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Bringing Europe and Third countries closer together through renewable Energies

BETTER

Minutes of the Regional Workshop - Western Balkans

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This Workshop was part of the project BETTER ("Bringing Europe and Third countries closer together through renewable Energies (BETTER)", started in July 2012 and is carried out under the Intelligent Energy - Europe programme. (http://better-project.net/). BETTER intends to address Renewable Energy (RES) cooperation between the EU and its neighbour countries. The starting point is given through the cooperation mechanisms provided by the EU Renewable Energy Directive, allowing EU Member States to achieve their 2020 RES targets in a more cost efficient way, and thereby including the possibility to cooperate with non-EU countries. Aim of this workshop was to discuss **possible opportunities for cooperation between West Balkan countries and the EU** in the 2020 and emerging 2030 energy policy context, the required framework conditions, barriers and concrete next steps.
The Workshop built upon conclusions reached at previous related events, notably the Executive Strategy Workshop on Renewable Energy in South East Europe organised by IRENA in Abu Dhabi in December 2013 and the Workshop on South East Europe Energy and Power Grid Cooperation organised by the European Climate Foundation in March 2014 in Brussels.

Workshop presentations:
http://better-project.net/event/regional-workshop-western-balkans

MORNING SESSION: PROSPECTS FOR RES IN THE WEST BALKANS

Aim of this session was to provide results of the BETTER project derived so far and get feedback from stakeholders.

Natalia Caldes (CIEMAT, project coordinator) gave a presentation entitled "the BETTER project and its goals". She introduced the conceptual framework followed in the project that considers three levels of analysis:

- the macro level (model based, addressed to policy makers),
- the micro level (business cases, addressed to investors/financing institutions) and the
- acceptance level (socio-economic impacts, addressed to civil groups and the general public).

All three levels create conditions to implement the cooperation mechanisms: Macroeconomic and political interest creates a framework for financing and policy implementation. Business Environment determines business cases and project implementation. Acceptance & social willingness determine if crucial actors support or oppose a cooperation policy or project.

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Andreas Tuerk (Joanneum Research) gave an overview presentation entitled "From current Energy Systems, Renewable Energy Action Plans to the cooperation mechanisms" analysing the Western Balkans region's current energy mix and 2020 RES targets and RES expansion plans. He showed that the countries are mainly planning to invest in the technologies with which they already have experience with, mainly hydropower. A few countries have decided to invest in expansion of wind (which in several countries face grid restrictions by the Transmission System Operator, TSO) and or solar heat. Countries plan to only insignificantly implement photovoltaics (PV) by 2020 despite a huge potential in the region. The national targets under the RES Directive and the Energy Community Treaty that used the same methodology have not been based on physical potentials and cost optimums but rather on existing renewable energy production and GDP. This has led to gaps between national targets and (cost-effective) expansion of potentials. The RES Directive therefore allows countries the use of "cooperation mechanisms" for reaching the national 2020 targets for renewable energy in a cost-effective manner. Countries with relatively expensive RES potentials can thereby meet their targets by purchasing RES shares from countries with relatively cheap RES potentials.

The cooperation mechanisms provided in the RES Directive are:

- **Statistical transfer** of RES shares from a country with excess RES shares to a receiving country.
- **Joint projects** between EU member states (or with third countries) with transfer of RES shares from projects in the host country supported by the buyer country.
- **Joint support schemes** in which Member States agree on a joint policy framework to offer support for the expansion of renewable energy production.

Countries under the Energy Community treaty can make use of all three mechanisms. However, statistical transfers need the approval of the Ministerial Council of the Energy Community, and Joint projects with exports to the EU require the physical transfer of the involved electricity. Use of the cooperation mechanisms would involve foreign financial support and may thereby enhance the business case for renewable power in the region.

