESCO itself, a credit institution, or the client (such as the end user, which can be industrial or service companies, households, and public building administrators among others). The ESCO guarantees a certain amount of annual energy savings to be achieved over the duration of the contract and, therefore, accepts a certain degree of risk when undertaking to improve EE in a user's facility, especially as their payment for the services delivered is based on the achievement of those EE improvements (IFC, 2011).

The development of the energy service market in the reviewed countries significantly varies. In some countries, the ESCO market is in the development phase, while in other countries the energy service market is more developed.

According to assessment of the ESCO market development conducted by UNECE in 2013, the ESCOs operating under EPC model existed only in Bulgaria and Croatia. The ESCO-type companies were operating in other countries such as Belarus, Bosnia and Herzegovina, Republic of Moldova, Russian Federation, and Ukraine. Energy service market did not exist in Albania, Kazakhstan, North Macedonia, and Serbia. Table 5 provides an overview of the ESCO market development in the countries in 2013.

The survey conducted for this study also aimed at identifying the recent developments in the energy service market in the project countries. Respondents from Belarus, Bosnia and Herzegovina, and North Macedonia indicated that energy service market in their respective countries is currently in the development/initial phase. Respondents from Croatia, Russian Federation, Serbia, and Ukraine indicated that energy service market in their countries is more developed and provided examples of its functioning:

- **Bulgaria:** Enemona doesn't exist anymore as ESCO because of bankruptcy in 2017. There are about 5 smaller ESCO companies, which operate successfully on the market mainly with the financial support BEERSF.
- **Croatia:** ESCO market started to develop, especially in the field of EE and RE projects in public lighting and in public buildings through the Government programmes. The majority of ESCOs involved in EE and RE interventions on public buildings are construction companies.
- **Russian Federation:** The majority of actively operating Russian ESCOs are concentrated in the central region. The most active ESCOs operating in Moscow and the Moscow oblast (region) are: EES, Garant LLC, FENICHE RUS LLC, Mosenergosbyt OJSC, EnergoProfit LLC, WattGroup LLC, ENERAGONIKA LLC, Energouchet Service LLC, InterEST LLC, Gazprom-Gazenergoset JSC.
- **Serbia:** The EPC has been adopted, and energy supply contract drafted. The types of projects include EPC for public buildings and street lighting



**Table 4.** Overview of ESCO Market Development in the Countries, 2013

Country	Existence of ESCO	Types of contracts	Types of projects
<b>Albania</b>	No ESCO	N/A	N/A
<b>Belarus</b>	"BelinvestESCO", "Vneshenergoservice", Center of New Technologies "Connectikum"	BOOT	Co-generation plants in large industry
<b>Bosnia and Herzegovina</b>	Few ESCO-type companies	Guarantees on energy savings and simple payback time	Installation of mini-heating systems, boiler exchanges, establishment of tri-generation plants
<b>Bulgaria</b>	Enemona SA, Energy Efficiency Systems Ltd+150 companies carrying out energy audits	EPC	EE projects in industrial sector, public buildings (municipal and state), RE projects (small HPP, solar and biomass power stations)
<b>Croatia</b>	HEP ESCO, EETEK Holding Plc and several other companies for providing of energy services	EPC	Electricity and heat energy services in private and public sectors, lighting, modernization/reconstruction of existing plants or buildings
<b>Kazakhstan</b>	No ESCO	N/A	N/A
<b>North Macedonia</b>	No ESCO	N/A	N/A
<b>Republic of Moldova</b>	ESCO-Voltaj, number of ESCO-type companies	Fee-for-service	Installation of heat-meters and modern high efficiency boilers in industrial sites, thermal insulation of buildings, application of new industrial high-efficiency technologies
<b>Russian Federation</b>	ENEFCO, H2O-Technology, GPB-EnergyEffect, Energoprofit, FNECO, FRESKO, CESCO, NESCO, Invest ESCO ENEFCOM, FESCO, SBERENERGOESURS	Shared saving	Street lighting, heating, controlled systems, compressed air systems, district heating, projects in municipalities
<b>Serbia</b>	New ESCO oriented activities	N/A	N/A
<b>Ukraine</b>	UkrESCO, ESCO-Rivne, Energy Alliance, Aitikon, KyivESCO, OdesaESCO, around 130 ESCOtype Companies	BOOT, "turn-key" concept	Co-generation stations, compressed air systems, heat supply systems, cooling, and equipment modernization in small and medium enterprises, projects in municipalities

- Ukraine:** Energy service market in Ukraine consists of 13 ESCO companies that work according to the EPC model. Since the launch of the ESCO-module in the Public Procurement System "PROZORRO" in October 2017, 348 tenders were announced for the purchase of energy services for budgetary institutions. 172 auctions have been successfully conducted, and 37 contracts have already been signed for a total of 40 million of Ukrainian hryvna in different regions of Ukraine.

Fig. 10 shows percentage of countries in which energy service market for EE and RE projects currently exists. The percentage is taken out of eleven countries participated in survey and reflects on assessment provided directly by respondents.

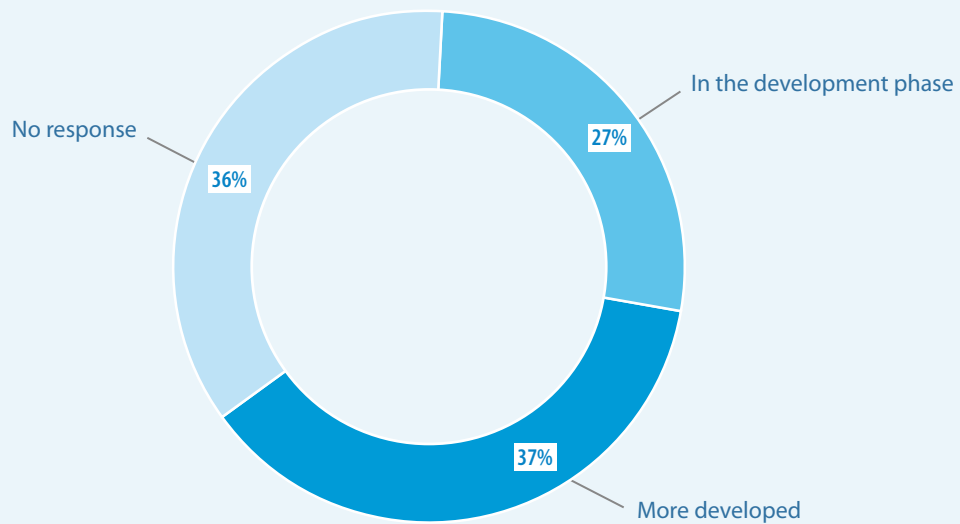
The ESCO market development in Bulgaria and Croatia was recently assessed by the European Commission. According to it, the "general energy services market and energy supply contracting has not been growing with the previously known speed but has largely remained stable" during the period 2014-2016 (EU, 2017).

The Bulgarian ESCO market remains small and its main activity is concentrated in the public sector with only few projects in the private and industry sectors. “The market potential is estimated to be in the order of EUR 500-900 million, although a reliable and official market size assessment is not yet available.” With the help of the market support of the BEERSF, the number of ESCOs was increasing, however, in 2013 the number of companies dropped to five and was able to recover only recently. As of 2016, there are at least 15 ESCOs (EU, 2017).

“The Croatian ESCO market is relatively small but has experienced growth since 2012. HEP ESCO, a public ESCO company created in 2003, is still the main provider of energy services, but there are new entrants gaining importance.” HEP ESCO has implemented more than 100 projects in different sectors, including buildings, street lighting, industry and energy supply. “As of 2016, around 10 ESCO companies operate in Croatia. The majority of them are small private companies. Of these, five are EPC providers. The value of the Croatian market for energy services is estimated to be around EUR 50 million, and its potential was put at around EUR 250 million in street lighting and EUR 1,250 million in public buildings” (EU, 2017).

Overall, the recent positive developments on energy service market in some project countries may be due to the improvements in the legal, institutional and financial frameworks typically required for performance contracting to be a viable business. Despite these improvements, many ESCOs in the project countries still have limited competencies in providing energy services and have limited access to commercial bank financing (World Bank, 2017).

**Figure 9.** Stage of the ESCO Market Development in the Selected Countries



# CHAPTER II

## PROCESSES BENEFICIAL FOR THE COUNTRIES

## Chapter II: PROCESSES BENEFICIAL FOR THE COUNTRIES

The current chapter identifies and analyzes various processes in the area of EE and RE the findings, lessons learned, methodologies, approaches and/or outputs of which can be beneficial for the selected countries. These processes include several implemented projects, conducted events and prepared publications in the period of 2012-2017.

### International Projects

#### *Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development*

**Implementation period:** 2012-2014

**Implementing agencies:** UNECE (lead agency) in collaboration with ESCAP, ESCWA, UN ECA and ECLAC.

**Project summary:** The project aimed at capacity building for development of EE investment projects. It assisted the UN Regional Commissions (RCs) to strengthen capacities of their member States to attract investments in EE projects in the context of climate change mitigation and sustainable development. The main project activities were focused at (a) developing the skills of the public and private sectors at the national level to identify, developing and implementing EE investment projects; (b) providing assistance to authorities to introduce regulatory and institutional reforms needed to support these investment projects; and (c) enhancing financing of EE projects in selected countries. The project provided case studies on the experience of policy reforms, regional trainings, workshops and seminars focusing on policy reforms and investment projects development.

**Project results:** A draft Global Strategy to promote market formation and self-financing EE improvements for implementation through all RCs has been elaborated. The Strategy took a comprehensive approach towards EE improvements, not focusing on a specific sector but rather favoring the emergence of self-sustained markets driven by demand and supply.

In implementing this project UNECE and ESCAP established cooperation on capacity building activities for improving skills and knowledge in financing EE projects, in particular on activities carried out in the Caucasus and Central Asia sub-region (where all countries are member States of both RCs). Among the important things that came out of this cooperation were the organization of joint workshops and seminars focused on improving legislative and policy framework; enhancing skills for developing bankable project proposals; and getting clear understanding of the value of EE measures by policy makers, businesses, financial institutions, local authorities and households. UNECE and ESCAP jointly conducted two regional training events, where one training course was held in Almaty, Kazakhstan, and the other in Istanbul, Turkey (also a member State of both RCs).

Throughout 2012-2014, the ECLAC collaborated with the Development Bank of Latin America (CAF) to ensure its commitment as key financial entity partner in the achievement of the project's ultimate goal of promoting increased EE Project investment and market development in the region. During the final project event, CAF officially announced the start of operation of the new Regional EE Financial Fund/Facility for energy efficiency projects (totaling USD 400 million with initial allocation of USD 120 million by KfW) and signing an official agreement between ECLAC and CAF to collaborate specifically in a regional EE program.

In several countries of the ESCWA region the Governments provided favorable conditions and incentives for EE investments. In Lebanon, the Central Bank provided, through accredited commercial banks, interest-free loans for selected EE projects. The Palestinian authority had set up a revolving fund to finance EE retrofits in the public-sector institutions. The Government of Tunisia established a fund to reimburse investors in EE a large portion of their project preparation, planning and implementation costs. The Government of Egypt announced a national initiative of “Shamsic Ya Misr” that aims at promoting the deployment of solar energy technologies all over Egypt and is comprised of two components: EE and RE promotion in the governmental buildings. This initiative was managed by a national unit reporting directly to the Prime Minister’s office. Although implementation of the mentioned promotional measures was not necessarily a direct result of the project, this project contributed to the process of further advancing such measures through regional consultations and exchanges of experiences which might lead to further replication of similar measures in more countries.

UN ECA organized the regional training course on EE projects in Cape Town, South Africa. Further, UN ECA planned to develop a training programme for individual countries on project preparation built on the basis of the trainings conducted under this project.

The case studies performed under the project showed how a concrete policy reform transformed economically attractive investment projects into bankable projects, which have been financed. Based on these case studies and experience of the developed countries, which had proved to have a successful EE strategy, the project developed a benchmark that should serve as a reference point for policy makers and energy experts working in the field of EE. This benchmark was a synthesis of policy incentives that should be in place in order to stimulate and ensure successful EE policy outcomes. The benchmark consists of three groups of desired policies: 1) legal, institutional and regulatory; 2) economic and financial; and 3) socio-political. A set of these policies in place at a sufficient degree in a particular country was a basis for successful formulation and implementation of EE policies and projects.

The project set forth a suite of existing EE policies that stood out as best practices. The policies identified by the project included examples of best practices in EE policies from around the world, drawn from the objective policy evaluations and databases. The project allowed developing a structured framework on which to identify and base a menu of best EE policies and measures suitable for adaptation and adoption by member States of the RCs. It provided a comprehensive system that encompassed the description, identification and classification of EE policies and measures in response to the need to enhance EE policies (<http://www.unece.org/index.php?id=40546>).

An investment project pipeline (an inventory of EE project proposals from member countries) had been prepared:

- In the UNECE and ESCAP regions, the inventory contained a total of 32 project proposals from 23 countries. The aggregated value of the proposed projects amounted to about USD 190 million;
- In the UN ECA region, 9 project proposals were identified and recommended for financing;
- In the ESCWA region, 17 proposed projects ideas were further assessed, discussed and formulated as project proposals; ESCWA also developed a comprehensive Step-by-Step EE Project Development Guidebook document (<https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/guidebook-project-developers-renewable-energy-investments-business-plans-english.pdf>) to serve as support and reference document for capacity building for this project, and became available for all future EE project developers who would want to use it to prepare bankable EE project business plans;
- ECLAC project pipeline included 28 projects in five Latin American countries with total investments of USD 920 million.

### *Promoting Renewable Energy Investments for Climate Change Mitigation and Sustainable Development*

**Implementation period:** 2015-2017

**Implementing agencies:** ESCWA (lead agency) in collaboration with UNECE.

**Project summary:** This capacity building project aimed at promoting investments in RE through strengthening national capacities in attracting private investments in the RE area and specifically in developing economically, environmentally, socially and financially viable projects. Through a close cooperation with the countries concerned, ESCWA and UNECE were supporting the development of a desirable investment framework by organizing a series of events for local experts to facilitate the increased mobilization of financial resources for RE investments. The project focused on (i) development of skills for public and private sectors at the national level to identify, develop and implement RE investment projects; (ii) providing assistance to authorities to introduce regulatory and institutional reforms needed to support these investment projects; and (iii) identifying opportunities for financing RE projects in the region. The activities included identification of case studies on the experience of policy reforms, as well as organization of regional trainings, workshops and seminars focusing on policy reforms and investment projects development.

This project was built upon the UNDA project “Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development” (described above). Even though the substantive contents of these two UNDA projects activities were different, most of the settings and formats, used to carry out the energy efficiency DA-project activities, were reproduced in this renewable energy UNDA project, allowing to take advantage of the acquired organizational arrangements and working approaches that had been implemented.

**Project results:** The case studies on RE policies reforms were prepared, including recommendations related to ways of improving the RE investment environment through policy reforms and institutional strengthening. Four case studies on the experience of policy reforms in Georgia, Kazakhstan, Serbia, and Ukraine were completed in 2016-2017. Four case studies from the ESCWA region (on Jordan, Lebanon, Morocco and the United Arab Emirates) were prepared in 2017.

Technical assistance was provided to project developers from the two regions. Two regional training workshops in RE project development, finance and business planning were held (one was organized on 3-4 May 2016 in Rabat, Morocco, the other one was held on 11-14 June 2017 in Nur-Sultan, Kazakhstan). ESCWA prepared a Guidebook as a support for this Technical Assistance work, and two consultants (one in each region) were providing individualized assistance to RE project developers (12 from the ESCWA region and 9 from the ECE region) to transform their project’ ideas into bankable proposals. Assistance to project developers in preparing pre-feasibility studies for the pipelines and support in their process of drafting business plans and support them in the submission process to domestic and international investors, banks, investment funds, and other financial institutions has been provided. The project proposals were presented and discussed at the workshop in June 2017 in the framework of the Ministerial Conference and 8th International Forum on Energy for Sustainable Development in Nur-Sultan, Kazakhstan.

The web platform under this project was integrated into the IRENA Marketplace platform based on the agreement between IRENA, ECE and ESCWA. The platform provides knowledge base on promoting investments in RE projects, available international financing mechanisms and best practices. It contains a database of case studies, as well as proposed and approved institutional and policy reforms and other related information (financing schemes, capacity building, institutional strengthening).

### *Sustainable Energy for All (SE4All) in Eastern Europe, the Caucasus and Central Asia*

**Implementation period:** 2016-2019

**Implementing agencies:** UNECE in collaboration with ESCAP.

**Project summary:** The overall goal of the project is to strengthen the national capacity of countries with economies in transition to develop National Sustainable Energy Action Plans in the context of the post-2015 Sustainable Development agenda. The beneficiary countries of this project are Azerbaijan, Belarus, Georgia, Kazakhstan, and Kyrgyzstan. The selected countries do not have the necessary institutional, policy and regulatory infrastructure to enable progress to meet SE4All objectives and to attract significant foreign and domestic investments for employing advanced EE and RE technologies with all related benefits. The project seeks to help selected member States to identify best practices, measures and procedures relevant to prepare a sustainable energy transition, with a particular focus on the cross-cutting nature of EE, RE and energy access. The project assists member States in development of their national sustainable energy action plans and helps to convert the plans into effective national policy frameworks.

The current project is built on experience of the previously implemented UNDA project “Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development” as well as on the experiences of the annual International Fora on Energy for Sustainable Development.

**Project results:** Up to date, a baseline review of sustainable energy data in Azerbaijan, Belarus, Georgia, Kazakhstan, and Kyrgyzstan was conducted. Based on these reviews, a baseline assessment of the gaps in existing sustainable energy data in each beneficiary country was also conducted. The data included, for instance, indicators of energy consumption per unit of GDP by industrial sector; indicators of the average household prices of electricity, home heating fuel, petrol and diesel, average share of household disposable income spent on energy, share of households connected to the national electric power grid/national natural gas distribution network, share of households without access to electricity; average household electricity prices, the unit cost of renewable generation, indicator of average efficiency of thermal power generating stations, etc.

The training materials were prepared. Training sessions of the national officials and experts from Azerbaijan, Belarus, Georgia, Kazakhstan, and Kyrgyzstan responsible for sustainable energy data collection were held in Nur-Sultan in June 2017 and in Tbilisi in September 2017. The trainings focused on methods for collection, verification, aggregation and reporting of data, as well as statistical indicators relevant for monitoring of sustainable energy development. They increased knowledge of national experts from each beneficiary country on best practices on collection and monitoring of national data on sustainable energy in compliance with international standards.

### *Energy Efficiency Standards in Buildings in the UNECE Region*

**Implementation period:** 2017-2018

**Implementing agencies:** The project is jointly implemented by the Sustainable Energy Division and Housing and Land Management Unit of the UNECE.

**Project summary:** The project aims to improve EE in buildings and reduce global greenhouse gas emissions into the atmosphere in the UNECE region through best-practice guidance and standards. Buildings are responsible for approximately one third of total energy consumption and account for almost 40 per cent of CO<sub>2</sub> emissions from combustion. Standards are an effective instrument for addressing EE in buildings and to support the achievement of the targets set by several international initiatives such as energy-related SDGs, SE4All initiative, and the Geneva UN Charter on Sustainable Housing. The number of national and international standards related to EE in buildings is continuously increasing. This generates

confusion among policy makers, organizations, businesses and consumers concerning which standards in EE have the highest impact and are most relevant for their country. Therefore, this project delivered (i) a comprehensive mapping of EE standards in buildings of the UNECE region; (ii) an online database of experts on EE in buildings tailored to the needs of the region; and (iii) mapping of existing and new technologies that enhance EE in buildings and meet existing standards.

**Project results:** The UNECE Task Force on Energy Efficiency Standards in Buildings was established. It includes experts from the Committee on Sustainable Energy and the Committee on Housing and Land Management (CHLM), the Group of Experts on Energy Efficiency, other UNECE bodies, international partner organizations and relevant experts to ensure a cross-sectoral integrated approach to addressing building codes and EE standards.

The mapping of existing standards on EE in buildings was undertaken to help member States understand which standards currently exist and to choose which ones to use. This exercise helped to identify possible gaps that need to be addressed in the UNECE region.

The study on mapping of existing technologies to enhance EE in buildings was also undertaken with aim to strengthen understanding of the UNECE member States on the potential impact of EE standards and technologies in the buildings sector; analyze and evaluate the correlation between the strictness and enforcement of existing standards, and the level of applied technologies; analyze gaps between existing EE technologies in buildings vis-à-vis their application and adaptation; and review and assess the application and adaption of the relevant technologies at the national level.

## International Events and Meetings

### *International Forum on Energy for Sustainable Development*

The International Forum on Energy for Sustainable Development was initially organized as the International Energy Efficiency Forum in 2010 in Nur-Sultan, Kazakhstan. Since then it has become an annual event. It has made major contributions to the global dialogue on implementing the Sustainable Energy for All initiative and achieving targets of the Sustainable Development Goal 7 on energy.

**International Energy Efficiency Forum, Nur-Sultan, Kazakhstan, 28-30 September 2010** (<https://www.unece.org/index.php?id=11571#/>): The Forum was organized jointly by the Government of Kazakhstan, the UNECE, ESCAP, UNEP, and UNDP. This Forum concentrated on assessment of EE and RE policy and legislative frameworks with the analysis of international best practices. It reviewed the status and potential of EE and RE in various economic sectors. The emphasis was given to EE in the residential and municipal sector, as one of the major sources of greenhouse gas emissions with large potential for improvements in EE. The main focus of the Forum was on ways and means of financing EE and RE investments. The Workshop on Investments in Energy Efficiency and Renewable Energy Projects was organized as part of this Forum.

The first Forum showed an opportunity to have stimulating and productive discussions on the issues of vital importance for the countries and organizations. It also proved that cooperation between various organizations of the UN system involved in the work on sustainable energy is crucial for making the most of the available resources, avoiding duplication and finding areas for joint activities.

**Second International Energy Efficiency Forum, Dushanbe, Tajikistan, 12-14 September 2011** (<https://www.unece.org/index.php?id=25461#/>): The Forum was organized jointly by the Government of Tajikistan, the UNECE, and ESCAP. This Forum contributed to sharing progress made in enhancing countries' policies and legislation for facilitating market formation in EE and RE, which resulted in the implementation of EE and RE projects, and in preparing commercially viable project proposals. The status



and potential of EE and RE in various economic sectors (industry, fuel and energy, housing and communal services, public buildings, construction, transport) was reviewed. International best practices in financing EE and RE projects and attracting investments to cleaner energy technologies were also analyzed. The Workshop on Development of EE Policy Frameworks and Investments in EE and RE Projects was conducted as part of the Second International Forum on 13 September 2011.

**Third International Forum: Energy for Sustainable Development, Issyk Kul Lake, Kyrgyzstan on 12-14 September 2012** (<https://www.unece.org/index.php?id=29476#/>): The Forum was organized jointly by the Government of the Kyrgyz Republic, the UNECE, ESCAP, and UNDP/Global Environment Facility (GEF). This Forum focused on the following topics: (i) sustainable energy in Central Asia and the neighboring regions: current status, barriers and opportunities; (ii) policy reforms and role of the Governments and public sector in creating favorable environment for sustainable energy promotion; (iii) EE in buildings and in housing sector: challenges, success cases and opportunities; (iv) investments in EE and cleaner energy: ways to finance EE and cleaner energy projects; (v) role of the private sector in promoting cleaner energy options in Central Asia and neighboring regions. The Workshop on Case studies on Energy Efficiency Financing and Promotion of Advanced Energy Efficiency Technologies was organized on 12-14 September 2012.

**Fourth International Forum: Energy for Sustainable Development, Tbilisi, Georgia, 17-19 September 2013** (<https://www.unece.org/index.php?id=32843#/>): The Forum was organized jointly by the Government of Georgia, the UNECE, ESCAP, and UNDP. It gathered policy makers and experts in the field of EE and sustainable use of energy, as well as in the fields of economic and social development, environmental protection, governance, financing, and energy and utility infrastructure development from the countries of the Caucasus, South-Eastern and Eastern Europe, Central, Northern, South-Eastern and Southern Asia. The topics of the Forum included discussions on (i) policies and legislation to promote EE and clean energy technologies in the Caucasus region; (ii) policy reforms to promote financing EE investments; (iii) EE in buildings and housing sector; and (iv) sustainable energy challenges and opportunities in transition countries. The Workshop on Case Studies on Policy Reforms to Promote Financing Energy Efficiency Investments and Advanced Energy Efficiency Technologies was organized as part of the Forum.

