



## Investing in Energy Efficiency

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### IENE Background Paper

## Addressing Energy Poverty in SE Europe



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## ADDRESSING ENERGY POVERTY IN SE EUROPE



BACKGROUND PAPER

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## Introduction

The provision of secure, affordable and modern energy for all citizens is central to poverty reduction and economic growth. Historically, the pathway to economic growth has largely been a consequence of a shift away from an agrarian based economy towards industrialisation and a knowledge-based economy. Such structural changes in an economy in turn change its patterns and levels of energy consumption and shift the types of fuels and energy technologies it utilises. Economic and social development thus tends to go hand-in-hand with increased energy use and energy sector transformation.

Lately, it has been realized that Europe is facing an acute energy poverty situation especially visible in SE Europe, where 30% or more of households are struggling to meet energy costs, according to Živčić et al. (1). It is widely but erroneously assumed that energy poverty has the same characteristics, regardless of the cultural, climatic or political background. However, practice has shown that regional and historical differences play a significant role in prevalence and form of energy poverty.

## Defining Energy Poverty

Energy poverty can be characterized as a condition commonly understood as the inability of a household to secure socially and materially-necessitated levels of energy use at home, a situation which is gaining increasing policy and scientific attention across the European Union. Some analysts define energy poverty as the inability of a household to afford domestic heating and other energy services, in case it needs to spend more than 10% of its income for this purpose. The 10% figure was derived from a study that showed deprivation to occur when the burden of energy exceeded double the national median (2).

Previous to this, scientific investigations of the poverty issue were limited (3). In 2012, a widely-discussed review undertaken by economist John Hills (4) provided an extensive exploration of the implications of this definition, proposing the movement towards a “Low Cost High Income” definition. Another academically robust review of the development of fuel poverty definitions in a UK context – and their wider European applicability – has been elaborated by Moore (5).

More recently, several analysts have highlighted the need for a common EU definition of energy poverty, but such a decision creates tensions. Table 1 describes the advantages and

disadvantages that will emerge from the formation of a common EU definition, as analysed by the European Parliament's Committee on Industry, Research and Energy (6).

**Table 1: A common energy poverty definition in the EU: pros and cons**

Arguments in favour of a common EU definition	Arguments against a common EU definition
<ul style="list-style-type: none"> <li>- Higher political visibility and public awareness</li> <li>- Development of a common language around the problem</li> <li>- Ability to devise standardized statistics and measures</li> <li>- Opportunities for integration with different policy domains</li> </ul>	<ul style="list-style-type: none"> <li>- Energy poverty has multiple components, therefore a common definition will erase complexity</li> <li>- Prioritization of only one group of vulnerable people versus others due to targeting inaccuracies</li> <li>- Inability to incorporate region- and country-specific differences</li> </ul>

*Sources: Bouzarovski et al. (2012) (7), Deller (2016) (8), Thomson et al. (2016) (9)*

Currently, the lack of a common definition means that there is no official figure about the extent of energy poverty in Europe. Estimates range between 50 and 160 million people depending on the metrics that are used. The only pan-European measures that are available in this context originate from Eurostat, and the total figure varies depending on the types of statistics and indicators that are chosen (as there are multiple ways of describing and experiencing energy poverty).

### Energy Poverty in SE Europe in Comparison with the Rest of Europe

It is commonly but falsely assumed that energy poverty has the same characteristics everywhere, regardless of the cultural, climatic or political background. Through practice it was shown that regional and historical differences play a significant role in prevalence and characteristics of energy poverty. The SEE region has some specific characteristics as compared to other parts of the EU, especially Western Europe. Energy poverty is still an issue of little or no political interest in the region, and hence the problem is less recognised, monitored or tackled than in Western European countries such as the UK or France.

As already mentioned, it is estimated that 30% or more households are struggling with energy poverty in SE Europe. However, more research is needed in most SEE countries in order to validate such figures. Immediate action is needed to understand what the actual situation is as more families are being forced to take action that severely impact their well-being, such as self-disconnection from heating, electricity and water grids.