Some countries in the region have plans or preliminary ideas to make use of the cooperation mechanisms:

• Serbia plans to develop hydro capacity through joint project cooperation with Italy

• Bosnia plans a joint Hydro Project with Italy on the middle Drina river

• Kosovo* plans to sell RES shares via statistical transfer in case of overachievement of its target

• Albania mentioned in its draft NREAP possible exports of wind energy to Italy via cooperation mechanisms and to use revenues from statistical transfer for biomass projects

It was outlined in the presentation that the **EU 2030 energy and climate framework** is not yet decided. The European Commission's proposal is to implement a minimum EU-wide

binding RES target of 27%, as opposed to binding national Member States' RES targets for 2020. According to the European Commission's proposal a new governance structure will be put in place to ensure that the EU will meet a 2030 RES target. This governance structure will include a requirement on EU member states to develop national plans to define a cost-efficient path to a low-carbon economy best suited to their national circumstances and energy security, taking into account compatibility of this path with the common objectives of the EU. It is unclear which role the cooperation mechanism will play in the 2030 framework but in June 2014 the Council of the European Union emphasized that *regional cooperation between Member States in establishing and implementing national plans is essential to ensure market integration, a level playing field and improved cost efficiency of meeting common objectives*[1].

André Ortner (TU Vienna) presented **"Short-term and long-term model based perspectives for renewable energy in the West Balkans"** presenting preliminary results on the modelling and scenario definition relating to the perspectives for RES expansion and cooperation in the Western Balkans region. The model used was the Green-X model. He highlighted in particular results for Albania, BiH, Kosovo*, Montenegro, Serbia and FYROM for different support scenarios and compared the modelling results with the NREAP plans. He concluded that under BAU scenarios only Croatia will achieve RES target with current policies in place. Applying European average support levels the RES targets can be distinctly exceeded, offering opportunities for using cooperation mechanisms. In the long-run the majority of countries still have a remarkable remaining RES potential that can be exploited by applying average EU support levels. André Ortner also presented earlier modelling on cooperation among EU member countries that shows that some MS have a strong incentive for cooperation or even have to cooperate in order to reach their 2020 targets (e.g. Netherlands, France or Luxembourg) and that considerable benefits could arise from cooperation. However, long-run demand for RES cooperation significantly depends on future EU RES support levels.

Gerhard Totschnig (TU Vienna) gave a presentation entitled "Scenarios of the future West Balkan power system with a large share of RES - Investment needs in generation and grids" He presented the HiREPs model simulations aiming at analysing the feasibility of planned power system scenarios with higher renewable shares and the corresponding grid issues. The model had a high spatial resolution of 7km and used hourly data from 2005-2014.

In the currently planned joint projects between Serbia and Italy all electricity would be exported to Italy. The RES directive, however, states that part of the electricity should remain in the host country. This would not only lead to increased availability of energy in the host country but also to a contribution in reducing greenhouse gas emission and other co-benefits. **Dorian Frieden (Joanneum Research)** and **Mak Mak Đukan (Joanneum Research)** therefore presented a bottom-up economic assessment of Joint Projects looking at the sharing of potential projects between the host country and a potential importer country. Based on cost-related potentials for, in particular, wind power in the Western Balkan countries, JR calculated potential rates of return (IRR) under domestic support systems as well as (higher price) exports. Depending on the costs of the potential and the level of the domestic support, installations may become profitable either under the domestic support only, or under a cooperation case involving an export of part of the electricity and receiving a foreign

[1] http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/143478.pdf

production support. Such export shares are “optimized” in order to trigger investments but keeping a maximum of the production in the host country. Subsequently, the overall capacity and electricity production for both domestic consumption as well as export can be estimated. It needs to be taken into account that the results are highly sensitive to the economic assumptions such as the IRR threshold. Different investors have different expectations on IRR. The presenters however showed that export can increase the profitability of renewable energy projects and at the same time increase the domestic supply of renewable energy which can potentially help to achieve targets. The presenters, however, acknowledged that the achievement of renewable energy targets in the host countries should by no means be threatened by export models. Where domestic support is not sufficient or not available, export agreements may help both the exporter and importer to obtain renewable electricity at a lower price as compared to an increase of the domestic support. When the support within the country is relatively high, exports get less attractive. These differences between support levels became apparent by comparing results for Albania (no wind feed-in tariff) and strong RES support schemes such as in Serbia.

