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Best practices on how to increase the uptake of renewable energy

Policy dialogue addressing barriers to increase renewable energy uptake

Note by the secretariat

Summary

The ECE Renewable Energy Status Report 2017, prepared with the Renewable Energy Policy Network for the 21st Century (REN21), shows that the number of countries in South East and Eastern Europe, the Caucasus and Central Asia with renewable energy policies again increased by the end of 2016. Overall, the region continues to adopt new policy measures that help to remove barriers to develop renewable energy, attract investments, foster energy security, and increase the flexibility of power systems. Support policies for renewable energy and energy efficiency received increased attention during 2015 and 2016, due in part to the global pressure to mitigate global climate change following the December 2015 Paris climate agreement. All countries in the region have submitted Intended Nationally Determined Contributions (INDCs) to meet the climate change commitments, and 10 countries in the region have converted their INDCs into National Determined Contributions (NDCs). In addition, in line with the implementation of the 2030 Sustainable Development Agenda, most of them have established ambitious renewable energy targets.

Despite renewable energy targets continue to be a primary means for governments to express their commitment to renewable energy deployment, in reality the considered region, home to more than 300 million people, lags behind global developments both technically and financially despite significant untapped renewable energy resources.

The Group of Experts on Renewable Energy contributes with concrete activities implemented within the existing platform for a constructive policy dialogue and exchange of best practices and experiences to overcome barriers and take advantage of existing opportunities. In this direction, a specific activity is under implementation by the German Energy Agency (dena) which is presented within this document.

I. Key issues and barriers to increase renewable energy uptake

1. The United Nations Economic Commission for Europe (ECE) region, comprising 56 countries in the Northern hemisphere, is considered a promising region for the deployment of renewable energy technologies. The ECE Group of Experts on Renewable Energy (Group of Experts) was created in 2014 to focus on activities that help significantly increase the uptake of renewable energies and to achieve the objective of access to energy for all countries in the region.
2. In the region, the development stages of renewable energy deployment are very heterogeneous. The ECE region includes some of the leading renewable energy markets but also countries with very low levels of renewable energy deployment. This is true for the electricity as well as the heat sector. The costs of renewable energy technologies were decreasing over the last two decades which led to the emergence of new growth and future markets.
3. Even though many ECE member States have defined quantitative goals with regard to the reduction of greenhouse gases, in particular within the scope of the Paris agreement achieved at the 21st session of Conference of the Parties (COP21) to the UN Convention on Climate Change (UNFCCC), they still lag far behind when it comes to reaching these targets and overall goals within the agreed timeframe.
4. The ECE region comprises, on the one hand, countries with established renewable energy markets, offering a sound market environment, technology development and well-developed infrastructure for deploying renewable energies. On the other hand, other ECE member States provide the opportunity of picking the “low hanging fruit” of fairly unexploited renewable energy markets. In recent years, ECE member States have been characterized by increasing strategic planning in the area of renewable energy deployment, aiming at a transition within their national energy systems. However, in many ECE countries the inherent potential for renewable energy deployment is inhibited by a number of challenges. Barriers such as an inadequate state of legal and regulatory framework, distorted pricing of energy commodities due to prevailing energy subsidies, a lack of market liberalization, absence of public acceptance or poor knowledge about the application potential of renewable energy resources still hamper the uptake of renewable energy technologies in many member States.
5. The ECE region comprises a fairly developed renewable energy market with an installed renewable energy electricity capacity of 863 gigawatt (GW), accounting for almost half of the 1,829 GW worldwide installed renewable energy capacity. The majority of ECE member States have adopted renewable energy promotion schemes, specifically 51 member States in the electricity sector and 43 member States in the heat sector.
6. Generally, the complexity of implementing renewable energy promotion policies, both in the electricity and heat sector, is increasing. The primary policy objective of merely establishing and expanding renewable energy markets has evolved with the aim of achieving market-based and cost-efficient renewable energy deployment. Several challenges surround the implementation of renewable energy promotion schemes. On the one hand, policies need to be predictable, consistent and steady in the long term in order to create stable market conditions and planning security for all stakeholders, such as plant operators, investors and end consumers (Swisher and Porter, 2006). On the other hand, the effectiveness of renewable energy policies strongly depends on their applicability within the prevailing energy market structure and the given attributes of the key dimensions (political/regulatory, economic, social and technical) and factors of renewable energy deployment. Also, if several renewable energy promotion policies are combined, their reciprocal impact needs to be considered in order to avoid mutual obstructions.