A general and valid observation is that the bulk of the housing stock in SEE countries is in a relatively poor state as compared to the rest of Europe. Poor construction materials, poor or

non-existent insulation and poor maintenance contribute to the inadequate state and high inefficiency of many dwellings. This, combined with old, inefficient and poorly maintained heating systems and domestic appliances, contributes to widespread and more acute energy poverty in the SEE region as compared to the Western Europe. In some cases, the buildings are in such a deteriorated state that it is doubtful whether full energy efficiency retrofitting would be possible even if they would have the opportunity to do so. Many buildings are of substandard construction quality, and it would not be cost-effective to undergo refurbishment, hence re-settlement programmes would be needed.

In SEE countries, the share of households not connected to the electricity grid is higher than in Western Europe. In such situation, it is hard to address energy poverty with measures for improving energy efficiency, so alternative programmes for ensuring access to electricity would be needed. In some cases, the grid exists, but the households cannot afford to connect to it; in other cases, the grid is relatively close, but not at the location of consumption; and in some other cases, it would not even be cost-effective to consider grid connection, so that installation of off-grid PV systems and similar solutions need to be considered.

In addition, in SEE countries, there are very limited social or other support mechanisms to help energy poor households as compared to the rest of the EU. While some minor positive cases appear (e.g. 100% subsidy for insulation of energy poor households in Slovenia), these cases are almost negligible in comparison with the support programmes that exist in Germany or the UK.

Unlike other parts of the EU, some of the currently existing funding programmes for abating energy poverty in SEE countries function in a way that the majority of funds are granted for the direct purchase or subsidized fuel oil and/or low-quality coal and briquettes with high humidity content burned in inefficient heaters.

In most SEE countries, no clear division between social housing and non-social housing buildings or areas can be detected. This means that in most cases measures for eradicating energy poverty cannot be targeted at specific areas or neighbourhoods, which complicates both the identification of the most vulnerable areas and the actions that need to be taken (measures have to be more dispersed). In several cases, citizens in SEE countries had to make a switch from subsidized energy prices to market-based prices, which resulted in continuous and significant increase in energy bills. Behaviour and habits of the people,

arising from subsidized energy prices, represent a significant barrier to abating energy poverty in the SEE. People do not have the understanding that energy use needs to be managed properly, leading to often wasteful use of energy and consequently to higher energy bills.

Furthermore, whereas in some Western European countries it makes sense to shape measures for stimulating landlords to invest in increasing energy efficiency of their building stock, this is less applicable in SEE countries. Namely, these countries have a significantly higher share of home ownership than the rest of Europe. While landlords might have funds to invest in the needed improvement, this is not the case with the poorer owners of their flats; hence different approaches must be taken, such as providing subsidies for energy efficiency of the energy poor households

Households in SEE countries can benefit from the installation of 'low-tech' devices, such as draft proofing or efficient light bulbs, while this is often not the case in Western European countries (e.g. in Germany or the UK, where double glazing is standard, so installed devices tend to be 'high-tech', for instance wireless switchers). This different context needs to be taken into consideration when discussing EU-wide attempts at addressing energy poverty. It is often possible to extend these characteristics to Central and Eastern European region.

### Energy Poverty in Greece

In Greece, there is neither a clear definition of energy poverty nor specific indicators for monitoring the phenomenon. Several studies have been carried out to measure energy poverty levels in Greece, in which both quantitative and qualitative indicators (subjective questionnaires) have been used, as well as the energy efficiency status of buildings through the statistics on Energy Performance Certificates (EPCs)<sup>1</sup>.