**Fifth International Forum on Energy for Sustainable Development, Hammamet, Tunisia, 4-7 November 2014** (<https://www.unece.org/index.php?id=35706#/>): The Forum was organized jointly by the Government of Tunisia, the UNECE, ESCWA, ESCAP, ECLAC, and UN ECA. It was global in nature, with all five UN RCs jointly organizing and delivering a successful event. This Forum emphasized attaining the three objectives of the SE4All Initiative of the UN Secretary-General through a regional agenda: ensuring universal access to modern energy services, doubling the global rate of improvement in EE and doubling the share of renewable energy in the global energy mix by 2030. The Forum shared experiences from all regions of the world. It included (i) a High-Level Dialogue on "International Cooperation towards Sustainable Energy for All" with participation of the Executive Secretaries of UN Regional Commissions and ministers responsible for implementing sustainable energy policies; (ii) a Global Workshop of the project "Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development", implemented jointly by all five UN RCs; and (iii) a launch of the new project "Promoting Renewable Energy Investments for Climate Change Mitigation and Sustainable Development." Participants of the Fifth Forum supported the Joint Statement of the Executive Secretaries of the UN RCs (the Hammamet Declaration).

**Sixth International Forum on Energy for Sustainable Development, Yerevan, Armenia, 29 September-2 October 2015** (<https://www.unece.org/index.php?id=39915>): The Forum was organized jointly by the Government of Armenia, the UNECE, ESCWA, ESCAP, ECLAC, UN ECA, UNDP Office in Armenia, UNIDO, the Copenhagen Centre on Energy Efficiency, the Climate Technology Centre and Network (CTCN), and the Habitat for Humanity International (HFHI), and became one of the important events of the UN Decade of Sustainable Energy for All (SE4All) 2014-2024. This Forum contributed to

building the capacity of government officials to adopt strategies and policies to accelerate deployment of EE and RE measures in the private and public sectors, including improved opportunities for banks and commercial companies to invest. The Forum was a platform for practitioners to exchange experiences and solutions for improving EE, increasing the share of RE, and implementing cleaner energy technologies. The Forum adopted the Yerevan Statement of Common Action to initiate implementation of the provisions of the Hammamet Declaration. It held extensive discussions on (i) EE for sustainable cities; (ii) business planning for RE investments projects; (iii) power trade and inter-grid connectivity in Central Asia and the Caucasus; (iv) access to energy in remote areas; (v) EE in multi-unit residential buildings: challenges and solutions in residential EE in Eastern Europe; and (vi) status and best practices on EE. Regional Forum for CTCN National Designated Entities was organized in the framework of this Forum.

**Seventh International Forum on Energy for Sustainable Development, Baku, Azerbaijan, 18-21 October 2016** (<https://www.unece.org/index.php?id=42643#/>): The Forum was jointly organized by the Government of Azerbaijan, the UNECE, ESCWA, ESCAP, ECLAC, UN ECA, UNDP, IEA, IRENA, the World Bank, UNIDO, Copenhagen Centre on Energy Efficiency, REN21, and GEF. This Forum provided an opportunity to build upon the achievements of previous fora and develop a roadmap of achievements in the short- and medium-term with regards to the energy-related SDGs. It combined a high-level policy dialogue with plenary sessions, parallel workshops and seminars. The main topics of plenary sessions and parallel workshops included: (i) sustainable energy agenda (impacts of oil price developments on the sustainable energy agenda, creating the conditions to make medium- and long-term decisions in times of risk and uncertainty, future energy outlook and appropriate indicators, measurement and tracking progress of the energy productivity, future energy systems and balancing markets); (ii) sustainable energy systems of the future (the role of existing and new technologies and innovation to meet the SDGs, overcoming investment barriers; enhancing market conditions in the right way to improve carbon intensities, accelerating RE development in Central Asia, smart integration of RE, the role of fossil fuels in a future energy system, water, food and energy nexus and connections with smart cities and transport); national action plans (NAPs) and holistic energy policies, linking energy and climate objectives in national actions, human and institutional capacities for energy policy making and project development/implementation).

**Eighth International Forum on Energy for Sustainable Development, Nur-Sultan, Kazakhstan, 11-14 June 2017** (<http://www.unece.org/astana2017.html>): The Forum was jointly organized by the Government of Kazakhstan and the UN Regional Commissions and supported by the UNIDO, UN Department on Economic and Social Affairs (DESA) and other international organizations, including IEA, IRENA, SE4All, the World Bank, the Copenhagen Centre on Energy Efficiency, and the Renewable Energy Policy Network for the 21st Century (REN21). The objective of the Eighth Forum was to enhance the understanding of sustainable energy and possible policy drivers to achieve a common goal on sustainable energy, promote policy dialogue and provide awareness-raising of different outcomes. It aimed to explore how the UN system can help implement or pursue sustainable agendas within the regional context. The Forum opened with an Energy Ministerial Conference on “Meeting the Challenge of Sustainable Energy,” and followed by a high-level plenary session with parallel workshops. Ministers, high-level delegations and leading energy experts explored how to drive change, the role of and need for regional cooperation and planning, and the imperative for nexus solutions as part of implementing the 2030 Agenda for Sustainable Development. In particular, the interplay between fossil fuels, EE, and RE was in the spotlight. A joint declaration had been adopted which reaffirmed the importance of energy collaboration among countries for tackling common energy challenges and shaping a sustainable energy future for all.

**Ninth International Forum on Energy for Sustainable Development, Kiev, Ukraine, 12-15 November 2018** (<http://www.unece.org/index.php?id=49144>): The Forum was co-organized by the Government of Ukraine and the five United Nations Regional Commissions. The partners for this Forum were UNDP, United Nations Institute for Training and Research (UNITAR), UN Environment, The World Bank, IEA, IRENA, International Atomic Energy Agency (IAEA), GEF, Organization for Security and Co-operation in

Europe (OSCE), International Energy Charter, International Energy Forum (IEF), Copenhagen Centre on Energy Efficiency, International Institute for Applied Systems Analysis (IIAS), Fraunhofer Institute for Environment Safety, and Energy Technology UMSICHT, Pacific Northwest National Laboratory (PNNL), Dartmouth College, and Climate Action Network (CAN). This Forum followed up on the recommendations from the previous meetings the Eighth International Forum on Energy for Sustainable Development held in June 2017 in Nur-Sultan and the High-Level Political Forum on Sustainable Development in July 2018 in New York. The Forum provided a unique opportunity for policymakers and experts from various parts of the energy sector to reflect on the implications of the fast-paced energy transition that has become the new normal, review the activities to date and to make further progress towards meeting the sustainable development goals.

### *Group of Experts on Energy Efficiency*

From 2008 to 2012, the Group of Experts on Energy Efficiency Investments for Climate Change Mitigation was acting with objectives to (i) promote an investment climate in which self-sustaining EE projects can be identified, developed, financed and implemented by local teams in municipalities, factories and energy utilities; (ii) strengthen EE policies in the participating countries, assisting municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support investments in EE projects; and (iii) promote opportunities for banks and commercial companies to invest in EE projects through the development of new public private partnership investment funds or financing mechanisms.

In 2013, the Executive Committee of the UNECE discussed issues on matters related to the Committee on Sustainable Energy and decided to suspend the mandate of the Group of Experts on Energy Efficiency Investments for Climate Change Mitigation. By its decision, the **Group of Experts on Energy Efficiency** (<http://www.unece.org/energyefficiency.html>) was established with mandate to carry out concrete, results-oriented activities that help significantly improve EE in the region, thus contributing to climate change mitigation efforts; and strengthen regional cooperation in EE, with a view to reducing greenhouse gas emissions.

According to its Terms of Reference, the Group of Experts concentrates on: a) regulatory and policy dialogue addressing financial, technical and policy barriers to improve EE; and b) sharing experience and best practices in the field of EE in the UNECE region, including on strengthening institutional capacity in EE to reduce greenhouse gas emissions.

**Informal Preparatory Meeting on the UNECE Group of Experts on Energy Efficiency** was organized in Geneva on 1 September 2014 (<http://www.unece.org/index.php?id=36358>) where the international energy experts and UNECE member States discussed how to increase the uptake of EE measures in the region, and which role the newly established Group of Experts on Energy Efficiency could play.

**The first Session of the Group of Experts on Energy Efficiency** was organized in Geneva on 17-18 November 2014 (<http://www.unece.org/index.php?id=35855>). The Group of Experts discussed options to improve EE, best practices in EE and the objectives of SE4ALL in the ECE region, as well as cross-cutting issues in EE and coordination of work with other international organizations.

**The second Session of the Group of Experts on Energy Efficiency** was held in Geneva on 5-6 November 2015 (<http://www.unece.org/index.php?id=38546>). The Group of Experts focused the discussions on its role in the processes and activities that help significantly improve EE in the UNECE region and invited member States to deploy a structured framework of policies and measures to promote EE presented in the UNECE publication "Best Policy Practices for Promoting Energy Efficiency."

**The third Session of the Group of Experts on Energy Efficiency** was held in Baku on 18-19 October 2016 (<http://www.unece.org/index.php?id=42244>) in the framework of the Seventh International Forum

on Energy for Sustainable Development. The Group of Experts focused its discussions on best practices in selected economic sectors to improve EE, high impact policies and measures, exchange of know-how and best practices in industry to significantly improve EE, principles-based energy performance standard in buildings, role of utilities and energy service companies in improving EE; and regulatory and policy dialogue addressing barriers to improve EE.

**The fourth session of the Group of Experts on Energy Efficiency** was organized in Geneva on 31 October-1 November 2017 (<http://www.unece.org/index.php?id=45694>). The Group of Experts focused its discussions on practical ways for promoting and implementing Framework guidelines for EE standards in buildings, exchanged experience in implementation of EE policies and measures in their countries as well as challenges to their implementation in the industry sector, and discussed policies and actions that increase the bankability of EE and proposed next steps for EE finance options in the region.

**The fifth session of the Group of Experts on Energy Efficiency** was organized in Kev on 13-15 November 2018 (<http://www.unece.org/index.php?id=49016>). The Group of Experts was held in the framework of the Ninth International Forum on Energy for Sustainable Development. It focused its discussions on activities included in its Work Plan for 2018-2019 and covered the following topics: EE in industry; EE in buildings; role of utilities, big data and geospatial data in energy transition, and overcoming barriers to financing of EE and RE.

### *Group of Experts on Renewable Energy*

In 2013, the Executive Committee decided on matters relating to the Committee on Sustainable Energy and established the **Group of Experts on Renewable Energy** (<http://www.unece.org/energy/re.html>). This Group of experts is mandated to carry out concrete result-oriented activities that help significantly increase the uptake of RE in the region and that help achieve the objective of access to energy for all in the ECE region.

According to its Terms of Reference, the Group of Experts will focus on a) regulatory and policy dialogue, and b) sharing of best practices on various renewable energy sources, including biomass, with a view to increasing the share of renewables in the global energy mix.

**Informal Preparatory Meeting on the UNECE Group of Experts on Renewable Energy** was organized in Geneva on 26 June 2014 (<http://www.unece.org/index.php?id=35940>) together with the Informal Brainstorming Meeting about the Renewable Energy Status in the UNECE Region IN Paris on 11 July 2014.

**The first Session of the Group of Experts on Renewable Energy** was organized in Geneva on 18-19 November 2014 (<http://www.unece.org/index.php?id=35377>). The Group of Experts discussed the status of development of RE in the ECE region, energy access and best practices in the ECE region, as well as cross-cutting issues and coordination of work on RE.

**The second Session of the Group of Experts on Renewable Energy** was organized in Geneva on 12-13 October 2015 (<http://www.unece.org/index.php?id=38536>). The focus of this session was on progress on the uptake of RE in the ECE region and on the role, that the ECE – and therefore the Group of Experts – can play to facilitate and accelerate necessary changes.

**The third Session of the Group of Experts on Renewable Energy** was held in Baku on 20-21 October 2016 (<http://www.unece.org/index.php?id=42246>) in the framework of the Seventh International Forum on Energy for Sustainable Development. It focused its discussions on tracking progress of RE uptake and synergies with EE; best practices on how to increase the uptake of RE; integration of RE in future sustainable energy systems; developing a common assessment methodology for RE projects.

**The fourth session of the Group of Experts on Renewable Energy** was organized in Geneva on 2-3 November 2017 (<http://www.unece.org/index.php?id=45697>). The Group of Experts discussed the ways of tracking progress of RE development, shared best practices on how to increase the uptake of RE, discussed the need for integration of RE in future sustainable energy systems, as well as exchanged views on how to boost RE investments through various tools and activities, including specific activities to match project developers with investors and policy makers.

**The fifth session of the Group of Experts on Renewable Energy** was organized in Kiev on 13-15 November 2018 (<http://www.unece.org/index.php?id=49080>). The Group of Experts was held during the Ninth International Forum on Energy for Sustainable Development. The focus of discussions were the activities included in the work plan and the following topics: tracking progress in RE development; policies, best practices and multi-stakeholder dialogues on how to increase the uptake of RE; matchmaking event to support RE instrument opportunities; cross-cutting cooperation to integrate RE in future energy systems and contribution to the 2030 Sustainable Development Agenda.

## Publications

UNECE provides assistance to national authorities to introduce economic, institutional and regulatory reforms needed to support EE and RE investment projects. One of the directions of such assistance is to strengthen national policy and regulatory frameworks through preparation of analytical policy studies to assess the status of EE and RE investments and identify ways to improve the situation.

### *Best Policy Practices for Promoting Energy Efficiency*

This study (<http://www.unece.org/index.php?id=41058>) was published in 2015 (in collaboration with the Copenhagen Centre on Energy Efficiency). It sets forth a suite of existing EE policies that stand out as best practices. The policies identified in this report include exemplars of best practices in EE policies from around the globe, drawn from respected and objective policy evaluations and databases. The primary audience of this publication is policy makers from the UNECE member States, though this exploration of best practices should be useful in other regions. For countries starting to develop EE programmes, the policies outlined offer guidance into what works and can offer confidence when exploring and selecting options. For countries with established and proficient EE programmes, this report can assist by validating policies and offering a set of policy benchmarks.

### *Analysis of National Case Studies on Policy Reforms to Promote Energy Efficiency Investments*

This publication (<http://www.unece.org/index.php?id=40546>) was prepared in 2015 jointly with other UN RCs in the framework of the UNDA project "Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development." It aims to identify existing barriers to EE policy implementation and to provide recommendations to the policy makers that would assist them in development and implementation of policy reforms that can support market formation and foster favorable climate for investments in EE. The publication develops a benchmark that should serve as a reference point for policy makers and energy experts working in the field of EE. This benchmark is a synthesis of policy incentives that should be in place to stimulate and ensure successful EE policy outcomes. The desired policies are divided into three groups: 1) legal, institutional and regulatory; 2) economic and financial; and 3) sociopolitical. A set of these policies in place at a sufficient degree in a particular country is a basis for successful formulation and implementation of EE policies and related projects.

### *Experience in the Europe and CIS Region with Clean Energy – UNDP, GEF and UNECE*

This publication (<http://www.unece.org/index.php?id=44145>) was prepared jointly by UNDP, GEF and UNECE in 2016. It shows that improving EE can play an important role in helping countries meet their commitments under the Paris Agreement. Its first part presents eight case studies of technical assistance projects by the UNDP and GEF in EE in eight countries: Armenia, Belarus, Georgia, Romania, Russian Federation, Serbia, Turkey, and Ukraine. The second part presents ECE experiences related to EE in the region. The brochure notes that one of the main lessons learned from these projects is that putting in place the right legal and regulatory framework is critical to promoting EE and RE. The results from these case studies show that there is considerable scope for the UNDP and the GEF to continue assisting national government policy makers, GEF national operational focal points, and other country partners in designing and implementing strong and robust sustainable energy projects that create green jobs, build stronger economies, and help reduce GHG emission.

### *Best Policy Practices for Promoting Energy Efficiency, Second edition*

This publication (<http://www.unece.org/index.php?id=47415>), prepared in 2017, is the second edition of the Best Policy Practices for Promoting Energy Efficiency publication prepared in the Framework of the UNDA project “Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development”. The publication provides additional examples of best policy practices selected according to the criteria in the first edition.

### *Overcoming Barriers to Investing in Energy Efficiency*

This publication (<http://www.unece.org/index.php?id=47698>) was prepared in 2017 in collaboration with the Copenhagen Centre on Energy Efficiency. The study looks into barriers to investing in EE and ways to overcome them. It presents the outcome of a survey among the EE practitioners on the challenges and solutions for overcoming barriers to EE investments. The primary geographic focus of the survey is the ECE region comprising 56 member States. The survey was widely distributed among EE experts representing governments, private sector, financial institutions, international and intergovernmental organizations, non-profit organizations, academia, and independent experts. The analysis of the survey and its conclusions and recommendations serves as a useful tool for EE community. Policy makers can apply the results to the situation in their countries and find approaches to improve investment climate for EE.

### *UNECE Renewable Energy Status Report (two editions)*

In 2015, the UNECE and REN21 joined forces to produce the UNECE Renewable Energy Status Report (<http://www.unece.org/index.php?id=41987>) which covers 17 selected UNECE member States: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia, Republic of Moldova, Russian Federation, Serbia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. It has been prepared in collaboration with IEA. The report provides a comprehensive overview of the status of renewable energy and energy efficiency markets, industry, policy and regulatory frameworks, and investment activities.

In 2017, the UNECE and REN21 also prepared the REN21 UNECE Renewable Energy Status Report (<http://www.unece.org/index.php?id=46155>). This report provides the updated data for the Russian Federation as well as for countries in South East and Eastern Europe, the Caucasus and Central Asia, which face some common challenges as they advance in deploying RE and improving EE.

# CHAPTER III

## REMAINING GAPS IN THE COUNTRIES

## Chapter III: REMAINING GAPS IN THE COUNTRIES

This chapter reviews the existing gaps in the policy, regulatory and institutional frameworks; in financial environment; and in education and awareness raising areas in the selected countries.

The remaining gaps are identified based on the gap analysis which is a technique used to determine what steps need to be taken in order to move from its current state to its desired, future state. Gap analysis consists of (1) listing of characteristic factors of the present situation (“what is”), (2) listing factors needed to achieve future objectives (“what should be”), and then (3) highlighting the gaps that exist and need to be filled.

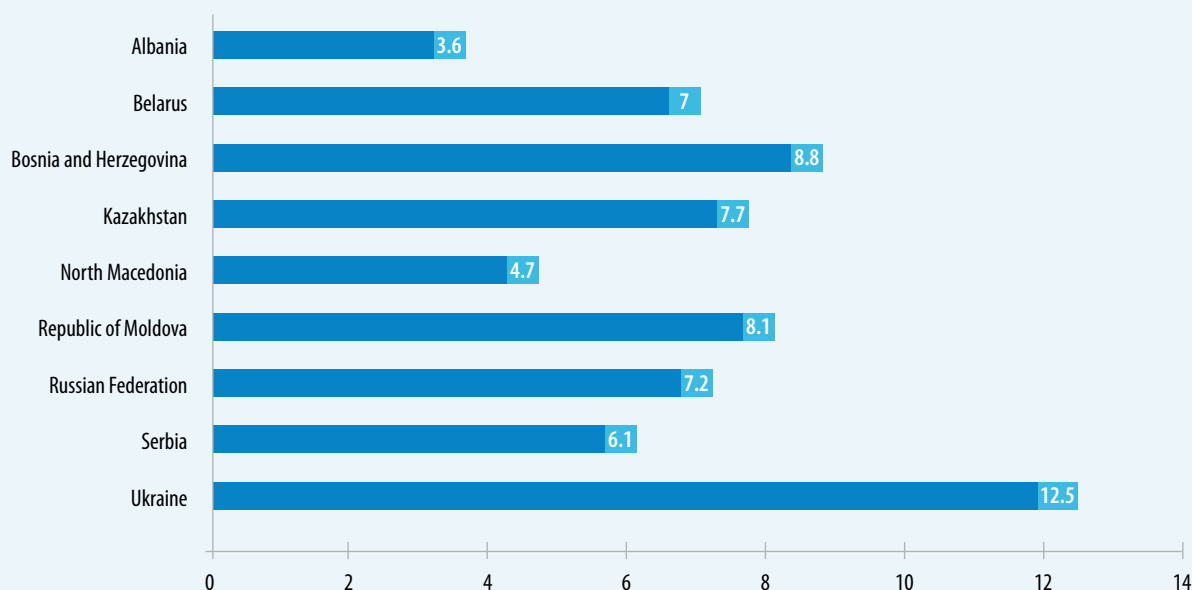
To identify the existing gaps in the selected countries, this chapter looks at the required frameworks and environment to promote EE and RE investments. The situation in the countries based on existing data and the received information from the national authorities are compared. The perceptions of stakeholders in the countries on effectiveness of the established frameworks and mechanisms are also looked at. Such combination of approaches allows highlighting the remaining gaps in the in EE and RE in the selected countries.

### Energy Intensity

Energy intensity is a commonly used measure for EE. It is “an indication of how much energy is needed to produce one unit of economic output. Lower ratio indicates that less energy is used to produce one unit of output. It is usually an indicator used on macro-economic level, defined in terms of energy rather than output.” (UNECE, 2017b)

Energy intensity in some countries remains high despite reductions already realized. In the sub-regional context, energy intensity differs. For example, the “Southeast Europe’s energy intensity declined from 5.0 to 4.6MJ/USD, at a -4.5 per cent of compound annual growth rate (CAGR). The sub-region Central Asia, Eastern Europe and the Russian Federation shows the highest energy intensity rate with 7.2 MJ/USD (-3.8 per cent CAGR).” (UNECE, 2017b) See also data on primary energy intensity in some reviewed countries (Fig. 10).

**Figure 10.** Primary Energy Intensity in the Project Countries, 2014 (MJ/USD PPP)





The sectoral analysis of the total final consumption in 2014 indicates that the residential sector consumes the largest share of energy in Belarus, Bosnia and Herzegovina, Republic of Moldova, Serbia and Ukraine. The industry sector remains an important factor in energy use. It is the most energy-consuming sector in three countries: Kazakhstan, the Russian Federation and Ukraine. The transport sector also is a consistently high-energy sector in Albania and the Republic of North Macedonia (UNECE and REN21, 2017).

“Many of the countries have high carbon footprints due to a legacy of high energy intensity and high energy inefficiency in industry and buildings. Energy losses from old infrastructure and dilapidated networks are significant. Carbon intensity has remained flat” (UNECE, 2017b).

The advances continue to be made towards promoting EE, for example in buildings, even though mostly in residential and public sectors. EE in industry and transport needs to be scaled up, considering the available potential for energy savings. EE policies for industry are being introduced but policies for transport are still lagging (UNECE and REN21, 2017).

Even though EE has been recognized as “a low-hanging fruit” to achieve global goals and targets, implementation of EE measures could still be improved (UNECE, 2017b).

### Share of Renewable Energy

The general overview shows that project countries have “tremendous untapped potential for all forms of RE. So far RE sources contributed only 11 per cent of the total final consumption (TFC)” in the UNECE region, with exclusion of large hydropower. As a reference point here is taken the global target of 18 RE share by 2030 of the SDG7 (UNECE, 2017b).

The progress rate, however, significantly differs in the sub-regional context. For example, the Southeast Europe reached 26 per cent of the RE share. Much lower level of attainment is seen in other countries,

**Table 5.** Overview of Remaining Gaps in Existing Policy, Regulatory and Institutional Framework in the Countries

	Albania	Belarus	Bosnia and Herzegovina	Bulgaria	Croatia	Kazakhstan	North Macedonia	Republic of Moldova	Russian Federation	Serbia	Ukraine
<b>Framework legislation and main policy documents</b>											
<b>Law on EE</b>	√	√	√	√	√	√		√	√	√	√
<b>Law on RE</b>	√	√	√	√	√	√		√			√
<b>Energy Dev. Strategy</b>	√		√	√	√		√	√	√	√	√
<b>NEEAP</b>	√		√	√	√		√	√		√	√
<b>NREAP</b>	√		√	√	√	√	√	√		√	√
<b>Secondary legislation</b>											
<b>Rulebooks</b>	√		√		√	√	√			√	
<b>Decrees</b>		√		√		√	√		√	√	√
<b>Resolutions</b>		√							√		√
<b>Decisions</b>	√		√	√				√			
<b>Ordinances</b>			√	√	√			√			
<b>Regulations</b>	√			√	√	√				√	
<b>Norms and standards</b>				√	√	√		√	√		√

including 3.5 per cent in the Russian Federation, 5.2 per cent in Eastern Europe and 7.4 per cent in Central Asia (UNECE, 2017b).

The share of RE in TFC in each selected country presented below (Fig. 11) indicates that the highest rate is in Bosnia and Herzegovina followed by Albania and Serbia. The lowest RE share is in Kazakhstan. The Russian Federation and Ukraine also are in the lower level.

“Looking deeper into the sub-regions with low RE shares, in 2015, UNECE member States from these sub-regions only received USD 400 million investments. This represents only about 0.2 per cent of the global total investment in RE technologies, a decrease from 0.5 per cent in 2014.” Absence of new investments is noticeable in the sub-regions of Central Asia, and Southeast Europe (UNECE, 2017b).

