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# TOWARDS REFORMING THE HEAT MARKET IN MACEDONIA: WISHFUL THINKING OR FUTURE REALITY?

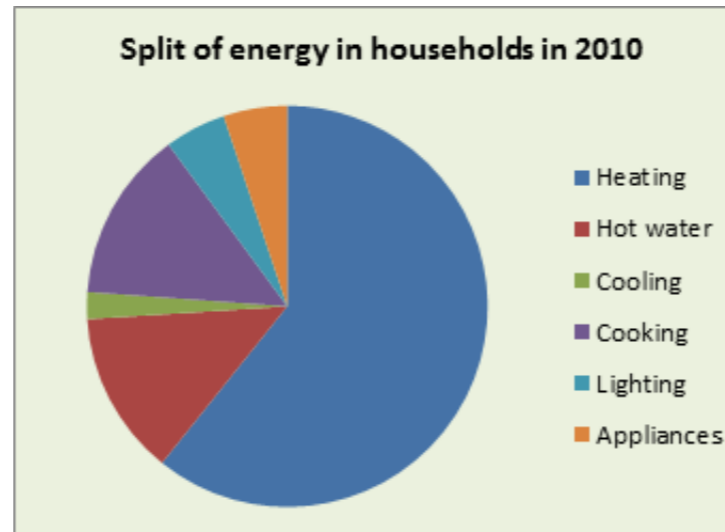
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commentary

**IT IS OLD** news that the Macedonian heat market is challenged with inefficient use of energy for heating, wasteful energy practices and lack of vision about its development in the long run. Especially households have felt the harsh heat market conditions as depending on their whereabouts use either rather expensive district heating, electricity whose cost has been increasing, fuelwood which contributes significantly to the air pollution, or natural gas only in very limited areas. The winter heat practices of an average family often mean living in cold premises or heating only one room. Energy poverty is the term explaining the difficulty to provide sufficient warmth for performing everyday's activities. As the heat market still poses a big issue in the Macedonian energy context, it is important to face the numbers, the situation on the field, the challenges, but also to look into possible solutions.

The buildings sector composed of the residential sector (households) and the service sector (including both public and commercial sector) in Macedonia is altogether the largest final energy consumer with approximately 43% of the final energy consumption for 2010 according the State Statistical Office. If presented the residential and the service sector separately, the residential sector is the second largest energy consumer with approximately 30%, slightly behind the industry sector, data also for 2010 by the State Statistical Office. If consumption by fuels in households for 2010 is analyzed, the State Statistical Office reports that electricity dominates with 52%, biomass occupies 33%, total petroleum products account for 8%, 6% is derived heat and 1% are solid fuels. In the residential sector also an increase of the use of electricity is noted through the years (6% for the period 2006-2010) reports the State Statistical Office. In 2010 natural gas was not used in households; although it is used in the service sector with increase for the period 2006-2010 by 18% as stated by the State Statistical Office. If residential and service sector are

compared according to the State Statistical Office, the residential sector used two times more electricity in 2010. The State Statistical Office reports that the service sector has also had increase of electricity consumption for 2006-2010 by 34%; while the whole buildings sector has increased its electricity consumption by approximately 14% from 2006 till 2010.



The split of energy (into heating, hot water, cooling, cooking, lighting and appliances) in the residential sector in 2010 shows that dominant energy share goes to heating (61%), followed by cooking (14%) and hot water (13%). Similarly, in the service sector for 2010 highest share goes to heating (59%), whereas lighting is next with 15% and cooling with 8.5%. As heating takes up the lion's share, interesting is to analyze the types of fuels utilized for heating. In the residential sector for heating for 2010, fuelwood is present with 48%, followed by electricity with 30% and district heating with 12%. About the service sector in 2010, the heating is supplied in 43% with electricity, 42% with heating oil, 9% district heating and 4% fuelwood. The presented statistical data picture a rather troublesome state of the heat market with electricity having a significant share. The wide usage of fuelwood in the residential sector is problematic as well, often related to the issue of deforestation and

severe air pollution.

This worrying state of the heat market has been addressed so far only on paper in the Macedonian energy strategies. More concretely, the Energy efficiency strategy envisages replacing fuelwood stoves with energy efficient ones, introducing metering in district heating, improving energy efficiency in social housing and similar. The greatest flaw is the lack of concrete implementation of these measures. Furthermore, despite the great need of a more in-depth and structured treatment of the heat market, Macedonia lacks a heat market reform study. On the contrary, as seen in the [National building energy efficiency study for Kosovo](#), Kosovo has drafted a Heating strategy in which as objectives are listed a reduction of electricity consumption for heating and reduced heat demand through more efficient use of energy for heating; outlook which is also needed in Macedonia. Kosovo is taken as a comparable example since as the National building energy efficiency study for Kosovo reports, its buildings sector is the largest share of Kosovo's final energy consumption; the same case as Macedonia. Furthermore, as in Macedonia, in Kosovo biomass and electricity also dominate the residential sector. As the heat market situation in Macedonia is problematic, it is a necessity to envisage the development of the heat sector.