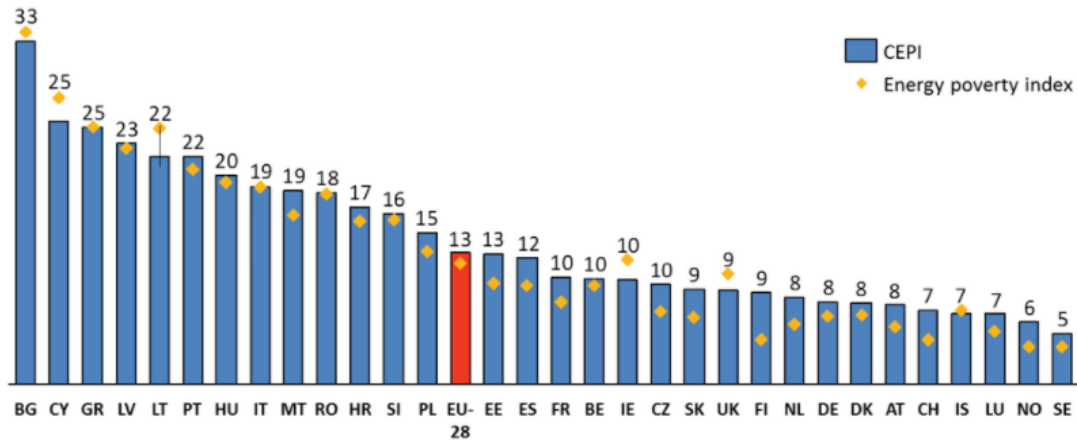
According to the Buildings Performance Institute Europe (BPIE) (10), which studies the extent of energy poverty for the whole Europe by using three proxy indicators (i.e. arrears on utility bills, inability to keep home adequately warm and dwellings with leakages and damp walls), Bulgaria, Greece and Cyprus are the SEE countries with the most acute energy poverty issues in Europe (see Figure 1), although countries with mild climatic conditions. In the case of Greece, 47.6% of its population is unable to maintain adequate heating in dwellings, 54.4% delay payments to utilities and 21% of people live in dwellings with severe

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<sup>1</sup> These are used by energy inspectors carrying out building energy audits.

leakages and damp walls when the European averages are 10.8%, 10% and 15.1% respectively.

**Figure 1: Compound Energy Poverty Indicator (CEPI) vs Energy Poverty Index in the EU-28**



Note: “Energy poverty index” uses three variables, which are arrears on utilities, poor dwelling quality and the self-assessed inability to maintain the home adequately warm. CEPI includes two additional variables, which are dwellings not comfortably cool during summer time and dwellings are too dark.

*Source: Maxim et al. (2016) (11)*

Papada and Kaliampakos (12) found that Greece’s population that lives under the threat of energy poverty reaches up to 58%. The more vulnerable households are those with low incomes, those living in detached houses, in colder climatic zones and in higher altitudes.

So far, energy poverty in Greece has not been high in the political agenda, despite the serious socio-economic dimensions of the problem. Fuel prices have undergone significant fluctuations in Greece since the outbreak of the economic crisis. More specifically, the cost of heating oil, the main source of heating for Greek households, has followed an upward trend since 2010 mainly due to consistent tax increases and less as a result of the increased cost of oil. In order to tackle the problem of fuel price instability, the Greek government, since October 2012, has adopted an allowance policy for heating oil supply, thus subsidizing its use.

In the same context and in line with reducing energy demand in the residential sector, energy saving interventions have been supported by the Greek government since 2011, through the action “Energy Saving at Home”. This action motivates citizens improving the energy performance of their houses (e.g. replacement of windows or heating systems, thermal insulation, etc.), by receiving from 15% up to 70% subsidy, on the basis of financial criteria. Low income people (with family income less than €20,000 or individual income less

than €12,000) seem to be the privileged beneficiary group of the particular action since they can receive a 30% interest-free loan and a 70% grant of the eligible budget. A total of 52,249 homes have benefitted from the scheme from its launch until November 2017.