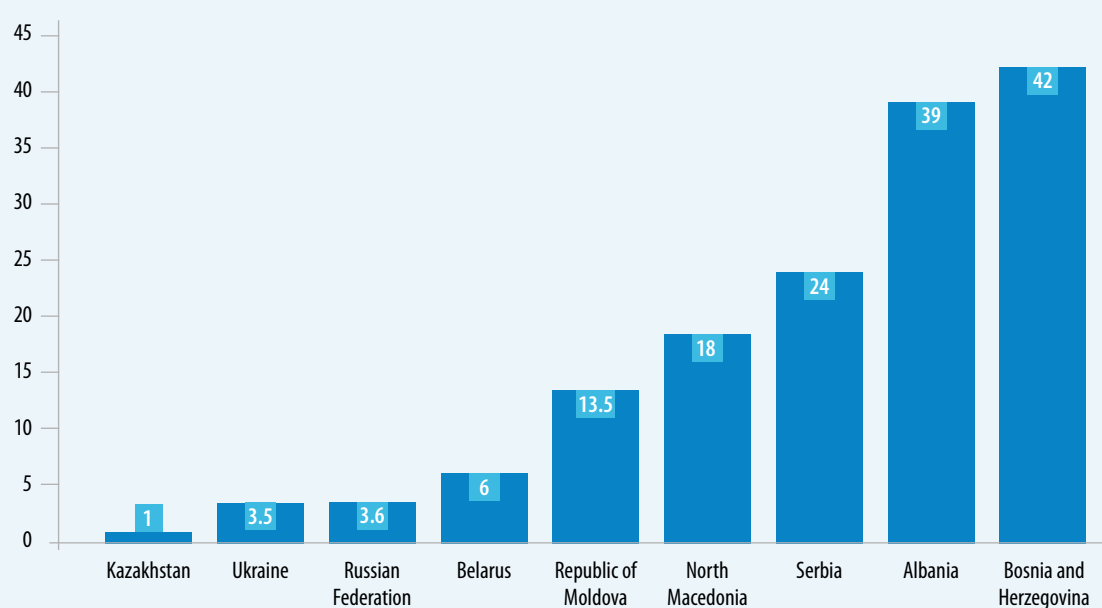
### Policy and Regulatory Frameworks

The remaining gaps in the reviewed countries are identified based on the results of the survey and additional information received from experts in the selected countries. To analyze the existing gaps, one can use information and data provided and compare them with a list of required main policy documents, secondary legislation and institutions to promote investments in EE and RE projects. Table 5 illustrates the blanks in policy, regulatory and institutional frameworks of the reviewed countries: the checked items identify existence of a certain element, while the highlighted items mean absence of those elements.

This overview indicates that all selected countries, except North Macedonia, possess legislation on EE. The framework legislation on RE is existing in majority of countries except in North Macedonia, the Russian Federation, and Serbia.

Most countries possess main policy documents to support and promote EE and RE investments. While energy development strategies are adopted by some countries, they have not been introduced in Belarus and Kazakhstan. Some project countries also do not have National EE and RE Action Plans. NEEAP has not been adopted in Belarus, Kazakhstan, and Russian Federation. NREAP has not been adopted in the Russian

**Figure 11.** Share of RE in Total Final Energy Consumption, by country, in per cent, 2014



Source: UNECE Renewable Energy Status Report, 2017

Federation. Though the national programs, strategies, plans and initiatives in the Russian Federation are currently serving as the NEEAP or NREAP.

Secondary legislation is far less developed and adopted in the reviewed countries. The by-laws can be present in different forms such as decrees, resolutions, decisions, rulebooks and vary in each country. However, the overall situation shows that development of the dedicated secondary legislation needs more attention and further actions from the policy makers' side.

The adoption of policy documents is only part of the puzzle to achieving a desired outcome. Enforcement mechanisms are required to ensure that policies are implemented and provide consequences for non-compliance. The type of policy employed dictates the type of enforcement mechanisms necessary to keep the policy goals on track. Generally, for the policy options that are voluntary in nature (such as tax incentives, grant opportunities and guidelines), there is no real need for any sort of enforcement mechanisms. But, for those policy options that have some sort of mandatory component (taxes, market-based approaches and standards), there needs to be a system in place to ensure that the policy is enforced.

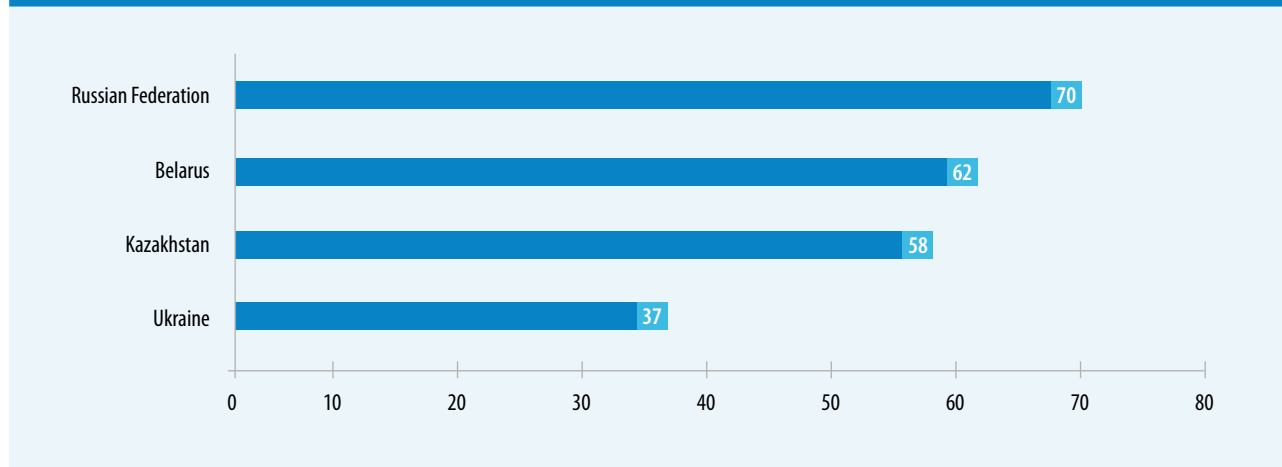
For the purposes of this study, the national experts were also requested to indicate the remaining gaps in the policy, regulatory and institutional frameworks in their countries. The responses included the following areas that need further development and/or improvements:

- **Albania:** adoption and subsequent implementation of the second and the third NEEAP and the Law on Energy Performance of Buildings as well as a set of by-laws of EE and RE;
- **Belarus:** (i) improvements in regulatory framework and provision of legal support for state regulations on provision of EE services, creation and operation of service providers, including project financing, ESCO, and financial leasing; (ii) implementation of the standard on energy management systems;
- **Bosnia and Herzegovina:** facilitating the administrative procedure for adoption of primary and secondary legislation;
- **Croatia:** improvements in regulatory framework, provision of incentives for supporting of heat and cooling production;
- **North Macedonia:** (i) provision of vision and further guidance related to the existing EE and RE policies from government side; (ii) introduction of long-term policies to support the development of the EE and RE market;
- **Russian Federation:** introduction of clarifications in provisions of the Urban Planning Code and Land Code;
- **Serbia:** further alignment with the EU Directives related to EE and RE;
- **Ukraine:** introduction of the law on energy market.

### *Energy Efficiency*

The World Bank's Regulatory Indicators for Sustainable Energy (RISE) benchmarks the EE policy and regulatory framework of countries and serves as a "tool to help develop policies and regulations that advance sustainable energy goals" (World Bank, 2017). It introduces a reference on future objectives of the enhanced policy and regulatory frameworks and improved financial environment in the project countries.

RISE provides "a snapshot of country's policies and regulations," including on EE. It classifies countries according to whether they score in the green zone (67–100), yellow zone (34–66), or red zone (0–33). The selected countries, for which the World Bank collected data, include Belarus, Kazakhstan, Russian Federation, and Ukraine. These countries will further be illustrated as examples of existing or missing policies, regulations and targets to promote EE investments.

**Figure 12.** RISE Aggregated Score on EE in the Selected Countries

The aggregated RISE score on EE in the selected project countries (Fig. 12) indicate that countries possess the appropriate policy environment for EE. While Russian Federation is a top performer on EE, the indicators for Belarus and Kazakhstan are also on a relatively high level. According the World Bank data, Ukraine has lower score rate on EE, however, is classified in the yellow zone.

To be more precise, the RISE provides scores by indicator on national EE planning which indicates that Kazakhstan, Belarus, Russian Federation, and Ukraine have already developed the required legislation that aims to increase EE, set up EE goal or target at the national level and introduced targets for the residential sector, commercial services, industrial and power sectors.

Other assessments also point out that a lot of progress has been made to drive EE improvements in the reviewed countries (UNECE and REN21, 2017). Albania, Belarus, Bosnia and Herzegovina, Kazakhstan, North Macedonia and Serbia address efficiency in the building sector through their long-term strategic plans and visions at the governmental level.

However, EE policies remain to be a complex body of instruments that require “regulations, standardization and certification, and monitoring rules.” To achieve the national targets on EE, governments should introduce new regulations, update the existing ones and constantly monitor their implementation (UNECE and REN21, 2017).

EE in buildings needs to be addressed through “a mix of instruments including mandatory building standards, minimum energy performance requirements, support mechanisms such as energy audits, energy label and certificates” (UNECE and REN21, 2017). Certain countries are more advanced in this area, while the others require additional improvements.

“Varying levels of energy performance requirements exist in all countries except Albania. The regulatory landscape in this area is still under development, with technical assistance support from the international donors.” There is still ongoing work to expand the operational policies, such as standards and labeling policies, building codes, vehicle fuel economy measures (UNECE, 2017a).

According to the RISE, the minimum EE performance standards are sufficiently developed in Belarus, while need more improvements in Kazakhstan and, especially, in the Russian Federation and Ukraine. This implies that countries need to set up or improve minimum energy performance standards and regulations for refrigerators, air conditioners, lighting equipment, industrial electric motors, light and heavy-duty vehicles. In addition to setting up those standards, a verification programme and introduction of penalties for non-compliance with the standards should also be in place.

Some countries “still apply building energy codes only to specific types of buildings, such as single- or multifamily buildings in the residential sector” (UNECE, 2018b). RISE indicates that Belarus, Kazakhstan, and the Russian Federation have EE codes for new residential and commercial buildings, provide regular update to the code for new buildings and have EE building code regulations. Ukraine in this area has “some supportive policies in place, but opportunities exist to form a comprehensive policy framework” (World Bank, 2017). Kazakhstan currently does not have provisions to cover single family buildings types. Building energy codes in the Republic of Moldova cover only existing residential and commercial buildings (UNECE, 2018b).

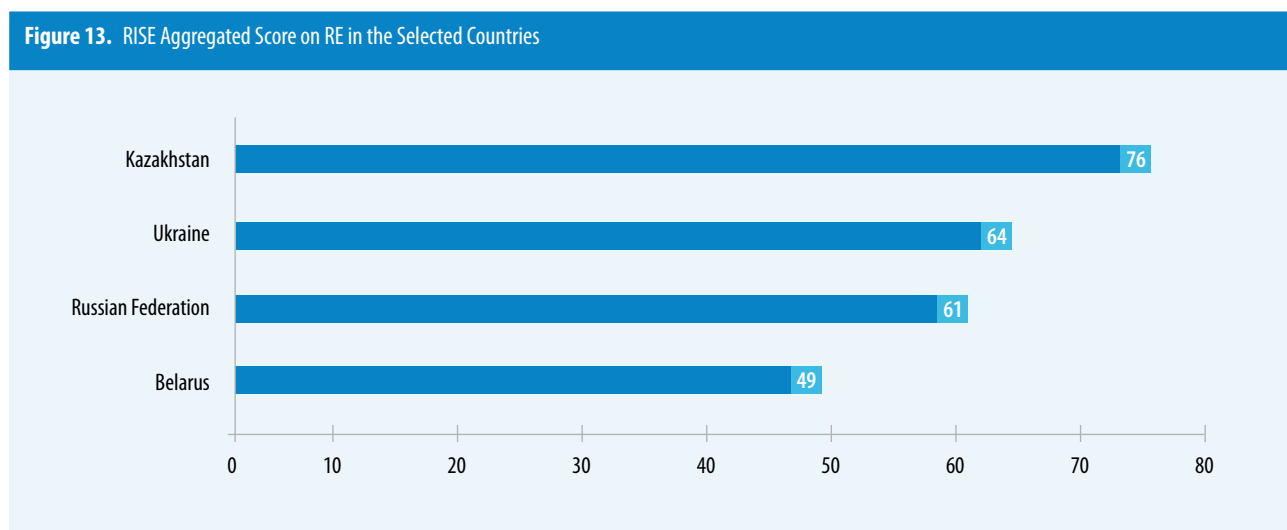
However, according to the statements from national authorities, the recent years in Kazakhstan the special attention is paid to the EE and energy saving. A legal framework is created for this, and the secondary legislation and technical regulations are being further developed and adopted.

Despite positive developments in this area, existence of legislation, programmes and policies on EE does not *per se* prove their actual support for EE improvements. Successful implementation of those policies and programmes is an important process in attracting investments to EE projects. To assess their effectiveness, the perceptions of experts working in the field of EE as practitioners were assessed (UNECE, 2017c). Such experts possess knowledge of actual situation in the countries and can provide valuable insights on the challenges to EE investments.

A perception of the strength of support of the regulatory framework in countries for enabling EE investments was assessed comparing to existence of the regulatory framework in EE in the countries. Overall, correlation between the existence of framework and perceptions by stakeholders indicates the level of effectiveness of such a framework and its ability to support and enable investments. For example, “in countries where the regulatory framework is considered weak by experts ([for example] North Macedonia), they believe it provides little support to investments. Belarus, Kazakhstan and Ukraine mostly have regulatory framework in place but the support it provides for EE investments is not considered strong, particularly in Ukraine” (UNECE, 2017c). Table 6 presents an overview of such perception in the selected countries.

### Renewable Energy

RISE provides the aggregated scored indicators in RE that encompass multi-dimensional aspects of RE policies and regulations. The review of selected countries shows that Kazakhstan is in a leading position among other countries (in the green zone). The scores in Ukraine, Russian Federation and Belarus are lower placing the countries in the yellow zone (Fig. 13).



**Table 6.** Perception of the Strength of Support of Regulatory Framework for Enabling EE Investments vs. Existence of the Regulatory Framework in EE from the Selected Countries

Selected countries	Existence of regulatory framework to support investments in EE (average of positive responses on four types of legislation), per cent	Support for investments in EE by the regulatory framework in the country from 1 (very little) to 5 (very strong)
Albania	66	3.11
Belarus	97	3.13
Croatia	93	3.64
Kazakhstan	84.5	3.00
North Macedonia	50	2.00
Ukraine	91	2.55

Source: UNECE, *Overcoming Barriers to Investing in Energy Efficiency, 2017 (UNECE, 2017c)*

The assessment of existence of legislative framework for RE indicates that the selected countries have such a framework in place and possess 100 per cent scores. However, the assessment of indicator on planning for RE expansion shows that Ukraine is in the green zone (with 69 scores); Belarus and Kazakhstan are in the yellow zone (with 65 and 44 scores respectively), while Russian Federation is in the red zone (with 31 scores). It implies that the Russian Federation, in particular, requires setting up the RE target, introducing RE action plan or strategy to attain the target as well as plan defining the amount of investments required to meet RE target.

The overview of existing regulatory policies for RE indicates that national RE targets are set up by all reviewed countries. The feed-in tariffs are also introduced in all countries, except the Russian Federation. Biofuels obligations and mandates exist in Albania, Belarus and Bosnia and Herzegovina. Electric utility quota obligation is only presented in Albania, Belarus and the Russian Federation. Tendering process is introduced in Albania, Bosnia and Herzegovina, Kazakhstan and the Russian Federation. Tradable RE certificates (REC) exist in Albania, Belarus and the Russian Federation. However, none of the countries introduced heat obligation/mandate. Very few have net metering<sup>1</sup> (Table 7).

There is also a lag time between policy and regulatory reforms that favour RE, and the practical changes that occur in the countries (UNECE, 2017a).

### ***Institutional Framework***

The governmental institutions are created to ensure the implementation of energy policy of the country, in general, and ensure the improvements in EE and use of RE, in particular.

Overall, the real challenge to accelerating EE lies in its policy foundations where the policy governance frameworks should be enabled by effective functioning of EE institutions providing the supportive measures (UNECE, 2017a).

According to the RISE assessment, Belarus, Kazakhstan, the Russian Federation and Ukraine have governmental bodies dedicated to setting EE strategy and EE standards, regulating EE activities of energy suppliers and consumers, certifying compliance with equipment EE standards and approving third party auditors with certifying EE standards.

<sup>1</sup> Response to survey from Albania indicated that the country introduced a net metering scheme for PV or wind that produce up to 500 kW.

**Table 7.** Overview of Renewable Energy Regulatory Policies in the Countries

	Renewable energy target	Biofuels obligation/mandate	Electric utility quota obligation/RPS	Feed-in tariff/premium payment	Heat obligation/mandate	Net metering	Tendering	Tradable REC
<b>Albania</b>	√	√	√	√	×	×	√	√
<b>Belarus</b>	√	√	√	√	×	√	×	√
<b>Bosnia and Herzegovina</b>	√	√	×	√	×	×	√	×
<b>Kazakhstan</b>	√	×	×	√	×	×	√	×
<b>North Macedonia</b>	√	×	×	√	×	×	×	×
<b>Republic of Moldova</b>	√	×	×	√	×	×	×	×
<b>Russian Federation</b>	√	×	√	×	×	×	√	√
<b>Serbia</b>	√	×	×	√	×	×	×	×
<b>Ukraine</b>	√	×	×	√	×	√	×	×

Source: UNECE Renewable Status Report, 2017 (UNECE and REN21, 2017)

The survey conducted by UNECE for the purposes of this study indicates that institutions acting in the areas of EE and RE in the countries are mostly represented at the national level, while only a few countries responded on functioning local institutions in their countries.

Dedicated agencies and intermediate management structures that deal with EE and RE programmes and projects play a very important normative and proponent role because they are the interface between policy makers and other acting organizations. Setting up the dedicated agencies would help ensure the proper planning, promotion, management, evaluation and monitoring of EE and RE projects. The agencies can also coordinate and solicit public funding from government ministries, as well as distribute funds (IEA, 2002).

The analysis of the survey revealed that such dedicated agencies have been established in the countries, namely:

- Albania: National Agency of Natural Resources;
- Bulgaria: Sustainable Energy Development Agency;
- Croatia: Energy Regulatory Agency;
- North Macedonia: Energy Agency;
- Republic of Moldova: National Agency for Energy Regulation;
- Russian Federation: Energy Agency
- Ukraine: State Environmental Investment Agency.

Belarus, Bosnia and Herzegovina, Kazakhstan and Serbia have not established the dedicated agencies in their countries. The overall coordination role on RE development is undertaken by the assigned ministries.

The assessment of experts' perceptions indicated the existence of "institutions at the national level responsible for developing and/or implementing policies that support investments in EE projects" (UNECE, 2017c). The positive responses from experts on existence of such institutions comprised 84 per cent for the sub-region of Eastern Europe, the Caucasus, Central Asia, and the Russian Federation, and 78 per cent for the South-East Europe sub-region.

**Table 8.** Existence and Effectiveness of National Institutions Responsible for EE Investments Policies in the Selected Countries

Selected countries	Existence of national authorities responsible for EE investment policies (average of positive responses), per cent	Effectiveness of national institutions responsible for EE investment policies (on a scale from 1(not effective) to 5 (very effective))
<b>Albania</b>	67	2.56
<b>Belarus</b>	75	3.14
<b>Croatia</b>	91	3.36
<b>Kazakhstan</b>	88	3.13
<b>North Macedonia</b>	88	2.57
<b>Ukraine</b>	100	2.91

Source: UNECE, *Overcoming Barriers to Investing in Energy Efficiency, 2017 (UNECE, 2017c)*

Even when local institutions exist in the countries, they are not often effectively functioning. The perception of the level of support provided by the national authorities for development and implementation of the EE projects is at various levels: “experts view authorities at the national level as most effective at providing such support.” The regional and local authorities are “viewed as significantly less effective.” Table 8 presents an overview of existence of national authorities responsible for the EE investment policies in the selected project countries and their perceived effectiveness.

## Financial Environment

### Energy Efficiency

To ensure improvements in EE, the adopted national strategies and related action plans in the project countries need to ensure the stable sources of financing for the required EE investments. Investment attraction has been a focus for governments in most of the reviewed countries. One of the most successful changes in national legislations is attributed to liberalizing fiscal structures for attracting the EE investments.

According to the RISE, tax incentives, on-bill financing/re-payment, credit lines, energy service agreements or ESCOs, green bonds, vendor credit and/or leasing as well as risk guarantees comprise the financing mechanisms in the residential and industrial sectors, as well as in commercial services need to be introduced to ensure the EE investments. For the Russian Federation, Ukraine, Belarus and Kazakhstan, the scores for indicator on financing mechanisms for EE are very high (100 for the Russian Federation, 83 for Ukraine, 75 for Belarus and Kazakhstan) which indicates that these countries have most of the mentioned above mechanisms in place (World Bank, 2017).

The carbon pricing mechanisms or mandatory reporting of the greenhouse gas (GHG) emissions exists only in Kazakhstan, among other selected countries under review. Kazakhstan introduced Emission Trading System (ETS), the share of national GHG emissions covered by which is 55 per cent (World Bank, 2017).

A carbon monitoring and verification scheme was implemented only in Ukraine without yet adopting carbon pricing, which is an important prerequisite to implementing and enforcing a sound carbon pricing mechanism (PMR website).

The responses from the survey indicate that certain incentives were introduced in the countries for development and financing of EE projects. While initially based on project-by-project incentives, most of the project countries have moved to more widespread reforms, removing lengthy licensing and permitting procedures, and allowing various types of fiscal incentives for energy-related investments.



The impediments for attracting investments in EE projects were due mainly to tariff structures, where energy tariffs remained low, and to energy subsidies, which do not provide any investor with the chance of recouping their investment (IEA, 2014). Energy subsidies are still present in the reviewed countries. They “increase the vulnerability of countries to volatile international energy prices, reinforcing concerns about the sustainability and reliability of energy systems...Subsidies discourage investment in the region because energy tariffs remain below cost-recovery levels in several countries and do not provide investors with the opportunity to recoup their investment” (UNECE and REN21, 2017).

Table 9 shows an overview of energy subsidies in the selected countries based on the assessment of the International Monetary Fund’s survey and published in the UNECE Renewable Status Report, 2017. Energy subsidies definition includes “post-tax consumer subsidies”, which arise when the price paid by consumers is below the supply cost of energy plus an appropriate “Pigouvian” (or “corrective”) tax that reflects the environmental damage associated with energy consumption and an additional consumption tax that should be applied to all consumption goods for rising revenues.

Country	Energy subsidies (per cent of GDP)
<b>Albania</b>	1.9
<b>Belarus</b>	7.0
<b>Bosnia and Herzegovina</b>	37.0
<b>Bulgaria</b>	33.9
<b>Croatia</b>	3.7
<b>Kazakhstan</b>	11.0
<b>North Macedonia</b>	18.7
<b>Republic of Moldova</b>	5.6
<b>Russian Federation</b>	16.0
<b>Serbia</b>	34.7
<b>Ukraine</b>	60.7

Source: UNECE Renewable Status Report, 2017 (UNECE and REN21, 2017)

In the Western Balkan countries, the “energy prices subsidies are still prevalent, albeit these are perceived as a major dis-incentive to EE investment, often compounded by late or non-payment of energy bills. Recent electricity tariff increases in countries such as Albania...or Serbia and tighter payment enforcement as well as anti-theft actions in Albania have started addressing the issue.” However, increasing the energy tariff represents a sensitive issue in the South-East European region where energy poverty affects population (EU, 2016).

According to the data provided by national authorities in Bulgaria, the total share of the industry and the energy sector in Bulgarian GDP is about 21 per cent. Bulgaria doesn’t provide energy subsidies from the budget more than 20 years, however, the cross subsidies between the electricity for households, industry and covering the feed in tariffs for RE are present.

According to experts in some of selected countries, certain subsidy practices allow the necessary stability the economy should be able to rely on. Some subsidies are aimed at offsetting high energy production costs due to the absence of cheaper alternatives, and some can be effective in stimulating new principles of the energy consumption or transition to more advanced energy supply. These may equally work in the same country, providing commercially attractive opportunities for investors.

“Financial incentives are an important instrument for spurring investment in EE technologies and services. The incorporation of a financial incentive can make EE investments more alluring for private and public entities. Financial incentives also complement other efficiency policies such as appliance standards and energy codes, overcoming market barriers for cost-effective technologies. Financial incentives can take many forms: rebates, grants or loans for energy-efficiency improvements, direct income tax deductions for individuals and businesses, and exemptions or reduced sales tax on eligible products” (ACEEE website).

For the EU member countries, such as Bulgaria and Croatia, the EE funding originates from public budgets with the balance provided by EU allocations, funds from the international financing institutions and other sources. “The schemes were estimated to disburse approximately EUR 8 billion p.a. and to result in total investments of at least EUR 24 billion p.a. The latter is however not sufficient to meet relevant EU targets” (EU, 2016).