II. Overview of renewable energy policies in South East and Eastern Europe, the Caucasus and Central Asia

A. Renewable energy policies in power sector

7. The ECE Renewable Energy Status Report 2017¹, issued during the Eighth International Forum on Energy for Sustainable Development, in Astana, Kazakhstan, June 2017, is jointly produced by ECE and REN21 to present analysis of up-to-date data and information on the status of renewable energy and energy efficiency development in 17 selected countries in the ECE region². As shown in the report, the total number of countries in the region with renewable energy policies again increased by the end of 2016.

8. Support policies for renewable energy and energy efficiency received increased attention during 2015 and 2016, due in part to the global pressure to mitigate global climate change in advance of and following the Paris climate agreement in 2015. All 17 countries in the report's region submitted their Intended Nationally Determined Contributions (INDCs) in preparation for the event. Up till July 14th 2017, ten countries covered in the report (Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Moldova, Tajikistan, Turkmenistan and Ukraine) have submitted their Nationally Determined Contributions (NDCs) as a step towards officially joining the Paris Agreement. Furthermore, National Renewable Energy Action Plans and obligations under the Energy Community continued to drive legislative changes in renewable energy in South East Europe.

9. In support of the 2030 Sustainable Development Agenda, targets for renewable energy continue to be a primary means for governments to express their commitment to renewable energy deployment worldwide. As of year-end 2016, only Georgia and Turkmenistan in the study did not develop renewable energy targets for capacity installed or for the participation of renewables in the energy and/or electricity mix. An overview of renewable energy targets in the 17 selected countries is provided in Annex I.

10. All countries, except for Turkmenistan, have strategic documents outlining their priorities for at least one renewable energy technology. The adoption of secondary legislation – detailing legal, regulatory and financial mechanisms and technical rules – is happening at a slower pace in Eastern Europe, the Caucasus and Central Asia than in South East Europe, partly driven by the desire of countries in the latter sub-region to fulfil their legal obligations under the Energy Community, in line with European Union's (EU) sustainability objectives.

11. Policy makers continued to focus mainly on renewable power generation technologies. As of year-end 2016, 13 countries had enacted feed-in tariffs, making this the most widely adopted regulatory mechanism to promote renewable power in the region. Moldova is the most recent country to approve a FIT programme, which will enter into force in 2017. In addition, six countries – Armenia, Belarus, Georgia, Moldova, Montenegro and Ukraine – enforce net metering or net billing programmes; Georgia and Moldova adopted their net metering policies in 2016. Besides, electric utility quotas and obligations have been adopted in four countries: Albania, Belarus, Montenegro and the Russian Federation.

¹ The report is available at: <https://www.unece.org/energy/welcome/areas-of-work/renewable-energy/unece-renewable-energy-status-report.html>

² The 17 considered countries are the following: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Montenegro, Russian Federation, Serbia, Tajikistan, The former Yugoslav Republic of Macedonia, Turkmenistan, Ukraine and Uzbekistan.

B. Renewable energy policies in heating and cooling, and transport sector

12. Policy support for renewable heating and cooling continues to lag behind support in the power sector. By the end of 2016, only Montenegro had a heating target, and Ukraine had an obligation for a 12.4% share of renewable energy in the heating and cooling sector by 2020.