The results of the Programme have been reported by Theofylaktos and Stambolis (13). More specifically, during the five years (2010-2014) of running this programme, Greece absorbed almost €486 million with more than 40,000 successful applications in various types of buildings for Energy efficiency improvement and 136.000 replacement air conditioning units. However, implementation of this “Energy Saving at Home” necessitated cooperation with the banks through which all applications were handled. As a result, low-income people who are usually regarded as uncreditworthy by the banks, they were the first ones to be excluded from the Programme. The Joint Ministerial Decision for Greece’s new “Energy Saving at Home II” programme was signed in early February 2018 with a budget of approximately €250 million from the National Strategic Reference Framework (NSRF) 2014-20 and came into effect in March this year.

Although a large part of Greek residences are thermally unprotected as built before 1979, 71% of them have not taken any action to reduce thermal losses. Most of them have changed their heating system or have added a supplementary heating system to the existing one in order to cover their basic needs. However, these actions constitute short-term solutions, instead of implementing more effective ones based on energy optimization of buildings. As shown, the measures taken by the Greek government in order to tackle energy poverty have proved to be insufficient. Greek energy policy should focus more on energy upgrade of buildings through providing real incentives to households, and especially low-income ones, rather than supporting them financially for a short-term period. Therefore, it needs to be thoroughly reconsidered, taking into account not only the various objective aspects of the problem but the social implications as well.

### EU Policy for Vulnerable Customers

At the 10<sup>th</sup> SE Europe Energy Dialogue that IENE organized in Belgrade on June 13-14, 2017, Mr. Savvas Politis, Scientific Project Officer at the European Commission’s DG Joint Research Center, presented the EU policy about energy poverty (14). More specifically, EU Directives 2009/72/EC and 2009/73/EC require Member States to “develop national action plans or other appropriate frameworks to tackle energy poverty” and to define and protect “vulnerable customers”.



In addition, EU Directive 2010/31/EU – on the energy performance of buildings – suggests that energy poverty could be mitigated through better energy efficiency of buildings. Directive 2012/27/EU – on energy efficiency – investments in energy efficiency can help prevent fuel poverty and should be a priority in energy-poor households, while Member States can require that vulnerable customers benefit from energy efficiency efforts within energy obligation schemes. The Western Balkan 6<sup>2</sup> have focused so far on the priority measures relevant for implementation of both Directives 2010/31/EU and 2012/27/EU. On May 14, 2018, the European Council adopted a revised directive on the energy performance of buildings<sup>3</sup>, so completing the final stage in the legislative procedure. The review of the energy performance of buildings directive amends Directive 2010/31/EU and complements measures under the energy efficiency directive as well as EU legislation on energy efficiency of products.

The EU's Winter Package<sup>4</sup> presents a new approach to protect vulnerable consumers. Member States are therefore expected to take energy poverty into account by:

1. reducing the costs of energy for consumers through support in energy efficiency investments
2. requiring a share of energy efficiency measures to be implemented as a priority in households affected by energy poverty or in social housing
3. implementing procedural safeguards before a consumer can be disconnected.

Furthermore, EU funds promoting energy efficiency should likewise focus their attention on those members of the public hit by energy poverty so that they too benefit from better energy efficiency obligations, improvements in the retail market and promotion of self-consumption.

### **Financing of Energy Efficiency Projects and Related Investments in the Western Balkans**

The contribution of donors and development institutions has been highly valuable with regard to the opening and establishment of the energy efficiency market during the past

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<sup>2</sup> In 2014, the political leaders of the Western Balkan countries, i.e. Albania, Bosnia and Herzegovina, FYROM, Kosovo, Montenegro and Serbia, met for the first time under the term Western Balkans 6 (WB6) in Berlin. The aim is to bring a new dynamism to regional cooperation. One of the main aims is building and connecting transport and energy infrastructure as a driver for growth and jobs.

<sup>3</sup> <http://www.consilium.europa.eu/en/press/press-releases/2018/05/14/energy-efficient-buildings-council-adopts-revised-directive/>

<sup>4</sup> <https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>

decade, especially via the provision of long term funding, technical assistance and incentives. Commercial banks are still provided with most of the available funding by these bodies. In some occasions, commercial banks provide funding to their own energy efficiency initiatives, usually in smaller volumes, and after an initial learning phase under official funding and technical assistance by institutions like the European Union, United Nations Development Programme (UNDP), United States Agency for International Development (USAID), Scandinavian donor, etc.

