

## BETTER POLICY BRIEF ON

# PROSPECTS FOR RES COOPERATION MECHANISMS BETWEEN THE WESTERN BALKAN COUNTRIES AND THE EU



“BETTER - Bringing Europe and Third countries closer together through renewable Energies” initiated in July 2012, under the support of Intelligent Energy Europe programme (<http://better-project.net>). The starting point is given through the cooperation mechanisms provided by the Renewable Energy Sources (RES) Directive, allowing Member States to achieve their 2020 RES targets in a more cost efficient way, and thereby including the possibility to cooperate with third countries. Thus, the core objective is to **assess, through case studies, stakeholders involvement and integrated analysis** to what extent cooperation with third countries can help Europe achieve its RES targets in 2020 and beyond, trigger the deployment of RES electricity projects in third countries and **create synergies and win-win circumstances** for all involved parties. BETTER carries out regional case studies in North Africa, Turkey and the West Balkans. This policy brief is a summary of the report D4.2: Future Prospects for Renewable Energy sources in the West Balkan countries (Tuerk et al., 2013) downloadable on the BETTER webpage.

## INTRODUCTION

The key elements of the energy infrastructure in the West Balkans were built in the 1960s and 1970s. This concentration in age and type of technology, combined with inadequate maintenance in the 1990s, is now creating serious technical and policy challenges (IEA, 2011). Some of these countries heavily rely on fossil fuels; others have a high hydro power share and thus strongly depend on hydrological conditions.



Figure 1: The Western Balkan Countries

The lack of cooperation between the countries causes reduced flexibility and thus leads to high costs for the maintenance of domestic energy supply. Significant differences across the region exist in terms of the level of energy import dependency, total primary energy supply, energy mix, and volumes of domestic energy production. The massive and complex subsidy systems in the region aim at transferring a significant proportion of fossil fuel costs to the states and impede a more diversified energy production mix, including Renewable Energy Sources (RES), such as hydro power, solar or wind (UNDP, 2011).

At the same time, countries have adopted renewable energy targets for 2020 under the Energy Community Treaty (ECT). The main objective of the ECT is the creation of a legal and economic framework that enables (EBRD, 2011):

- to attract investment in power generation and networks;
- to create an integrated energy market, allowing for cross-border energy trade and integration with the EU market;
- to enhance the security of supply;
- to improve the environmental characteristics of the regional energy sector;
- to enhance competition at regional level, exploiting economies of scale.

Countries under the ECT can make use of all cooperation mechanisms, provided in the RES Directive 2009/28/EC (EC, 2009). The national targets under the RES Directive and the ECT that used the same methodology for target setting have not been directly based on physical potentials but on existing renewable energy production and Gross Domestic Product (GDP). This has led to an unequal gap between national targets and (cost-efficient) potentials. The RES Directive therefore allows countries the use of cooperation mechanisms for reaching the national 2020 targets for renewable energy in a cost efficient manner. Countries with relatively expensive RES potentials can thereby meet their targets by purchasing RES shares from countries with relatively cheap RES potentials. (Statistical transfer, Joint projects between Member States (or with third countries), and Joint support schemes).

The opportunity for the West Balkan countries to make use of the cooperation mechanisms provides additional opportunities for cross border cooperation on renewables, not only among West Balkan countries, but also between West Balkan and other European countries.

Some of the Western Balkan countries include plans to make use of the cooperation mechanisms in their (draft) National Renewable Energy Action Plans (NREAPs).

An investigation of these opportunities for cooperation, an exchange with stakeholders and the consideration of modelling results will allow drawing clearer conclusions on cooperation potentials and business cases for the region. In this context, the BETTER project will assess together with policy makers, national governments and the private sector both in the

EU and the third countries opportunities to make use of the cooperation mechanism.

The aim of this policy brief is to present a first overview on the future prospects for RES cooperation mechanisms in the Western Balkan countries. This policy brief outlines possible renewable energy pathways for the Western Balkan countries up to 2020 and beyond, taking into account potentials and costs, 2020 RES targets, energy scenarios, grid expansion plans, as well as possible political, institutional, regulatory, economic and social framework conditions.

Apart from introduction, this document is structured along four sections.