Zoran Kordic (UNDP) and Natalia Caldes gave a presentation on environmental and socio-economic impact assessment of RES cooperation. Zoran elaborated on scenarios where part of the technologies are produced domestically, the associated job creation, capital expenditure and (economic) stimulation associated to future RES deployment. He showed that, comparing to business as usual scenario, cooperation on renewable energy has the potential to create at least twice as many jobs in the renewable energy sector (with higher share of domestic components this number would be even higher) with three times more economic stimulation through investments. He highlighted the example of Serbia, concluding that trading renewable energy can create 6,000 jobs annually and achieve 5 billion euro of total economic activity. Finally, Natalia Caldes analysed the environmental impacts of RES cooperation. A Life Cycle Analysis was used to calculate the environmental effects of different technologies and the environmental impacts of RES technologies compared to lignite were presented: In average, lignite generates at least twice as much environmental impacts than renewable technologies. Main messages include the need for additional policy measures to capture the largest share of socio-economic benefits (job creation, economic stimulation, technology transfer, etc) and the importance of social and environmental safeguards to ensure low environmental impacts and avoid negative social impacts from large scale RES deployment.

Ilija Batas Bjelic (University of Belgrade) discussed the cooperation options in the area of flexible energy. He emphasized that the operation of moderators (e.g. pump hydro storage power plant) could be increased through region-based moderation and coordination and therefore the value of marginal moderation costs could be decreased. There are problems of closed national electricity systems in the Western Balkans to accept higher variable RES penetrations due to a lack of flexible energy. The West Balkan countries are not used to look at an overall best solution for transnational watercourse(s) and/or balance groups. Through integration of energy systems of individual countries to a single market, efficiency of the energy system can be significantly increased which can result in cost reduction and higher RES penetration.

MORNING SESSION'S DISCUSSION: HOW ARE THE OPPORTUNITIES FOR RES COOPERATION WITHIN THE REGION AND WITH THE EU SEEN BY DIFFERENT ACTORS?

The discussion focused on possible driving forces for use of the cooperation mechanisms in the region.

Gabriela Cretu (Energy Community) started the discussion by stating that the problem is how to deal with private investors in the region. She outlined the barriers that prevent investors from seeing the region as attractive (such as permitting, authorization, grid connection). She stated that there is a need to have a more coordinated approach related to grid access permit and balancing responsibilities. Moreover, she suggested that RES producers should manage the wind prediction for which there are a lot of good examples (REE in Spain). Gabriela underlined that there are a lot of challenges in the region, but the potential is high to achieve the targets. She emphasised that West Balkan countries must meet their target and other commitments first before considering exporting to the EU. One hurdle that prevents WB countries from using statistical transfer is the low quality of the statistical data, mostly at consumption level, especially for households' heat consumption. She also indicated that the "demand side" (from EU side, if EU as a whole will be short of achieving the 20% in 2020) is as important as the "supply side", possibly from Energy Community.

Wolfgang Eichhammer (Fraunhofer Institute) stressed that we have to look not to 2020 but towards 2030. He proposed to approach cooperation in three stages in order to start at a scale with cooperation which represents limited risks although the third stage provides the largest rewards:

Small pilots, no need for the grid strengthening and extension

- Larger pilots: 100MW, need for a grid expansion
- Very big projects, need for a broad regional cooperation. Examples for such projects would be another Djerdap 3 project.

In the discussion it was also mentioned that not only renewable electricity should be discussed under the cooperation mechanisms but that also heat is of high importance given that it is currently generated very inefficiently in the region. *Dejan Stojadinovic (Serbian Energy consultant)* highlighted that the EU integration process may be a more important driver for cooperation than a bottom up process.

It was also discussed whether utilities are aware of the opportunities to expand RES and whether they believe that RES resources are cost effective. A possible lack of information, scepticism or cost biased information was suggested.

AFTERNOON SESSION: COOPERATING TO EXPAND RE MARKETS IN SEE

Aim of the afternoon session was to first give a broader overview of issues related to RES market development in the West Balkans as well as energy security issues related to South East Europe. Further a potential opening of RES support schemes to other countries in the EU was discussed based on the Netherlands as example. Afterwards, some possible conclusions on the role of cooperation mechanism were presented as basis for the subsequent discussion.

