Roadmap to a Decarbonised Electricity Sector in South East Europe and in Bulgaria

Briefing Note, Sofia, March 2018

Scenarios for Unlocking the Renewable Energy Potential of South East Europe

The European Union (EU) has inextricably linked its climate mitigation policy to its energy policy. The European Commission addressed climate and energy jointly first via the so-called *2020 Climate and Energy Package* proposed in 2008. This was followed by the *2030 Climate and Energy Framework*, and more recently by the new package of proposed rules for a consumer centred clean energy transition, referred to as *Clean Energy for all Europeans*. The EU has repeatedly stated it aims to reduce its emissions by 80-95% by 2050 compared to 1990, in order to contribute to keeping global average temperature rise below 2°C compared with pre-industrial levels.

The region of Southeast Europe has remained the least energy and climate integrated with the EU policies although all its countries have either already joined or have expressed their desire to join the EU in the near future. The region's administrations are some of the least knowledgeable and prepared to lead an EU driven climate and energy transition. The lowest incomes in Europe and a population enduring some of the highest levels of energy poverty make the region the most challenging testbed for the introduction of the EU's energy and climate policies. Based on data and modelling used by the European Commission, a European consortium of 14 partners has developed the South East Europe Roadmap (SEERMAP),[1] which comprises three scenarios for the decarbonisation of the electricity sector until 2050 of 9 countries in South East Europe: Albania, Bosnia and Herzegovina, Kosovo, former Yugoslav Republic of Macedonia (Macedonia), Montenegro and Serbia (Western Balkans/WB6) and Bulgaria, Greece and Romania (EU3):

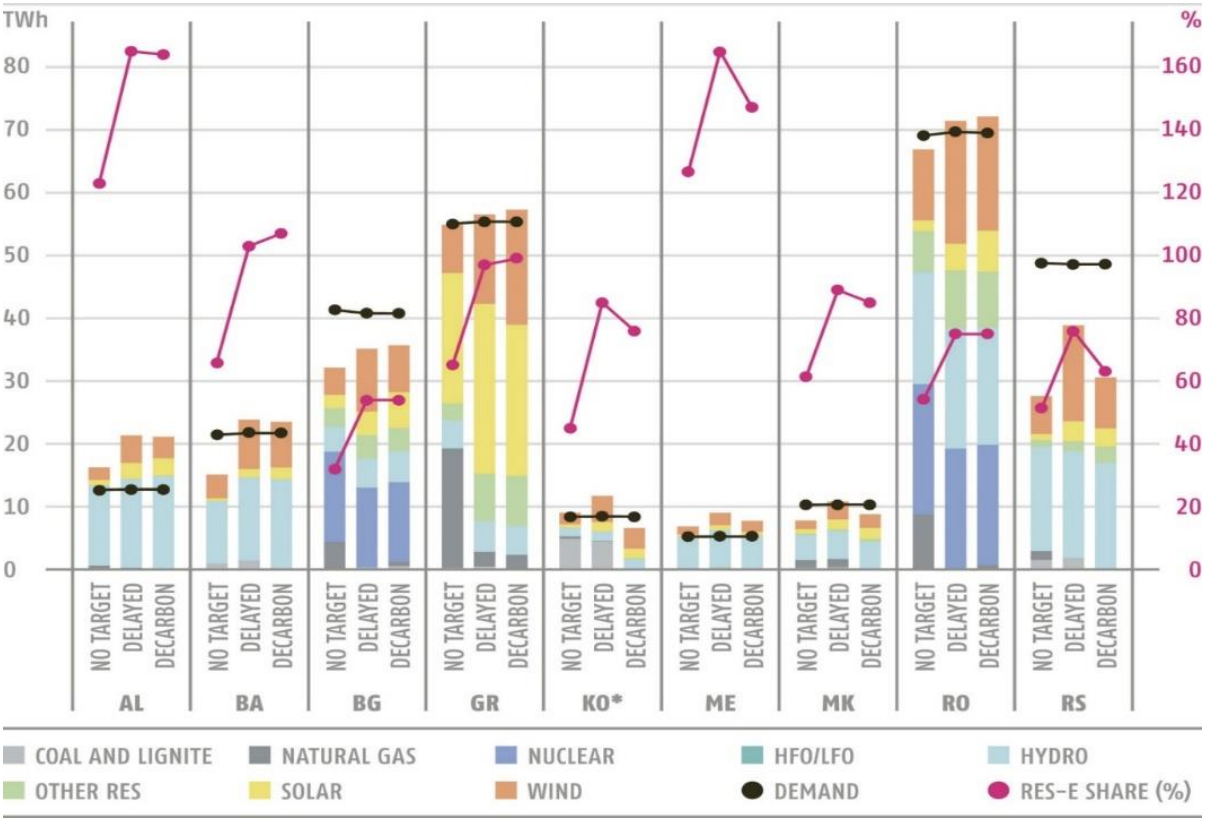
- **DECARBON**: the lead scenario, in which SEE governments settle for an ambitious decarbonisation;
- **DELAYED**: the scenario, in which SEE governments embrace decarbonisation only later on;
- **NO TARGET**: the scenario, in which SEE governments do not set any goals for decarbonisation.

