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Energy poverty in Macedonia

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Energy poverty has challenged the already socially fragile Macedonia on its way to EU integration. This paper analyzes the state of energy poverty in Macedonia and the policies tackling it in order to draft policy recommendations for their improvement to the respective stakeholders. Tackling energy poverty is important in order to bring the country on a sustainable path.

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INTRODUCTION

Macedonia, due to its EU integration endeavors has experienced many policy reforms; the energy sector has not been spared from this reform process either. The main legal framework for energy policy development has been adopted[1] and its implementation has begun. However, the transformation into market economy has brought reforms as increasing energy prices; and adding the country's old energy infrastructure, the underdevelopment and the lack of strategic planning of the energy sector in the past; these energy market changes have significantly affected the living standard of Macedonian citizens, many of them already faced with high proportion of poverty and unemployment.

Energy poverty is a relatively new term, with multiple definitions and applications, seriously affecting the countries in energy transition including Macedonia. Macedonian authorities have tried to address this issue, however the massive social protest against the energy price increases in 2012 under the slogan of "AMAN[2]", has shown that the undertaken measures are insufficient, that much larger part of the society has been affected by increasing energy prices and that much more efforts are required to tackle energy poverty in the country. Therefore, the aim of this paper is to analyze the state of energy poverty in Macedonia and the policies tackling it in order to draft policy recommendations for their improvement to the respective stakeholders.

Methodology is based on set of primary (laws, strategies, annual reports, and statistics) and secondary resources (studies, media articles). The paper will be structured in a way that after the introductory information on energy poverty, the Macedonian policies on the topic will be analyzed and there will be one part discussing the various problematic issues of energy poverty in Macedonia. The paper will end with conclusions and recommendations. This research is important since energy poverty is a socio-economic phenomenon that seems to tackle a broader scope of Macedonia's population and drafting solutions for its improvement is the key to sustainable development.

[1] *The main energy documents that have been adopted include Energy Law adopted in 2011, Strategy for Energy Development; Energy Efficiency Strategy; and Renewable Energy Strategy, all three adopted in 2010.*

UNDERSTANDING ENERGY POVERTY

Energy poverty is a relatively new term especially in the Western Balkan region and does not have a single definition, however most applicable in the case of the region is the definition related to lack of properly heated homes. To illustrate it more clearly, *energy poverty is described as a condition where households are living in inadequately heated homes, which can mean that either the average daytime indoor temperature of the dwelling is below the biologically-determined limit of 21 °C necessary to maintain comfort and health*[3], *or that the amount of warmth in the home is lower than the subjective minimum which allows an individual to perform his/her everyday life*[4]. Another definition applicable to the region is as follows: *"Energy or fuel poverty in the Western Balkans refers not to a lack of access to infrastructure per se, but to difficulty in maintaining sufficient warmth at an affordable cost".*[5] Similarly to energy poverty, the EU uses the term *vulnerable customers*[6] without defining it in the third legislative package for the internal gas and electricity market,[7] since it was considered appropriate that this definition needs to reflect national characteristics,[8] thus needs to be defined at national level.

From the presented definitions is clear that energy poverty is related to:

- **Lack of sufficient heat**
- **Households**
- **Lack of funds for heating**

Understanding energy poverty means uncovering the reasons behind it as well as its consequences. In the communist system the electricity prices have been kept artificially low, resulting in the expansion of electricity for heating and widespread abandonment of district heating. Also, an increased reliance on fuelwood for heating espe-

[2] *Paraphrased translation for AMAN is: "It is enough".*
[3] Boardman, Brenda, *Fuel Poverty: From Cold Homes to Affordable Warmth*, (London, 1991)
[4] *Stefan Bouzarovski,* Energy poverty in transition: Macedonia and the Czech Republic in comparative perspective*, Political Thought, Year 8, No. 29, (Skopje, 2010)*
[5] *Pippa Gallop et all,* Invest in haste, repent at leisure, *(2013)*
[6] *In the literature also consumer is used instead of customer with same meaning.*
[7] *Official Journal of the European Union L 211, Volume 52, (2009).*
[8] Energy Community Regulatory Board, Tre*atment of the vulnerable customers in the Energy Community,* (2013)

cially applicable to low income households was noted[9]. As communism fell in the beginning of the 90ies so the problems with energy affordability started to rise. As the Western Balkan countries began transforming their systems, the energy was no longer guaranteed by the state but a good i.e. a service that is bought on the market just as any other. Needless is to say that the situation is much more complicated as energy is a commodity without which modern life as we know it is not possible.

Addressing energy poverty is important since the lack of adequate heat affects people's health and productivity. In this line, the use of inefficient wood stoves has a negative impact on the health of households using fuelwood.[10] Also non-investment in energy efficiency has significant environmental impacts including deaths due to pollution. According to the National Strategy for Clean Development Mechanism 2008-2012, the energy sector in Macedonia contributed about 70% of total greenhouse gas emissions in the country.[11] In addition, according to the Human Development Statistical Annex for 2011, there have been 148 deaths due to outdoor air pollution[12] for the year 2004 in Macedonia.[13]

From the presented, it is clear that the reasons for energy poverty is artificially low electricity price being responsible for widely used electric heat, abandonment of district heating and energy wasteful practices; which was triggered by the increase of energy prices, leaving the consumers faced with limited financial means, limited ways for heating (no alternative for heating as natural gas, only option possibly biomass) and energy inefficient homes.