“The banking sector in the South-East European sub-region can be reluctant to invest when project bankability is adversely affected by low energy tariffs, lack of consumption-based billing...or when the long-term funding required by EE loans is scarce. The perception of sector-specific risk is usually high within commercial banks, particularly for residential projects, and the management commitment in local banks is not always very strong” (EU, 2016).

According to the UNECE assessment, a perception on familiarity of financial institutions with financing EE projects and measures was higher in Ukraine and Croatia, and lower in Albania. A perception on conditions for repayment and servicing EE loans with savings generated from the improved efficiency was also assessed less favourable in the private sector in North Macedonia and, in public sector in Ukraine (Table 10).

In Belarus, the regulatory regime for encouraging EE investments (general preferential legal regime for investment as part of state regulation, stimulation measures directly in the sphere of EE) as well as the existing administrative procedures are existing. Nevertheless, in practice, investors face a number of practical problems and barriers that require further improvement of the legislative base in order to reduce risks and scale investment in EE projects. There is also a need for new financing instruments for investing in EE. Industrial sectors and small and medium-sized businesses showed the greatest interest in instruments such as project financing and ESCO (ECS, 2017).

In Bosnia and Herzegovina, the low energy prices are dominant. There is also a lack of budget resources for financing or co-financing of EE investments. The tax incentives on EE are not introduced (EBRD, 2017).

Bulgaria has significant investment needs, some of which could be supported by public investment schemes, possibly together with private investment. Bulgaria is the least energy efficient economy in the EU when it comes to industry, transport and housing (EU, 2016).

**Table 10.** Assessment of Financial Environment for EE Investments in the Selected Countries

Selected countries	Familiarity of financial institutions with financing EE projects and measures on a scale from 1(not familiar) to 5 (very familiar)	Conditions for repayment and servicing EE loans with savings generated from improved efficiency on a scale from 1 (not favourable) to 5 (very favourable)	
		In private sector	In public sector
<b>Albania</b>	2.56	2.89	3.00
<b>Belarus</b>	3.00	2.50	2.33
<b>Croatia</b>	3.36	2.73	3.11
<b>Kazakhstan</b>	2.63	2.63	3.00
<b>North Macedonia</b>	2.63	2.14	2.14
<b>Ukraine</b>	3.56	2.78	2.11

Source: UNECE, *Overcoming Barriers to Investing in Energy Efficiency, 2017* (UNECE, 2017c)

Croatia needs to complete energy market reforms, carrying out prudent revisions of budget rules to create conditions for generating bankable energy cost-saving cash flows, support further ESCO industry development by creating a dedicated National Energy Efficiency Revolving Fund (World Bank, 2015).

Kazakhstan needs “more experience” on implementation of EE investment programs. There are still high risks of investing in EE projects. In the project of EE in municipal heat supply, for example, a weak financial base and low creditworthiness of existing heat supply companies had become one of the main barriers (Uyzbayeva et al, 2015).

With regards to financial constraints for EE investment in North Macedonia, the incentive programmes such as discounted products, grants and loans can help overcome them. Special EE programs can help alleviate investment burden on vulnerable households while mitigating the need for utility subsidies. The current pricing system for energy products does not create incentives for resource conservation and rational energy use. Instead of an EE incentive, the current prices have been sending a market signal for uneconomical consumption (CCC, 2017).

Low public and private sector interest in investing into EE projects in the Republic of Moldova comes from low awareness of benefits of EE projects. In most cases, the lack of interest is a result of low economic viability of these projects, and high risk for companies and banks, considering low energy tariffs (electricity and heating). EE projects are regarded as less important economic resource or source of revenue. Along with low awareness, banks, companies and households are not prepared to invest into EE due to lack of capacity, skills and training in the banking sector to evaluate the financial potential of EE projects (EU, 2013).

One of the major obstacles faced by EE projects in the Russian Federation is the reluctance of financial institutions to provide loans to such projects as they are considered risky because of the uncertainty concerning rentability. This is happening due to the fact that financiers often lack basic knowledge about EE investments, while business managers may not consider EE as a priority in the macro-economic context.

### Renewable Energy

The reviewed countries have made progress in use of RE over the last years. However, RE share of a total primary energy supply (Table 11) shows that countries still need to catch up with global RE deployment (UNECE and REN21, 2017). Table 12 illustrates data on energy production from renewables produced by the IEA Atlas of Energy. This overview provides an opportunity to compare data from different sources on the progress in the area of RE.

**Table 11.** Renewable Energy Share of Total Primary Energy Supply, 2014

Country	Total energy (ktoe)	Non-renewable energy (ktoe)	Renewable energy (ktoe)	Renewable energy share (%)
Albania	2,336	1,698	637	27 %
Belarus	27,746	26,302	1,444	5%
Bosnia and Herzegovina	7,824	5,821	2,003	26%
Bulgaria	17,898	16,109	1,790	10%
Croatia	8,044	6,003	2,011	25%
Kazakhstan	76,667	75,934	734	1%
North Macedonia	2,623	2,334	289	11%
Republic of Moldova	3,302	2,991	311	9%
Russian Federation	710,883	692,912	17,970	3%
Serbia	13,259	11,256	2,003	15%
Ukraine	105,683	102,887	2,797	3%

Source: UNECE Renewable Status Report, 2017 (UNECE and REN21, 2017)

**Table 12.** Energy Production from Renewables, 2016

Country	Value (Mtoe)
<b>Albania</b>	0,9
<b>Belarus</b>	1,4
<b>Bosnia and Herzegovina</b>	1,2
<b>Bulgaria</b>	1,9
<b>Croatia</b>	2,3
<b>Kazakhstan</b>	1,1
<b>North Macedonia</b>	0,4
<b>Republic of Moldova</b>	0,7
<b>Russian Federation</b>	19,0
<b>Serbia</b>	2,1
<b>Ukraine</b>	4,1

Source: IEA Energy Atlas.

The electricity prices differ significantly for households and industrial consumers. For attracting additional investments, some project countries increase their competitiveness as industrial locations by increasing energy prices in the sector. "While electricity generation costs, including network expenses, are comparatively homogenous across countries, national shares of electricity taxes and levies are more diverse. . . The shares of taxes and levies, which are included in the total electricity price, range from close to zero to almost two thirds" (Dena, 2017). Low electricity prices and subsidies for energy sources are the obstacles for RE development, presence of these makes RE less competitive with conventional energy sources.

The major RE promotion schemes and measures in the electricity sector can be categorised into non-financial and financial schemes. Non-financial instruments include officially communicated renewable electricity expansion goals, guaranteed grid access, priority feed-in, net metering and net billing. Financial schemes to promote RE deployment create investment incentives for RE technologies. Some are general financial support instruments such as investment subsidies, credit grants, lower interest rates, tax credits or exemptions. The other schemes are designed to raise the sales price of renewable electricity above market prices to help RE compete with conventional energy sources. They can be price-based, quantity-based and hybrid promotion schemes. For example, auctions can be considered as hybrid schemes, since they include elements of both price-based and quantity-based promotion schemes (Dena, 2017).

All selected countries introduced feed-in tariff or premium. Official expansion goals were also introduced in all countries, except Belarus. Tax reductions often complement other measures and are used in 10 countries with exception of the Republic of Moldova. Auctions are introduced only in the Russian Federation. Renewables portfolio standards or quota system exists only Belarus. Grid access exists only in a few countries. Green certificates are not present in any of the reviewed country (Table 13).

According to information provided by national authorities, Bulgaria has access to the grid, feed in tariffs for RE, and tradable certificates for origin of the energy, which is green certificates by itself.

The countries have also introduced some schemes and measures for promoting RE in the heat market. "These are mostly subsidies, low-interest loans, tax regulations or a combination thereof" (Dena, 2017). Table 14 indicates whether or not a promotion scheme is in place, and which renewable heat technologies are promoted in the countries. Most of the countries have, at least, one scheme in place, except Bosnia and Herzegovina, Kazakhstan and the Russian Federation. All three schemes are introduced in Bulgaria and Ukraine. Two schemes are introduced in Belarus and North Macedonia.

The promotion schemes for using RE in the building sector also exist in the selected countries. They can be introduced through financial incentives or established legal requirements for using RE.

The remaining gaps in the area of RE investments can also be seen in the assessment of attributes of financial and regulatory incentives, which include the availability of market entry mechanisms for private RE projects, the guaranteed tariff, mechanisms to adjust the level of tariff as well as the price subsidy implied by a RE incentive program. According to the RISE report, Kazakhstan, Russian Federation and Ukraine provide financial and regulatory incentives for RE projects (indicating 100 score for the Russian Federation and Ukraine, and 83 score for Kazakhstan), while Belarus requires additional improvements in this area (with a score of 50).

The overall assessment of fiscal incentives and public financing in the reviewed countries (Table 15) shows absence of investment or production tax credits in all project countries, except Ukraine. There is no reduction in sales, energy, value added tax and other taxes in most countries. According to the assessment, North Macedonia did not introduce any incentives for RE. Energy production payment has been introduced only in Albania and Belarus. Russian Federation has capital subsidy and production payment as incentives to RE use.

**Table 13.** Renewable Energy Promotion Schemes and Measures in the Electricity Sector in the Countries

	Official expansion goals	Grid access	Grid access with capacity limits	Priority feed-in for RE	Feed-in tariff or premium	Renewable portfolio standard/ quota system	Green certificates	Auctions	Tenders	Tax reductions
<b>Albania</b>	√		√		√				√	√
<b>Belarus</b>		√			√	√			√	√
<b>Bosnia and Herzegovina</b>	√	√		√	√				√	√
<b>Bulgaria</b>	√		√		√					√
<b>Croatia</b>	√		√		√				√	√
<b>Kazakhstan</b>	√	√		√	√				√	√
<b>North Macedonia</b>	√	√		√	√				√	√
<b>Republic of Moldova</b>	√		√		√					
<b>Russian Federation</b>	√		√		√			√		√
<b>Serbia</b>	√		√	√	√				√	√
<b>Ukraine</b>	√		√		√					√

Source: *Status and Perspectives for Renewable Energy Development in the UNECE region, 2017* (Dena, 2017)

**Table 14.** Schemes and Measures to Promote RE in the Heat Market

	Promotion scheme(s) in place	Biogas/ biomass	Solar thermal	Geothermal
<b>Albania</b>	√		√	
<b>Belarus</b>	√		√	√
<b>Bosnia and Herzegovina</b>				
<b>Bulgaria</b>	√	√	√	√
<b>Croatia</b>	√			
<b>Kazakhstan</b>				
<b>North Macedonia</b>	√	√	√	
<b>Republic of Moldova</b>	√			
<b>Russian Federation</b>				
<b>Serbia</b>	√	√		
<b>Ukraine</b>	√	√	√	√

Source: *Status and Perspectives for Renewable Energy Development in the UNECE region, 2017* (Dena, 2017)

**Table 15.** Fiscal Incentives and Public Financing for Renewable Energy in the Countries

	Capital subsidy/rebate	Energy production payment	Investment or production tax credits	Public investment, loans or grants	Reduction in sales, energy, CO <sub>2</sub> , VAT or other taxes
<b>Albania</b>	×	√	×	×	×
<b>Belarus</b>	×	√	×	×	×
<b>Bosnia and Herzegovina</b>	√	×	×	×	×
<b>Kazakhstan</b>	×	×	×	√	×
<b>North Macedonia</b>	×	×	×	×	×
<b>Republic of Moldova</b>	×	×	×	√	√
<b>Russian Federation</b>	√	√	×	×	×
<b>Serbia</b>	×	×	×	√	×
<b>Ukraine</b>	×	√	√	×	√

Source: UNECE Renewable Status Report, 2017 (UNECE and REN21, 2017)

The RE investments in Central Asia, Russian Federation, and Southeast and Eastern Europe “received only a fraction - 0.2 per cent - of global investment in renewable energy in 2015. This was down from 0.5 per cent in 2014. Investment in RE in these countries totalled USD 400 million in 2015, a notable decline from USD 700 million in 2014” (UNECE and REN21, 2017). However, the status quo analysis shows that RE deployment in the reviewed countries vary across the countries. In 2015, the new investments in RE were made in Kazakhstan, Russian Federation and Ukraine with USD 4 billion in Ukraine, with USD 1 billion in the Russian Federation and USD 600 million in Kazakhstan (Dena, 2017).

Commercial financing for RE lacks incentives, while the investments in the countries are “mainly driven by international donors and development banks...in the form of debt financing or grants” from the World Bank, EBRD, KfW. “Important lenders for countries in Southeast Europe include the European Commission, the Council of Europe Development Bank, the European Investment Bank (EIB)” (Dena, 2017).

### Education and Awareness

The role of EE and RE in the country’s energy system depends on awareness, knowledge and capacities among all relevant stakeholders. The general population, businesses and even local governments are sometimes unaware of the importance and viability of EE measures and use of RE sources. This results in a lack of public acceptance of renewable technologies and EE measures (Dena, 2017).

The assessment of perceptions of experts and other relevant stakeholders indicates that “low awareness about the multiple benefits of energy efficiency projects is viewed as the main barrier” in the reviewed countries. In the Sub-region of Eastern Europe, the Caucasus, Central Asia, and the Russian Federation, low awareness about multiple benefits of EE projects was indicated by 39 per cent of respondents. Lack of technical expertise and capacity to identify/evaluate/implement project was indicated by 38 per cent of respondents (UNECE, 2017c).

The lack of understanding of EE financing by banks and other financial institutions is viewed as the main barrier by 61 per cent of respondents in the sub-region of South-East Europe. Lack of technical expertise and capacity to identify/evaluate/implement project was indicated by 43 per cent of respondents from the same sub-region (UNECE, 2017c).

The respondents of the survey pointed out that project beneficiary countries still require additional capacity building activities on EE and RE. Areas in which education and awareness raising gaps are present in the countries are the following:

- **Belarus:** The targeted implementation of governmental measures on improvements in tariff policy is required to generate interest among population on implementation of projects and activities on EE and RE.
- **Croatia:** Tenders to support the implementation of EE and RE projects are occasionally announced. With exception of RE electricity production, the Croatian supporting system is not continuous, and therefore, a continuous approach for EE projects should be introduced with possibility to submit all required documentation at one site. Additional capacity building activities are required to establish such a supporting system.
- **North Macedonia:** The national stakeholders need to increase their capacity on EE and RE by participating in the structured workshops, webinars and specific trainings. Public sector lacks capacities, both in understanding the new technologies, as well as in knowledge for building policies that would support development of the EE and RE in the country. Private sector, local consultancy firms and banking sector are also missing the required knowledge on the development of EE and RE sector.
- **Russian Federation:** RE is growing in significance and becomes a more available solution for an energy supply of properties on housing markets across the country. Building companies seem to have a lack of capacities in offering package energy solutions based on EE technologies and RE resources.
- **Serbia:** The quality of the design documentation submitted to the public calls of the existing Budgetary Fund is not always at satisfactory level. Enhancing the capacities of local companies in preparing the design documentation is further required. There is also a need for capacity building and assistance to participants in the energy management system, particularly those from the public sector.
- **Ukraine:** Popularization of EE and RE policies and opportunities for general public (for example, among housing cooperatives) is highly needed in the country.

Some difficulties in raising awareness on EE and RE measures were also identified by the respondents from the reviewed countries. Examples of such difficulties are indicated below:

- **Croatia:** Lack of knowledge from the side of investors, especially on implementation of RE projects, became an obstacle to project financing. Raising awareness on EE and RE, subsequently, increases the co-financing opportunities.
- **North Macedonia:** Main difficulty was to develop a friendly approach to sharing information. There are certain perceptions among general public on EE and RE, and a right approach was needed to provide the facts. Examples of simple EE measures were used to provide basic information on importance of EE to the public.
- **Russian Federation:** The difficulty faced as a result of raising awareness was data misinterpretation. In some cases when EE or RE data were widely disseminated, the data error was increasing due to incorrect conclusions made at various stages of sharing. This led to a seeming lack of data transparency and consistency. Most of the confusions were removed after additional clarification.
- **Serbia:** The biggest challenge is to raise awareness among general public. The specific activities to raise awareness on EE and RE should be introduced in the media. However, Ministry of Energy and Mining in Serbia is in lack of capacities for organizing and financing of such campaigns.
- **Ukraine:** Absence of a centralized program for popularization of EE and RE programs in the country is still a challenge for raising awareness on EE and RE measures.

# CONCLUSIONS

## Progress in Energy Efficiency and Renewable Energy

The study examined policy, regulatory and institutional reforms to promote EE and RE in the selected countries. Bulgaria and Croatia, as members of the European Union, were required to transpose the EU Directives' provisions into their national laws to ensure major energy savings for both consumers and industry. Albania, Bosnia and Herzegovina, North Macedonia, Republic of Moldova, Serbia, and Ukraine are the contracting parties of the Energy Community and made legally binding commitments to adopt the EU energy legislation which boosted the development of policy, legislative and regulatory frameworks in these countries. Belarus, Kazakhstan and the Russian Federation also achieved significant progress in the areas of EE and RE since 2010. Energy agencies have been established in Albania, Bulgaria, Croatia, North Macedonia, Republic of Moldova, Russian Federation, and Ukraine. Countries have made significant progress on policies to promote EE and RE as dedicated framework legislation on EE and RE has been adopted in most of the project countries and secondary legislation was promulgated.

The countries also made progress in the capacity building process to promote EE and RE investments. National and local authorities, project developers and owners as well as financial institutions gained knowledge about new technologies, new financial instruments and ways of attracting investments in EE and RE. The capacities of public institutions and the private sector in development of EE and RE projects were increased from financial assessment and bankability conditions point of view.

Since 2010, the countries developed and introduced certain best policy practices and practices in project development, best approaches to investments into energy efficiency and renewable energy and innovative financing mechanisms that allowed increasing investments into the areas.

The existing processes in the area of EE and RE, including implementation of the international projects, organization of events and conduct of research also facilitated the countries' progress in the areas of EE and RE.

## Remaining Gaps

Despite significant progress made in the areas of EE and RE in the project countries, certain gaps still exist related to EE and RE in the areas of policy, regulatory and institutional frameworks, financial environment and education and awareness raising.

Overall, the framework legislation on EE and RE is developed in the project countries. Some project countries, however, do not have National EE and RE Action Plans. Secondary legislation is far less developed and adopted in the project countries. The by-laws can be present in different forms such as decrees, resolutions, decisions, rulebooks and vary in each country. However, the overall situation shows that development of the dedicated secondary legislation needs more attention and further actions from the policy makers' side.

The governmental institutions are created to ensure the implementation of energy policy of the country, in general, and ensure the improvements in EE and use of RE, in particular. Institutions acting in the areas of EE and RE in the countries are mostly represented at the national level, while only a few countries have functioning local institutions in their countries. Even when local institutions exist in the countries, often they are not functioning effectively.



Energy subsidies persist in many of the reviewed countries. They discourage investments because energy tariffs remain below cost-recovery levels in several countries and do not provide investors with the opportunity to receive a reasonable rate of return on their investment. Commercial financing is less developed and is less attractive comparing to the mechanisms provided by the international financing institutions.

The countries still require additional capacity building activities on EE and RE. Areas in which education and awareness raising gaps are present include further implementation of governmental measures on improvements in tariff policies; tenders to support the implementation of EE and RE projects; preparation of EE and RE project design documentation; assistance to participants in the energy management system; and popularization of EE and RE policies and opportunities for general public.

# RECOMMENDATIONS

To address the existing gaps in the selected countries, the study proposes the following recommendations:

## Policy, legislative and regulatory frameworks

- National EE Action Plans should be adopted in those project countries that have not done so yet (Belarus, Kazakhstan, and the Russian Federation). A National RE Action Plan should be adopted in the Russian Federation.
- Policy makers from the project countries should focus on development and subsequent enforcement of the secondary legislation on EE and RE.
- Development and implementation of EE and RE policies should be coordinated at the national, regional (provincial), and local levels. Absence of such coordination often leads to ineffectiveness of the adopted policies in the countries.
- Policy makers, business community, financial institutions, academia, and civil society should participate in the formulation of EE and RE policies to achieve consensus and facilitate implementation of policies.
- EE and RE policy development requires consistent and sustained introduction of new measures and their constant improvement. Governments should introduce new regulations, update the existing ones and monitor their implementation.
- To be effective, EE and RE policies should be predictable and consistent over time, aligned with the existing energy market structure, and coordinated with other policies.
- Dedicated EE and RE governmental institutions or agencies should be created in those project countries where they do not exist yet to ensure implementation of energy policy in the country and improvements in EE and increased uptake of RE.

## Financing

- Further work needs to be done to improve the investment climate for EE and RE projects. Special efforts to attract investments should be a focus for governments.
- Countries introduce non-distorting incentive schemes (financial and non-financial) for EE and RE investments.
- Energy subsidies should be eliminated (while addressing energy poverty and ensuring that vulnerable segments of population have access to affordable and clean energy) as they discourage EE and RE investments and do not provide investors with expected returns on investment.
- Additional efforts should be made in the project countries to reduce perception of the commercial financial institutions that financing of EE and RE projects carries high risks.

## Awareness raising

- Awareness of EE and RE opportunities should be a priority for authorities to address obstacles.
- Information exchange activities and trainings should become an integral part of EE and RE development strategies.
- International development agencies can support activities aimed at increasing public awareness of EE measures and use of RE through public awareness campaigns and pilot projects.

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- Energy Community Secretariat: [www.energy-community.org](http://www.energy-community.org)
- EUR-Lex: <http://www.eur-lex.europa.eu>
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH: [www.giz.de](http://www.giz.de)
- International Energy Agency (IEA): [www.iea.org](http://www.iea.org)
- New Climate Policy: [www.climatepolicydatabase.org](http://www.climatepolicydatabase.org)
- ODYSSEE-MURE: [www.odyssee-mure.eu](http://www.odyssee-mure.eu)
- Partnership for Market Readiness (PMR): [www.thepmr.org](http://www.thepmr.org)

# ANNEXES

## Annex I: Survey on the Progress in the Areas of Energy Efficiency and Renewable Energy

### SURVEY

ON THE PROGRESS IN THE AREAS OF ENERGY EFFICIENCY AND RENEWABLE ENERGY RESULTED FROM THE IMPLEMENTATION OF THE PROJECT

#### FINANCING ENERGY EFFICIENCY AND RENEWABLE ENERGY INVESTMENTS FOR CLIMATE CHANGE MITIGATION

Dear Participant in the survey,

We would like you to respond to the survey questions as UNECE is preparing the final report for the project Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation (FEEI).

UNECE was an executing agency for the FEEI project (duration 1 March 2007 – 28 February 2014). The project was jointly funded by the United Nations Environment Programme (UNEP)/ Global Environment Facility (GEF), Fonds Français pour l'Environnement Mondial (FFEM), United Nations Foundation (UNF), and the European Business Congress (EBC). The long-term objective of the project was to promote an investment climate in which self-sustaining energy efficiency and renewable energy projects can be identified, developed, financed and implemented by local teams in municipalities, factories and energy utilities.

You are kindly invited to complete the questionnaire below. This questionnaire will provide an input to the final report for the project. The proposed report will benefit the beneficiary countries<sup>2</sup> of the project and the international organizations involved in its implementation by analyzing lessons learned from its implementation, identifying policy reforms implemented, best practices developed, investment projects developed and/or financed, and capacity building achieved in the areas of energy efficiency and renewable energy, which were influenced by the implementation of the project.

**Objective:** The information obtained from this survey will serve to provide the basis for an analysis of accomplishments, limitations and lessons learned from the FEEI project implementation and recommendations for future potential projects in the area of energy efficiency (EE) and renewable energy (RE) financing in the project countries and in the broader region. The focus of this survey will be on the analysis of developments occurred in the beneficiary countries in the period from 2010 to present days.

**Deadline for survey completion:** 10 April 2018

**Disclaimer:** Country-specific information will be presented in the final report. However, the survey responses will be presented in an aggregated form without personal attribution unless you give us explicit consent to use your name and/or the name of your organization in the report.

<sup>2</sup> Project beneficiary countries: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, North Macedonia, Republic of Moldova, Romania, Russian Federation, Serbia, and Ukraine.

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## **I. General Information:**

First name, last name:

Country:

Name of the institution/organization:

Position:

Contact information:

Your role in the FEEI project:

- National Coordinator
- Representative of the National Participating Institution
- Other, please specify \_\_\_\_\_

**I agree that my name can be mentioned in the final report as a source of information received in responses to the questions of this survey:**

**Yes/No**

**I agree that the name of the organization that I represent can be mentioned in the final report as a source of information received in responses to the questions of this survey:      Yes/No**

## **II. Policy, Regulatory and Institutional Frameworks:**

1. Please name and briefly describe the regulatory framework related to EE and RE in your country adopted since 2010:
  - A. Main policy documents:
  - B. Secondary legislation (by-laws):
  - C. Norms and standards:
2. Please name and briefly describe the institutions at the national and local levels acting in the areas of EE and RE in your country.
3. How did the implementation of the FEEI project influence the development and/or reforms of the policy, regulatory and institutional frameworks in the areas of EE and RE in your country?
4. What are the lessons learned from the adoption and implementation of the policy, regulatory and institutional frameworks in the areas of EE and RE in your country?
5. In your opinion, what are the gaps in the existing policy, regulatory and institutional frameworks in the areas of EE and RE in your country?