- The current status in the Western Balkans is presented the following section.
- The third section includes a first assessment on the role of cooperation mechanisms.
- The fourth section provides a comprehensive synthesis of RES pathways for the entire region.
- Finally, the last section is summarizing the key issues that have arisen.

## CURRENT STATUS

### ENERGY PROFILE

Much of the energy infrastructure in the Western Balkans was damaged during the break-up of Yugoslavia in the 1990s. The rebuilding process has been long and difficult (IEA, 2011). Consequently, these countries have initiated energy reforms at a later stage than other European economies in transition.

Electricity systems in some parts of the region remain fragile (low system reliability and low efficiency impede economic recovery). The breakup of Yugoslavia has created a fragmentation of the former common energy system thus leading to large inefficiencies. While Yugoslavia was a net exporter of electricity, the region today is a net importer, is characterized by supply shortages, high import costs, economically expensive blackouts and load shedding in some of the countries (Energy Charter Secretariat, 2009).

The lack of cooperation in the energy sector between most of the countries is on-going till today. There is an urgent need for widespread rehabilitation and replacement of infrastructure (IEA, 2011). Significant differences across the region exist in terms of the level of energy import dependency, total primary energy supply, energy mix, and volumes of domestic energy production (IEA, 2011).

Figure 2 shows the differences in the energy mix among the Western Balkan countries. While

Albania relies almost entirely on hydro power and Kosovo\* almost entirely on lignite, the other countries have a mix of hydro and fossil fuel electricity generation. The energy mixes are the result of the split up of Yugoslavia (except for Albania) that had different sources of generation in the different parts of the country as part of a single energy system. While hydro electricity generation is constantly increasing, non-hydro renewables so far have only a marginal share in most of the countries, if any.

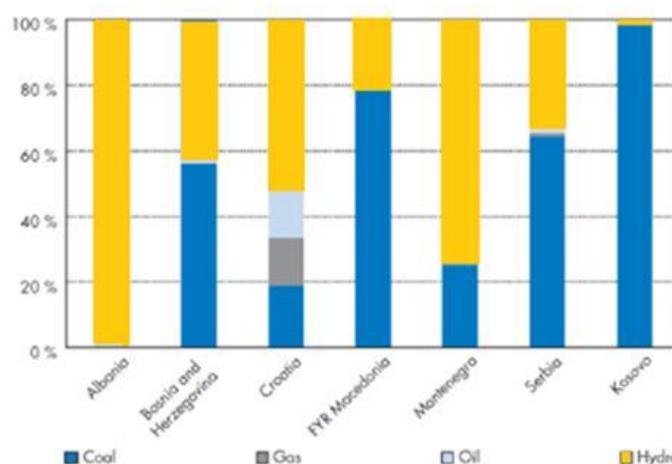


Figure 2: Electricity Generation Mix among the Western Balkan Countries (IEA, 2011)

### RES TARGETS

Under the ECT the Western Balkan countries are implementing the RES Directive and have adopted binding RES targets for 2020, which reflect the high RES potential of the region.

Furthermore the Western Balkan countries can make use of the cooperation mechanisms foreseen in the RES Directive. Table 1 shows the RES targets for the ECT parties (for the Contracting Parties the base year is 2009).

Table 1: Energy Community Party's 2020 RES Target (Energy Community)

Contracting Party	Share of RES in 2009 (%)	Target Share of RES in 2020 (%)
Albania	31.2	38
Bosnia and Herzegovina	34	40
Croatia	12.6	20
FYROM	21.9	28
Moldova	11.9	17
Montenegro	26.3	33
Serbia	21.2	27
Ukraine	5.5	11
Kosovo*	18.9	25

## RES COOPERATION MECHANISMS

Regarding cooperation mechanisms different conditions apply than for EU countries if they use the mechanisms with one or more EU Member States as counterpart. In particular, a statistical transfer from one or more contracting party(parties) to one or more EU Member State(s) or a joint support scheme between one or more contacting party(parties) and one or more an EU Member State(s) need the approval of the ministerial council of the Energy Community. In case of joint projects between EU Member States and Energy Community Treaty contracting parties the same rules apply as for other non EU-countries. A physical transfer of the involved electricity into the EU is required in order to count to-towards the target of a Member State.

## FEED-IN SYSTEMS IN THE REGION

All West Balkan countries -except Albania have feed-in systems also for non-hydro technologies.