POLICIES FOR ADDRESSING ENERGY POVERTY IN MACEDONIA

Box 1: Massive social unrest in Macedonia called AMAN

On 14 August 2012 began the most massive social protest in Macedonia composed of more than 10 000 citizens who protested against the increase of energy prices and against the worsening of the standard of living. The protests lasted for five months and in the meanwhile a citizen's initiative with more than 13 000 signatories was initiated for amending the Energy Law.[14] The submitted amendment had two requirements: return of a cheap electricity tariff in duration of 3 hours during the day for the households and releasing the disconnected consumers from the obligation of paying any reimbursement for electricity, heat energy or natural gas services if disconnected. The main aim of draft law was protection of the socio-economic rights of the citizens.[15] The draft law did not receive the Parliament's support.[16] This social unrest AMAN was first of this kind and proportion in Macedonia showing that the increase of energy price is a serious matter which needs to be addressed by the respective authorities as well as it was proof that energy price increase affects a larger part of the population than initially estimated.

Macedonia is signatory of the Memorandum of Understanding on Social Issues in the context of the Energy Community which signifies the political intent to take into consideration the social dimension within the context of the Energy Community Treaty[17] including recognizing

[9] *Stefan Bouzarovski et all,* The governance of energy poverty in Southeastern Europe, *Ifri, (2011)*

[10] *IEA,* Energy in the Western Balkans The path to reform and reconstruction,*(2008)*

[11] *UNDP,* National Strategy for Clean Development Mechanism for the first commitment period of the Kyoto Protocol 2008 -2012

[12] *"Deaths due to outdoor air pollution" means deaths due to respiratory infections and diseases, lung cancer and selected cardiovascular diseases attributable to outdoor air pollution.*

[13] Human Development Statistical Annex, *page 151, Table 7. Internet page of UNDP* http://hdr.undp.org/en/media/HDR_2011_EN_Tables.pdf *last accessed on 22.09.2013*

[14] *Internet page of AMAN/ AMAN IT IS ENOUGH! One year from the most massive social protests in Macedonia* http://amanmk.files.wordpress.com/2013/08/972361_315195735291058_167720378_n.png *last accessed 22.09.2013*

[15] *Internet page of Analytica/ Analytica commenting on the draft law amending the Energy law submitted by the citizens' initiative AMAN* http://www.analyticamk.org/index.php?option=com_content&view=article&id=333:analytica-commenting-on-the-draft-law-amending-the-energy-law-submitted-by-the-citizens-initiative-aman&catid=52:energy-and-infrastructure&Itemid=167 *last accessed on 22.09.2013*

[16] *Panta Dzambazoski, Telma,* The Parliament has rejected AMAN's initiative *from 13.02 2013, Internet page of Telma* http://telma.com.mk/index.php?task=content&cat=1&rub=15&item=24135 *last accessed on 22.09/2013*

[17] The Energy Community Treaty has the goal to organize the relations between the parties and create a legal and economic framework in order to inter alia create a stable regulatory and market framework capable of attracting investment in gas networks, power generation, and transmission and distribution net-

that the major social consequences of the implementation of this Treaty need to be tackled.[18] This created the legal basis for development of the energy poverty concept in the Macedonian legislation and for the undertaking measures for protection against energy poverty.

Macedonia is together with Albania the only Western Balkan county which does not have a definition of a vulnerable customer in its legislation.[19] In Macedonia there is no specific law or a bylaw devoted only to *energy poverty*. The term *energy poverty* is usually mentioned within the existing legislation on energy; but the term *socially vulnerable consumer* or *customer* is also used in the literature and in Macedonian legislation. The Energy Law from 2011 mentions energy poverty in Article 9 which says that the energy policy should enable inter alia measures for protecting citizens against energy poverty[20]. This Law also dedicates a whole article only to energy poverty:

> Article 14: "For the purpose of implementing the social protection of citizens against energy poverty, the Government of the Republic of Macedonia on request of the Ministry in collaboration with the Ministry responsible for social affairs, adopts an annual program for reducing energy poverty in which, among other things, provided are: subsidies for energy consumption and for energy sources for separate households; the types of energy and energy sources that will be covered with the subsidy; more efficient usage of energy, the means of implementing the measures, budget sources and other funding measures; and the bodies responsible for the implementation of the measures."[21]

Regarding concrete measures against energy poverty, in 2010 the subsidy for energy consumption (electricity, fuelwood, coal, light heating oil for households/ oil for households and district heating) was introduced in a monthly value of 600 denars (9,8 EUR) targeting households entitled to social welfare and to permanent financial support. Eligibility requirements say that the consumers need to have paid for the energy consumed in the duration period of the program and that they will lose the right to this energy subsidy in case they are not anymore entitled to social welfare or to permanent financial support. The measure is being implemented by the Ministry of Labor and Social Policy and the centers for social affairs; the funds for 2010 for this measure were 104, 4 Million denars (1,7 Million EUR) and they came from the state budget.[22] This measure continued in 2011[23] and in the first half of 2012[24]. Since August 2012 the monthly amount of 600 denars rose to 700 denars (11,4 EUR).[25] The subsidy in the increased amount of 700 denars per month continued also in 2013; its total amount for 2013 is 74 Million denars (1,2 Million EUR) secured from the state budget[26]. The announcement of the increase of the subsidy for energy poverty to 700 denars by the Labor and Economy ministers was accompanied by the explanation that from this subsidy approximately 20 000 households have benefited so far and that with this increased subsidy the households can cover about 170 KWh electricity, or about 50% of the entire consumption.[27]