Jeffrey Skeer (IRENA) summarized the outcomes of the conference in Abu Dhabi last December. Following this, the regulatory and market barriers of South East Europe were presented. Some of the barriers that were mentioned include:

- opening of electricity markets, that has been slow,
- that national markets are dominated by incumbent utilities,
- the needed opening to independent power producers (IPPs) as extra vectors of change,
- that aging infrastructure can‘t easily absorb variable energy,
- that investment is needed to refurbish/ enlarge the grid,
- that operating experience with variable renewables is limited and that training programs needed to build human capacities.

Also administrative and institutional barriers make it costly and time-consuming to put RES investments in place and procedures need to be simplified and harmonized.

Julian Popov (European Climate Foundation) analysed energy security issues related to energy cooperation for the case of South East Europe. Julian stated that South East Europe is currently not developed as functional electricity corridor but this could change allowing the potential of the region to be exploited. It is difficult to predict today what the balance between an electricity superhighway model and a highly distributed power model we will see in the region. One of the biggest power generation potentials in the region is in hydropower, which, according to Deutsche Bank research has been developed only 40%.

Julian stressed the strategic importance of South East Europe for European energy and climate policy. South East Europe currently is politically defined as the Southern Gas Corridor that should secure a route for non-Russian gas supply into the EU. This view does not reflect the significant energy potential of the region and the role it could play in the decarbonisation of the European energy sector. There is need for a new debate on South East Europe to unlock its low carbon energy security potential and its catalytic role for the decarbonisation and strengthening of the security of the European energy sector. South East Europe could play a key role in the redefinition of the concept of energy security on a regional, wider European and global level. The four key obstacles for this to happen are (a) the external political pressure (Russia), (b) corporative interests in increasing fossil fuel use, (c) high political fragmentation of the region and (d) the misguiding external political framework (EU and US). Focussing mainly on the gas transit role of SEE could also bring significant risks to investment in underutilised energy assets.

Karina Veum (ECN) made a presentation entitled **“Opening the Dutch support scheme - A model for Joint Projects?**”. In general there is a pressure by the European Commission

towards an "Europeanisation" of RES support schemes. The Dutch government is looking into a possible joint project mechanisms as the country may not meet its 2020 RES target. Opening the domestic support schemes for installations abroad could be one form of making use of the cooperation mechanisms and several EU member states are investigating it.[2] This concept differs from bilateral agreements on specific plants such as the potential joint hydro power project between Serbia and Italy. The Netherlands introduced in 2011 a feed-in premium under the SDE+ scheme (SDE stands for Sustainable Energy Incentive). The SDE includes renewable based electricity & heat, bio-CHP and biogas/green gas. There is a generic budget ceiling. Subsidies are awarded in phases, based on tendering on first-come-first-serve basis within each tendering phase. A Memorandum of Understanding (MoU) could be the starting point of a joint project collaboration, such as the one initiated between Ireland and the UK that plan a joint project cooperation on wind built in Ireland. It may introduce new technology-specific SDE+ categories for subsidizing projects abroad. An initial focus could be on RES electricity joint projects without physical transfer. Karina Veum addressed risks and challenges of a Dutch initiated joint project. This includes the risk of over/under-subsidizing projects abroad which depends particularly on yearly fluctuations of electricity prices.

Afterwards, **Andreas Tuerk (JR)** analysed the **options for RES cooperation mechanisms in WB countries** making comparisons among the countries of the region further investigating the future implementation of joint project with EU Member states. Andreas stressed the importance of energy efficiency as the RES targets are relative targets (percentage of RES consumption on the final energy consumption). All model based assessments previously presented assumed that energy efficiency pathways will be met. For example, if Serbia missed the energy efficiency pathway by 20% in 2020, it would require additional 5000 GWhs RES production for target achievement. Andreas Tuerk highlighted the different strengths of the countries in the region for cooperating with the EU. Macedonia is best suited for expanding and exporting solar electricity, Albania and Croatia for wind energy, Bosnia and Herzegovina for hydro power and Serbia for balancing the systems with its large pump storage capacities.