13. Policies to stimulate renewable energy in the transport sector grew slightly in 2015; however, support remains far below other sectors. Armenia, Kazakhstan and Turkmenistan strengthened their co-operation in the framework of the United Nations Global Sustainable Transport Conference. Several countries have renewable energy targets for the transport sector, including Albania, the former Yugoslav Republic of Macedonia, Moldova, Montenegro, Serbia and Ukraine. Two countries – the former Yugoslav Republic of Macedonia and Montenegro – continue to work on legislation to address further support for renewable energy in transport.

C. Renewable energy policies in energy efficiency

14. All 17 countries in the region, except Turkmenistan, have enacted regulatory policies to advance energy efficiency, most commonly in the buildings sector (including lighting and appliances), followed by transport and industry. All countries except Georgia, Kyrgyzstan and Turkmenistan have established energy efficiency targets. To drive the efficiency improvements necessary to achieve these targets, governments are introducing new regulations or updating existing ones. Belarus and Ukraine both have approved National Action Plans for Energy Efficiency.

15. Eight countries (Albania, Belarus, Bosnia and Herzegovina, Kazakhstan, the former Yugoslav Republic of Macedonia, Montenegro, Serbia and Uzbekistan) are addressing efficiency in the buildings sector through long-term strategic plans and visions at the government level. Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Moldova, Montenegro and Serbia have targets for energy efficiency in buildings. Varying levels of energy performance requirements exist in all countries except Albania, Georgia and Turkmenistan. Auditing regulations are in force in Bosnia and Herzegovina, Kazakhstan, the former Yugoslav Republic of Macedonia, Moldova, Montenegro, Serbia and Uzbekistan. Kazakhstan, Moldova and Ukraine have energy performance contracting to support building retrofits based on energy savings.

16. Policies to support energy efficiency in lighting and appliance technologies continued to emerge throughout 2016. Serbia adopted a regulation enabling procurement of energy efficiency in municipal services, including street lighting. Policies related to incandescent lighting still lag in some of the countries. Despite global efforts to phase out incandescent bulbs, only Kazakhstan, the Russian Federation and Tajikistan have introduced relevant measures. Kyrgyzstan has adopted a system of standardisation and energy certification for lighting products produced for household domestic use.

17. Appliance standards and labelling continue to contribute to improving energy efficiency in buildings. Kazakhstan and Uzbekistan have in place comprehensive policies on energy efficiency standards and labelling. In South East Europe, labelling regulations are based on transposition of the EU's Directive 2010/30/EU on labelling of energy-related products.

D. Renewable energy policies for cross-cutting sectors

18. The region has the potential to leverage opportunities across several sectors (water, energy and food production) by developing its renewable energy potential, provided that adequate policies are in place. Overall, increasing the renewable energy share can reduce water requirements in power generation, where water is mainly used to cool the equipment; boost water security by improving accessibility, affordability and safety; and contribute to food security objectives.

III. Policy dialogue to increase renewable energy uptake – specific activities and support by the Deutsche Energie-Agentur - dena (German Energy Agency)

19. The Group of Experts aims at supporting renewable energy market development and the reduction of greenhouse gas emissions in the entire ECE region through various adequate measures. Practice-oriented policy dialogues between more mature markets and those who are still at an earlier stage in their renewable energy development are one specific tool that can contribute to achieving Group of Experts' objectives. In the medium run, the aim is to establish anchor countries that could become regional frontrunners and share their experiences of accelerating renewable energy deployment in their specific ECE region. Furthermore, the exchange of good practices on renewable energy development and uptake through workshops, roundtables and seminars all contribute to the overall goals of the Sustainable Energy for All initiative and the Sustainable Development Goals.