The energy strategies also make reference to energy poverty, i.e. to the socially vulnerable consumers. They have not precisely defined the energy poor or vulnerable consumers, however acknowledge the energy poverty problem and discuss set of measures for solving it. To begin with, one of the priorities for reaching the main goal of the Strategy for Energy Development is that a program for support of the social category of consumers

works; to enhance the security of supply and to improve the environmental situation. Macedonia has ratified the Treaty in 2006 with a law. The main obligations under this Treaty are to implement specific energy related parts of the EU acquis communautaire. This Treaty envisages liberalization of the market for all non-household customers from 1 January 2008 and liberalization of the market for all customers from 1 January 2015. Internet page of the Energy Community/ Treaty http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/Treaty last accessed on 22.09.2013

[18] *Energy Community,* Memorandum of Understanding on Social Issues in the context of the Energy Community, *(Vienna, 2007).*

[19] *Energy Community Regulatory Board, T*reatment of the vulnerable customers in the Energy Community, *(2013)*

[20] *Energy Law, Official Gazette 16/11, Article 9*

[21] *Ibid., Article 14*

[22] *Program for Subsidizing Energy Consumption, Official Gazette 113/10*

[23] *Program for Subsidizing Energy Consumption for 2011, Official Gazette 6/11*

[24] *Program for Subsidizing Energy Consumption for 2012, Official Gazette 8/12*

[25] *Program for amending the Program for Subsidizing Energy Consumption for 2012, Official Gazette 83/12*

[26] *Program for Subsidizing Energy Consumption for 2013, Official Gazette 4/13*

[27] *Ristovski and Sarachini: The increase of the subsidy for energy poverty can cover 50% of the bills* from 09.06.2012, Internet page of the Government of the Republic of Macedonia

is prepared and implemented[28], showing that energy poverty is recognized as a priority issue. This Strategy also clarifies that the current price of electricity subsidized all households, meaning that the poorest 20% receive only 3% of the subsidies.[29] Therefore, reaching the market price of electricity is a precondition for inter alia introducing natural gas in households, better protection of the socially vulnerable consumers and reducing energy consumption.[30]

The Strategy for Energy Development mentions two models for supporting socially vulnerable consumers of electricity: block tariffs and targeted subsidies. Block tariffs introduce low electricity price (below the real costs) for socially vulnerable households which will be compensated with higher electricity price paid by the other consumers. Good side of this model is that it does not require additional funds; the weak side is that the category of other consumers could pay higher electricity price. Targeted subsidies are in form of vouchers with which socially vulnerable consumers pay electricity. Good side is that this assistance is directly targeting the poorest consumers and there is no different price for different categories of citizens; weak side is that this mechanism demands additional budget funds. A weakness of both models is objectively determining the socially vulnerable consumers. This Strategy recommends the second model in a way that instead of vouchers, the bills are to be directly subsidized with budget funds for recipients of social welfare. The Strategy in addition recommends the state to finance improving of energy efficiency in the households of the socially vulnerable consumers, but also to improve energy efficiency of the households belonging to the middle class in order to prevent worsening of their standard of living. The Strategy estimates that 15-20 Million EUR budget funds should be spent for realizing the social energy program.[31]

The Program for Realizing the Strategy for Energy Development, which is the action plan for the Strategy for Energy Development, envisaged a more complex set of measures addressing the socially vulnerable consumers. One measure is preparing a program for subsidy for replacing the old stoves and purchase of new efficient stoves especially for socially vulnerable households, to take place in 2012-2013 and is responsibility of the Ministry of Economy. It also envisaged increase of the subsidy in the Program for Subsidizing Energy Consumption. Other planed measures include education and promotion about energy efficiency, financial support for households ready to invest in energy efficiency, tax reductions for investing in energy efficiency as efficient biomass stoves, solar collectors etc.[32] The Renewable Energy Strategy does not tackle the matter of energy poverty into detail, however when discussing biomass, it mentions that there should be subsidies for replacing old stoves and purchase of new efficient stoves especially for socially vulnerable consumers.[33]

The Energy Efficiency Strategy on the other hand is more devoted to the socially vulnerable consumers. It clearly indentifies energy efficiency as an optimal measure for dealing with energy poverty. The envisaged social measures are improving energy efficiency in social housing, block tariffs for electricity, as well as introducing metering in district heating, replacement of fuelwood stoves with energy efficient stoves, solar systems, introducing energy codes for buildings and similar. Social housing is given also high priority in this Strategy. The Government is to have the leading role in implementing this Strategy and funds are to be provided inter alia from the Energy Efficiency Fund. [34]

The Energy Efficiency Action Plan clearly states that the targeted social assistance for low income citizens and the construction of social housing for most vulnerable households is a significantly more appropriate solution to energy affordability in the long run than subsidies. It has also envisaged an ambitious project - 7000 social dwellings until 2020 with applied energy efficient measures for

http://www.vlada.mk/node/3439 last accessed on 22.09.2013.