Moving to the newest developments on international level, the latest publication of the International Energy Agency (IEA) in the area of co-generation titled [Linking Heat and Electricity Systems](#) dat-

#### Kosovo heating strategy

*Kosovo heating strategy 2011-2018 is issued and sets out the following objectives for the heat sector:*

- reduce electricity consumption for heating by developing district heating*
- create positive incentives to encourage the use of renewables for heating*
- create conditions to facilitate the use of energy efficient heating appliances and improve the thermal performance of buildings*

ed from 2014 depicts real case studies of industrial co-generation projects and district heating and cooling systems, the latter a subject of interest in this text. To remind, co-generation is a simultaneous generation of heat and electricity from the same fuel and is very energy efficient. Co-generation utilities can often be part of district heating systems. Co-generation could be seen as a solution for the Macedonian heat market as it would diversify the heat supply in highly energy efficient manner.

The case studies in the IEA's publication show the story behind, the policies that supported their development, but also the challenges they face. The analyzed district heating and cooling projects are: Sunstore 4 project in Denmark that was developed to demonstrate the production of 100% renewable-based district heating; Bercy cooling plant in France; and the solar thermal district heating system in Saudi Arabia, which represents the world's biggest operating solar heating project; each with payback period from 5 till 15 years. Some of the key recommendations from the paper point out that what is needed is a development of strategic local, regional and national heating and cooling planning; facilitation of investment in modernization and improvement of the operation of existing inefficient district heating and cooling networks through financial incentives; as well as ensuring long-term stability of energy policies. On the subject of financial mechanisms, mentioned options are from self-financing, over loan financing to third-party financing (ESCOs<sup>1</sup> for example).

<sup>1</sup> ESCO means energy service company or energy savings company and is a commercial or non-profit business providing energy solutions including designs and implementation of energy savings projects and similar.

The importance of policies can be for example shown by the fact that a fuel tax exemption system for co-generation utilities can promote the progressive use of low-carbon fossil fuels and renewable energy sources for electricity and heat generation. Furthermore, Denmark has heat planning guidelines regulating the district heating, which stipulate that municipalities are responsible for ensuring that heat production by utility companies is the least expensive option. Moreover, also in Denmark solar energy production is not taxed, while fossil fuels are heavily taxed. The IEA paper also mentions the barriers to district heating and cooling and co-generation: lack of knowledge about co-generation benefits and savings; lack of integrated heating/cooling supply planning; uncertain energy policies lacking long-term visibility and similar. The IEA's publication once again shows that supporting policies including financial incentives do matter and they can really make a difference.

Last but not least, a good example from Macedonia as [Ohridnews reports](#) is about the project of USAID and Habitat Macedonia which enables citizens in the city of Ohrid with low income who live in collective buildings older than 10 years jointly to apply for favorable loans for energy efficiency measures in the building. The project runs in the whole country and so far energy efficiency measures were undertaken in 603 households in the country. After the implemented measures, the citizens which use electricity for heating saved 29% on costs for electricity and use these savings to return the loan. This example shows that it is the ultimate measure for improving heat demand by increasing energy efficiency. The rationale behind focusing on low income families is eradicat-

ing energy poverty. As it is a project by a donor and a civil society organization, it shows that in absence of a stronger role of the respective public institutions, other stakeholders step in and fill in the gaps. However, it should not be perceived as a replacement for the responsibilities institutions have in this sector, especially for matters of high public interest such as improving the heat supply – which could include building co-generation utilities, enforcing local gasification projects and similar; reminding that the heat supply is an area in the hands of the public sector.

In this period the Macedonian Energy strategy from 2010 is being updated and there is a need this Strategy to have a clear heat market focus and more progressive projects such as co-generation utilities and energy efficiency measures in the residential sector. Alternatively, a separate heating strategy or study should be prepared. Also, the envisaged heat market reform activities in the existing energy strategies should be implemented. The civil society sector and donors as shown through the positive example of loans for energy efficiency should continue work on improving energy efficiency.

Finally, co-generation should not be looked at as a complicated and unachievable measure, but as a possibility for solving the heat market issue in Macedonia. Many examples confirm that policies and awareness about the benefits of co-generation play the key role, and consumers are satisfied to get cleaner environment and better heating conditions. □



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