AFTERNOON SESSION' DISCUSSION:

Jeffrey Skeer (IRENA) posed the questions:

- Are there enough low cost resources in the region to develop joint projects?
- Where can an investor channel money? Where are the potentials and which technologies?

Dejan Stojadinovic (Serbian Energy consultant) argued that the 1000 MW cable from Montenegro to Italy will only be built if there is sufficient electricity to be exported and make it a business case. Serbia has significant hydro storage capacity, such as the Djerdap 3 (Iron Gate 3) project which was not included in the PECI projects list. The Iron Gate 3

[2] Note: Germany on the 9.7.2014 agreed with the European Commission as part of its revision of its RES-support scheme to open up its scheme limited to 200 MW foreign capacity after 2017, and carrying out pilot tenders in 2015 and 2016 for photovoltaics, with up to 5% of the budget for foreign installations.

project could support a substantial development of wind and solar power in the West Balkan region. Overall Serbia could provide the whole WB with flexible energy.

Grid constraints in the region to absorb renewable electricity were also discussed. For instance it was mentioned that the Macedonian grid can only support 107 MW of wind energy. Serbia can currently integrate not more than 1000 MW of intermittent capacity (its current grid is 7.5 GW). Upgrading the grid to 2000 MW intermittent capacity would be a 1 billion EUR project. In line with this there is a need for a grid capacity study for the region – as Jeffrey Skeer mentioned. In the Balkans however there is a lack of cooperation: before the Yugoslavia war there was one country that was under central control. But the current Russia-Ukraine crisis could lead to more cooperation in the region, Julian Popov stated.

Gabriela Cretu (Energy Community Secretariat) notes that the IFIs have been restrained in investing because of lack of project developers with expertise in the area and in region or bankable power purchase agreements, despite the good values of adopted FiTs. At the same time, public utilities are incumbents in the market, they can attract financing butand the capital does not have same level playing field with an IPP greenfield project. Gabriela argues that the PECI projects are the backbone of meeting sustainable energy supply while other small renewable energy projects (solar PV, wind, biomass) could only contribute further on to 2020 RES targets and beyond. A priority in meeting the sustainability objectives is also the refurbishment of old TPPs according to environmental standards.

She also mentioned that now that the FiTs have been set in the region, the largest remaining hurdles are administrative barriers, such as problems with authorisation and getting permits. One example is a project in Serbia where the construction permit was issued and then withdrawn, which pushes off investors.

PANEL DISCUSSION: ASSESSMENT OF RES COOPERATION IN REGION AND WITH THE EU – OPPORTUNITIES, BARRIERS AND NEXT STEPS

A panel with Mihailo Mihailovic (Electric Power industry of Serbia), Gabriela Cretu (Energy Community) Jeffrey Skeer (IRENA) and Julian Popov (European Climate Foundation) discussed the framework and next steps for cooperation as well as the broader framework to expand RES in the region. The discussion showed that in particular the lack of regional thinking and cooperation, a lack of market opening as well as partly wrong perceptions of costs of fossil versus renewable energy generation is limiting RES expansion in the region.

While the important role of unused pump storage capacities in the West Balkans was highlighted several times during the workshop, Mihailo Mihailović said that there is high uncertainty about the economic feasibility of pump storage. He questioned the economic feasibility of new pump storage plants in Serbia. On regional cooperation he mentioned that a major bottleneck is that institutions are stuck in an old (now mostly national) thinking and that no one feels responsible for example for security of supply. It is therefore key that the operational systems of the WB countries becomes more unified. While Yugoslavia was an exporter of electricity, currently most countries are importers. Mihailo raised the question of who is responsible for cooperation, for ancillary services or balancing and in general for regional technical issues.