[28] *Ministry of Economy of the Republic of Macedonia,* Strategy for Energy Development in the Republic of Macedonia until 2030, *(Skopje, 2010)*

[29] *Ibid; World Bank, Report No. 48983-MK, FYR of Macedonia Energy Policy Note (Draft), (2009)*

[30] *Ministry of Economy of the Republic of Macedonia,* Strategy for Energy Development in the Republic of Macedonia until 2030, *(Skopje, 2010)*

[31] *Ibid.*

[32] *Macedonian Academy and Science and Arts*, Program for Realizing the Strategy for Energy Development in the Republic of Macedonia for the period 2012-2016, *(Skopje, 2012)*

[33] *Government of the Republic of Macedonia, Ministry of Economy,* Strategy for utilizing the renewable sources of energy in Republic of Macedonia till 2020, *(Skopje, 2010)*

socially vulnerable households. This Action Plan also envisaged the adoption of the secondary legal acts on energy efficiency in the building sector. It also says that introduction of the new high efficient stoves will reduce fuelwood consumption. The Action Plan also emphasized the need of further awareness raising through information campaigns on measures for improving energy efficiency. Regarding finances, envisaged measures are also subsidies for solar collectors and establishment of the Energy Efficiency Fund.[35]

Box 2: Failed draft Law on social protection against energy poverty

There was one initiated draft law in 2008 by a group of members of the Parliament called draft Law on social protection against energy poverty. However, the law did not pass[36] and since then there has not been any similar proposition in the Parliament. The draft law's details:

- Energy poverty was defined as the inability to cover the monthly expenses for the monthly quantities of distributed electricity.
- The aim of this draft law is protecting the poorest in the country from price shock after the announcement of electricity price hike. The measures in this legislation were intended to subsidize monthly electricity consumption for up to 300kWh for enabling the households to meet their basic needs. The households which are subject of this law have increased electricity consumption during heating season since they mostly use electricity for heating due to unavailability of other alternatives for heating. These households can not afford to pay their electricity bills, thus they are switched off; and being left without access to electricity is considered unacceptable.
- This draft Law on social protection against energy poverty is based on the following principles: legality; social safety; social justice; humanism.
- Eligible recipients of the social protection measures against energy poverty are: 1) households which are social welfare recipients, 2) households with no single employed household member and which are not social welfare recipients and have no other sources of income, 3) households which have an unemployed member who is recipient of unemployment assistance, being the single source of income for the household; 4) households composed of more than two members among which there is one pensioner with minimal pension being the single source of income for the household; and 5) households composed of more than two members among which there is one employed with minimal wage being the single source of income for the household.
- This draft law's financial implications were estimated at 1.563.219.427 denars or approximately 25 Million EUR to be secured from the state budget through the Ministry of Finance.[37]

Analytica's analysis of this draft law:

Although representing a failed initiative, as a first legislative attempt to tackle the issue of energy poverty more seriously by being a law specifically devoted to energy poverty and to define social vulnerable households and energy poverty; it is an initiative worth commenting. From a social point of view, the draft law manages to encompass a broader scope of households affected by energy poverty; however it follows the income poverty, not the adequacy of heating conditions. From an economic point of view, it is a subsidy targeting the households and electricity, areas which are already subsidized by the depressed electricity price; this law even encourages the use of electricity for heating; and as a subsidy is neither motivating application of energy efficiency measures, nor leading to energy consumption reduction.

IDENTIFIED ISSUES

In the following part the analysis will be focused on the main problematic aspects of energy poverty in Macedonia beginning with practices that contribute to worsening the energy poverty situation, actions that are caused by it as

[34] *Government of the Republic of Macedonia,* Strategy for Improving Energy Efficiency in the Republic of Macedonia until 2020, *(Skopje, 2010)*

[35] First National Energy Efficiency Action Plan 2010-2018, *(Skopje, 2010)*

[36] *Netpres, DNEVNIK:* The Parliament did not support the Law on protection against energy poverty *from 19.11.2008, Internet page of Netpress* http://www.netpress.com.mk/mk/vest.asp?id=44475&kategorija=7 *last accessed on 23.09.2013*

[37] *Group of members of the Parliament,* Draft law on social protection against energy poverty, *(Skopje, 2008)*

well as aspects that need to be taken into consideration when creating measures for addressing energy poverty.

- **Scope of energy poverty affected citizens**

The target of the Program for Subsidizing Energy Consumption is very narrow including only eligible recipients of social welfare and permanent financial support following the logic that they are the one that are energy poor. Stefan Bouzarovski assesses this Program to be poorly targeted which fails to provide a systematic approach that would address the causal factors of energy vulnerability, thus additional and/or different criteria for the target group should have been developed. Also, there should be a more robust and inclusive definition of energy vulnerability, associated with a comprehensive set of indicators, monitoring and evaluation mechanisms.[38]

Not just in the Macedonian case, in general it is difficult to assess the scope of energy vulnerability, which also as previously mentioned is a matter to be defined at national level, one of the reasons socially vulnerable consumers are not defined at EU level. However, for the purpose of effectively tackling energy poverty, the scope of Macedonia's households affected by energy poverty has to be known.

To measure energy poverty, one line of thinking is following the assumption that the population living below the national poverty line is exposed to energy poverty. However, closer examination shows that the number of consumers exposed to energy poverty is larger. This is visible in the Macedonian case according to the data from the State Statistical Office presenting the subjective opinion of citizens on their ability to keep their home adequately warm. Not only that this number is much higher than the general poverty data (30,4% was the percentage of poor people in 2011[39]); but over the years the percentage of households able to keep their home adequately warm has steadily decreased: 58,4% in 2009[40], 52,6% in 2010[41], 52% in 2011[42] and 51,6% in 2012[43].