## **III. Enhanced Capacity of Stakeholders in the Countries:**

6. Please name and briefly describe the activities in your country, which improved the capacity of stakeholders in the area of EE and RE investments:
  - A. In public sector (ministries, government agencies, other public institutions, and municipalities):
  - B. In utilities, ESCOs, consulting firms, auditing companies:
  - C. Among end-consumers (industrial, commercial, and residential):
  - D. Within financial services (private and public banks, trust funds, investment facilities, international financial institutions (IFIs), and other financial institutions):

7. What impact did the implementation of the FEEI project have on the capacity building process in your country?
8. In your opinion, what additional capacity building activities are needed in your country and for which stakeholder category(ies)?

**IV. Best Practices Developed and Introduced:**

9. Please name and briefly describe the best practices for promoting EE and RE in your country:
  - A. Best policy practices:
  - B. Best practices in developing EE and RE projects:
  - C. Best approaches introduced for EE and RE investments:
10. How did the implementation of the FEEI project influence the development and introduction of best practices in your country? Which best practices resulted from the implementation of the FEEI project?
11. Have innovative financing instruments been used to finance EE and RE projects in your country? If yes, please name and briefly describe them and provide examples of financed projects.

**V. Awareness Raising among the General Public:**

12. Which activities have been undertaken in your country to raise awareness on EE and RE measures?
  - A. A. At the national level?
  - B. B. At the local level?
  - C. C. What are the results of these activities?
13. Did you face difficulties in raising awareness of EE and RE measures? If so, what were they?
14. How did the implementation of the FEEI project influence the awareness raising on EE and RE measures in your country?

**VI. Developed and/or Financed Projects:**

15. What are the main incentives for development and implementation of EE and RE projects in your country?
16. Please name and provide a brief description of government/public programmes or funds supporting EE and RE investments in your country.
17. Please name and provide a brief description of financing schemes for EE and RE projects existing in your country.
18. What type of commercial financing exists in your country for EE and RE projects? Please provide examples.
19. What types of technical assistance (international and domestic) for development and implementation of EE and RE projects exist in your country? Please provide examples:
  - A. Technical assistance for project development and implementation:
  - B. Technical assistance for project financing:
20. Does energy service market exist in your country? If so, please provide brief description of selected functioning ESCOs and examples of implemented projects.
21. What are the lessons learned from the development and financing of EE and RE projects in your country?
22. How did the FEEI project influence the development and financing of EE and RE projects in your country?

## Annex II: Country Profiles on the Progress in the Areas of Energy Efficiency and Renewable Energy since 2010

### ALBANIA

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Law no. 124/2015 "On Energy Efficiency";</li> <li>■ Law no. 7/2017 "On Renewable Energy Sources".</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ National Energy Strategy 2030 (2018)</li> <li>■ National Action Plan for Renewable Energy Sources, 2015-2020;</li> <li>■ First National Energy Efficiency Action Plan 2011-2018 (2011)</li> <li>■ Second National Energy Efficiency Action Plan (decision on the adoption in 2017)</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Regulation on categories, conditions, qualification requirements and professional experience for licensing of energy audits and energy service providers (2016)</li> <li>■ Regulation on categories, conditions, qualification requirements and professional experience for licensing of energy managers (2016)</li> <li>■ Decision on establishment of the EE fund and criteria for appointing the members of board and executive director (2016)</li> <li>■ EE public procurement rules and procedures (2016)</li> <li>■ Standard contracts for energy services provided under a programmes financed by the energy efficiency fund (2016)</li> <li>■ Rules and Procedure on Certification of Electricity Generation from Renewable Sources</li> <li>■ Decision on the determination of the purchase price of electricity produced from small photovoltaic sources with an installed capacity up to 2 MW and wind power with installed capacity up to 3 MW (2017)</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ Ministry of Economy, Trade and Energy</li> <li>■ Ministry of Energy and Infrastructure</li> <li>■ National Agency of Natural Resources</li> </ul>
ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:	
<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ Directory of Energy EE and RE created within the Ministry of Infrastructure and Energy</li> <li>■ A working group established within the Ministry to create an EE fund</li> <li>■ The Energy Efficiency Agency set up in 2016 to implement EE policies and measures (however still not operational)</li> </ul>
<b>In utilities, ESCOs, companies, etc</b>	<ul style="list-style-type: none"> <li>■ Introduction of schemes to support RE producers who generated above 2MW (solar) and 3 MW (wind) through a competitive procedure</li> <li>■ Introduction of a net metering scheme for PV or wind that produce up to 500 kW</li> </ul>
<b>Within financial services</b>	<ul style="list-style-type: none"> <li>■ The regulation on the national EE fund to support the implementation of the NEEAP</li> <li>■ Establishment of additional financing mechanisms to support EE investments (incl. EE criteria in public procurement and private sector investments/ESCOs) and better utilize available financing provided by regional assistance programmes.</li> </ul>
BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ Preparation of NEEAP;</li> <li>■ Preparation NREAP;</li> <li>■ Improvements in EE and RE laws to harmonize with the EU directive</li> </ul>
<b>Best practices in project development</b>	<ul style="list-style-type: none"> <li>■ Implementation of the following projects:</li> <li>■ 60 small hydro power plants project;</li> <li>■ 5 wind energy investment projects;</li> <li>■ 3 solar energy projects;</li> <li>■ 6 EE in public sector projects.</li> </ul>
<b>Best approaches to investment</b>	35 small hydro power plants are to be constructed in Albania till end of 2018
<b>Innovative financing mechanisms</b>	Setting up a regulatory framework for solar power and development of solar power projects jointly with the EBRD. Opening a call for tender in January 2018 on support to the Government for development of solar powered capacities to assist the Ministry of Energy and Industry in implementation of a competitive bidding process for up to 100 MW of solar PV capacity.



AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	Three conferences for promotion EE and RE as well as raising awareness on the recently adopted related legislation in Albania.
<b>Raising awareness at local level</b>	Organizing six workshops for promotion EE and RE
<b>Results of raising awareness</b>	Increase in a number of application for investment to the hydro, solar and wind energy projects respectively as 32, 25 and 7.
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Government decision on determination of the purchase price of electricity generated from small RE from sun and wind</li> <li>■ Government decision on determination of the purchase price of electricity produced from small photovoltaic sources with an installed capacity up to 2 MW and wind power with installed capacity up to 3 MW</li> </ul>
<b>Government programmes and funds</b>	<p>For renewable energy:</p> <ul style="list-style-type: none"> <li>■ Feed-in tariffs for electricity produced from renewable sources;</li> <li>■ Long-term power purchase agreements with regard to electricity produced from RES Power Producers;</li> <li>■ Licensing procedures for producers of electricity from renewable sources up to 15 MW installed capacity;</li> <li>■ Zero rate of excise duty for biodiesel until 2018;</li> <li>■ Energy Efficiency Facility (jointly by EBRD and EIB);</li> <li>■ Adoption of policies and measures for increasing the use of solar energy in buildings to install solar water heating system;</li> <li>■ Installation of solar water heating systems by taking into account the certificate for energy performance of the building issued according to the provisions of the Law on energy efficiency.</li> </ul> <p>For energy efficiency:</p> <ul style="list-style-type: none"> <li>■ Enforcement of implementation of minimum requirements for new buildings;</li> <li>■ Tax exemption model development for existing building refurbishment based on defined cost optimal requirements for new and existing buildings;</li> <li>■ Financial support for building envelope and heating system EE improvements</li> <li>■ Package of promotional instruments for the installation of solar water heating in households;</li> <li>■ Energy certification of buildings;</li> <li>■ Standards and labelling of household appliances;</li> <li>■ 'Energy Efficient Public Lighting' Programs;</li> <li>■ 'Green' public procurement.</li> </ul>
<b>Financing schemes</b>	<ul style="list-style-type: none"> <li>■ Feed-in tariffs for small power producers</li> <li>■ Tax exemption/creation of facilities for construction of new power capacity</li> <li>■ Establishing conditions and procedures for reimbursement of excise tax and creation of facilities for construction of new power capacity</li> </ul>
<b>Commercial financing</b>	<ul style="list-style-type: none"> <li>■ Grants by donors, KfW and IPA program</li> </ul>
<b>Technical assistance for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Education and training through workshops and webinars to raise knowledge national and local levels (IPA Program);</li> <li>■ RE market and EE expertise by IRENA;</li> <li>■ RE and EE project implementation by GiZ;</li> <li>■ Practical Policies for Financing RE and EE Action Plan Investments (IPA Program);</li> <li>■ Western Balkans Investment Framework (WBIF) supporting projects upgraded national electricity transmission system and gas development master plan, upgrade of the national electricity transmission network in the Tirana-Durres region and building of Skavica Hydro Plant;</li> <li>■ Regional Energy Efficiency Programme (REEP) and (REEP+) combines financing with technical assistance to boost EE and RE investments in both public and private sectors of country in the WBIF.</li> </ul>
<b>Energy service market</b>	The 2015 Energy Efficiency Law introduced the ESCO concept and energy performance contracting. However, the adoption of the by-law to introduce ESCO market procedures and model contracts, and establishment of the EE fund to support ESCO projects in the public sector are still pending.

## BELARUS

### PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010

#### POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:

<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ The Law of the Republic of Belarus “On Energy Saving” (2015);</li> <li>■ The Law of the Republic of Belarus “On Renewable Energy Sources” (2010).</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ The Concept of Energy Security no.1084 approved in 2015;</li> <li>■ The Complex Plan for Electricity Sector Development until 2025 considering NPP operation (2016);</li> <li>■ National Energy Savings Programme 2016-2020;</li> <li>■ National Energy Savings Programme 2011-2015.</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ The Presidential Decree No.209/2015 “On the use of renewable energy sources”;</li> <li>■ The Presidential Directive No.3/2007 (amended 2016): sets a target of 6 % of RE in total energy consumption in 2020;</li> <li>■ Resolution of the Council of Ministers “On Approval of the State Program Energy Saving for 2016-2020” (2016);</li> <li>■ Decree of the Council of Ministers No 216 “On approval of provisions on energy saving, introduction of amendments and additions to the Decrees of the Council of Ministers of the Republic of Belarus of July 31, 2006, 17 February 2012” (18 March 2016);</li> <li>■ Decree of the Council of Ministers “On Establishment and Distribution of Quotas for the Establishment of Installations for the Use of Renewable Energy Sources” (2015);</li> <li>■ Resolution of the Ministry for Antimonopoly Regulation and Trade No 73/3 September 2018 on feed-in-tariffs for electricity from RE.</li> </ul>
<b>Norms and standards</b>	<ul style="list-style-type: none"> <li>■ The Program for development of technical norms, standardization and conformity assessment in the field of energy saving for 2011-2015;</li> <li>■ Program for the development of the system of technical standardization and conformity assessment in the field of energy conservation for 2016-2020.</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ The Council of Ministers of the Republic of Belarus: adopt strategies for the development of the energy sector and state programs, implements state policies, and takes measures and adopts resolutions;</li> <li>■ Department of EE of the State Standardization Committee;</li> <li>■ The Ministry of Energy;</li> <li>■ The Ministry of Anti-Monopoly Regulation and Trade.</li> </ul>
<b>ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:</b>	
<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ The program of the Government of the Republic of Belarus for 2016-2020 supports the (i) optimization of the management structure and reducing costs in the energy system, improving the tariff policy - reducing the amount of cross-subsidies and budget subsidies; (ii) restoration of the competitiveness of industrial complex and implementation of the innovative strategy taking into account the principles of “green” economy- progressive introduction of energy-saving technologies and use of RE; (iii) development of small and medium-sized businesses (financial support and affordable lending - at least 30% of total loans to business entities);</li> <li>■ A system of improving qualifications and knowledge in the field of EE and RE of representatives of public sector at senior and middle levels;</li> <li>■ Adoption of the Internal Revenue Code: no tax for land intended for RE projects; no VAT for RE equipment imported to Belarus;</li> <li>■ Adoption of the Investment Code: protection of investment; variety of investment mechanisms;</li> <li>■ Adoption of the law on “Customs Tariff”: RE equipment are exempted from customs duty when entering in Belarus.</li> </ul>
<b>In utilities, ESCOs, companies, etc</b>	<ul style="list-style-type: none"> <li>■ The institutional reorganization of utilities is carried out;</li> <li>■ Tariffs for provided utilities are increased to gradually solve the problem of cross-subsidization;</li> <li>■ The corresponding NRA and TNPA regulate the activities of consulting and audit companies.</li> </ul>
<b>Among end-users</b>	<ul style="list-style-type: none"> <li>■ State support for producers and consumers of RE (financial assistance from the state budget, reimbursement of interest for the use of bank loans);</li> <li>■ Financing of energy saving programs;</li> <li>■ Guaranteed connection to the state energy networks;</li> <li>■ Guaranteed procedures for connection of RE to the state ES and purchase of electricity from RE.</li> </ul>

BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ Targeted state policy in the field of energy conservation;</li> <li>■ A systematic approach to the implementation of state programs on energy conservation, since the early 90s, including the adoption of relevant regulations, institutional structures built on the territorial-sectoral principle, introduction of a continuous system of education, training and professional development of personnel, broad targeted campaigns for EE, demonstration projects, broad involvement of the population in the work on the careful attitude to energy resources.</li> </ul>
<b>Best practices in project development</b>	<ul style="list-style-type: none"> <li>■ Projects to increase EE and use of RES developed by public and private engineering and/ or consulting companies, determined as a result of tender procedures;</li> <li>■ Preliminary energy audits with the development of recommendations and an assessment of the economic feasibility of energy-saving measures. Carrying out of energy audits, development of pre-project and design estimates. Projects are subject to state expertise.</li> </ul>
<b>Best approaches to investment</b>	<ul style="list-style-type: none"> <li>■ A number of NAPs have been adopted to regulate the investments: laws on investments, free economic zones, concession;</li> <li>■ Regulatory regimes of investment stimulation function: general preferential legal investment regimes within the framework of state regulation, incentive measures directly in the field of EE, preferences and incentives for investment in RE, administrative procedures for implementation of projects for the construction of RE objects.</li> </ul>
<b>Innovative financing mechanisms</b>	<ul style="list-style-type: none"> <li>■ A joint project on Belarus and UNDP / GEF "Biomass Energy for Heating and Hot Water Supply", a revolving fund was established to finance projects to convert boiler plants to biomass. Funding from the fund is carried out on a returnable basis and on preferential terms. The revolving fund is also looking for additional sources of investment in bio projects, development and expertise of new project proposals.</li> </ul>
AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	Providing information on the websites of state authorities, in media, holding international and republican conferences, fora, exhibitions, publishing thematic magazines and brochures;
<b>Raising awareness at local level</b>	Implementation of demonstration projects, posting information on local authorities' websites, holding regional seminars, trainings, permanent and traveling exhibitions, information campaigns in regional mass media
<b>Results of raising awareness</b>	<ul style="list-style-type: none"> <li>■ Sufficiently high competence and interest of population in saving energy resources and using RE technologies;</li> <li>■ Use by population of energy-saving household equipment, EE building materials and structures for individual construction and improvement of households;</li> <li>■ Improving the culture of energy use.</li> </ul>
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ State policy and programs in the field of energy conservation and RE;</li> <li>■ Trend of tariffs growth for traditional energy resources and utilities</li> </ul>
<b>Government programmes and funds</b>	The state program "Energy Saving" determines the sources of financing of projects and activities for EE and RE, including the republican and local budgets making up less than a third of the total.
<b>Financing schemes</b>	<ul style="list-style-type: none"> <li>■ Funds of the republican and local budgets;</li> <li>■ Credit resources of the banks;</li> <li>■ Open joint-stock company "Development Bank of the Republic of Belarus".</li> </ul>
<b>Technical assistance for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ The World Bank (energy saving in the social sphere, rehabilitation of buildings, modernization of boiler rooms);</li> <li>■ UNDP/GEF activities on financing of pilot projects: 3 residential buildings with energy-saving technologies that would improve EE, proposed financing of wind farms;</li> <li>■ EBRD - Sustainable Energy Financing Program of Belarus;</li> <li>■ EU4Energy: Under the auspices of Energy Charter in 2017 there was completed investigation on improving business environment and regulatory framework to attract investments into energy sector and the study on emmendment of national legislation and establishing enabling environment for ESCO activities in Belarus commenced in 2018;</li> <li>■ EU4Energy: EE Programme to improve the quality of energy data and statistics; shape regional policy making discussions; strengthen regulatory and legislative frameworks; improve access to information in the partner countries.</li> <li>■ DACO: Covenant of Mayors Going East to support several local authorities in to acquire a common methodology to correctly monitor, evaluate, and reduce their energy consumption and CO<sub>2</sub> emissions.</li> </ul>
<b>Energy service market</b>	In the initial stage. There is a market for energy audit services.

## BOSNIA AND HERZEGOVINA

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<p>The Federation of Bosnia and Herzegovina:</p> <ul style="list-style-type: none"> <li>■ Law on Efficient Use of Energy in Federation of Bosnia and Herzegovina (2017);</li> <li>■ Law on the Use of Renewable Energy Sources and Efficient Cogeneration of BiH (2013).</li> </ul> <p>The Republika Srpska:</p> <ul style="list-style-type: none"> <li>■ Law on Efficient Use of Energy in Republic of Srpska (No. 01-1518/13, 27.06.2013);</li> <li>■ Law on the Use of Renewable Energy Sources and Efficient Cogeneration (2013).</li> </ul>
<b>Main policy documents</b>	<p>The Federation of Bosnia and Herzegovina:</p> <ul style="list-style-type: none"> <li>■ Renewable Energy Action Plan for the Federation of Bosnia and Herzegovina (2016);</li> <li>■ Energy Efficiency Action Plan of Federation of Bosnia and Herzegovina for the Period 2016-2018 (2017).</li> </ul> <p>The Republika Srpska:</p> <ul style="list-style-type: none"> <li>■ Energy Development Strategy of Republika Srpska until 2030.</li> </ul>
<b>Selected secondary legislation</b>	<p>The Federation of Bosnia and Herzegovina:</p> <ul style="list-style-type: none"> <li>■ Regulation on the Procedure, Criteria, Form, and Contents of the Application for Energy Permit for Construction of New and Reconstruction of the Existing Production Facilities (2014);</li> <li>■ Energy Sources and Efficient Cogeneration and Defining of Incentive Fees (2014);</li> <li>■ Decision Establishing the Operator for Renewable Energy Sources and Efficient Cogeneration (2013);</li> <li>■ Rulebook on Methodology for Defining Guaranteed Price for Electric Power from the Plants for Use of Renewable Energy Sources and Efficient Cogeneration (2014);</li> <li>■ Rulebook on Methodology for Defining Reference Price for Electric Power (2014);</li> <li>■ Rulebook on conditions for persons performing energy certification of facilities (2012).</li> <li>■ Rulebook on Energy Certification of Facilities (2010).</li> </ul> <p>The Republika Srpska:</p> <ul style="list-style-type: none"> <li>■ Rulebook on Incentives for Production of Power from Renewable Sources and in Efficient Cogeneration (2014);</li> <li>■ Decision on the Amount of Purchase Price and Premiums for Electric Power Produced from Renewable Sources or in Efficient Cogeneration (2016);</li> <li>■ Decision on the Amount of the Incentive for Production of Energy from Renewable Sources in Efficient Cogeneration (2016);</li> <li>■ Rulebook on Issuing of Certificates for Production Plants Producing Electric Energy from Renewable Sources and in Efficient Cogeneration (2013);</li> <li>■ Rulebook on Issuing Warranties on the Origin of Electric Energy (2014);</li> <li>■ Rules on minimum requirements for the energy performance of buildings;</li> <li>■ Rulebook on Methodology of Costs Estimate for Energy Service Supply.</li> </ul>
<b>Institutions</b>	<p>The key authorities at the state level:</p> <ul style="list-style-type: none"> <li>■ Ministry of Foreign Trade and Economic Relations (MoFTER).</li> <li>■ State Electricity Regulatory Commission (SERC);</li> <li>■ Elektroprivreda BiH;</li> <li>■ Independent system operator for BiH;</li> <li>■ Brčko District Government.</li> </ul> <p>The Federation of Bosnia and Herzegovina:</p> <ul style="list-style-type: none"> <li>■ Federal Ministry of Energy, Mining and Industry (FMoEMI);</li> <li>■ Federal Ministry of Physical Planning (FMPP);</li> <li>■ Environmental Fund of the Federation BiH (FBiH Fund);</li> <li>■ Elektroprivreda BiH;</li> <li>■ Elektroprivreda HZHB.</li> </ul> <p>The Republika Srpska:</p> <ul style="list-style-type: none"> <li>■ Ministry of Industry, Energy and Mining (MoIEM);</li> <li>■ Ministry of Spatial Planning, Civil Engineering and Ecology (MSPCEE);</li> <li>■ Environmental Protection and Energy Efficiency Fund (RS Fund);</li> <li>■ Elektroprivreda RS.</li> </ul>

ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:	
<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ Introduction of EE measures;</li> <li>■ Preparation of laws and by-laws, action plans, operational plans;</li> <li>■ Introduction of energy management and monitoring of implementation.</li> </ul>
<b>In utilities, ESCOs, companies, etc</b>	<ul style="list-style-type: none"> <li>■ Companies actively operate by having their own EE operational plans and introducing the management system and standards.</li> </ul>
<b>Among end-users</b>	<ul style="list-style-type: none"> <li>■ Residential sector operates through various projects while the industry is not systematically involved;</li> <li>■ Introduction of energy management process in the system.</li> </ul>
BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	Approval and update of the EE and RE action plans at all levels.
<b>Best practices in project development</b>	Implementation of IPA CBC ALTERENERGY project in small rural communities of Čajniče and Bosanski Petrovac, where MOFTER and municipalities, developed and implemented the following projects: sustainable action plans, development of the project proposals and implementation of the proposed infrastructure projects.
<b>Best approaches to investment</b>	The IPA CBC ALTERENERGY project, where small rural municipalities have capacity and knowledge to develop and implement the projects in the following areas: replacement of heating system, switching to wooden biomass, window and insulation replacement, lighting.
AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	<ul style="list-style-type: none"> <li>■ Organization of workshops, seminars and conferences on raising awareness on EE and RE through various projects;</li> <li>■ Campaigns for EE in buildings implemented and supported by the UNDP;</li> <li>■ Information on EE to general public by NGOs, such as REIC which holds annual summer school dedicated to EE and RE promotion;</li> <li>■ Promotion of EE as part of project implementation in partnership with the chambers of commerce (especially active is Sarajevo Chamber of Commerce) and regional development agencies;</li> <li>■ Seminar programmes on the efficient use of energy sources and their environmental impact initiated by consulting companies and supported by the UNDP, GIZ, and USAID.</li> </ul>
<b>Raising awareness at local level</b>	Municipalities raise awareness by organizing local energy days through their Sustainable Energy Action Plans.
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<p>The Federation of Bosnia and Herzegovina:</p> <ul style="list-style-type: none"> <li>■ Provision of subsidies and incentives in the form of non-refundable financing from the budget spending programme with allocation criteria "Current transfers to other levels of government and Funds for the projects of thermal insulation of buildings aimed at energy savings";</li> <li>■ The Environmental Protection Fund of the Federation BiH which allocated a total of 9.1 million BAM for EE projects;</li> <li>■ The Green Economic Development 2014-2018 programme which provides grant co-financing for EE projects. The end user must contribute at least 50 per cent of the project value. Funds are allocated to buildings owned by the public sector.</li> </ul> <p>The Republika Srpska:</p> <ul style="list-style-type: none"> <li>■ The Environmental Protection and Energy Efficiency Fund founded by the Republic of Srpska and responsible for fundraising activities and financing preparations, implementation and development of programmes, projects and similar activities in the area of conservation, sustainable use, protection and improvement of the environment EE and use of RE sources.</li> </ul> <p>Regulatory authority for activities in production of electric power from RE, including issuing of licences for electric power production and granting of the eligible RE producer divided between the entities. Having received the eligible producer status from the relevant entity regulatory boards, eligible RE producers become eligible for the following incentives:</p> <ul style="list-style-type: none"> <li>■ Feed-in tariff or guaranteed purchase price – in line with the tariff system for the period of 12 years in the Federation of BiH and 15 years in the Republika Srpska;</li> <li>■ Feed-in premium, in case of production for personal use or free market trade (Republika Srpska);</li> <li>■ Advantages in connecting to the grid;</li> <li>■ Priority in the dispatching system;</li> <li>■ Guaranteed takeover of produced electric power by the grid.</li> </ul>