As far as difficulties in market development are concerned, access to financing, and in a wider context projects' bankability, has been considered as a major concern in the Western Balkan economies (15). According to the Global Competitiveness Index (GCI) 2017-2018 (16), prepared by the World Economic Forum, most of the Western Balkan 6 countries are ranked relatively low in categories related to financing, compared to other countries around the world (see Table 2).

**Table 2: Ranking of Five Western Balkan Countries in Terms of Financing Conditions (GCI 2017-2018, out of 137 economies)**

Country \ Index	Albania	Bosnia and Herzegovina	FYROM*	Montenegro	Serbia
Availability of financial services	79	122	-	119	107
Affordability of financial services	72	114	60	106	116
Ease of access to loans	94	83	45	84	86

\* latest data are from the Global Index 2016-2017

*Source: World Economic Forum*

Consequently, factors, such as the lack of consumption-based billing and the absence of adequate legal structures supporting loans for the renovation of multi-owner buildings, have an important impact on the projects' financing.

Apart from access to financing, some other obstacles could be also identified. For instance, subsidised energy prices are often considered as major dis-incentive to investments in the energy efficiency sector and are accompanied with delayed or incomplete bill payments. The recent increase in electricity tariffs in countries like Albania, Kosovo, Montenegro or Serbia, along with securing payment measures, have initiated the process of addressing the effects of this issue. Nevertheless, an increase in energy prices is a sensitive issue in a region where energy poverty affects a great share of its population.

The active presence and contribution of international institutions and bodies have facilitated the deployment of the energy efficiency sector in the Western Balkans. The two main funds that have been established and developed based on the initiative of the main European International institutions are the following:

The first one is the **Green for Growth Fund (GGF)**, an innovative public-private partnership established to reduce energy consumption and CO<sub>2</sub> emissions. GGF, which was initiated by EIB and KfW, is the first specialised fund which has focused on the promotion of energy efficiency and renewable energy sources in SE Europe. The geographical coverage has steadily widened from the Western Balkans to Eastern Neighbourhood and more recently North African and Middle East countries. Apart from EIB and KfW, it has also been supported by the International Finance Corporation (IFC), the German Federal Ministry of Economic Cooperation and Development, the EBRD, Netherlands Development Finance Company (FMO), Oesterreichische Entwicklungsbank AG (OeEB), private institutional investors, and the European Commission. By 2016, GGF had invested a total of €249 million in energy efficiency and renewable energy projects in SE Europe, including €93 million in the Western Balkans, the report of the Western Balkans Investment Framework<sup>5</sup> refers.

The second one is the **Regional Energy Efficiency Programme (REEP)**. This programme aims at further evaluating the potential of higher use of renewables and energy efficiency measures by providing a mix of financing instruments, technical assistance and policy support in order to develop and establish a sustainable energy efficiency market in the Western Balkans<sup>6</sup>. The target countries are Albania, Bosnia and Herzegovina, Croatia, FYROM, Kosovo, Montenegro and Serbia. It has been developed and funded by the EBRD and the European Commission and implemented jointly with the Energy Community Secretariat. Its operation covers three areas:

1. Energy efficiency policy support and development of the ESCO concept<sup>7</sup>
2. Funding and grants to energy efficiency and renewables projects in both private and public sectors (WeBSEFF II)

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<sup>5</sup> The Western Balkans Investment Framework, developed under the coordination of the EU, international financial institutions, bilateral donors and the Western Balkans governments, supports the socio-economic development and process of the Western Balkans accession to the EU. (17)

<sup>6</sup> <http://www.wb-reep.org/>

<sup>7</sup> According to the ESCO concept, energy-saving investments are outsourced to an external company, which provides a comprehensive set of energy efficiency measures and takes full responsibility for either implementation, the realization of the savings, organizing the funding or all the above to save energy. The customer repays the project through the accumulated energy savings during the service period.