20. To support the work from the Group of Experts, the German Energy Agency (dena), based on funding of the Federal Ministry for Economic Affairs and Energy of Germany (BMWi), proposed the RE-UPTAKE project to support renewable energy expansion in countries with only limited market development by using the experience of countries with higher renewable energy share in their respective electricity, heating and mobility markets. More specifically, the aim of the RE-UPTAKE project is to address these challenges, and initiate and foster a constructive policy dialogue about good practices in accelerating renewable energy uptake in electricity and heat markets. The fact that renewable energy deployment is heterogeneous in the ECE region allows for an intense and fruitful exchange of experiences and measures for the deployment of renewable energies. Countries with a further developed renewable energy market can share their understanding and the trials they have been through with ECE member States that are looking for an increased uptake of renewable energies in their countries. Different dialogue formats, such as workshops or hard talks, allow for these challenges to be addressed in different multi-stakeholder settings, each adapted to a specific challenge in either the electricity or heat market.

21. The objective of the dena project is to set up an active dialogue between ECE member States that will allow them to exchange good practices beyond set formats. Key findings from analyses and these dialogues will be published, used to inform decision makers and ultimately be used to develop Group of Experts work program further. Since several challenges are based on economic factors, an emphasis in this project will be to bring business representatives to the table as well. This will allow for connecting the business and economic aspects with the political level.

22. In order to guarantee an integrated approach around policies, frameworks and know-how, workshops will bring together representatives from businesses and governments to facilitate a constructive exchange of measures that remove barriers around the uptake of renewable energies. The transfer of know-how and expertise as well as establishing an active

and direct line of communication amongst ECE member states will be one of the key aspects of these workshops.

23. In the first step, a detailed analysis will be conducted to identify the status of renewable energy deployment and relevant frameworks in all 56 ECE member states. This work will be based on the assessment of the renewable energy potential in South East Europe and Central Asia made by the International Renewable Energy Agency, the REN21 UNECE Renewable Energy Status Report 2017, the UNECE Regional Report of the Global Tracking Framework, and the Overview Report Status and Perspectives for Renewable Energy Development in the ECE Region prepared by dena. Based on these analyses, target countries for the exchange of good practices will be determined. These target countries will then be part of several measures that will foster knowledge transfer. The focus of the analyses will be to identify and cluster specific issues around the application of different renewable energy technologies for electricity and heat generation (including solar, wind, bioenergy and geothermal energy). This allows for pointing out technical and economic barriers, identifying and proposing priorities and possible solutions to overcome these barriers based on the experiences of other ECE member states.

24. Each cluster will have a balanced representation of countries, i.e. countries in these groups shall have both high and low levels of market development respectively. It is intended to include approximately 5 to 10 stakeholders per group. Cross-cutting issues in particular energy efficiency related measures shall be integrated, which is why a cooperation or exchange of information with the Group of Experts on Energy Efficiency is envisioned. Experiences and information from both the public and the private sector shall be integrated into the project.

25. As an overall result, an internal concept paper will highlight main barriers for market uptake as well as possible solutions on a policy level based on the experiences of ECE member countries. Short market descriptions and assumptions will then build the basis for two workshops and should encourage the debate on existing barriers as well as on best practice examples.

26. Based on the results from the analyses, two one-day workshops will be organised aimed at establishing a direct line of communication between countries with more advanced renewable energy markets and those with a relatively low share of renewable energies in their electricity and heat generation. One workshop will focus on electricity the other one will focus on heat. The two workshops will be accompanied by two discussion papers that will be published prior to the events and will serve as one of the basis of discussion. Both workshops will seek attendance of up to 40 representatives from businesses, politics and authorities with a particular focus on participants from the renewable energy sector. By bringing together business and government representatives actual experiences of developing renewable energy projects can be presented and various aspects of barriers for renewable energy deployment on an investment and policy level can be discussed.

27. Each workshop shall be organized with the aim (1) to point out barriers for the increased deployment of renewable energies and climate protection measures, and (2) to identify adequate solutions to overcome barriers such as best practices. The first part of each workshop will be on a political level and, in the second part, involve the input of the private sector.

28. Both workshops will be held alongside the 23rd session of the Conference of the Parties (COP 23) to the UN Convention on Climate Change (UNFCCC) in November in Bonn, Germany.