As hydro is regarded as the most cost effective option, several countries put strict budgetary limits on other technologies. Limits on wind expansion are sometime argued by domestic network capacity constraints, such as in Macedonia, Serbia, or Croatia. The support budgets for solar electricity are often capped at very low level. The solar cost faces a dramatic drop and now the LCOE of solar energy is at the same level with coal and gas (Fraunhofer, 2013). Some countries of the region, however, such as Serbia and Albania, proposed to use revenues from the cooperation mechanisms for those technologies that cannot be easily expanded by domestic incentives; wind, solar and biomass power might be assisted in this way.

## OPPORTUNITIES FOR JOINT PROJECTS WITH EU COUNTRIES

The RES potentials available for the implementation of cooperation mechanisms do not match with the potential the countries can use by 2020 domestically. In several countries there are grid restrictions regarding RES integration and a lack of balancing capacity and financial means. These restrictions would not apply in the same form for electricity exports

(e.g. via dedicated transmission lines).

Countries could provide RES potentials for the cooperation mechanisms (for a certain period of time) that they cannot use domestically in the short and mid-term due to economic and technical constraints, as aimed for by Serbia, or Bosnia. Using these potentials for joint projects would not necessarily affect the target achievement.

Italy as high electricity price country is currently seen as possible partner for cooperation mechanisms within the EU and had concrete plans to implement them, however also other countries could be an option such as Greece, or Slovenia. While Greece stated its interest in cooperating with the Balkans in its NREAP, there are no concrete plans yet and possible cost advantages do not seem obvious to Greece even if good interconnections with FYROM and Albania exist (Papandreou et al., 2013). In addition, Slovenia may make use of the cooperation mechanisms in case it will not meet its target but has no concrete plans yet. The Western Balkans would be an obvious option for Slovenia to carry out joint projects.

### ALBANIA

Albania has high solar and wind potentials available for joint projects and the country has stated in its draft NREAP that is currently being revised by the new government) to make use of them. There were plans for an expansion of wind capacities in the country for an export to Italy via a new undersea cable from Albania to Italy that may be constructed after 2016, however the construction of large wind parks by Italian investors became a bit uncertain for the near future. The new undersea cable may put Albania also in the position of a transit country for electricity originating from FYROM and Bulgaria. Albania, however, could also export renewable electricity via an undersea cable from Montenegro to Italy that is planned to be constructed by 2015.

### BOSNIA AND HERZEGOVINA

The country has wind, solar and large hydro potential available for cooperation mechanisms and has plans for joint projects with Italy in the hydro sector at the Drina river (Karakosta et al.,

2012). However there is the risk of non-availability of a new 400 kV interconnection to the planned Montenegro-Italy corridor before 2020. The country however has a rather good grid connection to Croatia. On the other hand Bosnia and Herzegovina has the weakest political, regulatory and institutional framework in the region that may pose hurdles for the implementation of cooperation mechanisms.

#### CROATIA

Croatia has a high wind and solar potential. The country itself can use only part of the wind potential in the short term due to grid constraints. There are plans for an undersea cable between Croatia and Italy but it is unclear if and when it will be built. Croatia has good interconnections to Slovenia for electricity exports.

#### FYRO MACEDONIA

FYRO Macedonia has wind and solar potential that potentially could be used for joint projects. The interconnection to Italy via Albania may not be available before 2020. FYROM has a 400 kV interconnection to Greece, but there is possible lack of demand by Greece in the short and mid-term.

#### Kosovo\*

Since Kosovo\* plans to reach and surpass its national mandatory target through national measures for the production of energy from renewable sources, there is potential for the transfer of excess amounts above the indicative trajectory by means of the cooperation mechanisms, but at the moment this is not planned. Whether the country will surpass its 2020 RES target or will fail to meet it, will depend on the construction of a large hydro power plant. It is unclear whether Kosovo\* will be connected to the trans-regional electricity corridor towards Italy by 2020, however the country's transborder connection capacity is high.

#### MONTENEGRO

The country has possibly some export potential in the area of hydro and wind. The construction of the HVDC interconnection to Italy is scheduled for 2015 which makes this corridor the first one that can be expected to be available and maybe the only one that will be available before 2020.