3. Direct financing of larger renewables and energy efficiency projects of primarily industrial companies (WeBSEDF II)

Overall, the REEP has been expected to deliver €140 million of loans to 20,000 households and housing associations for energy efficiency and renewable energy sources projects.

Finally, it should be mentioned that another factor that sets barriers for market development is the limited political support for energy efficiency projects in the region, as frequent political changes do not facilitate the necessary commitments for long-term policies. Furthermore, it has been noticed that public awareness of the energy efficiency in the region is not very high.

According to a recent report (18), prepared by the Western Balkans Investment Framework, the following list describes the main international donors and financing programmes in SE Europe:

#### **European Bank for Reconstruction and Development (EBRD)**

The EBRD has invested about €2 billion in green projects in the Western Balkans during the past decade. These activities comprise investments in the deployment of the renewable energy sector, the integration of electricity networks, along with energy efficiency investments in industry. The REEP, together with REEP plus, consist the EBRD's main energy efficiency and renewables tool in the region. Moreover, the Kosovo Sustainable Energy Project (KoSEP), which is supported by the EU and Norway, is also operated by the EBRD and fosters investments in energy efficiency projects in residential and business sectors in Kosovo through loans and grants distributed via financial institutions.

#### **European Investment Bank (EIB)**

The EIB supports the sectors of energy efficiency and renewables in the region via credit lines to financial intermediaries, direct financing of projects, and via its global loans. Moreover, EIB has also participated in the 2007 Energy Efficiency Finance Facility, with intermediated lending operations in Croatia and Turkey.

#### **KfW**

KfW has supported the SEE countries regarding their social and economic change, on behalf of the German Federal Government. The current operating facilities amount to about €130

million and some facilities benefit from EU support. Moreover, KfW is one of the founders and the largest investor in the Green for Growth Fund.

### **World Bank**

The World Bank has acted as one of the major active supporters of the deployment of the energy efficiency sector in the Western Balkans. Its current efforts have mainly focused on the buildings sector, especially public buildings. Programmes have been recently completed in FYROM and Serbia, while there are others ongoing in Bosnia and Herzegovina, Montenegro and Kosovo, with a total investment that exceeds \$180 million. Furthermore, International Finance Corporation (IFC) works with financial intermediaries in the region in order to establish and finance energy efficiency instruments. IFC has supplied so far technical assistance and sometimes funding to financial intermediaries in Albania and Kosovo. Also, IFC is a major investor in the Green for Growth Fund.

## **Retail Financing in the Western Balkans**

In the Western Balkans, commercial banks and retail financial institutions have been active so far regarding the provision of energy efficiency and renewable energy sources financing.

### **Albania**

In Albania, the majority of banking institutions provide financial services to the residential sector in collaboration with Development Financial Institutions (DFIs). More specifically, BKT has partnered with GGF, while Credins Bank, Fondi Besa, NOA Microfinance, SocGen Albania, Union Bank have partnered with IFC for financing in the residential sector in terms of technical assistance. Procredit Bank provides also financing to SMEs and the residential sector.

### **Bosnia and Herzegovina**

In Bosnia and Herzegovina, several banks provide financing in partnership with the major regional DFIs. As far as the Green Growth Fund is concerned, NLB Razvojna Banka (covering also the sector of SMES), Partner MKF and Unicredit Bank Banja Luka provide financing services to the residential sector in collaboration with the considered fund. As far as SMEs in Bosnia and Herzegovina are concerned, Raiffeisen Bank and Unicredit, which have also partnered with REEP/WebSEFF 2, along with Procredit Bank, provide services to this sector.

Furthermore, Raiffeisen Bank is KfW's partner in Bosnia and Herzegovina, covering both SMEs and the residential sector.