<b>Government programmes and funds</b>	<ul style="list-style-type: none"> <li>■ Environmental Protection and Energy Efficiency Fund of the Republika Srpska is responsible for fundraising activities and for financing preparations, implementation and development of programmes, projects and similar activities in the area of conservation, sustainable use, protection and improvement of the environment, and in EE and use of RE sources. In addition, it is a host and administrator of the Energy Efficiency Information System for the RS jurisdiction.</li> <li>■ Environmental Fund of FBiH is a non-profit financial institution formed by the FBiH Government charged with mobilizing and distribution of funding for environmental programmes (including EE and RES), projects in the Federation of BiH. In the domain of EE, the Fund finances infrastructural EE projects primarily in the public sector, detailed energy audits, continuously delivers training for end users of public buildings and education for professionals, and raises public awareness through media campaigns, through design, and distribution of promotional materials and publications for the general public. In 2016, the Fund has created the Revolving Fund for financing of EE projects and open to all interested parties in the building sector (private and public sector), industry, public lighting and utility services. The FBiH Fund is a host and administrator of the Energy Efficiency Information System for the FBiH jurisdiction. In its operations, the FBiH Fund closely cooperates with the Development Bank of Federation of Bosnia and Herzegovina.</li> </ul>
<b>Financing schemes</b>	<ul style="list-style-type: none"> <li>■ The new Law on the Environmental Protection and Energy Efficiency Fund foresees that the Fund collects fees pursuant to the Law on Energy Efficiency in the Federation BiH.</li> <li>■ Air protection fees: both entities collect air pollution fees from polluters (for air emissions of SO<sub>2</sub>, NO<sub>2</sub> and solid particles). These fees are collected by entity Environmental Funds and then channelled to environmental and EE projects.</li> <li>■ Environmental fees: both entities collect a special environmental fee with each registration of motor vehicles. These fees are collected by entity Environmental/Energy Efficiency Funds and channelled to appropriate projects. According to the Law on the Environmental Protection Fund of FBiH, the funds are automatically distributed as follows: 70 per cent to the cantonal account and 30 per cent to the Fund. The Fund's available funds are then channelled to environmental and EE projects.</li> </ul>
<b>Commercial financing</b>	<ul style="list-style-type: none"> <li>■ Loan products placed through local banks and microcredit foundations, offer end users a more favorable option than standard commercial loans with regard to interest rates. Certain banks participating in these credit lines offer loans under standard interest rates but with other advantages not offered to clients in standard commercial loans (conditional partial loan write-off, free preparation of documentation).</li> <li>■ EBRD Regional Energy Efficiency Programme-WEBSEFF 2 credit line where Raiffeisen Bank and UniCredit Bank Mostar are the partners in this project. Loans are available to both public and private sector. Interest rates are equivalent to commercial interest rates and potentially negotiable. The programme offers incentive bonuses of 10 per cent of the loan value for achieved energy savings, as well as free technical assistance.</li> <li>■ KfW credit line where Raiffeisen Bank is the project partner and operates a 1,000,000 EUR credit line for EE projects. Loans are approved for a maximum period of 7 years, including a grace period of up to three years. The additional advantage for clients (investors) is that the cost of preparation of project documentation is included in the cost of the loan.</li> <li>■ The Bosnia Energy Efficiency Project (BEEP) is being implemented with the support from the World Bank. BEEP is the largest EE project with total planned investments over the next three years of 19 million USD in the Federation of BiH and 13 million USD in the Republika Srpska.</li> </ul>
<b>Technical assistance for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ GIZ supports the Open Regional Fund for South-East Europe - Energy Efficiency, which promotes regional cooperation between owners of reform processes in the energy sector, with the goal to achieve national objectives defined in the action plan. GIZ also supports activities to create preconditions for improvement of the framework conditions for increasing use of RE in Bosnia and Herzegovina.</li> <li>■ USAID supports the Energy Investment Activity programme which aims to improve EE of distribution system operators and suppliers with the goal to reduce CO<sub>2</sub> emissions and energy costs. This project provides active technical assistance to address the legal obligation to establish the EE obligation scheme.</li> <li>■ UNDP implements projects aimed at policy development and infrastructural improvements through strengthening and development of human and financial capacities of local, entity and state authorities in order to create a favorable environment for activities in the fields of energy and environment.</li> <li>■ EU supports the Instrument for Pre-Accession Assistance (IPA) cross-border programme which promotes nature conservation, EE and RE. Activities are focused on the organization of workshops for public administration employees.</li> </ul>
<b>Energy service market</b>	<p>The existing laws recognize ESCO, but implementers are seeking to change some of financial laws. The trial project with the ESCO model is being implemented in Bosnia and Herzegovina. The EBRD Western Balkans Regional Energy Efficiency Programme supports the following ESCO projects:</p> <ul style="list-style-type: none"> <li>■ District heating biomass ESCO project in Sokolac with investment up to EUR 7,5 million;</li> <li>■ Building efficiency refurbishment project prepared for Cantonal hospital in Zenica (up to EUR 5-7 million) and Mostar hospital (up to EUR 0,5 million)</li> <li>■ Banja Luka indicated interest in street lighting ESCO project.</li> </ul>

## BULGARIA

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Energy Efficiency Act. (Promulgated SG No. 35 of May 15, 2015, amended and supplemented, SG No. 105 of 30 December 2016, Suppl., SG 103 of 28 December 2017);</li> <li>■ Law on Renewable Energy. (Promulgated SG No. 35 of May 3, 2011, amended many times, last amended SG, issue 58 of July 18, 2017).</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ Energy Strategy of the Republic of Bulgaria until 2020, adopted by a decision of the National Assembly dated June 1, 2011 (State Gazette, issue 43 of June 7, 2011);</li> <li>■ National Energy Efficiency Action Plan 2014 - 2020. Ministry of Economy and Energy, Sofia, July 2014;</li> <li>■ National Energy Efficiency Action Plan 2014 - 2020. Ministry of Economy and Energy, Sofia, July 2014;</li> <li>■ Second National Energy Efficiency Action Plan 2011 - 2013, adopted by Council of Ministers Protocol No 36.14 of 28 September 2011;</li> <li>■ First National Energy Efficiency Action Plan 2008-2010, adopted by the Council of Ministers of 4 October 2007;</li> <li>■ National long-term energy efficiency program up to 2015, adopted by the Council of Ministers on 4 July 2005;</li> <li>■ National Renewable Energy Action Plan under the Renewable Energy National Renewal Action Plan as referred to in Directive 2009/28 / EC of the European Parliament and of the Council. MEET, December 2012;</li> <li>■ National Long-Term Program to Promote the Use of Renewable Energy Sources 2005-2015, MEE / EEA, December 2005.</li> </ul>
<b>Selected secondary legislation</b>	<p>Decree No 18 of the Council of Ministers of 2015 on the adoption of a National Energy Efficiency Program for Multifamily Residential Buildings, on the Terms and Procedure for Granting the Program Grant and on Determining the Bodies Responsible for its Implementation (Prom. SG No. 10 of February 6, 2015, SG No. 18 of 10 March 2015, amended and supplemented, SG No. 35/15 May 2015 No. 82 of 23 October 2015 No. 11 of 9 February 2016 and No. 12 of 3 February 2017);</p> <p>Decision of the National Assembly of June 9, 2017 on the policy of the Ministry of Regional Development and Public Works for the implementation of the National Program for energy efficiency of multifamily residential buildings. (SG, No. 48 of June 16, 2017);</p> <p>Decision of the National Assembly to Support the Continuous Implementation of the National Energy Efficiency Program for Multifamily Residential Buildings and the Action of the Council of Ministers of the Republic of Bulgaria to Increase the Financial Resources to BGN 2 Billion (SG No. 8 of January 24, 2017);</p> <p>Decree No 339 of 2 December 2016 of the Council of Ministers approving additional expenditure on the budget of the Ministry of Regional Development and Public Works in 2016 for the implementation of the National Energy Efficiency Program for multifamily residential buildings. (Promulgated State Gazette No. 97 of December 6, 2016).</p>
<b>Norms and standards</b>	<ul style="list-style-type: none"> <li>■ Ordinance № E-RD-04-1 of 22 January 2016 of ME and MRDPW for Energy Efficiency Audit, Certification and Assessment of Energy Savings of Buildings;</li> <li>■ Ordinance № E-PД-04-3 of 4 May 2016 of the Ministry of Energy on the eligible measures for realization of energy savings in final consumption, the ways of proving the achieved energy savings, the requirements for the methodologies for their evaluation and the ways of their confirmation;</li> <li>■ Ordinance on the methodologies for the definition of the national energy efficiency target and the definition of the common cumulative target, the introduction of an energy savings obligation scheme and the allocation of individual energy savings targets among the obligated persons adopted by Council of Ministers Decree No 240 of 15 September 2016;</li> <li>■ Ordinance № RD-16-317 of 27 February 2013 of the Ministry of Economy and Energy on the procedure for issuance of certificates and entry in the register of the persons who carry out installation, maintenance, repairs and reconstruction of facilities in energy sites for production of electricity from renewable sources.</li> <li>■ Specialized Methods for Assessment of Energy Savings adopted by Decree No 36 of 15 February 2013 of the Council of Ministers;</li> <li>■ Ordinance № ПД-02-20-19 of 29 December 2011 of the Ministry of Regional Development and Public Works for designing the construction structures of the constructions by applying the European system for designing of construction constructions;</li> <li>■ Ordinance No RD-16-869 of 2 August 2011 of the Ministry of Economy and Energy for the calculation of the total share of energy from renewable sources in the gross final energy consumption and the consumption of biofuels and renewable energy in transport;</li> <li>■ Ordinance No. 5 of 28 December 2006 of the Ministry of Regional Development and Public Works on the technical passports of the constructions;</li> <li>■ Ordinance No E-RD-04-06 of 28 September 2016 of MoE, MoF and MoE on reducing the burden related to the costs of energy from renewable sources.</li> <li>■ Ordinance on the structure and safe operation of the transmission and distribution pipelines and of the installations, installations and appliances for natural gas, adopted by Council of Ministers Decree No 171 of 16 July 2004;</li> <li>■ Ordinance No. 7 of 2004 of MRDPW on Energy Efficiency of Buildings (Amended, SG No. 85/2009, amended, SG No. 27 of 2015, effective from 15.07.2015.</li> </ul>

<b>Institutions</b>	<p>National level:</p> <ul style="list-style-type: none"> <li>■ Ministry of Energy (ME);</li> <li>■ Ministry of Regional Planning and Public Works (MRDPW);</li> <li>■ Ministry of Environment and Waters (MEW);</li> <li>■ Sustainable Energy Development Agency (SEDA).</li> </ul> <p>Regional and local level:</p> <ul style="list-style-type: none"> <li>■ Municipal energy agencies (in some municipalities);</li> <li>■ Association of Municipal Energy Agencies (AMEA).</li> </ul>
<b>BEST PRACTICES DEVELOPED AND INTRODUCED:</b>	
<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ National Energy Efficiency Programme for Multifamily Residential Buildings intended to turn into a long-term housing renovation initiative;</li> <li>■ Bulgarian Energy Efficiency and Renewable Sources Fund – a number of projects were financed under “Competitiveness” and “Regional Development” operation programmes;</li> <li>■ EEA Grant and National Trust Eco Fund.</li> </ul>
<b>Best practices in project development</b>	Numerous companies and municipalities developed and proposed EE and RES projects.

## CROATIA

<b>PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010</b>	
<b>POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:</b>	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Law on energy efficiency (Official Gazette No. 127/2014);</li> <li>■ Law on renewable energy sources and high efficient cogeneration (Official Gazette No. 100/2015, 131/2017).</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ Draft of the Low-carbon development strategy of the Republic of Croatia, 2017;</li> <li>■ First National Energy Efficiency Action Plan (NEEAP) on the period of 2008-2010 (2008);</li> <li>■ Second NEEAP until the end of 2013 (2013);</li> <li>■ Third NEEAP on the period 2014-2016 (2014);</li> <li>■ Fourth NEEAP on the period 2017-2019 (2017);</li> <li>■ National Renewable Energy Action Plan to 2020 (2013).</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Regulation on monitoring, measurement and verification of energy savings (Official Gazette No. 71/2015);</li> <li>■ Regulation on energy audit for large companies (Official Gazette No. 125/2015);</li> <li>■ Ordinance on contracting and implementation of energy services in public sector (Official Gazette No. 11/2015);</li> <li>■ Regulation on continuous energy management in public sector (Official Gazette No. 18/2015, 6/2016);</li> <li>■ Regulation on energy audit of buildings and energy certification (Official Gazette No. 88/2017);</li> <li>■ Regulation on energy audit control system (Official Gazette No. 73/2015);</li> <li>■ Regulation on authorization of experts for energy auditing, certification and regular H/AC system inspection (Official Gazette No. 73/2015, 133/2015);</li> <li>■ Regulation on conditions and standards to determine quality of services and works of authorized renewable energy system installers (Official Gazette No. 33/2015, 56/2015);</li> <li>■ Rules on Energy Licenses and Maintenance of Registry of Issued and Revoked Energy Licenses (Official Gazette No. 88/2015, 114/2015).</li> </ul>
<b>Norms and standards</b>	<ul style="list-style-type: none"> <li>■ Technical regulation on energy economy and heat retention in buildings (2015),</li> <li>■ Technical regulation on chimneys in buildings (2015);</li> <li>■ Technical regulation on HVAC systems (2015).</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ Ministry of Environment and Energy;</li> <li>■ Croatian Energy Regulatory Agency;</li> <li>■ Croatian Energy Market Operator (HROTE).</li> </ul>



ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:	
<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ Introduction of mandatory energy management for public sector buildings and services (public lighting);</li> <li>■ Adoption and implementation of Government Programme for energy renovation of public buildings in period 2014-2015 and period 2016-2020. Programme has enabled energy renovation of public buildings on larger scale based on ESCO principle.</li> </ul>
<b>In utilities, ESCOs, companies, etc</b>	<ul style="list-style-type: none"> <li>■ Regulation (prescribed model contracts and procedures for contracting energy services in public sector);</li> <li>■ Programme for energy renovation of public buildings;</li> <li>■ The market of energy consulting services and auditing companies were developed through obligations to perform energy audits in buildings and large companies. Energy audits are also a main prerequisite to apply for co-financing.</li> </ul>
<b>Within financial services</b>	<ul style="list-style-type: none"> <li>■ Majority of improvements in capacity, primarily within the commercial banks in Croatia, came from technical assistance components of loan facilities provided by IFIs (i.e. EBRD, EIB, KfW, Green for Growth Fund). Loan facilities (i.e. WeBSEFF, WeBSEDEF, CroPSSF etc.) provided by IFIs, and implemented by commercial banks (largest in the market) had technical assistance as integral component of the Facility and it usually targeted end-users (SMEs, large private and public companies, and/or retail clients), as well as commercial bank's staff.</li> <li>■ Major banks are owned by big EU banking groups (i.e. Intesa Sanpaolo, Unicredit, RBA, Erste, SocGen etc.), which have in-house knowledge and expertise centers focusing on EE and RE, certain transfer of know-how happened on the Group level with spill-over effect to Croatian market.</li> </ul>
<b>Among end-users</b>	<ul style="list-style-type: none"> <li>■ Programmes for energy renovation of single-family houses and multi-apartment buildings, which enable energy renovation of residential buildings on large scale;</li> <li>■ National financing from the Environmental Protection and Energy Efficiency Fund;</li> <li>■ EU structural funds used to stimulate EE in industry and services (tourism and trade).</li> </ul>
BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	<p>Establishment of the Environmental Protection and Energy Efficiency Fund for the purpose of financing of preparation, implementation and development of programmes and projects and similar activities in the field of conservation, sustainable use, protection and improvement of the environment, and in the field of EE and use of RE. The Fund is established as an extra-budgetary fund. Apart from ensuring national financing for EE and RE project, the Fund also has role in providing technical assistance to users from residential and public sector in preparation phase for co-financing from EU structural funds.</p>
<b>Best practices in project development</b>	<ul style="list-style-type: none"> <li>■ Introduction of feed-in tariffs for electricity generation from RES installations (except large hydro power plants) in 2007, which led to significant increase of electricity generation from RES installations, especially from wind power plants.</li> <li>■ For EE projects, various co-financing programmes, especially in building sector, which have led to development of many EE projects implemented by the Environmental Protection and Energy Efficiency Fund with national funding until 2016, while now available money from European Structural and Investment Funds is used for this purpose. There are 511 million EUR available for co-financing EE and RES projects in public sector, residential sector, industry, tourism and trade, public lighting and district heating.</li> </ul>
<b>Best approaches to investment</b>	<ul style="list-style-type: none"> <li>■ The key trigger in promoting EE investments was ensuring co-financing options, in case of Croatia on both, national and EU level. This has generated much needed message of policy determination to market and has created interest and demand on end-user and financial services levels.</li> <li>■ In case of RE projects, transparent and long-term (14 years) support mechanism (feed-in tariffs followed by soon – to be – introduced premium system) was a key for promotion of investments, as well as introduction of financing products and solutions.</li> </ul>
<b>Innovative financing mechanisms</b>	<ul style="list-style-type: none"> <li>■ Use innovative financing instruments and mechanisms was limited in case of EE. Majority of EE investments were (co)financed using corporate (debt) financing mechanics.</li> <li>■ In case of RE projects, innovative financing instruments came down to project financing and loan syndication. Limited amount of equity and mezzanine financing has been recorded, and limited number of ones exercised has been employed in cases of large, complex, usually syndicated projects.</li> </ul>

#### AWARENESS RAISING AMONG GENERAL PUBLIC:

<b>Raising awareness at national level</b>	<ul style="list-style-type: none"> <li>■ The National Energy Efficiency Action Plan envisaged the establishment of National Energy Efficiency Portal as a central point for informing all stakeholders about possibilities for improvement of EE and utilization of RE.</li> <li>■ Several large national media campaigns related to EE and RE (energy renovation of single-family buildings, of multi-apartment buildings, on electric vehicles, on energy efficiency appliances).</li> <li>■ The project “Removing barriers to energy efficiency in Croatia” (2005-2013) was the result of an initiative of Ministry of Economy with assistance from UNDP / GEF to promote new technologies and improvements of EE, and implement systematic energy management within the buildings of Croatian public sector, in order to reduce unnecessary consumption of energy and water and to encourage the use of EE products and systems. The project evolved in two national components: the “Systematic Energy Management in Cities and Counties in Croatia” for the local and regional level; and the Croatian Government Programme “House in Order” for the central government. Crucial for implementation of EE project was development of the methodology of Systematic Energy Management that includes local level capacity building through establishment and education of EE teams, the establishment of the Register of buildings as well as introduction of regular energy and water consumption monitoring and continuous data analysis by using the national Energy Management Information System.</li> </ul>
<b>Raising awareness at local level</b>	<ul style="list-style-type: none"> <li>■ National Energy Efficiency Portal which also aims to inform regional and local governments and businesses about the importance of EE and RE, legal requirements and available programmes to encourage EE and RE projects implementation.</li> <li>■ EE info centers established and operational in many local administrations, aiming to assist the citizens with advices on energy savings.</li> </ul>
<b>Results of raising awareness</b>	The results of these activities are improvement of EE and higher utilization of RE.

#### DEVELOPED AND FINANCED PROJECTS:

<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ The main incentives for implementation of RE installations for electricity generation are feed-in tariffs;</li> <li>■ The main incentives for implementation of EE and other RE projects are grants for part of investment costs through Environmental Protection and Energy Efficiency Fund and EU structural funds. If proposed projects fulfil criteria, defined by tender documentation, usually 40 per cent of investment costs could be covered by Croatian fund or for EU structural funds (in some cases 60 per cent or even 80 per cent).</li> </ul>
<b>Government programmes and funds</b>	Environmental Protection and Energy Efficiency Fund is a national institution responsible for implementing financial support programmes in different sectors. It provides information on available possibilities for co-financing the EE improvements and the use of RE installations. The Fund also provides simple technical information and advices on possibilities that citizens, public and private sectors, have for improving EE or for introducing RE systems.
<b>Financing schemes</b>	EU structural funds are used for stimulating EE and RE projects in public buildings, residential buildings, industry, trade, tourism, public lighting and district heating (total allocation is 511 million EUR). Grants and loans are available.
<b>Commercial financing</b>	Majority of EE and RE project financing has been done using combination of project and (long term) corporate financing. Majority of large banks have introduced special purpose credit lines in retail segment of their business, usually dubbed “green” or “eco” credit lines. In SME and large corporate segment, as well as project financing, majority of projects have been financed by largest commercial banks in the market using (in most cases) specialized loan facilities provided by the international financial institutions (EBRD, EIB, KfW and specialized funds like GGF managed under Finance in Motion mandate). Biggest RE projects (i.e. large wind farms) have been financing on per-project basis using investment banking approach and products and very often as syndicate of two or more large commercial banks.
<b>Technical assistance for development and implementation of projects</b>	Provision of technical assistance to EE/RE projects boosts the development of project pipelines. Positive example of technical assistance for EE and RE projects development, especially in buildings, is activities of the Environmental Protection and Energy Efficiency Fund. The Fund has significant role in providing technical assistance, for project development and implementation, to users from residential and public sector in preparation for co-financing from EU structural funds.
<b>Energy service market</b>	The majority of ESCOs involved in EE/RE interventions on public buildings are construction companies. They suffer from limited competencies in providing energy service management and limited access to commercial bank financing. ESCO market started to develop, especially in the field of EE and RE projects in public lighting and in public buildings through Government programmes.

## KAZAKHSTAN

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ The Law on Gas and Gas Supply (came into force in January 2012);</li> <li>■ The Law on Electricity (developed in 2009 and amended in 2011 and 2012);</li> <li>■ The Law on Supporting the Use of Renewable Energy Sources (2013);</li> <li>■ The Law on Energy Saving and Energy Efficiency (2012).</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ The Kazakhstan 2050 Strategy, which defines the course for long-term economic development (2012);</li> <li>■ The Green Economy Concept (2013);</li> <li>■ The Action Plan for the Development of Alternative and Renewable Energy for 2013-20 (adopted in January 2013);</li> <li>■ Programme of Wind Power Development to 2030;</li> <li>■ The State Programme for Accelerated Industrial and Innovative Development for 2010–2014 (2010);</li> <li>■ The Programme of Electricity Sector Development for 2010–2014 (2010);</li> <li>■ Strategy Kazakhstan 2050 aimed to develop alternative and renewable energy sources (solar and wind) to reach 50% of power consumption by 2050;</li> <li>■ The Concept of Fuel and Energy Sector Development to 2030.</li> </ul>
<b>Selected secondary legislation</b>	<p>Within the framework of the laws 'On saving energy and improving energy efficiency' and 'On introducing amendments and addenda into some legislative acts of the Republic of Kazakhstan on saving energy and improving energy efficiency', more than 22 normative acts were adopted providing for:</p> <ul style="list-style-type: none"> <li>■ introducing compulsive requirements on energy efficiency for all types of transportation means, electrical engines as well as buildings, structures and constructions and their design documentation;</li> <li>■ introducing energy efficiency classes for buildings, structures and facilities and the rule for their definition and revisions;</li> <li>■ adopting rules for conducting energy auditing at industrial enterprises and buildings.</li> </ul>
<b>Norms and standards</b>	<ul style="list-style-type: none"> <li>■ The Law on Energy Saving and Energy Efficiency provides a legal, regulatory, and institutional framework for energy efficiency and savings measures. Measures include approval of some 3 000 energy standards and EE categories for buildings and household appliances.</li> <li>■ Norms on energy consumption were introduced for all types of industrial production and services. All industrial enterprises should comply with these norms.</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ The Ministry of Energy;</li> <li>■ The Committee for Regulation of Natural Monopolies and Protection of Competition;</li> <li>■ The Sovereign Wealth Fund Samruk-Kazyna;</li> <li>■ The National Fund is a state-run fund that comprises financial assets accumulated in government account with the National Bank of Kazakhstan.</li> </ul>
ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:	
<b>In utilities, ESCOs, companies, etc</b>	<p>Approving rules for activities of training centers in retraining and improving skills of natural and legal persons conducting energy audit and (or) giving expert advices on saving energy as well as creating, introducing and organizing the energy management system.</p>
BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	<p>The transition to market arrangements, such as auctions, reduced renewable electricity price and fostered further development of these sources in accordance with the established targets.</p>

DEVELOPED AND FINANCED PROJECTS:

**Main incentives for development and implementation of projects**

- According to the Electric Power Sector Law and the Law on Supporting Renewable Energy Sources the Center of Financial Settlement (CFS) buys all generated renewable power at feed-in tariffs. The choice of having CFS as single buyer of renewable power is driven by the desire to distribute the cost of renewable energy simply and evenly. The buyers of renewable power are not energy supply companies, but conventional power producers who pay for the renewable power in proportion to their output delivered to the grid. This out-of-the market treatment of RES that grants it financial, dispatch, and operational privileges is not uncommon globally, although the payment scheme is unique to Kazakhstan. However, together they have created the highest level of investment stability for developers in renewable generation.
- Conventional power producers reimburse the cost of renewable power by including it into the cost of their power production. In other words, the cost of renewable power is accounted for during the price cap calculation. Essentially, the conventional power plants bear a joint responsibility for the mandatory payment for renewable power.

