Improving the energy efficiency of residential buildings in Romania must be a key priority in the Energy Strategy for Romania, currently under revision for the period 2016-2030, with a view to 2050. BPIE has been supporting the Romanian authorities in delivering the EU requirements linked to buildings’ energy performance for over 5 years and is making use of this milestone to report on the reasons why Romania should include measures to improve the energy efficiency of residential buildings. The Romanian Ministry of Energy has identified the following operational strategic objectives:

- Maintaining a diverse and balanced energy mix;
- Increasing interconnectivity – integration with regional energy markets;
- Supporting investments in energy efficiency and low-carbon technologies;
- Decarbonising the energy system through competitive market mechanisms;
- Protecting vulnerable energy consumers and mitigating energy poverty;
- Improving energy governance.

Some of these points can be addressed with targeted measures to improve the energy efficiency infrastructure of the building stock. In 2008, the residential sector ranked as the most energy-consuming category, even exceeding industry. This calls for more action on the residential sector, as it holds a lot of potential to cut energy consumption.

Another relevant aspect to consider is the type of fuel used in the residential sector. This particular building segment ranks second, after energy producers, in terms of annual consumption of natural gas between 2009 and 2014.

Romania is the biggest consumer of gas in the region and buildings are heavily reliant on this fuel. Natural gas accounts for 55% of the total fuel used for centralised heating systems. In 2014, Romania imported 7.4% of its gas, a figure that is low in comparison to other countries in the region, but that might increase as indigenous supplies are depleted. During the next 15 to 25 years, the gas reserves of Romania will decline and, due to its limited interconnectivity, renovating the building stock can prove to be a good long-term solution to make the national gas assets last longer and reduce the need for energy imports. Thus, energy efficiency measures targeting the residential sector could have a big contribution in securing Romania’s energy independence.

In Romania, 44% of the population is connected to the gas supply – while over 50% use wood for heating purposes. Considering these figures, lowering gas consumption through targeted energy efficiency measures in the residential sector would have a considerably positive impact. Lowering heating consumption based on gas by 1 million tonnes of oil equivalent (Mtoe) translates into an average reduction of above 1,060 Mtoe of gas consumption overall.

These investments in the thermal rehabilitation of residential buildings are even more worthwhile given the dedicated budget line of the EU to support Member States’ endeavours. Thus, for the period 2014-2020,

European funds cover 49.2% of the total investments linked to the thermal renovation of residential buildings. Making best use of these funds will positively contribute to Romanian’s 19% energy efficiency pledge with regards to 2020 goals.

But, in order for Romania to fulfil its commitments, the European country has to tackle its largest consumer segment with the most potential for energy reduction.

On top, an “Energy Efficiency First” approach will not only address long-term climate issues; it will also deliver a number of multiple benefits, such as health and air quality improvements, fuel poverty alleviation, stimulation of the domestic building industry, energy security.

A deeper look

The residential building stock in Romania counts 8.4 million dwellings, of which 3.5 million are located in apartment blocks. Of these, around 2.4 million are suitable for energy efficiency improvements, while the rest of dwellings are damaged beyond a viable economic justification for renovation. These 2.4 million apartments, along with public buildings, receive European funds from programmes aiming to improve the energy performance of buildings. A large share of these buildings is connected to the gas supply, inhabited by a vulnerable segment of the population as well as technically easy to renovate, which makes them especially relevant.

The EU-funded project ENTRANZE offers recommendations on how to adapt policies in order to maximise energy gains. The project, which concluded in 2015, sought to actively support policy-making by providing the required data, analysis and guidelines to achieve a fast and strong penetration of nZEB (nearly Zero-Energy Buildings) and RES-H/C (renewable energy heating and cooling) within the existing national building stock. As Romania was a target country for ENTRANZE, a set of policies were developed in order to be integrated in the Romanian strategy to mobilise investments in the energy efficiency of buildings.

ENTRANZE ran policy scenarios for Romania which ranged from Business As Usual (BAU) to Growing Up and Market Transformation models, depending on the level of ambition. The degree of ambition and growth depends on the rate of increase in fuel prices, which in the models are either Low (represented by “L”) or high ("H").

The figure below shows the cumulative investments until 2020 and 2030, based on the level of ambition of the scenarios considered.

Given that Romania will allocate more than €3 billion to energy efficiency programmes until 2020 (consisting of allocations of around €1 billion by 2016 from public funds, private funds, EIB loans and EU funds from the period 2007-2013, plus over €2 billion in EU funds to be allocated by 2020⁴), the figures fit between the baseline and moderate scenario BAU · H and Growing up · L (i.e. between 2050 and 4597 billion euros).

An increase in energy efficiency between 4.2% and 4.5% on the national level by 2030 – compared to 2020 - and a reduction in gas dependency by more than 8.0% compared to 2014, is feasible through the implementation of targeted thermal renovation measures, covering the whole building stock. These estimations align with the less ambitious scenarios and, therefore, they can even be exceeded. Considering the likely growth of fuel prices, the more ambitious scenarios are the most beneficial.

In order to reach the goals Romania has set for itself, investments for the period 2020- 2030 should be quadrupled compared to the funds allocated between 2014 and 2020. Considering the EU is investing in this field, the costs for Romania can be affordable.

Romania can very well set a path to gain its energy independence and fulfil its commitments to the EU by prioritising energy efficiency improvements in its residential building stock.

More information on the financial and strategic benefits of investing in energy efficiency infrastructure can be found in the latest BPIE report entitled *Safeguarding energy security in South East Europe with demand side infrastructure*⁵. While in this study Romania is categorised as facing a low risk in case of gas disruptions, in the long term, the situation can take a turn for the worse as local gas supplies will be depleted.

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⁴ Around €2 billion allocated for the period 2014-2020 will probably be spent between 2017 and 2023.

Romania is the second biggest country among the EU-13 newer Member States that joined the EU since 2004. The savings potential in energy consumption and greenhouse gas emissions in the country is significant. BPIE has been active in the country since 2011, supporting stakeholder debates and policy-making on topics such as nearly Zero-Energy Buildings, financing instruments and the national renovation strategy. More information can be found on BPIE’s website.