### **Kosovo**

All banking institutions in Kosovo provide financing services to both SMEs and the residential sector, most of them in partnership with the main active DFIs in the Western Balkans 6 region. As far as the EBRD/KOSEP programme is concerned, AFK, BPB Banka per Biznes, KRK, and TEB Bank have partnered in this programme. Regarding IFC, in terms of technical assistance, BPB Banka per Biznes and NLB Prishtina are IFC's partners. Furthermore, AFK has partnered with GGF, while Procredit Bank is also active in the country.

### **FYROM**

In FYROM, the majority of active banks finance the SMEs. The key banking institutions include Halkbank, Komercijalna Banka, NLB Tutunska Bank, Ohridska Banka SG and Unibank, which are partners with MBDP – the REEP/WebSEFF 2 partners, which in turn are NLB Tutunska Bank and Ohridska Banka SG. As far as the partnership with GGF is concerned, Halkbank and Ohridska Banka SG have been engaged with the provision of financing services to the residential sector and SMEs respectively. Furthermore, Procredit Bank's target markets are both SMEs and the residential sector.

### **Montenegro**

A diversification of target market(s) could be identified in Montenegro. The majority of the banks have not been partnered with DFIs, such as Atlasbanka and Hypo Alpe-Adria, which provide financing to local authorities and the residential sector respectively, while Crnogorska Komercijalna Banka, Hipotekarna Banka and Komercijalna Banka Budva support the SMEs sector. As far as DFIs are concerned, Alter Modus has partnered with GGF for both SMEs and the residential sector, while Investiciono Razvojni Fond CG has partnered with EIB for the sectors of local authorities and SMEs.

### **Serbia**

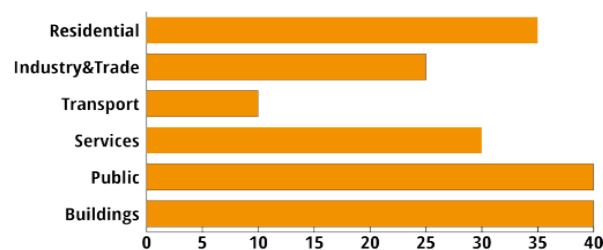
Among the Western Balkan 6 countries, Serbia has the largest market and greatest number of collaborative banking institutions. Most of them finance either SMEs or the residential sector, in partnership with DFIs, such as Banca Intesa and Čačanska Banka partners with GGF, REEP/WebSEFF 2 and KfW, Halkbank, Intesa Leasing, Komercijalna Banka partners with

GGF or Čačanska banka and Raiffeisen Bank financing SMEs as partners with KfW and so on. As far as local authorities are concerned, Unicredit Bank has been collaborating with REEP/WebSEFF 2 in order to provide financing to municipalities. Regarding the financing of renewable energy sources projects, Erste Bank – in partnership with KfW – and Sberbank have deployed relevant activities in Serbia.

### Energy Savings Potential in the WB6

According to the aforementioned report, prepared by the Western Balkans Investment Framework, it has been estimated by IEA and World Bank sources that the potential energy savings in the WB6 range up to 10% in the transport sector, 10-35% for households, 35-40% in the public sector, 10-30% in services and 5-25% in industry and commerce (see Figure 2). In monetary terms, public buildings and households alone could yield savings valued at €805 million by 2020, according to the Energy Community. Delivering such savings would have a significant impact on trade balances and public and household budgets, enhance energy security, protect against necessary energy tariffs adjustments, and contribute to economic growth.

**Figure 2: Energy Savings Potential (%) in the WB6**



*Source: Western Balkans Investment Framework*

### Possible Solutions in Addressing Energy Poverty in SE Europe

A crucial step in the SEE region is to define and agree on energy poverty indicators which need to be monitored in order to understand this issue, while data collection should be improved. It is important not to focus on measuring what share of income the households spend on energy costs, but rather on calculating the share of income that a household would need to spend on energy costs if it would be using adequate energy services. If the indicators result in “Spend more than 20% of their income”, many energy poor households would not categorize as such because they spend less than 20%, since they cannot afford to spend that much if they want to afford i.e. food. So instead, they cut down on energy use and limit their own energy services in order to spend less on energy costs. Many households

would rather reduce their 'energy comfort' and spend less money to save for some other basic needs, according to Robic et al. (19).

