Cost-benefit Analyses of Investments in the Energy Saving Measures of the Residential Sector in Central and Eastern Europe

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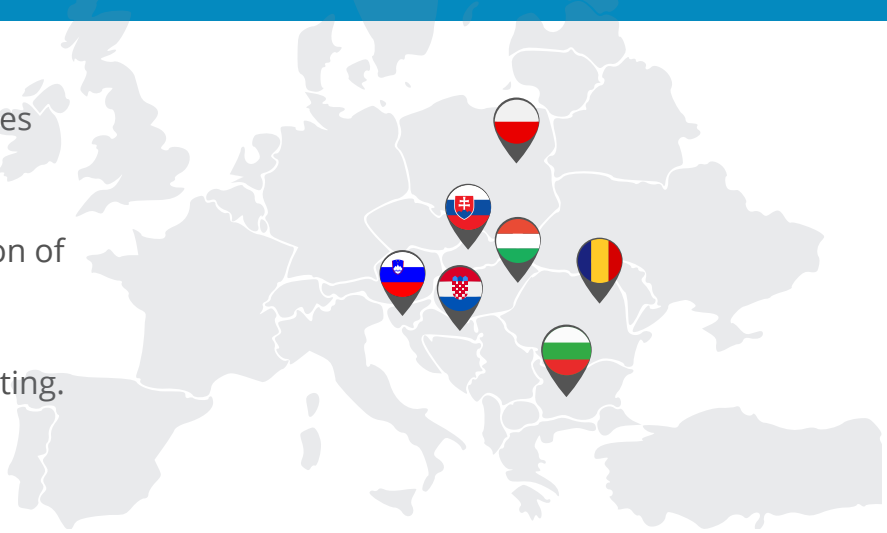
The purpose of the study

IEECP examines the implementation of the Energy Efficiency First principle in practice when comparing supply side to demand side energy investments in fossil fuels. This study simulates different policy measures with a particular focus on fossil gas investments.

The study demonstrates how the budgets devoted to fossil fuel-related infrastructures and supply in different countries could be used to achieve energy efficiency improvements through the implementation of different policy measures, including some suggesting the use of renewable energy sources, specifically focused on space heating.



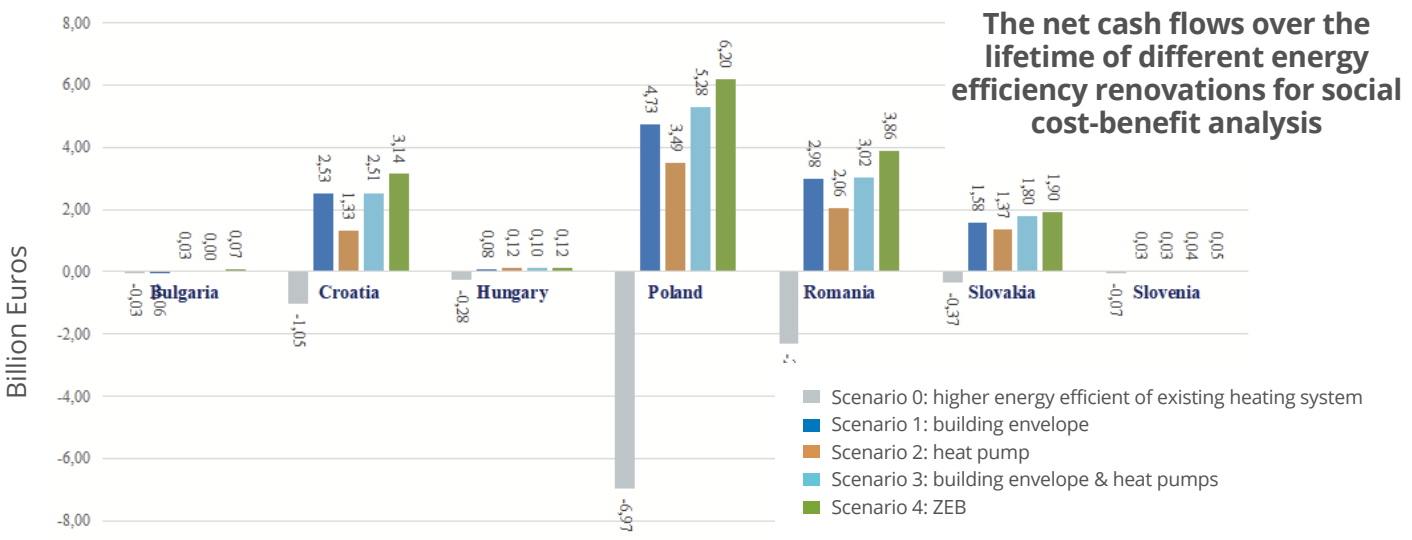
Methodology

4 scenarios

on demand side energy efficiency investments i.e. energy retrofitting, were delineated, in addition to the baseline scenario where an improvement of existing fossil fuel boilers was considered.