Having in mind the interconnected relationship of poverty and unemployment, it is relevant to say that in 2012 the unemployment rate of the population aged 15 and over was 31%.[44] The presented statistical data show that the situation of providing basic life necessities including energy in particular is alarming, affecting a significant share of the population. According to one study, energy poverty in Macedonia may include up to 61% of all households in the country[45].

Furthermore, in order to be able to precisely determine the type of households affected by energy poverty, the most energy vulnerable profiles should be identified. According to the State Statistical office, most vulnerable groups to general poverty by profiles are multi-member households, bearing in mind the fact that 48.5% of the poor people live in households with 5 and more members.[46] A study presents more precise profiles of the energy poor: first group is composed of the general low income group such as welfare beneficiaries, households headed by unemployed adults, households with several children, and families who depend on agriculture for all of their income. The second group is mainly pensioners and families with young children, to be affected by energy poverty mostly due to the poor energy efficiency of the home. This shows that energy poverty affects both lower and middle class households in Macedonia.[47] Important point is that this second group of households is usually not defined as generally poor.

- **Subsidies vs. energy efficiency**

In the literature there are discussions on the effectiveness and implications of the measures against energy poverty. The basic line of discussion is whether to subsidize or to make productive investments in energy efficiency for example. The Macedonian measure currently in force is a subsidy which has been criticized that it fails to support energy efficiency since it actually supports low

[38] *Stefan Bouzarovski et all,* The governance of energy poverty in Southeastern Europe*, Ifri, (2011)*
[39] *State Statistical Office,* News Release Relative poverty in 2011 No: 4.1.12.50*, (2012)*
[40] *State Statistical Office*, Household consumption in the Republic of Macedonia, 2009*, (Skopje, 2010)*
[41] *State Statistical Office*, Household consumption in the Republic of Macedonia, 2010*, (Skopje, 2011)*
[42] *State Statistical Office*, Household consumption in the Republic of Macedonia, 2011*, (Skopje, 2012)*
[43] *State Statistical Office*, Household consumption in the Republic of Macedonia, 2012*, (Skopje, 2013)*
[44] *State Statistical Office,* Labour force survey*, 2012, (Skopje, 2013)*
[45] *Stefan Buzar*, Energy Poverty in Eastern Europe: Hidden Geographies of Deprivation*, (2007)*
[46] *State Statistical Office,* News Release Relative poverty in 2011 No: 4.1.12.50*, (2012)*
[47] *Stefan Bouzarovski,* Energy poverty in transition: Macedonia and the Czech Republic in comparative perspective*, Political Thought, Year 8, No. 29, (Skopje, 2010)*

income households to use electricity,[48] a similar argument was made by USAID when assessing this subsidy that it is a measure whose recipients will have little incentive to save energy, although as a measure gives an immediate relief to the affected households.[49] USAID's suggested solution is providing assistance by proposing a low income energy efficiency program that will aim to lower poor families' energy bills by installing basic low cost energy efficiency measures in their homes. These basic energy efficiency measures as improving insulation for instance should be free of charge. This kind of measure is more cost effective and beneficial than the subsidies since the energy efficiency program needs to be provided to a household one time; it improves comfort as well as energy efficiency. This low income energy efficiency program is assessed by USAID as essential since concerns over affordability of energy bills is used as a reason for keeping electricity tariffs at below cost recovery levels. The annual cost of this measure is estimated at 250,000 dollars (184 711 EUR) - 1 million dollars (738 847 EUR). [50]

This also goes in line with the view of the Energy Community which states that vulnerable customers from energy poverty should be protected by providing the necessary protection scheme but without treating electricity as social category via low regulated energy tariffs.[51] In addition, an early implemented project in Macedonia back in 2006-2007 called Social protection against energy poverty by consultant Ramboll has given conclusions which are also in favor of a more sustainable solution to energy poverty: poor families should be assisted in investing in energy efficiency, thereby contributing to reducing their energy bill, and enabling them to pay their future bills; and creating a fund to finance investments in improving energy efficiency targeted as a measure against energy poverty.[52]

- **Implementation of the envisaged measures against energy poverty**

As shown with the energy strategies that are in force in Macedonia, a various set of measures are envisaged from the targeted subsidy, over sustainable fuelwood heating, to social housing projects. However, it seems that only the subsidy, i.e. the Program for Subsidizing Energy Consumption is in force. For example, the Act on Social Housing, envisaged in the National Housing Strategy 2007-2012[53] is not adopted yet. Furthermore, there is no indication that other of the envisaged measures in the Macedonian energy strategies such as more sustainable fuelwood use, establishment of the Energy Efficiency Fund etc. are implemented.

- **Electricity price and energy wasting practices**

Increasing electricity prices seems to be one of the initial triggers to worsening the situation with energy poverty. This process is related to the market liberalization according which the depressed social price of electricity is to increase in order to reach the market price, presenting significant burden to many citizens, already affected with poverty and unemployment. One study identifies one of the main reasons for the serious impact of energy prices on the population to be the fact that wasted energy in the region is so high. To illustrate better, in Macedonia it is common to use electricity for space heating, an extremely inefficient way to use energy, as well as usually is heating outdoor cafe terraces with electricity or gas in winter. Solutions to this situation in which the energy market liberalization reforms continue and the energy bills are kept at a reasonable level go in direction of finding an acceptable medium where more well off customers are incentivized to use energy more efficiently (metering, insulation and so on), while vulnerable customers are adequately protected and enabled to undertake energy savings and efficiency measures.[54]