29. In addition to the workshops, two national “ECE Hard Talk” events will be organized in two selected target countries. This type of event aims at bringing together public and private sector stakeholders to lead an open and constructive dialogue on the renewable energy

business environment in a certain country. The Hard Talks will be organized by the Group of Experts in coordination with REN21 and other key actors.

30. The key findings of the initial analyses, the two workshops and the ECE Hard Talks will initially be presented in a 15 pages report. This report will be communicated via the Group of Experts and dena to ensure a bigger public outreach. The report will be translated into French and Russian at the beginning of 2018. These key findings will furthermore be used to formulate recommendations for ECE member States and feed into the development of Group of Experts' further work programme. The findings will furthermore be integrated into the update of dena's 2016 study on "Status and Perspectives for Renewable Energy Development in the ECE Region". All findings will be put into a broader context and be part of the enhanced policy recommendations in dena's study. The publication will be submitted by the end of November 2017 and the scheduled date of finalisation is the end of December 2017.

Annex

Overview of Renewable Energy Targets, by Country³

<i>Country</i>	<i>Sector/Technology</i>	<i>Target</i>
Albania	Energy	38% of gross final energy consumption by 2020
	Transport	10% biofuels in total fuel consumption in transport sector by 2020
Armenia	Small hydro	397 MW by 2025
	Wind	100 MW by 2025
	Solar PV	80 MW by 2025
	Geothermal	100 MW by 2025
	Geothermal heat pumps	25 GW by 2025
	Solar thermal	20 GW by 2025
Azerbaijan	Energy	9.7% of consumption by 2020 2,000 MW of installed capacity by 2020
	Electricity	20% of total consumption by 2020
	Wind	350 MW of new generation capacity
	Solar	50 MW of new generation capacity
	Bioenergy	20 MW of new generation capacity
	Belarus	Energy
Bosnia and Herzegovina	Energy	40% share of renewable energy sources in the gross final energy consumption by 2020
Georgia		None
Kazakhstan	Energy	3% alternative sources (solar and wind) in energy production by 2020
	Hydropower	539 MW at 41 hydroelectric power stations by 2020
	Wind	1,787 MW at 34 wind power stations by 2020
	Solar	713.5 MW at 28 solar electric plants by 2020
	Bioenergy	15.05 MW at 3 bioelectric stations by 2020
	Electricity	50% share of renewable energy in power generation by 2050
Kyrgyzstan	Energy	1.5% share of renewable energy in power generation by 2017
FYR of Macedonia	Energy	28% of gross final energy consumption by 2020
	Electricity	9% by 2020
	Heating and cooling	11% by 2020
	Transport	2% by 2020

³ Source: REN21 ECE Renewable Energy Status Report 2017

<i>Country</i>	<i>Sector/Technology</i>	<i>Target</i>
Moldova	Energy	20% by 2020
	Electricity	10% of final gross electricity consumption by 2020
	Heating and cooling	27% of gross final energy consumption by 2020
	Transport	10% biofuels in fuel consumption by 2020
Montenegro	Energy	33% of gross final consumption by 2020
	Electricity	51.4% by 2020
	Heating and cooling	38.2% by 2020
	Transport	10.2% by 2020
Russian Federation	Electricity	11,586 GWh by 2020
	Hydro	0.9 GW by 2020
	Wind	3.5 GW by 2020
	Solar PV	1.5 GW by 2020
Serbia	Energy	27% of gross final energy consumption by 2020
	Electricity	37% of gross final energy consumption by 2020
	Heating and cooling	30% of gross final energy consumption by 2020
	Transport	10% of gross final energy consumption by 2020
Tajikistan	Electricity	10% of the electricity balance
Turkmenistan		None
Ukraine	Energy	11% of the primary energy balance by 2020
	Electricity	11% of generation by 2020
	Heating and cooling	12.4% of gross final energy consumption by 2020
	Transport	10% (including electricity in transport) by 2020
Uzbekistan	Electricity	16% of total generation by 2030; 19% by 2050