Also, energy poverty should be included in energy efficiency programmes in SE Europe at national level. National programmes for energy poverty should offer implementation mechanisms specifically designed to improve energy efficiency for vulnerable consumers and ensure access to these programmes to low-income households. Apart from implementing low-cost energy efficiency measures, measures to tackle energy poverty should also encompass: replacement of household appliances, replacement of inefficient heating system (with the use of renewables, where possible), different levels of retrofitting the building envelope, total renovation of the buildings, subsidies, which are suitable and useful for energy-poor households (e.g. in the case of high interest rates), loans with no interest should be supported, and all state-owned or council housing should be renovated to improve the housing conditions.

Consequently, energy efficiency programmes for the energy poor should be carefully designed so that they are available and accessible to those in need. It is important to minimise bureaucracy and if necessary provide free assistance in completing documentation and applications for receiving various forms of support for improving energy efficiency. Financial support, such as deduction of energy bills, should be used as a measure after all cost-effective energy efficiency options have been implemented. EU funding, i.e. through the cohesion funding mechanisms, should provide funding lines specifically targeted in tackling energy poverty. At national level, funds available through different schemes, i.e. through the Emissions Trading Scheme and other polluter-pays principles, or national lottery, should also be considered for funding energy efficiency improvements in vulnerable households.

To improve the planning and implementation of energy poverty measures, long-term strategies should be developed in addition to short-term measures. Local actors should be involved in designing strategies, but the responsibility should be carried by high-level decision makers. Policies related to energy poverty must be designed in a fully participatory manner, involving wide range of interested stakeholders in the process, especially focusing on creating links between the social, energy, health and environmental sector. It is necessary to work towards harmonization of energy and social policies, as well as towards integration of energy poverty policies with a wider array of policies, such as employment, housing or pension policies.



It is worth noting that the European Commission will facilitate the exchange of best practices and coordinate these monitoring efforts at EU level with the support of the recently established Energy Poverty Observatory<sup>8</sup>. This observatory was set up in order to assist Member States and other stakeholders to respond to the following challenges:

- poor quality and availability of statistical data
- policy transfer not being always successful even if some Member States are being very proactive in addressing the problem
- huge number of European and nationally funded projects focused on energy poverty, but there is no mechanism for disseminating the project findings and key lessons in a comprehensive manner.

## Discussion

According to Costas Theofylaktos, Chairman of IENE's Energy Efficiency Committee, energy poverty is a growing problem in Europe, where 52.08 million people cannot keep their homes adequately warm, 161.42 million are facing disproportionate housing expenditure, 87.46 million are living in poor quality dwellings and 41.74 million face arrears on their utility bills. However, there are significant opportunities to address the issue via demand-side energy efficiency policies at regional scale. A regional level-indicator of energy poverty is needed, customized for SE Europe peculiarities and tied to EU assistance for residential energy efficiency (20).

The issue of energy poverty should be considered as a relative term and not as an absolute number. The trends in the 21<sup>st</sup> century indicate that we are moving towards democratization of power generation with millions of power producers, instead of a few large central power stations as in the previous century. Renewable energy sources will transform consumers to prosumers that will be able to operate their micro energy systems in order to generate, store and use energy. Smart meters can play an extremely important role in gathering useful data and help smart grids. Managing these energy micro-systems will require the achievement of higher energy efficiency which can be reached only through a radical integration of all energy services (digitalization).

Energy efficiency measures would reduce energy consumption while increasing the level of comfort. Improving the energy efficiency of dwellings and of household appliances, while

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<sup>8</sup> <https://www.energypoverty.eu/>

improving the heating and ventilation systems is the most effective and sustainable approach to alleviating energy poverty. These solutions would also help mitigate the effects of climate change, that is in accordance with the Paris Agreement that most SEE countries agreed to at COP21.

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