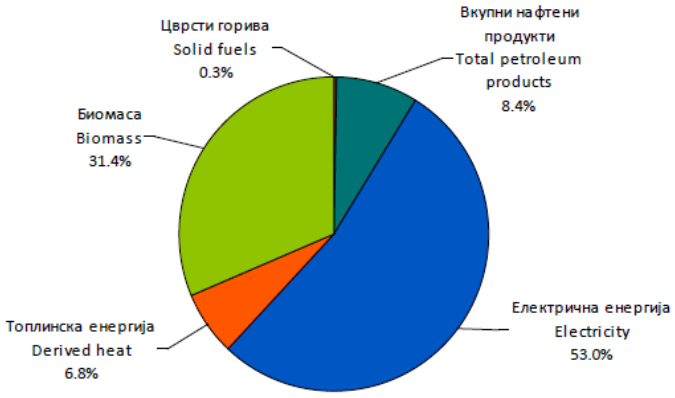
As a consequence of the decade long low level of electricity price, lots of energy wasteful practices were developed among the population. According to the State Statistical Office, the biggest final energy consumers in 2011 in Macedonia were: industry with 32.78%, households

[48] *Stefan Bouzarovski et all,* The governance of energy poverty in Southeastern Europe*, Ifri, (2011)*
[49] *USAID,* Macedonia Energy Efficiency and Renewable Energy Assessment Final Report *(2009)*
[50] *Ibid.*
[51] *Energy Community Secretariat,* Annual report on the implementation of the acquis under the Treat establishing the Energy Community*, (2012)*
[52] *Energy Regulatory Commission of the Republic of Macedonia,* Action plans to reduce energy poverty – Experience of Republic of Macedonia
[53] *Ministry of Transport and Communications,* Housing Strategy of the Republic of Macedonia 2007-2012*, (2007)*

with 27.41% and transport with 24.23%[55], clearly showing that the household sector is the second largest energy consumer. If analyzed the household as a separate sector, Picture 1 presenting the final energy consumption in households, shows that electricity takes up staggering 53% whereas the derived heat only 6.8%[56].

Picture 1: Final energy consumption in households by energy commodities, 2011

Г-03: Финална енергетска потрошувачка во домаќинствата по видови енергенти, 2011[1)]
G-03: Final energy consumption in households by energy commodities, 2011[1)]



Source: State Statistical Office

- **District heating disconnections and increased use of electric heat**

As already identified, energy poverty is closely related with the use of electricity for heating and with district heating. Research has shown that neither the electricity distribution utility nor the district heating company in Skopje have managed to develop policies for addressing the issue of switching towards electricity for heating and policies for tackling the problem of disconnecting from the district heating, respectively. At the same time, state authorities, while being aware of these issues have shown practically no initiative and leadership to resolve them.[57]

A policy paper on the Macedonian heat market states that it is characterized by a small and under-developed district heating (10% of the heat consumers are connected to the district heating according the Strategy for Energy Development[58]) which is in the hands of a dominant actor, and individual forms of heating. Also, electric heating is commonly used in the urban areas. The data of the former district heating company Toplifijacija Groups shows that hat customers have been increasingly disconnecting from the Toplifikacija's Group's district heating: in 2009 there have been 1858 disconnections and 491 new connections[59], while in 2008 315 customers reconnected and 3132 were disconnected.[60] In addition, the paper highlights that the existing transmission gas pipeline is underused, representing an obstacle to utilizing natural gas in the households and an obstacle to companies too to enter the heat market. One solution that this paper focused on is building of cogeneration[61] utilities, which can be important part of improving the district heating services and in more general the whole heat market. Some of the benefits of cogeneration[62] are reducing CO2 emissions, possible utilization of renewables, high energy efficiency due to the simultaneous use of a same fuel both for electricity and heat generation, using waste (surplus) energy and reducing primary energy demand.[63]

In addition, the district heating has experienced increasing disconnections which are explained by the fact that consumption is metered at the level of apartment buildings meaning that flats in poorly insulated buildings – or those in which significant numbers of households have decided to disconnect from the network – have higher unit costs, which may prompt more households to disconnect which in turn creates a vicious circle of disconnection.[64] Also there is blame in the unreliable nature of

[54] *Pippa Gallop et all,* Invest in haste, repent at leisure, *(2013)*
[55] *State Statistical Office,* News Release Energy Balances, 2011, No: 6.1.12.82, *(2012)*
[56] *Ibid.*
[57] *Stefan Bouzarovski et all,* The governance of energy poverty in Southeastern Europe, *Ifri, (2011)*
[58] *Ministry of Economy of the Republic of Macedonia,* Strategy for Energy Development in the Republic of Macedonia until 2030, *(Skopje, 2010)*
[59] *Toplifikacija AD Skopje,* Annual report 2009 year
[60] *Toplifikacija AD Skopje,* Annual report 2008
[61] *Cogeneration is a simultaneous generation of both electricity and heat from the same fuel.*
[62] *IEA,* Co-generation and Renewables. Solutions for low-carbon energy future, *(2011); IEA,* Technology Roadmaps Energy efficient buildings: Heating and cooling equipment, *(2011); DHC+ Technology Platform,* District Heating Cooling A vision towards 2020-2030-2050, *(2009)*
[63] *Ana Stojilovska,* "The story of the Macedonian heat market – how to reform it?" *Analytica, (2012)*
[64] *Stefan Bouzarovski et all,* The governance of energy poverty in Southeastern Europe, *Ifri, (2011)*

electricity supply visible in the practices of consumers "doubling up" systems, (e.g. electricity and fuelwood). In winter cold periods, when fuelwood supply is unable to match increased demand, consumers turn to electric heaters as a supplement, which leads to added loads on the electricity network.[65]