SEERMAP shows that for the ambitious EU decarbonisation targets to be achieved, the countries would need to replace more than 30% of their current fossil fuel generation capacity by the end of 2030, and more than 95% by 2050. According to the model, this will happen on the back of rising carbon emission price, which will drive fossil-fuel based generation out of the power market. This provides SEE policy leaders with a challenge in terms of the need to ensure a framework, which will incentivise the needed new investments, and an opportunity to shape the electricity sector over the long term in-line with a broader energy transition strategy unconstrained by the current generation portfolio.

[1] Led by the Hungarian-based Regional Centre for Energy Policy Research (REKK) and the Technical University (TU) in Vienna, the consortium includes 9 local partners among which the Canter for the Study of Democracy.

Under scenarios with an ambitious decarbonisation target and corresponding renewable energy sources (RES) support schemes, the region will have an electricity mix with around 83% renewable generation, mostly hydro and wind, and a significant share of solar by 2050. If renewable subsidies are phased out and no CO_2 emission target is set, as assumed in the 'no target' scenario, the share of RES in electricity consumption will reach approximately 58% in 2050, a significant increase on current levels. From a policy perspective, the main challenge in the SEE region in the coming years is to ensure sufficient replacement of aging power plants within increasingly liberalised markets, while at the same time ensuring affordability, security of supply and a significant reduction of greenhouse gas emissions.

Figure 1. The Three Scenarios of the South East Europe Electricity Roadmap



Source: SEERMAP Regional Report

Delayed action on renewables has two distinct disadvantages compared to an ambitious long term planned RES support. First, it results in stranded fossil-based power generation assets, including currently planned power plants. Second, it will require disproportionately higher (and probably costlier) effort for RES support between 2040 and 2050 in order to meet the EU CO_2 emissions target.

Decarbonisation will require a significant increase in investment needs in SEE from about EUR 83 billion to EUR 128 billion over the 35-year period under the various scenarios. The increased investment needs are balanced by reduced electricity and fuel imports resulting in a positive though small effect on the fiscal balance and current account. The scenarios with an ambitious decarbonisation target exhibit higher GDP growth as well as higher employment levels.

Policy makers need to address the trade-offs which characterise fossil fuel investments. In particular stranded costs related to coal, lignite and natural gas generation assets need to be weighed against any short-term benefits that such investments may provide, such as in the case of natural gas, which can temporarily bridge the transition from coal to renewables.

Decentralisation: the next step in unlocking Bulgaria's RES potential

Bulgaria is on track to reach its renewable energy target for 2020. The 2016 share of renewable energy sources in the gross final energy consumption stands at 18.8%, above the 16% target. Even if Bulgaria is over-achieving its RES-goal for 2020, there are some frustrating details. Investments in large RES projects practically stopped after 2012 (with the exception of some biomass plants) and the statistics show that a large part of the RES in the final energy consumption comes from biomass, burnt by households. The development of small RES, close to the consumers, has not taken off and, without proper incentives, it will not improve. Reaching the 94% EU decarbonisation target would require Bulgaria to commit to a much deeper policy intervention that would significantly shift the balance of the electricity mix away from fossil fuels and centralised electricity systems towards prosumers.

The high penetration of RES in all scenarios suggests that policy should focus on enabling RES integration; this involves investing in transmission and distribution networks, enabling demand side management and RES generation through a combination of technical solutions and appropriate regulatory incentives. Policy-makers need to address the gap in distribution network investment, which is crucial to the expansion of the decentralised RES-based power production. There is also the need to eliminate burdensome administrative and regulatory procedures stopping the widespread implementation of decentralized RES-based power generation capacity. Bulgaria has so far failed to unlock its decentralized power generation potential of at least 5 GW or around 40% of the current installed power generation capacity in the country due to persistent governance deficits related to the issuing of permits, the connection to the District System Operators (DSO)s' grids and the allocation of subsidized feed-in tariffs.

One of the overarching legal challenges hampering power decentralization in Bulgaria is that the laws do not distinguish between small and large RES producers, thus giving advantage to multi-million investments in utility-scale RES capacities at the expense of energy democratisation. There are no specific provisions in the national legislation for prosumers or energy cooperatives. Projects built on arable land even have an advantage, as they do not have to fulfil some of the administrative procedures related to the modification of existing buildings when rooftop projects are implemented. In addition to the administrative and legal factors, hindering small RES development, one could add the general macroeconomic environment. The economics of small RES investments is negatively affected by the existing cross-subsidies in the regulated electricity sector, which still make consumption from the grid way more attractive than the investment in own generation.

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The SEE countries and Bulgaria have exited the protracted low growth – low employment phase following the 2008 - 2010 economic recession. Political leaders should use wisely the resumption of more buoyant growth to make the next steps towards democratizing electricity generation and consumption, as well as weaning their energy poor economies further away from fossil fuel dependence. They should make use of the available EU experience and policy competence but would need to stand up to powerful lobbies and the consumer fears of rising prices.