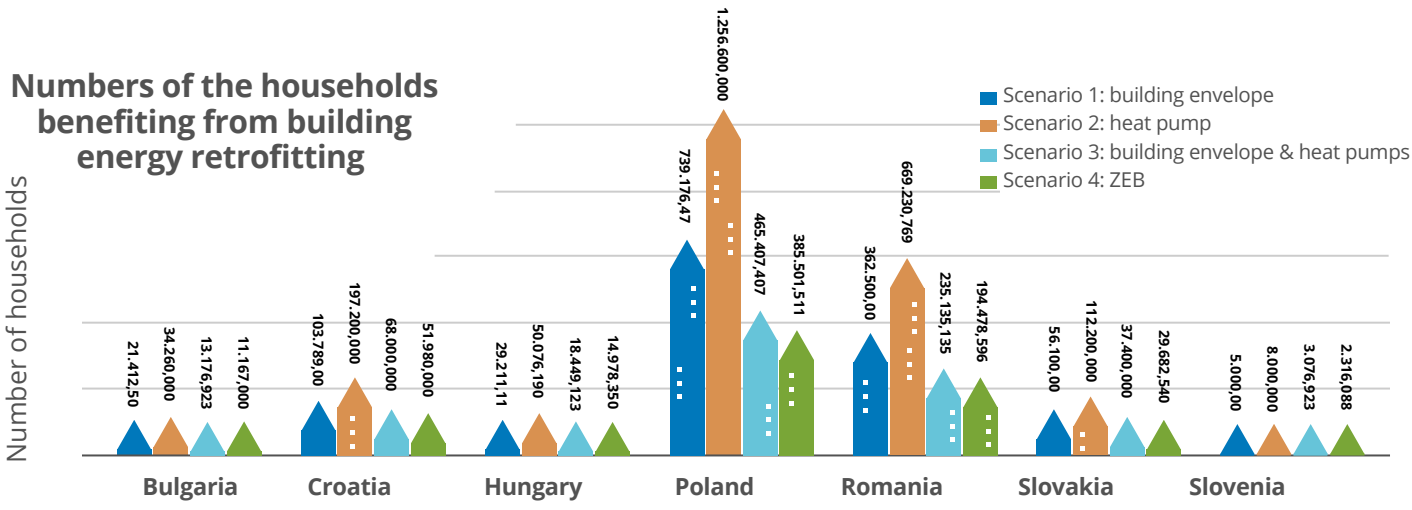
1. The upgrade of the building envelope
2. Installation of heat pumps
3. Combination of the first two scenarios (energy retrofit and heat pumps)
4. Combination of the first two + implementation of solar photovoltaics to obtain zero-energy buildings

These scenarios were confronted and compared by performing a purely **economic and a social cost-benefit analysis- SCBA** (through Net Present Value, Internal Rate of Return and Benefit to Cost indicators).



Conclusions

- The policy interventions in the target countries need to be modified towards prioritizing demand-side energy efficiency investments (e.g., subsidies for renovations) over supply-side energy investments (e.g., natural gas infrastructure).
- Scenario 0 does not provide benefits in terms of social cost benefit analyses for all the countries, therefore, it is not considered in the proposed policy during the long-term.



- Scenarios 1 to 4 contribute considerably for the residents if the external costs and benefits of these Scenarios are considered when evaluating these Scenarios. The indicators of SCBA are all positive for these Scenarios and in comparison, with the supply side energy investment are highly beneficial for these countries.

Recommendations

Evaluate alternative means of financing the required investments in accordance with the provisions of National Energy and Climate Plans (NECPs), such as, the introduction of tax incentives and the provision of low-interest loans to supplement the foreseen resources for the provision of direct subsidies.

Establish a legislative framework to provide for programmes to save and reduce energy consumption among household consumers by energy providers or other market players.

Read the full study