- **Sustainable biomass use**

As previously mentioned, fuelwood came to play an important role in the energy transition in Macedonia becoming a heat source for many families. IEA data for Macedonia shows that there has been rapid increase (44%) in the use of biomass (mostly fuelwood) between 1991 and 2005, a phenomenon which IEA assesses to be an indicator of increased energy poverty, the latter caused by increasing energy prices.[66] The current utilization of biomass in Macedonia is high, representing 9,5% of the spent final energy and 59% of renewables (data for 2005), but more important is its use for heating purposes since the statistical data tell us that biomass is the source of heating for 430 000 households (76%). Also 80% of the biomass used in Macedonia is the fuelwood type.[67] Faced with high electricity prices, many households switched to fuelwood, however its use is often related to the known problem of deforestation and its use for heating purposes is usually done inefficiently (if used in old heating stoves, is less caloric than pellets – biomass from wood industry residues, it is often gathered as result of illegal wood cuts etc.).

In this line, inefficient stoves for fuelwood with conversion efficiencies of 20% or less are responsible for deforestation. The World Bank states that introducing efficient wood burning stoves to replace the low efficiency models is one of most important energy efficiency measures for the region which would improve the environment, human health, and boost anti-poverty efforts.[68] USAID has similar suggestion for more sustainable use of biomass (forest waste, furniture/wood processing waste, winery and agricultural residue) since with this development of wood pellet heating, electric heating will be reduced. The study also suggests that there is great potential for use of biomass fueled combined heat and power plants in the industry, hospitals, and municipalities which could start as municipal projects.[69]

- **Implementing energy efficiency and renewable energy measures**

Energy poverty may create vicious circles between investment patterns, politics, and social deprivation. This is because the level of final useful warmth in the home is related to the energy efficiency of the built fabric, energy distribution installations, and domestic appliances. Patterns of energy poverty thus depend on levels of investment and maintenance of these capital stocks.[70] In essence, many in Southeastern and Eastern Europe suffer from energy poverty not mainly because they cannot afford to pay the bills but due to low efficient homes and under-investment they are living in too cold or too hot environments.

As identified both in the international studies and in the Macedonian legislation, there is no secret that the key to combating energy poverty lies in improving energy efficiency. Macedonia as mentioned has adopted the main energy documents, however is challenged in their implementation. Few examples to illustrate this is that some of the key bylaws in the area of energy efficiency as the Rulebook on energy characteristics of buildings and Rulebook on energy control[71] have recently been adopted with a delay since they were waiting for the amendments to the Energy Law from May 2013 to be adopted first. Also, one of the main financial instruments envisaged to contribute to implementation of the energy efficiency projects, the Energy Efficiency Fund, planed since 2004, has not been established yet.

Positive example is however the project of the Ministry of Economy to subsidize solar collectors which was implemented in 2007, 2009, 2011, 2012 and 2013. The positive financial benefits from installment of a solar collector are yearly savings of 13 344 denars (217 EUR) for one

[65] *IEA,* Energy in the Western Balkans The path to reform and reconstruction*,(2008)*
[66] *Ibid.*
[67] *Government of the Republic of Macedonia, Ministry of Economy,* Strategy for utilizing the renewable sources of energy in Republic of Macedonia till 2020*, (Skopje, 2010)*
[68] *World Bank,* Status of energy efficiency in the Western Balkans*, (2010)*
[69] *USAID,* Macedonia Energy Efficiency and Renewable Energy Assessment Final Report *(2009)*
[70] *Stefan Bouzarovski,* Energy poverty in transition: Macedonia and the Czech Republic in comparative perspective*, Political Thought, Year 8, No. 29, (Skopje, 2010)*
[71] *Official Gazette 94/13*

household.[72] This measure should continue in order to further raise awareness about the positive effects of replacing energy wasteful preparation of hot water with solar energy.

- **Local development plans and policies**

Implementing energy efficiency is not only an obligation of the state but of the local authorities as well, which are more aware of the issues the local citizens are facing with and can be motor for local economic development. However, municipalities continue to be challenged in drafting and implementing their local energy efficiency programs. This is clearly showed by the data gathered by the Energy Agency stating that out of 80 municipalities (before 2013 - 84) only 32 have submitted their three year energy efficiency programs to the Energy Agency, of which only 12 got positive opinion from the Agency.[73] In this line, even the adopted energy efficiency programs of the municipalities show limited number of renewable energy projects and they are generally reluctant to undertake bigger energy efficiency investments as building small cogeneration utilities or gasification projects. These municipal energy efficiency plans mainly focus on measures as improving insulation or changing light bulbs.[74] On the other hand, positive examples have shown few municipalities that began local gasification projects aiming to offer better heating services.[75] The last example is a project in the right direction since energy poverty is very much connected with poor heating conditions. Common point for both energy efficiency and gasification projects undertaken by municipalities is that their first target group are the local public utilities, meaning households are last to be connected to the local gasification network[76] and energy efficiency programs are first and foremost planned for the public utilities under responsibility of the local authorities[77], making the household sector not a priority in the local energy reforms.