#### SERBIA

Serbia has wind and solar potentials usable for Joint Projects and the Serbian NREAP states the country's interest in using them. With a Memorandum of Understanding (MoU) in place regarding joint projects in the hydro sector with Italy, it is the most advanced country in terms of bilateral cooperation. However, there may be a risk of non-availability of the new 400 kV interconnection from Serbia to the Montenegro-Italy corridor before 2020 possibly limiting large scale exports.

### RES PATHWAYS IN THE WESTERN BALKANS

The future energy pathways of the region will be influenced by Projects of Energy Community Interest (PECIs) in generation and transmission defined by the Energy Community. The aim is to enhance energy security, and in particular to establish a regional energy market with a sufficient balancing capacity for renewables. PECIs include also an increase of gas-fired plants in the region that will add to the balancing capacity and have less environmental impacts than lignite.

The most significant changes to the regional energy markets will be additional grid connections to the EU including two new undersea interconnection lines to Italy, one from Montenegro and one from Albania as well as the connection of Bosnia, Serbia, and FYROM to these new corridors. The new east west corridor will include significant pump storage capacities in Western Serbia enabling the provision of larger amounts of flexible electricity to the region but also for export to the EU. The timeframe for realizing the new electricity corridors is unclear. While they are planned to be realized in the upcoming years, some of them may face delays and may be implemented only after 2020

Export of electricity from renewables via dedicated lines to the EU could enable to expand renewables far beyond what the countries would be able to expand themselves, given current economic and network restrictions, and may enable earlier deployment of currently not cost-efficient technologies. The new transmission corridors will enable new business models for renewables including the use of Joint Projects, but also fossil fuel-based electricity generation may be stimulated that is cheaper in the Western Balkans than in the EU as the Western Balkans have so far no CO<sub>2</sub> targets and some of them significant domestic coal reserves. The demand of the EU for green energy is unclear and will depend on the EU's 2030 energy and climate framework.

The energy systems in the region currently face high inefficiencies and losses. Energy efficiency, including a far more efficient use of biomass, and reduced transmission losses as well as the implementation of small scale applications such as PV are therefore of high importance for the region and would put them in a better situation to export electricity. But also increased cooperation between the countries will be a key for them to meet their 2020 and future targets in a cost-efficient way. Here the use of the cooperation mechanisms could be a starting point for an (re) integration of energy systems in the region.

## CONCLUSIONS

The energy systems in the Western Balkan region face significant challenges in the upcoming years. All of the countries are contracting parties of the Energy Community but are in different stages of the EU accession process. In the post war context with inefficient, fragmented and monopolized energy systems and markets the Energy Community is the main driver of alignment with EU requirements in the energy sector.

All of the Western Balkan countries have accepted binding RES targets under the Energy Community Treaty for 2020 and the Energy Community is promoting market opening, liberalization and regional cooperation. The speed of change however is slow. The markets in

the region are far from being open and sufficiently attractive for investors. International Financing Institutions are needed to raise capital in the risky markets of the region. The regulatory frameworks are subject to continuous changes and the current market models lead to a lock-in of generation capacities by the incumbents that in practice are still government-owned quasi-monopolists.

While the looming EU accession of some of the countries in the region may reduce the political risks, it will be of critical importance to carry out reforms that enable energy sectors to function according to market principles and strengthen the frameworks for regionalization of the energy sectors in order to meet the 2020 targets.

Countries in the region have developed or are developing NREAPs, outlining their plans how to meet the 2020 targets set under the Energy Community Treaty. Up to 2020 countries are mainly planning to invest in the renewable energy technologies with which they have the most experience, in particular small and large hydro power. The possible use of the cooperation mechanisms is currently only in an initial stage, and it remains to be seen whether and to what extent they will be used between the Western Balkans and the EU by 2020. Here clarity regarding the 2030 RES targets will be needed in order for EU countries to engage in pilot activities by 2020. In a broader sense of increasing cooperation and integration in the European and Balkan market, even in absence of a 2030 RES target the Western Balkan may be an interesting region for Europe to import flexible power and to assist decarbonising the European energy systems. Opportunities of cooperation between the West Balkan countries are not sufficiently explored and need additional attention, the cooperation mechanisms could be a starting point to integrate the region's energy systems and to overcome the fragmentation of the last two decades. Finally, with the proliferation of cooperation, the Western Balkans could contribute significantly to the European decarbonisation with their high hydro, solar, wind, biomass, geothermal and hydro storage potential.

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