Gabriela Cretu argued that regional market for balancing energy could trigger competition among incumbents at larger regional scale based on disclosed price would be preferable to fixed, administratively regulated national balancing fees. The question whether decentralized projects could become PECIs was raised and Gabriela answered that PECIs were supported by governments and selected based on impact at regional level, security of supply consideration and sustainability objectives by 2020. This project list was needed to remedy the market failures to finance these capacities under normal market conditions. However also decentralized project would be needed. And furthermore, it is not unlikely that large HPPs that have been on the PECI list are not ready in 2020. Regarding the cooperation mechanism, Gabriela stated that the currently discussed opening of EU RES support schemes to foreign installations may be another way to enter into cooperation with EU member states.

Julian Popov said the region is in a “prisoners dilemma”, it suffers an isolated thinking not embedded in a regional context. Julian stated that currently there is no free market for electricity in the WB region, as electricity was long regarded a social good, resulting in unrealistically low prices for electricity through subsidies for fossil fuel and nuclear. The electricity market is slowly opening, as customers can now choose between suppliers and slowly new suppliers enter the market, but more is needed. The expected levelised cost of electricity for the new coal PP in Kosovo* is the same level or higher than the lowest feed in tariff for solar energy in the region (above 80€). Solar could be produced at same cost or below. Gabriela added that the impact of renewable energy development on the energy prices in the Energy Community member states is high on the agenda, as increasing prices resulting from a more open market might severely affect vulnerable groups , if social schemes are not set up to protect them. The lack of implemented social schemes is one of the reasons why the electricity prices to households are still kept lower than it should be. Nevertheless, in the current cases, the subsidies are given to the ones who can afford to pay electricity market prices and not to the vulnerable ones. It needs to come to an end with this distortion.

Regarding the limited use of solar energy in the region Edo Jerkic, a Croatian energy consultant, said that the incumbent in Croatia is not interested in allowing thousands of decentralized PV systems. In general the countries in the region plan to implement large renewable power plants and have put little emphasis on small and decentralized electricity production. The important role of decentralized production was highlighted and energy cooperatives were mentioned as one possible way forward.

WORKSHOP CONCLUSIONS

The Workshop revealed several issues and steps that are important for a higher RES penetration as well as cooperation in the region and with the EU. **Regional cooperation on the increase use of renewable energy is one of the prerequisite for cost efficient RES expansion and energy security in the region.** A better and coordinated use of existing and new infrastructure therefore would put the region in a better situation to export electricity to the EU. But also flexible and decentralized solutions are needed for achieving low carbon energy systems in the region the workshop concluded. A better understanding of the importance of South East Europe for European energy and climate policy would lead to a faster integration of EU and West Balkans energy systems unlocking the regions’ potential to contribute to energy security decarbonisation of the European energy sector. The

Workshop showed that some of the West Balkan countries still have a high remaining RES potential beyond 2020 target achievement. The workshop identified opportunities of use of cooperation mechanisms between the West Balkan countries and with the EU that are not sufficiently explored in the region. A major bottleneck for cooperation is that institutions are stuck in national thinking and based on incumbent utilities model. The cooperation mechanisms however could be a starting point to integrate the region's energy systems and may be one of the avenues to overcome the fragmentation of the last two decades.

More specifically the Workshop identified the need for

- Least cost development of renewable energy considering the renewable energy potentials in the region, the binding commitments to 2020 and perspective to 2030.
- Better regional use of storage capacity in a regional balancing model of existing and planned hydropower facilities as well as regional cooperation. While Serbia has more potential storage capacities than needed, other countries in the region such as Macedonia or Croatia are lacking these capacities. A corresponding study would be of importance.
- Greater regional coordination of RES projects and power grid operations to make them more flexible.
- Enhancement of demand response for balancing generation with load and greater operating flexibility in the fossil fuelled component of the generating mix.
- Strengthening of the transmission grid to boost its capacity and make it more flexible.

Several other suggestions for cooperation pertained to elaboration of mechanisms for improved functioning of energy markets to allow and encourage investment in renewable power sources are:

- Electricity market opening to independent power producers on an equitable basis.
- Better information on the real costs of fossil and renewable generation options.
- Valuation of storage technology on the grid to encourage investment in it.
- Creation of a regional market for ancillary services like voltage control and frequency support.
- Creation of energy cooperatives to supply and use renewable power on a distributed basis.
- Removal of non-tariff barriers, such as administrative issues with permits and authorization.