- **Raising awareness**

As the Macedonian energy market goes through a transition, so do the energy practices and treatment of energy. Studies have proven the relationship between lack of knowledge and wasteful energy practices. IEA states that lack of knowledge and access to information can lead to sub-optimal choices. In this line, not informed households buy low quality appliances or fuels that are inefficient. Poor households in the Western Balkan region spend a considerable portion of their income on heating fuel and energy services which is partly due to inefficient use of energy.[78] Therefore, it is important providing poor families with information on how to save energy and integrate energy efficiency measures.

Box 3: Why there is energy poverty in Macedonia

- Low incomes
- Energy inefficient homes
- Lack of energy efficiency policy implementation
- Increasing energy prices
- Limited other alternatives for heating
- Energy wasting practices of households
- No definition of energy poverty and narrow defined scope of energy poor

CONCLUSIONS AND RECOMMENDATIONS

This paper aimed to analyze the state of energy poverty in Macedonia and the policies tackling it in order to draft better solutions. Energy poverty as an issue has challenged the already socially fragile Macedonia on its way to market economy transition and EU integration process.

Energy poverty as a social-economic phenomenon has affected a broader scope of population than initially envisaged with the policies directed towards it, also shown by the massive social unrest protesting against the energy price increase. Energy poverty is not defined in the

[72] *Milica Andonov, Ministry of economy*, Results from financing solar collectors*, Presentation at conference Financing energy efficiency and renewable, Energy week Macedonia 2012*

[73] *Energy Agency of the Republic of Macedonia,* Annual report for 2012*, (2013)*

[74] *The local energy efficiency plans such as those of the municipalities of Bitola, Gevgelija, Caska, Kratovo and Tetovo.*

[75] *This has been the case with municipalities of Karposh, Strumica and Kumanovo with advanced local gasification projects, however many more municipalities announces to launch similar projects.*

[76] *Questionnaires for municipalities of Karposh, Strumuca and Kumanovo, answered January and February 2013*

[77] *This concerns for example the energy efficiency plans such as those of the municipalities of Bitola, Gevgelija, Caska, Kratovo and Tetovo.*

Macedonian legislation; however there is an ongoing subsidy for only a very narrow group of affected households by this problem. The energy strategies envisage lot of good measures against energy poverty as investing in energy efficiency, using efficient fuelwood stoves, improving the district heating etc., although they have not been implemented yet. However, one thing the energy strategies lack is a proper estimation of the scope of the affected part of the population. Important to underline is that energy poverty treatment in non-productive way through subsidies does not contribute to solving this issue in the long term since it does not encourage energy saving, abandonment of electric heating and implementing energy efficiency measures. This problem of energy poverty needs an urgent solution due to the expected liberalization of the energy market in Southeast Europe and the further increase of the price of electricity. As argued, investing in energy efficiency is the most effective solution to energy poverty, which needs to be properly implemented. Tackling energy poverty is important in order to bring the country on a sustainable path.

Thus based on the analysis, this paper recommends:

- **The Ministry of Economy in cooperation with the Ministry of Labour and Social Policy and other stakeholders as universities, research centres, civil society organizations etc. to define energy poverty and to determine the scope of energy poor in Macedonia based on the adequacy of heating conditions of the households' premises.**
- **The Ministry of Economy to make sure that the energy efficiency measures envisaged in the energy strategies as using efficient fuelwood stoves, introducing metering in the district heating, energy efficiency measures in low income families etc. are implemented and that their implementation is monitored.**
- **The Ministry of Transport and Communications in cooperation with the Ministry of Economy and other stakeholders to implement the social housing project: to prepare the Act on Social Housing and to ensure that these housing facilities have the highest energy efficiency standards.**
- **The Ministry of Economy, the Ministry of Labor and Social Policy to recognize that most efficient and priority measure against energy poverty is investing in energy efficiency of households in form of one time free of charge assistance in improving the energy efficiency of the households' homes after previously having estimated the scope of energy poor in Macedonia.**
- **The subsidy for energy consumption to be gradually replaced by one time free of charge investment in energy efficiency measures in well defined energy poor households starting with multi-member households, households with pensioners, households with several children, households with welfare beneficiaries, households headed by unemployed adults, households who depend on agriculture and households with young children.**
- **The Energy Regulatory Commission when increasing electricity gradually to reach the market price, to conduct regular analysis in cooperation with research centres, the Ministry of Economy and other stakeholders of the relationship between electricity increase and the scope of socially vulnerable consumers.**
- **The Ministry of Economy in cooperation with other stakeholders to conduct heat market based study for Macedonia in order to improve the heat market as a measure against energy poverty with a special focus on improving the district heating services, reducing wasted energy by replacing electric heat with efficient biomass practices, natural gas, increased use of renewables and improved energy efficiency.**
- **The Energy Efficiency Fund to be finally established and to become also a source for financing energy efficiency and renewable energy projects for households.**

[78] *IEA*, Energy in the Western Balkans The path to reform and reconstruction,*(2008)*

• **The municipalities to consider tackling energy poverty in their energy efficiency plans by including implementation of energy efficiency measures in the households too, to consider implementing local gasification projects with aim also to bring natural gas to households and building small cogeneration utilities.**
• **The Ministry of Economy, the Energy Agency and other stakeholders in cooperation with municipalities, civil society organizations etc. to launch campaigns on the meaning of energy poverty and the importance of implementing energy efficiency measures as a way of tackling it on national and local level.**
• **The households belonging to the middle class especially with pensioners and young children to invest in energy efficiency in their homes and if applicable to consider using more efficient fuelwood stoves and other types of biomass not only fuelwood.**

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