**Government programmes and funds**

- At the end of 2017 Kazakhstan approved the renewable auction rules for new projects: this is an electronic auction system managed by a dedicated operator to select new renewable projects, define electricity prices based on the national renewable location plan. According to the approved renewable capacity plan, the total capacity to be selected in 2018 is 1,000 MW, broken down by types as follows: 290 MW solar; 620 MW wind; 75 MW hydro; 15 MW biofuel. As a result of first auctions in spring 2018 the price fell as follows: Wind: 22.68 KZT/kWh, decreased by 17.49 KZT/kWh (20%); Solar: 34.61 KZT/kWh, decreased by 25.80 KZT/kWh (25.5%); Hydro: 16.17 KZT/kWh, decreased by 13.13 KZT/kWh (23%).
- Approving typical voluntary agreements in the sphere of energy saving and improving EE to be concluded on the trilateral basis between the authorized body in the sphere of energy saving and improving EE, the regional akimat (local administration) and big industrial consumers of energy resources. For the entities concluding such agreements the local representative bodies will have the right not to raise the rates of payment for discharging emissions into environment;
- Introducing the mechanism for evaluation of activities of local executive bodies on saving energy and improving energy efficiency;
- Gradual introduction of incandescent lamps ban;
- Procedure for organizing and conducting energy auditing is regulated by Rules for conducting energy auditing (GD RK № 1115 of August 31, 2012)
- According to the law 'On energy saving and improving energy efficiency' the compulsory expertise of energy saving and improving energy efficiency is applied to the pre-design and (or) project (project-budgeting) documentation on construction of new or enlargement (capital repairs, reconstruction) of the existing buildings, structures and facilities with the volume of energy resources consumption of more than 500 tce (350 toe) for one calendar year.

## NORTH MACEDONIA

## PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010

## POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:

<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ The Energy Law, adopted in 2011 and amended in 2013;</li> <li>■ New Energy Law that transposes the Third Energy Package, adopted May 2018.</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ Strategy for Energy Development in the Republic of Macedonia until 2030 (2010);</li> <li>■ Strategy for Utilization of Renewable Energy Sources in the Republic of Macedonia until 2020;</li> <li>■ National Renewable Energy Action Plan for the Republic of Macedonia until 2025 with Vision Until 2030 (2015, amended in 2017);</li> <li>■ First National Energy Efficiency Action Plan (2010);</li> <li>■ Second NEEAP (2014);</li> <li>■ Third NEEAP (adopted in July 2017, but still not published);</li> <li>■ Energy Efficiency Strategy (2010).</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Rulebook on Renewable Energy Sources including regulation on issuing, transfer and cancellation of guarantees of origin</li> <li>■ Decree on the privileged producers - support tariff, period of application</li> <li>■ Decree on the capacity limits of privileged producers</li> <li>■ Rulebook on Privileged Producers</li> <li>■ Amendments to the Rulebook on Privileged producers</li> <li>■ Template agreement for purchase of electricity from renewable sources</li> <li>■ Connection to the transmission network - Transmission Grid Code</li> <li>■ Connection to the distribution network - Distribution Grid Code</li> <li>■ Rulebook on Labelling of Energy-Related Products, and its amendments</li> <li>■ Rulebook on Energy Performance of Buildings</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ Ministry of Economy (designated ministry for energy related legislation);</li> <li>■ Ministry of Environment and Physical Planning;</li> <li>■ Regulatory Commission (regulator for energy, support scheme);</li> <li>■ Energy Agency of Republic of Macedonia (acting as an implementer of the policies for EE and RE).</li> </ul>

## ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:

<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ Training of staff on EE and RE policies and project development by the Energy Agency of Republic of Macedonia;</li> <li>■ Transfer of knowledge from the Energy Agency to the Ministry of Economy.</li> </ul>
<b>In utilities, ESCOs, companies, etc</b>	<ul style="list-style-type: none"> <li>■ ELEM (largest energy producer in the country) trained its staff on EE and RE policies and development of RE projects</li> <li>■ Two consulting companies had its staff trained in RE project development.</li> </ul>

## BEST PRACTICES DEVELOPED AND INTRODUCED:

<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ Establishing feed-in support scheme for RE (developing of the feed-in premium support scheme is in the progress);</li> <li>■ Establishing ESCO/PPP contracts in the public sector.</li> </ul>
<b>Best practices in project development</b>	<ul style="list-style-type: none"> <li>■ Support scheme for installation of solar water heaters;</li> <li>■ Support scheme for building refurbishment of windows;</li> <li>■ Support scheme – feed-in tariff for RE;</li> <li>■ Marketing campaign for increasing EE in the households.</li> </ul>
<b>Best approaches to investment</b>	<ul style="list-style-type: none"> <li>■ Reducing the administrative procedures for issuing licenses for RE projects;</li> <li>■ Increasing the capacities of the public sector for EE;</li> <li>■ Increasing awareness of the households for EE.</li> </ul>
<b>Innovative financing mechanisms</b>	<p>The feed-in support scheme was introduced. So far 16,8 MW PV projects, 36,8 MW wind projects and 68 MW SHPP project benefited from the support scheme. A successful example was development of the wind power plant WPP "Bogdanci" with 36,8 MW installed capacity and around 100 GWh/year production.</p>

AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	<ul style="list-style-type: none"> <li>■ A marketing campaign “Energy mathematics” that provided the households with practical examples on how to save energy. The campaign had eight different TV episodes (1 min each) broadcasted eight times a day, as well as billboards and flyers.</li> <li>■ Guidelines for development of RE project published.</li> </ul>
<b>Raising awareness at local level</b>	Municipalities EE projects, such as support schemes for refurbishment, lowering taxes for EE buildings.
<b>Results of raising awareness</b>	<ul style="list-style-type: none"> <li>■ The lower level of energy intensity of the country was observed;</li> <li>■ The level of energy consumption in the household sector was reduced.</li> </ul>
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Support scheme for installation of solar water heaters;</li> <li>■ Support scheme for building refurbishment of windows;</li> <li>■ Feed-in tariff for RE.</li> </ul>
<b>Government programmes and funds</b>	<ul style="list-style-type: none"> <li>■ The Ministry of Economy subsidies 50% of installed solar heater or up to 300€ per installation.</li> <li>■ The Ministry of Economy subsidies 50% of replaced inefficient windows with energy efficient one or up to 500€ per installation.</li> <li>■ Feed-in tariff for RE as a state support scheme.</li> </ul>
<b>Commercial financing</b>	Limited commercial financing with EE refurbishment loans. A typical project is Sparkasse Bank Makedonija received EBRD financing for EE through a €2 million loan to support investments in energy-saving improvements in the residential sector. The loan comes under the EBRD's Green Energy Financing Facility for the Western Balkans. The initiative is designed to help local households, housing associations and service providers invest in EE measures and RE projects. Loans are provided via local financial institutions and are backed by incentives from the European Union on successful completion of renovation projects.
<b>Technical assistance for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Regional Energy Efficiency Programme (REEP) - The European Bank for Reconstruction and Development (EBRD) and the European Commission (EC);</li> <li>■ Western Balkans Sustainable Energy Finance Facility (WeBSEFF).</li> </ul>
<b>Energy service market</b>	ESCO type of contracts are being currently introduced, it is still in development phase.

REPUBLIC OF MOLDOVA

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Law on energy efficiency No. 139 (of 19.07.2018);</li> <li>■ Law on the Energy Performance of Buildings (2017);</li> <li>■ Law on energy labelling of energy related-product (2014);</li> <li>■ Law on Promotion of Energy from Renewable Sources (2016, amended in 2017).</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ National Program on Energy Efficiency 2011-2020 (2011);</li> <li>■ First National Energy Efficiency Action Plan 2013-2015 (2013);</li> <li>■ Second National Energy Efficiency Action Plan 2016-2018 (2016);</li> <li>■ National Renewable Energy Action Plan 2013- 2020 (2013);</li> <li>■ Energy Strategy of the Republic of Moldova until 2030 (2013).</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Government Decision no. 896 of 21.07.2016 for the approval of the Regulation on the procedure for the certification of the energy performance of buildings and of building units;</li> <li>■ Government Decision no. 750 of 13.06.2016 for the approval of regulations on eco-design requirements applicable to energy-related products;</li> <li>■ Government Decision no. 1070 of 27.12.2013 for the approval of the Regulation on solid biofuels;</li> <li>■ Government Decision no. 1073 of 27.12.2013 on the approval of the National Action Plan on Renewable Energy for the years 2013-2020;</li> <li>■ Government Decision no. 924 of 12.12.2012 regarding the approval of the Methodology for calculating the cost of the energy audit;</li> <li>■ Government Decision no. 884 from 27.11.2012 for the approval of the Regulation on energy audit;</li> <li>■ Government Decision no. 885 of 27.11.2012 for the approval of the Regulation regarding the authorization of energy auditors;</li> <li>■ Government Decision no. 401 from 12.06.2012 regarding the Energy Efficiency Fund;</li> <li>■ Government Decision No. 1173 of 21.12.2010 on the Agency for Energy Efficiency;</li> <li>■ Government Decision no. 409 of 16.06.2015 Decision on energy pathways for the period 2015-2030.</li> </ul>
<b>Norms and standards</b>	<ul style="list-style-type: none"> <li>■ Republic of Moldova streamlined electricity and gas standards and harmonized with those of the European Union. The National Standardization Body develops the annual National Standardization Programme which includes EU and international standards to be adopted in that year. In the period 2011-13, 689 EU standards were adopted while 478 conflicting standards were removed.</li> <li>■ Republic of Moldova is also a member of the International Standards Organization (ISO), the International Electrotechnical Commission (IEC), the European Committee of Standardization (CEN) and the Euro-Asian Council for Standardization (EASC).</li> <li>■ ISO50001 Standard on Energy Management is transposed in Moldova .</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ The Ministry of Economy and Infrastructure in charge of developing and implementing energy policy.</li> <li>■ The Ministry of Agriculture, Regional Development and Environment is in charge of establishing, monitoring and evaluating the national priorities for regional development, including promotion of EE and RE, as well as developing environmental and natural resource management policies and strategies.</li> <li>■ The National Agency for Energy Regulation (ANRE) is an independent regulator in the energy sector. Its main responsibilities include licenses, tariff setting and regulation.</li> <li>■ Energy Efficiency Agency is responsible to implement state policy for energy efficiency and renewable energy and coordinate the programs and action plans developed by local authorities.</li> <li>■ Regional Development Agencies are responsible for development and implementation of Regional Programs on Energy Efficiency.</li> </ul>

ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:	
<b>Activities in public sector</b>	EUREM Program is a training program conducted by Chamber of Commerce and Industry of Moldova for energy managers of raions and for professionals.
<b>In utilities, ESCOs, companies, etc</b>	Energy Efficiency Agency conduct training for energy auditors.
<b>Among end-users</b>	Energy Efficiency Agency on regularly basis conduct public awareness programs on promoting energy efficiency for final users.
BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ PPP in public sector;</li> <li>■ Feed-in tariff for electricity from renewable sources.</li> </ul>
<b>Best practices in project development</b>	Project Pipeline for EE in public buildings, developed by Regional Development Agencies of Moldova, for implementation of Action Plan of Regional Programs on EE in public buildings.
<b>Innovative financing mechanisms</b>	<ul style="list-style-type: none"> <li>■ PPP Project on district heating supply from biomass to cities Leova, Ungheni, Nisporeni of Moldova;</li> <li>■ Revolving Fund to support biomass production, implemented by Energy Efficiency Agency;</li> <li>■ Feed-in tariff for electricity produced from renewable sources.</li> </ul>
AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	<ul style="list-style-type: none"> <li>■ National award for best EE and Renewable Energy Projects – Moldova Eco Energetica;</li> <li>■ Moldova Energy Week is organized every year and promote EE and RE.</li> </ul>
<b>Raising awareness at local level</b>	<ul style="list-style-type: none"> <li>■ Energy Efficiency Plans for districts of Moldova with project pipeline for investment.</li> </ul>
<b>Results of raising awareness</b>	<ul style="list-style-type: none"> <li>■ Improved energy efficiency in public buildings;</li> <li>■ Increased share of renewable energy in energy balance of the country.</li> </ul>
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Energy Efficiency Fund provided investment in energy efficiency of public buildings, with up to 80% financing;</li> <li>■ Feed-in tariff for electricity.</li> </ul>
<b>Government programmes and funds</b>	<ul style="list-style-type: none"> <li>■ Energy Efficiency Fund;</li> <li>■ Fund for Regional Development.</li> </ul>
<b>Financing schemes</b>	Grant component.
<b>Technical assistance for development and implementation of projects</b>	EU and other international organisations provide technical assistance component to EE and RE projects.
<b>Energy service market</b>	ESCO not developed.



## RUSSIAN FEDERATION

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Federal Law of April 3, 1996 No. 28-FZ "On Energy Saving";</li> <li>■ Federal Law of November 23, 2009 No. 261-FZ "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation";</li> <li>■ Federal Law of 11 July 2011 No. 197-FZ "On Amending Article 13 of the Federal Law "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation";</li> <li>■ Federal Law No. 399-FZ of December 28, 2013 "On Amendments to the Federal Law "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation";</li> <li>■ Federal Law of 4 November 2014 No. 339-FZ "On Amending Article 14 of the Federal Law "On Energy Saving and on Improving Energy Efficiency and on Amending Certain Legislative Acts of the Russian Federation";</li> <li>■ Federal law, 26 March 2003 No 35-FZ "On electricity", amended 29 July 2018.</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ State Program Energy Efficiency and Energy Development (2013);</li> <li>■ State Policy Guidelines for Power Industry Energy Efficiency Improvement on the Basis of Renewable Energy by 2020;</li> <li>■ Russia's Energy Strategy to 2030, approved by Government Decree No.1715-r of 13 November 2009.</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Governmental resolution approving the State Programme for Energy Efficiency and the Development of the Energy Sector (2013);</li> <li>■ Government resolution setting out Russia's territorial planning scheme in the field of energy (2016);</li> <li>■ Decree of the President of the Russian Federation "On the assessment of the effectiveness of the executive authorities' activities in the Subjects of the Russian Federation and of the local authorities in urban and municipal districts in the field of energy conservation and energy efficiency improvements" (2010);</li> <li>■ Decree of the Government of the RF on the procedure for transferring to the next competitive selection the volumes of RE sources that are released as a result of the termination of contracts for the supply of such capacity, and a ban on further participation in competitive selection of organizations that repeatedly violated the terms of the contract for the supply of RE (2017);</li> <li>■ Decree of the Government of the RF on the requirements for products and works to determine the level of equipment localization for installations operating on wind power (2017);</li> <li>■ Decree of the Government of the RF on possibility to split the total input capacity into several projects, provided that the obligations are retained by the total volumes of input capacity when external factors change (2017);</li> <li>■ Decree of the Government of RF and Resolutions of the Government of RF allowing to extend measures of state support of RES to generating facilities operating on the basis of solid waste incineration (2017);</li> </ul>
<b>Norms and standards</b>	<ul style="list-style-type: none"> <li>■ GOST R 51541-99 dated November 15, 2006 "Energy saving - Energy efficiency - Composition of indicators - General provisions";</li> <li>■ GOST R 51388-99 dated November 15, 2006 "Energy saving: informing consumers about the energy efficiency of household and municipal products - General requirements";</li> <li>■ GOST R 51387-99 dated November 15, 2006 "Energy Saving: Normative and Methodological Support: Basic Provisions";</li> <li>■ GOST R 51380-99 dated November 15, 2006 "Energy saving: methods of confirming compliance of energy efficiency indicators of energy-consuming products with their normative values";</li> <li>■ GOST R 51379-99 dated November 15, 2006 "Energy saving: Energy passport of industrial consumer of fuel and energy resources." Basic provisions";</li> <li>■ GOST R 56743-2015 dated November 20, 2015 "Measurement and verification of energy efficiency. General provisions for the determination of energy resource savings».</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ Ministry of Energy of the Russian Federation;</li> <li>■ The Federal state budgetary institution "Russian Energy Agency" supervising the activities in this field in Russian Fuel and Energy Complex.</li> </ul>

ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:	
<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ Energynet - one of the nine roadmaps of the National technology initiative, announced in 2014 by the President of the Russian Federation as one of the strategic directions of the country's technological leadership development. Energynet is the first officially approved at the highest level long – term programme for the development of technologies, standards and communities in the field of power generation of a new technological structure.</li> <li>■ Annual International Forum on Energy Efficiency and Energy Development (ENES) the largest event in the field of development, introduction and implementation of EE technologies and energy development in Russia since 2011.</li> <li>■ Annual International Conference “Renewable Energy Development in the Russian Far East” has been held in Yakutsk since 2013 to facilitate RE projects on cooperation between authorities of the Far East, energy companies and energy equipment producers.</li> <li>■ Climate Forum of Russian Cities was held in Moscow in 2017 and in 2018 to promote the city of future with broad green streets, smart infrastructure and IT solutions, innovations and energy saving technologies catering for every opportunity of living an urban life in balance with the natural environment.</li> <li>■ The first ‘Russian Energy Week’ Energy Efficiency and Energy Development International Forum was held in Moscow and St. Petersburg on 3–7 October 2017. The second “Russian Energy Week” was held in Moscow on 3-6 October 2018. The purpose of these events was to discuss the current global energy agenda, identify areas for the development of the main sectors of the fuel and energy industry, and search for optimal solutions to respond to existing challenges.</li> </ul>
<b>In utilities, ESCOs, companies, etc</b>	<ul style="list-style-type: none"> <li>■ Annual International Forum on Energy Efficiency and Energy Development provides a common platform for exchange of experience and best practices to facilitate the improvement of EE of the national economy. For the first time the International meeting of mayors for EE and sustainable urban development was organized within the framework of within the ENES 2016.</li> <li>■ The International exhibition and forum ECOTECH, a practical tool for presentation of foreign and Russian innovative ecological developments and effective professional networking, was first held April 26 through 29, 2016. ECOTECH has been conceived as a united platform for demonstration of ecological innovative solutions in various industries of economy and for professional dialogue about problems, prospects and specific objectives of the economy transfer to eco-friendly vector and introduction of the best available technologies.</li> <li>■ Annual International Conference “Renewable Energy Development in the Russian Far East” held in Yakutsk since 2013 to facilitate RE projects on cooperation between authorities of the Far East, energy companies and energy equipment producers.</li> <li>■ The «Financing Renewable Energy Projects in Russia» Round Table in November 2017. It was one of the most fruitful activities, which was participated in by Russian regulators, international manufacturers and suppliers; banks, as project funding in the field of renewable energies.</li> </ul>
<b>Within financial services</b>	<ul style="list-style-type: none"> <li>■ The «Financing Renewable Energy Projects in Russia» Round Table in November 2017. It was one of the most fruitful activities, which was participated in by Russian regulators, international manufacturers and suppliers; banks, as project funding in the field of renewable energies.</li> <li>■ Second international forum Clean Energy addressed the issue of how to unlock Russia's huge clean energy potential. Given the St. Petersburg location, a special attention was paid to the North-West Federal District, as well as to the Arctic cooperation.</li> <li>■ Round table Green finance: International experience and Russian practice was held on March 29, 2018. It was a kicking-off event of a series of discussions and practical expertise exchange on the most challenging aspects of green finance market development in Russia, stimulating of investments in energy efficiency and climate risk management.</li> </ul>
<b>Among end-users</b>	<p>International conference and exhibition “Environmental Safety in Gas Industry” organized once in 2 years since 2009. Representatives of state supervisory and regulatory bodies, scientists, specialists of Russian and foreign companies convene to discuss relevant issues of environmental safety, efficient energy use and health safety in the oil and gas industry.</p>
BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ The National Climate Doctrine which brought the climate change risks into focus of the long-term sustainable development of the national economy across the sectors, especially the energy complex.</li> <li>■ Implementation of the corporate medium-term programs aimed at providing energy services more efficiently and sustaining their reliability and resilience under the climate change. RE development was notably intensified as a sustainable solution towards reducing the lack of energy in remote areas, where the levelized costs of energy were well above the average.</li> <li>■ Russian Government on the Mechanism for the Promotion of Renewable Energy on the Wholesale Electricity and Capacity Market (2013) obliged RE project investors to use equipment in each installation which is at least partly produced or assembled in Russia. The purpose of these measures is to stimulate economic activity in the field of RE and to create jobs in this sector.</li> </ul>
<b>Best practices in project development</b>	<ul style="list-style-type: none"> <li>■ Gazprom adopted the Energy Saving and Energy Efficiency Concept for 2011–2020, according to which it's technologically feasible for Gazprom to save no less than 28.2 million tons of fuel equivalent in the 2011–2020 period.</li> <li>■ A solar technology center focusing on thin film technologies founded by Hevel, Russia's single solar module company, and the Skolkovo Innovation Centre at the Ioffe Physical Technical Institute located in St Petersburg. The centre operated an experimental process line of 500 kW, which aimed to refine the technical characteristics of thin film modules.</li> <li>■ Development of a technological base for solar energy (for example, heterostructure technology, manufacturing solar modules of the cascade type with an efficiency of over 40%); wind energy (production of equipment for wind power generation); and small hydro-power (the supply of container type mini-hydro).</li> </ul>

<b>Best approaches to investment</b>	<ul style="list-style-type: none"> <li>■ The main support mechanism for RE is the auction system. the Russian capacity scheme is linked to a capacity supply agreement (i.e. the availability of power plants to produce electricity), expressed in MW or MW per month. The agreements allow investors to secure a return on their investment in RE projects through guaranteed capacity payments payable over a term of 15 years.</li> <li>■ Improving EE is central to Russia's energy sector modernization strategy. There was a launch of various policies to promote improving EE since 2008. In accordance to the "Energy Strategy to 2030", the other strategic energy goal lies in reducing Russia's energy intensity by 40%, between 2007 and 2020. The main instruments in realizing this potential include creating awareness, installation of metering, labelling and standardization.</li> <li>■ Growth of the electricity and natural gas prices came as a result of the liberalization process. The specific initiative by the Ministry of Regional Development as a pilot in seven Russian regions in September 2013, following this energy pricing rule. The main principle is that households agree to a certain price ceiling for a certain amount of electricity consumption, and when that consumption volume is exceeded, the price increases considerably. The project's aim was to raise household electricity prices to the level of those in industry.</li> </ul>
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<b>Innovative financing mechanisms</b>	<p>The Energy Strategy of Russia to 2035 is directly linked with the innovative development of its industries. To encourage the development and introduction of new domestic technologies and materials, the Ministry of Energy implements the action plan ("the Roadmap") on the introduction of innovative technologies and advanced materials in the fuel and energy complex through the period until 2018</p>
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**AWARENESS RAISING AMONG GENERAL PUBLIC:**

<b>Raising awareness at national level</b>	<ul style="list-style-type: none"> <li>■ Information on the current and proposed activities in RE development and EE improvement is constantly observed in magazines, newspapers and other periodicals across the country and special industrial publications.</li> <li>■ The Russian Government holds regular seminars, conferences and provides participation of official representatives in various events to discuss current challenges and future prospects of the sustainable energy development in Russia.</li> <li>■ The state energy policy was presented with a shift towards low carbon development based on systematic support of EE increase and RE development at various open events held during the Climate Week in 2017.</li> <li>■ The updates on progress made in EE and RE status in Russia is regularly published on the website of the Ministry of Energy of Russia.</li> </ul>
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<b>Raising awareness at local level</b>	<ul style="list-style-type: none"> <li>■ Most of the Russian energy companies have prioritized their long-term innovation development strategies paying a special attention to EE improvement. They publish periodical reports (annual, biannual, triannual) disclosing the performance of measures taken in enhancing the energy services provided through the progressive actions.</li> <li>■ Energy companies encourage their engineers to publish articles about the results of their projects, presenting all the information about the objectives set and results achieved. Through their PR departments energy companies keep the local mass media aware about the challenges solved, including energy saving data and prospects in using technologies causing a lower environmental impact.</li> <li>■ The EE and RE projects have become the major agenda of most of the technical seminars, conferences and meetings with public held by energy companies in both southern and northern regions of Russia</li> </ul>
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<b>Results of raising awareness</b>	<ul style="list-style-type: none"> <li>■ The energy end-users have become more active in benefiting from new opportunities of energy supply due to an increase in EE.</li> <li>■ The widely presented EE and RE projects became a factor of lowering the outward migration of the population in the Arctic regions.</li> <li>■ Many energy companies have gained more public credits from demonstrating results of real projects aimed at minimizing the cost of energy generation and supply.</li> <li>■ The EE and RE cooperation has been facilitated between academics, businesses and local authorities across the country.</li> </ul>
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**DEVELOPED AND FINANCED PROJECTS:**

