

CO-GENERATION THROUGH THE LENSES OF THE INTERNATIONAL ENERGY AGENCY – BOLD BUT ACHIEVABLE POLICIES

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Faced with numerous challenges in reaching the EU driven targets of improved energy efficiency and increased renewables share, the Western Balkan countries are still dealing with some basic issues as energy planning, reliable energy data, human resources and finances. Considering advanced technologies for energy conservation and planning strong implementation measures in the energy programs and strategies seems not to be a practice in the region. Located not very far from the Balkan region, in Paris, in the headquarters of the International Energy Agency (IEA), is taking place some of the most advanced study preparation in the energy domain. One area on which IEA has put great emphasis in the last few years is co-generation. Over the period 2008-2011 IEA has published three studies on the topic: the first one is called [Combined Heat and Power](#), the second [Co-generation and District Energy](#) and the newest one [Co-generation and Renewables](#). These studies offer policy recommendations which can be considered as valuable input for tackling the current Western Balkan countries' issues with energy saving targets. The studies contain also very concrete examples and although they advocate for advanced policies and technologies, are in no case an unchecked theory. The given examples are success stories that have proved to work and have given

good results in the area in a certain country. Therefore, these studies have to be well analyzed as they contain useful information for reaching energy and climate goals.

To begin with, it is important to clarify the key notions. Combined heat and power (CHP) or co-generation represents a simultaneous utilization of heat and power from a single fuel or energy source. As fuel it can use natural gas, fossil fuels, biomass and other sources. Its application is found in the industry, district heating and the buildings sector (residential sector, public and commercial buildings). CHP plants are highly energy efficient and use the heat produced from electricity production, which is usually wasted. IEA states that CHP plants generally convert 75-80% of the fuel source into useful energy; that they reduce network losses since they are located near the end user; enable reduced reliance on imported fossil fuels; and make use of the local energy resources. Thus, CHP projects are well applicable for implementation at local level. CHP plants usually supply their heat to the district heating, or are part of it. Having all these strengths, CHP plants have significant role to play in reducing greenhouse gases emissions.

IEA discovers that only few countries have managed to significantly expand the use of CHP; the key to their success was a focused government policy on electricity and heat



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supply. Furthermore, IEA has listed the most relevant policies that have proved to address the barriers inter alia co-generation is facing: financial and fiscal support; local infrastructure and heat planning; emissions trading; capacity building programs etc., as well as present-ed real best examples. One of the best practice example in the use of financial support for CHP comes from the USA where annual CHP installations in New York City tripled after subsidies became available in 2001 supported by high electricity prices. Successful example in the area of local planning is evident in Germany where the Renewable Heat Law from 2009 obliged building developers to use renewable technologies or CHP for heating in new buildings. The CHP success in Denmark is due to a package of strategies that evolved after the First Heat Supply Law from 1979. The law obliged municipalities to implement studies on the potential of district heating in their jurisdictions. As a result, some planning regulations and financial incentives were prepared such as ban on electric heating, obligation to connect or remain connected to district heating, feed-in tariff for CHP electricity with a bonus for biomass and biogas CHP and similar. The results from the incentives were that Denmark became a world leader in CHP and achieved energy self sufficiency in 1997.

Based on evidence from many countries, IEA states that co-generation however does not need substantial financial incentives, rather an effective use of policies targeted to address the barriers to realization of the potential for CHP and district heating. Such barriers include issues as lack of knowledge about CHP benefits, lack of integrated urban heating and cooling supply planning and similar. IEA also presents good developments of CHP in various countries, such as Finland and Germany. Finland has aggressively pursued district heating and CHP integration and CHP has been promoted and integrated into the district heating network. As a result, over 70% of fossil and biomass electricity generation comes from CHP. The amount

of CHP generated electricity even exceeds the need of the capital, so they sell their electricity. Interesting point is that this development was achieved on market-basis without any subsidies, showing that the success in the case of Finland lies in the good planning. On the other hand, Germany's success in increasing the contribution of CHP lies in the incentives it provides.

IEA depicts also on a “double innovative” topic of combining co-generation and renewables such as biomass, geothermal and concentrating solar power. So far, most attention in the policy and expert cycles was focused on renewable energy for electricity. Heat seems to be overlooked although IEA states that heat represents 47% of total final energy consumption globally. Combining co-generation and renewables makes a very strong case since it leads to the supply of both low-carbon electricity and low-carbon heat. IEA mentions that good examples of geothermal co-generation where heat is delivered to the district heating can be found in Iceland, Italy, Germany and Turkey.

Bottom line, co-generation can help stakeholders to meet important energy and environmental targets. Therefore, it is crucial the multiple positive benefits of CHP to be brought to the attention of the decision-makers in the Western Balkan countries especially through examples which have produced positive tangible results. Setting ambitious energy and climate goals is not sufficient; there is need of focusing on strong implementation in order these goals to be achieved. Co-generation also as integrated part of the district heating and by utilizing renewables is certainly the new technology prodigy which will make these energy and environmental targets a reality. Since the IEA has pictured the CHP plants' benefits, results, challenges and incentives very clearly, it is up to the region's stakeholders to look up to the forerunning countries' experiences in the area and try out the policies recommended by the IEA.