<b>Government programmes and funds</b>	<ul style="list-style-type: none"> <li>■ The State Program "Energy Efficiency and Energy Development";</li> <li>■ The State program "Development of science and technology";</li> <li>■ The State program "Economic development and innovative economy";</li> <li>■ The State Program "Social and Economic Development of the Arctic Zone of the Russian Federation";</li> <li>■ The State Program "Social and Economic Development of the Far East of the Russian Federation."</li> </ul>
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<b>Technical assistance for development and implementation of projects</b>	<p>The following organizations provide technical assistance for the development and implementation of E and RE projects:</p> <ul style="list-style-type: none"> <li>■ Environmental Investment Centre;</li> <li>■ International Sustainable Energy Development Centre;</li> <li>■ Gazprom VNIIGAZ LLC;</li> <li>■ NIIgazeconomica;</li> <li>■ TyumenNIIgiprogaz;</li> <li>■ National research centre of Higher school of economics.</li> </ul>
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<b>Energy service market</b>	<p>The majority of actively operating Russian ESCOs are concentrated in the central region. The most active ESCOs operating in Moscow and the Moscow region are: EES.Garant LLC, FENICHE RUS LLC, Mosenergosbyt OJSC, EnergoProfit LLC, WattGroup LLC, ENERAGONIKA LLC, Energouchet Service LLC, InterEST LLC, Gazprom-Gazenergoset JSC, which were included in the Top-30 of All-Russian rating of energy-service companies - 2015, compiled by RBC. The rating leader, LLC "UES.Garant", has operating energy service agreements with customers from all major segments of the energy service market - the public and municipal sector.</p>
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## SERBIA

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Law on Efficient Use of Energy ("Official Gazette of the RS", No 25/13)</li> <li>■ Energy law ("Official Gazette of the RS", No. 145/14)</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ National Renewable Energy Action Plan (NREAP), 2013;</li> <li>■ First National Energy Efficiency Plan (NEEAP) for the period of 2010-2012 (2010);</li> <li>■ Second National Energy Efficiency Plan (NEEAP) for the period 2013-2015 (2013);</li> <li>■ Third National Energy Efficiency Plan (NEEAP) for the period 2016-2018 (2016);</li> <li>■ Energy Sector Development Strategy of the Republic of Serbia for the period by 2025 with projections by 2030 (2016).</li> </ul>
<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Rule book on the way and terms of submitting data necessary for monitoring of Action Plan for Energy Efficiency in the Republic of Serbia implementation and on methodology for monitoring, verification and evaluation of its implementation (Official Gazette RS, No. 37/15 of 24 April 2015);</li> <li>■ The Decree on the Program for Financing Activities and Measures of Improvement of Efficient Use of Energy in 2015 ("Official Gazette" No. 75/15 of 31 August 2015);</li> <li>■ The Decree on the Program for Financing Activities and Measures for Improvement of Efficient Use of Energy in 2016 ("Official Gazette of RS", No. 13/16 of 19 February 2016);</li> <li>■ The Decree on the Program for Financing Activities and Measures for Improvement of Efficient Use of Energy in 2018 ("Official Gazette of RS", No. 25/18 of 30 March 2018);</li> <li>■ Rulebook on Conditions for Distribution and Use of Resources of the Budgetary Fund for Energy Efficiency Improvement of the Republic of Serbia and Criteria for Exemption from Mandatory Energy Audit ("Official Gazette of RS", No. 80/18 of 20 April 2018);</li> <li>■ Regulation on energy-related products for which the indication of the consumption of energy and other resources is necessary ("Official Gazette of RS", No. 92/13 of 22 October 2013 and 80/16 of 30 September 2016);</li> <li>■ Rulebook on energy efficiency labelling of household refrigerating appliances ("Official Gazette of RS", No. 17/14 of 14 February 2014);</li> <li>■ Rulebook on energy efficiency labelling of electrical lamps and luminaires ("Official Gazette of RS", No. 24/14 of 28 February 2014);</li> <li>■ Rulebook on energy efficiency labelling of household washing machines ("Official Gazette of RS", No. 24/14 of 28 February 2014);</li> <li>■ Rulebook on energy efficiency labelling of household dishwashers ("Official Gazette of RS", No. 24/14 of 28 February 2014);</li> <li>■ Rulebook on energy efficiency labelling of televisions ("Official Gazette of RS", No. 24/14 of 28 February 2014);</li> <li>■ Rulebook on energy efficiency labelling of air conditioners ("Official Gazette of RS", No. 24/14 of 28 February 2014);</li> <li>■ Rulebook on energy efficiency labelling of domestic ovens and range hoods ("Official Gazette of RS", No. 19/17 of 8 March 2017);</li> <li>■ Rulebook on energy efficiency labelling of vacuum cleaners ("Official Gazette of RS", No. 24/17 of 17 March 2017);</li> <li>■ Rulebook on energy efficiency labelling of household tumble driers ("Official Gazette RS", No. 24/17 of 17 March 2017);</li> <li>■ Rulebook on energy efficiency labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device ("Official Gazette RS", No. 17/18 of 7 March 2018);</li> <li>■ Rulebook on energy efficiency labelling of water heaters, hot water storage tanks and, packages of water heater and solar device ("Official Gazette RS", No. 67/18 of 31 August 2018);</li> <li>■ The Decree on Determining Thresholds of Annual Consumption of Energy as a Criteria for Defining Designated Organizations of Energy Management System, on Energy Savings Targets on Annual Level, along with Application Form on Achieved Energy Consumption ("Official Gazette of RS", No. 18/16 of 1 March 2016);</li> <li>■ Rulebook about the conditions in terms of personnel, equipment and space of the organization conducting training for Energy Manager and Accredited Energy Auditors (Official Gazette RS, No. 12/15 of 31 January 2015);</li> <li>■ Rule book on the way and program of training for Energy Manager, training fees, as well as on conditions, program and way of taking exam for Energy Manager ("Official Gazette of RS", No. 12/15 of 31 January 2015);</li> <li>■ The Rulebook on the Format of Periodical Report on Achieved Energy Savings ("Official Gazette of RS", No. 32/16 of 30 March 2016 and 65/18 of 24 August 2018);</li> <li>■ The Rulebook on conditions for appointing energy managers in local self-government unit's bodies ("Official Gazette of RS", No. 31/16 of 25 March 2016)</li> <li>■ The Rulebook on conditions for appointing energy managers in companies with predominant business activity in production sector and enterprises as public services ("Official Gazette of RS", No. 98/16 of 8 December 2016);</li> <li>■ The Rulebook on conditions for appointment of energy managers in companies with predominant business activity in commercial sector, state administration bodies and other bodies of the Republic of Serbia, Autonomous Province's bodies and institutions ("Official Gazette of RS", No. 82/17 of 8 September 2017);</li> <li>■ Decree on minimum energy efficiency requirements that must be met by new and revitalized plants (Official Gazette of RS, No. 112/15 of 15 December 2017);</li> </ul>

<b>Selected secondary legislation</b>	<ul style="list-style-type: none"> <li>■ Rulebook on the content of the study on energy efficiency of plant for the production of electricity and heat, plant for combined production of electricity and heat, transmission and distribution system for electricity, heat production and distribution systems (Official Gazette of RS, No. 30/18 of 20 April 2018);</li> <li>■ Rulebook on Controlling Heating Systems and Detailed Requirements for Legal Entities Authorized for Controlling Heating Systems ("Official Gazette", of RS, No. 58/16 of 22 June 2016);</li> <li>■ Rulebook on Controlling Air Conditioning Systems ("Official Gazette of RS", No. 82/16 of 7 October 2016);</li> <li>■ Rulebook on determining model of energy service contracts for implementing measures of EE improvement where the beneficiaries are public sector entities (Official Gazette RS, No. 37/15 of 24 April 2015);</li> <li>■ Rulebook on minimal requirements in respect of EE in the procedure for public procurements of goods (Official Gazette of RS, No. 111/15 of 29 December 2015);</li> <li>■ Rulebook on EE of Buildings ("Official Gazette of the RS", No. 61/11);</li> <li>■ Rulebook on the Conditions, Content and Manner of Issuance of Certificates of Energy Performance of Buildings ("Official Gazette of the RS", No. 69/12);</li> <li>■ Regulation on the requirements and procedure of acquiring the status of a privileged producer, preliminary Privileged Producer and Producer from Renewable Energy Sources (Official Gazette of RS, No. 56/16, 60/17);</li> <li>■ Regulation on Incentive Measures for the Production of Electricity from Renewable Sources and from High Efficiency Electricity and Thermal Energy Cogeneration (Official Gazette of RS, No. 56/16, 60/17);</li> <li>■ Regulation on the Power Purchase Agreement (Official Gazette of RS, No. 56/16, 61/17).</li> </ul>
<b>Institutions</b>	<ul style="list-style-type: none"> <li>■ Ministry of Mining and Energy;</li> <li>■ Ministry of Construction, Transport and Infrastructure.</li> </ul>

**ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:**

<b>Activities in public sector</b>	<ul style="list-style-type: none"> <li>■ Adoption of a Budgetary Fund for Energy Efficiency in 2014 which launched 3 public calls and provided financing for 39 projects. Requirements that have to be met by projects are clearly defined; raising awareness on the public call for participants both regarding EE and on requirements for good projects.</li> <li>■ Ongoing certification of buildings since 2012 in accordance with secondary regulation of Law on Construction and Planning. Training and licensing program is established and capacities of engineers are enhanced.</li> <li>■ Based on the Law on Efficient Use of Energy, the energy management system for big and public consumers is being introduced. Training of energy managers and licensing is established.</li> </ul>
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<b>In utilities, ESCOs, companies, etc</b>	Model contract for ESCO companies is developed and adopted in a form of secondary legislation and is obligatory for the public users. There are more than 15 ESCO Street lighting projects ongoing in Serbia.
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**BEST PRACTICES DEVELOPED AND INTRODUCED:**

<b>Best policy practices</b>	<ul style="list-style-type: none"> <li>■ Introduction of Energy Management System based on the Japanese experience with the assistance of Japan International Cooperation agency (JICA).</li> <li>■ Introduction of energy labelling scheme aligned with the EU practice</li> </ul>
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<b>Best practices in project development</b>	<ul style="list-style-type: none"> <li>■ Operation of the Budgetary Fund for Energy Efficiency;</li> <li>■ Feed-in-tariffs.</li> </ul>
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<b>Innovative financing mechanisms</b>	<p>The first financing mechanism established for financing of EE measures was Budgetary Fund for EE.</p> <ul style="list-style-type: none"> <li>■ In 2014, the first Public Call was issued for financing EE projects in municipal buildings. 11 projects were selected and implemented during 2015 and 2016. The overall level of investment was about EUR 660,000 and resulted in consumption declined by 2 GWh (40 per cent) compared to the previous period. Fund is providing maximum 70% of the investment.</li> <li>■ In 2016 two public calls for investment in EE projects in municipal buildings were launched: in the first public call 15 projects were awarded a financing of about EUR 1,000,000 (source of funding Budget of RS) and are expected to result in savings of about 4,5 GWh (40 per cent in average). Second public call was implemented with support of UNDP and GEF funding. Through this public call 13 were awarded a financing of about EUR 200,000 (source of funding Budget of RS) and 500,000 USD (source GEF/UNDP) and are expected to result in savings of about 3 GWh (40 per cent in average).</li> <li>■ In total, investment of about EUR 3,500,000 is secured for 39 projects (27 finalized so far) with contribution from municipalities of about 30 per cent. It is expected, that overall energy savings will be about 9,5 GWh (40 per cent) with CO<sub>2</sub> reduction of about 4,200 tCO<sub>2</sub>. Most common measures are reconstruction of thermal envelope including replacement of obsolete windows and reconstruction of heating installation (sometimes including fuel switch),</li> <li>■ One of the most successful projects was Energy Efficiency Project in Kindergarten "Poletarac" in Mali Zvornik where obsolete windows were replaced with new polyvinyl chloride (PVC) windows, insulation on the roof and outer walls was installed, the existing oil boiler was replaced with a new pellet boiler, thermostatic valves were installed on radiators. The energy consumption before the implementation of the project was 89,048 kWh, and after the project became 28,050 kWh. Energy savings comprised 68.5%, with total investment of €50,000; contribution of the Budgetary Fund 65%.</li> </ul>
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AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	<ul style="list-style-type: none"> <li>■ Ministry of Mining and Energy participates on many events explaining policy in the area of EE and RE. The Ministry maintains website where relevant information may be found and provides additional information for citizens and investors. For RE guides for investors are prepared;</li> <li>■ The Law on Housing and Maintenance of the Building improvement of energy efficiency in buildings is recognized as a public interest of the Republic of Serbia. In order to achieve public interest, the Republic of Serbia, the autonomous province and local units, self-governments bring strategic documents for the implementation of housing policy and provide funds in their budgets for fulfilling obligations established by this Law and strategic documents</li> <li>■ In accordance with the Law on Housing and Maintenance of Buildings, with regard to the improvement of the performance of buildings, the local self-government units are obliged, at least once a week, to provide advisory assistance to improve the energy efficiency of buildings to the citizens/ housing communities.</li> </ul>
<b>Results of raising awareness</b>	Increased RE and EE investments.
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ For RE, it is feed-in-tariffs;</li> <li>■ For EE, there is still no much incentives. Budgetary Fund is financing EE improvement in Municipal Buildings (financing up to 70% of the costs). There are available some favorable credit lines for IFIs.</li> </ul>
<b>Financing schemes</b>	<ul style="list-style-type: none"> <li>■ Feed-in-tariffs;</li> <li>■ Budgetary Fund;</li> <li>■ ESCO mechanism;</li> <li>■ Credit lines from IFIs mainly through commercial banks.</li> </ul>
<b>Technical assistance for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Projects financed from IPA, KfW, EBRD, CEB, EIB usually include technical assistance component from the stage of project development, financing and implementation. It is often provided by WBIf.</li> </ul>
<b>Energy service market</b>	<ul style="list-style-type: none"> <li>■ The model contract for ESCO projects is developed and published.</li> <li>■ When implemented by public sector, those are applying under Law on Public Private Partnership. There are more than 15 ESCO street lighting projects approved by the PPP Commission (<a href="http://www.ppp.gov.rs/misljenja-komisije">http://www.ppp.gov.rs/misljenja-komisije</a>).</li> <li>■ There are still no EE buildings projects financed by ESCO.</li> </ul>

## UKRAINE

PROGRESS IN ENERGY EFFICIENCY AND RENEWABLE ENERGY SINCE 2010	
POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK FOR EE AND RE:	
<b>Framework legislation</b>	<ul style="list-style-type: none"> <li>■ Law of Ukraine "On Alternative Energy Sources" (adopted in 2003, as amended in 2008, 2013, 2014, 2015, 2016, 2017);</li> <li>■ Law of Ukraine "On alternative fuels";</li> <li>■ Law "On Energy Performance of Buildings" (2017);</li> <li>■ Law on Efficient Use of Energy (2011);</li> <li>■ Law "On electricity market" № 2019-VIII dated 13.04.2017;</li> <li>■ Law "On Energy Efficiency Fund" № 2095-VIII dated 08.06.2017;</li> <li>■ Law of Ukraine on Energy Saving Performance Contracting for public buildings № 1980-VIII dated 23.03.2017;</li> <li>■ Law "On Amendments to the Law of Ukraine "On Heat Supply" on Stimulating the Production of Heat Energy to Alternative Energy Sources" № 1959 dated 21.03.2017.</li> </ul>
<b>Main policy documents</b>	<ul style="list-style-type: none"> <li>■ Energy Strategy of Ukraine for the period up to 2035, approved by the Order of the Cabinet of Ministers of Ukraine dated August 18, 2017 No. 605-p;</li> <li>■ National Action Plan for Renewable Energy for the period till 2020, approved by the Order of the Cabinet of Ministers of Ukraine dated January 10, 2014 No. 902-p;</li> <li>■ National EE Action Plan approved by Government Resolution No. 1228-p of 25 November 2015;</li> <li>■ The National Targeted Economic Programme on Energy Efficiency and Development of the Sphere of Energy Production from Renewable Energy Sources and Alternative Fuels for 2010-2020.</li> </ul>

<p><b>Selected secondary legislation</b></p>	<ul style="list-style-type: none"> <li>■ Resolution of the Cabinet of Ministers of Ukraine, “On Approval of the Procedure for the Examination of Urban Development Documents”;</li> <li>■ Resolution of the Cabinet of Ministers of Ukraine, “Issues of acceptance into operation of completed construction of objects”;</li> <li>■ Resolution of the National Energy and Utilities Regulatory Commission “On Approval of the Code of Distribution Systems”;</li> <li>■ Resolution of the National Energy and Utilities Regulatory Commission, “On Approval of the Procedure for Establishing, Revision and Termination of the Green Tariff for Business Entities” dated November 2, 2012, No. 1421;</li> <li>■ Resolution of the National Commission on State Energy Regulation No. 2932 of 10.12.2015 “On Approval Of The Procedure For Determining The Level Of Use Of Equipment Of Ukrainian Origin At Electricity Power Plants, Including The Commissioned Queues For The Construction Of Electric Power Stations (Launchers) Producing Electricity From Alternative Energy Sources (Except For Blast Furnace And Coke Gases, And With The Use Of Hydropower - Only Micro, Mini And Small Hydroelectric Power Plants), And The Establishment Of The Corresponding Premium To The “Green” Tariff”;</li> <li>■ The Cabinet of Ministers of Ukraine Resolution of 28.11.2018 No.1106 “On Approval of the criteria for assessing the degree of risk from conducting business activities in the field of electricity, economic activities for the transport of oil, oil products by main pipelines, economic activity in the natural gas market, for the production of heat energy, transportation of heat energy by main and local (distribution) heat networks and supply of heat energy, from centralized water supply and drainage, from waste processing and disposal, which is subject to licensing by the National Commission for state regulation in the energy and utilities, and determining the planned measures of state control”;</li> <li>■ The of Cabinet of Ministers of Ukraine Resolution No. 609 of 5.08.2015 “On Approval of the List of Licensing Bodies and Recognition of Decisions of the Cabinet of Ministers of Ukraine”;</li> <li>■ The Cabinet of Ministers of Ukraine Decree of 02.03.2015 number 74 “On amendments to some regulations of the Cabinet of Ministers of Ukraine and the recognition of such void Procedure for establishing retail prices for natural gas for the population”.</li> </ul>
<p><b>Norms and standards</b></p>	<ul style="list-style-type: none"> <li>■ NERC decree dated 14.03.2018 No. 312 “On Approval of the Rules of the Retail Electricity Market”;</li> <li>■ NERC decree of 21.01.2006 number 47 “On approval of rules accession cogeneration plants to power grids”;</li> <li>■ Resolution NERC from 11.05.2006 number 577 “On Approval of the Model contract for the sale of electricity between electricity wholesaler (State Enterprise “Energy”) and electricity supplier at a regulated tariff”;</li> <li>■ NERC resolution of 29.08.2017 number 1050 “On approval of the calculation of the compensation of losses licensees to supply electricity at regulated tariffs of electricity supply to the population”;</li> <li>■ NERC resolution of 24.03.2016 number 377 “On approval of the formation of tariffs for heat energy, its production, transportation and supply services for central heating and hot water”;</li> <li>■ NERC resolution of 31.08.2017 number 1059 “On approval of the development, coordination, approval and implementation of investment programs of undertakings in the field heat”;</li> <li>■ NERC Resolution 10.10. 2017 № 1223 “On approval of the organization and accounting activities by licensed entities in heat”.</li> </ul>
<p><b>Institutions</b></p>	<ul style="list-style-type: none"> <li>■ The Ministry of Energy and Coal Industry;</li> <li>■ The Ministry of Regional Development, Construction, Housing and Utilities;</li> <li>■ The State Agency for Energy Efficiency and Energy Saving;</li> <li>■ The State Environmental Investment Agency of Ukraine;</li> <li>■ The State Agency on Energy Efficiency and Energy Saving;</li> <li>■ The National Energy and Utilities Regulatory Commission.</li> </ul>
<p><b>ACTIVITIES TO ENHANCE CAPACITY OF STAKEHOLDERS:</b></p>	
<p><b>Activities in public sector</b></p>	<ul style="list-style-type: none"> <li>■ Preparation of National Energy Efficiency Action Plan;</li> <li>■ Preparation National Renewable Energy Action Plan;</li> <li>■ Improvements in Energy Efficiency and Renewable Energy legislatio to harmonize with the EU directives obligatory for Energu Community Contracting Parties.</li> </ul>

BEST PRACTICES DEVELOPED AND INTRODUCED:	
<b>Innovative financing mechanisms</b>	Setting up a regulatory framework for Energy Performance Contracts (EPC) for public sector
AWARENESS RAISING AMONG GENERAL PUBLIC:	
<b>Raising awareness at national level</b>	Information campaigns by the State Agency on Energy Efficiency and Energy Saving of Ukraine, presentations, interviews, fora.
<b>Raising awareness at local level</b>	Regular workshops in every region in Ukraine dedicated EPCs, state and local support programmes for households, energy management and renewables (supported by UNDP, GIZ, USAID and other institutions).
<b>Results of raising awareness</b>	Increased in a number of EE and RE projects.
DEVELOPED AND FINANCED PROJECTS:	
<b>Main incentives for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ Higher prices for electricity, natural gas and heat energy;</li> <li>■ Lack of own resources- RE and EE is the only way to ensure energy independence of Ukraine;</li> <li>■ Green electricity tariffs which guarantees grid access for RE producers (small hydro up to 10 MW, wind, biomass, PV, and geothermal);</li> <li>■ The feed-in tariffs for renewable power producers set by NKREKP;</li> <li>■ State support programme for households;</li> <li>■ Changes in utility subsidies for low-income households (monetized approach).</li> </ul>
<b>Government programmes and funds</b>	<ul style="list-style-type: none"> <li>■ United States Agency for International Development (USAID);</li> <li>■ The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ);</li> <li>■ UNDP;</li> <li>■ UNIDO and GEF;</li> <li>■ IBRD, EBRD, EIB (USELF, UKEEP) “Green Investment Attraction Center”;</li> <li>■ State Energy Efficiency Fund.</li> </ul>
<b>Financing schemes</b>	<ul style="list-style-type: none"> <li>■ ‘Green’ tariff (the Ukrainian feed-in tariff);</li> <li>■ “Feed-in” tariff for heat energy;</li> <li>■ Tax incentives (corporate profit tax, value added tax and import customs duties, land tax or land lease payments) for RE;</li> <li>■ Governmental program of “warm loans” for EE.</li> </ul>
<b>Technical assistance for development and implementation of projects</b>	<ul style="list-style-type: none"> <li>■ UA MAP is a modern informational web resource that collects information on RE and EE projects and provides communication between initiators of such projects and investors in order to facilitate investment in these areas. The online investment map of Ukraine, which was created on the website, clearly shows information about realized projects and potential projects, which are at different stages of implementation, and potential projects, with detailed information for each project separately, and about the resource potential of the area. Support for creating the UA MAP tools for investment attraction into RE and EE sectors as well as for development of the website was provided by Danish Energy Agency and Ukraine-Denmark Energy Centre.</li> <li>■ The project was initiated by NGO “All-Ukrainian Investment and Sustainable Development Agency” with the active support of the State Agency for Energy Efficiency. Creation of interactive investment map initially was supported by the project “Creation of Energy Agencies in Ukraine”, which is part of the International Climate Initiative (IKI) and implemented by the GIZ.</li> <li>■ Finland Ukraine Trust Fund: The purpose of the Trust Fund is to promote cooperation between Finland and Ukraine and identify opportunities for projects, both consultancy services and investments, in the fields of energy efficiency, renewable energy and waste-to-energy and smart energy systems. The Trust Fund is financed by the Ministry for Foreign Affairs of Finland and administered by NEFCO. The local coordinator is the State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE).</li> </ul>
<b>Energy service market</b>	Energy service market in Ukraine consists of more than 20 companies that work according EPC contracts, namely: KyivESCO, EuroESCO, CJSC Ukrainian Energy Service Company (UkrESCO), Communal ESCO, Dnipropetrovska Municipal ESCO, ESCO Artcom, ESCO Castrade, ESCO Center, ESCO EcoSys, ESCO EnCom Group, ESCO Energy Consult, ESCO Kharkiv, ESCO OptimEnergO, ESCO PATRIOT-NRG.



# Progress in the Areas of Energy Efficiency and Renewable Energy in Selected Countries of the UNECE Region

This publication explores the progress in energy efficiency and renewable energy in selected countries of South-Eastern Europe, Eastern Europe, and Central Asia, and in the Russian Federation. The study analyzes policy, legislative and regulatory frameworks, financial environment and level of awareness in the areas of energy efficiency and renewable energy from 2010 to 2018. It identifies the existing gaps in the required frameworks and environment to promote energy efficiency and renewable energy investments in the countries. It also proposes a set of recommendations for necessary steps in achieving the long-term objectives for energy mix and meeting the ambitious related targets set by the countries. The Governments must address existing barriers and deploy consistent and coherent energy policies and measures. Identifying and implementing such policies and measures can help in increasing investment and financing flows to energy efficiency and renewable energy projects.

Information Service  
United Nations Economic Commission for Europe

Palais des Nations  
CH - 1211 Geneva 10, Switzerland  
Telephone: +41(0)22 917 12 34  
E-mail: [unece\\_info@un.org](mailto:unece_info@un.org)  
Website: <http://www.unece.org>

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