

TAKING BACK CONTROL: REDUCING EUROPE'S VULNERABILITY AGAINST ENERGY PRICE VOLATILITY BY FAST TRACKING DEEP BUILDING RENOVATION

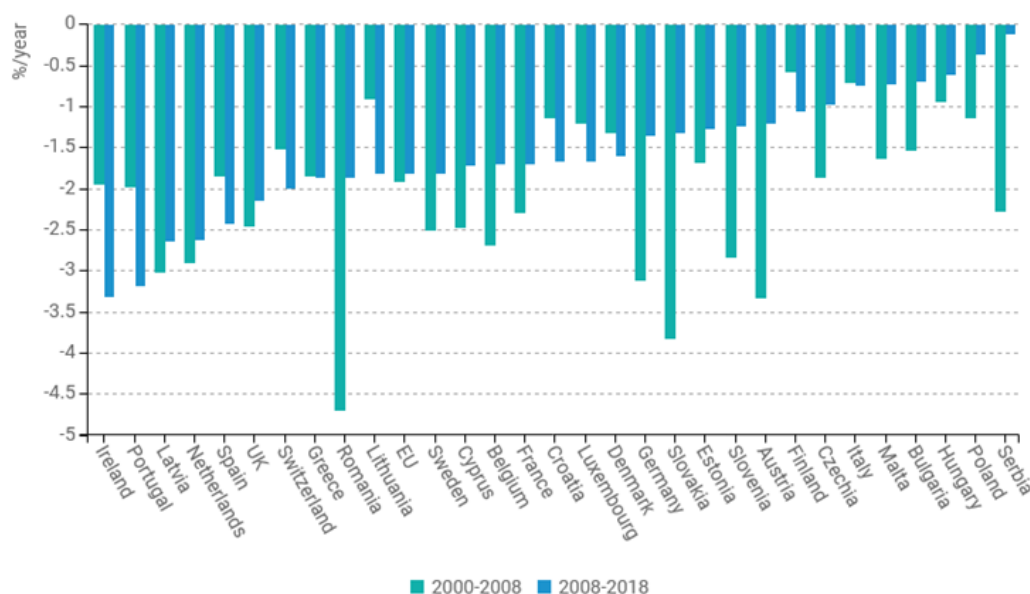
POLICY BRIEFING

OCTOBER 2021

The recent energy price hikes are a stark warning about Europe's vulnerability for having access to affordable and clean energy supply. The societal cost burden is exacerbated by the fact that many European households have switched to gas for heating in the past decades, while investments in energy efficiency have not seen a dynamic increase as they should have.

Energy efficiency improvements in European households averaged 1.9% per year since 2000, with a significant slowdown since 2015, and decreasing energy efficiency gains since 2008 in two thirds of Member States.¹ Ten countries were successful in increasing energy efficiency more than the European average.

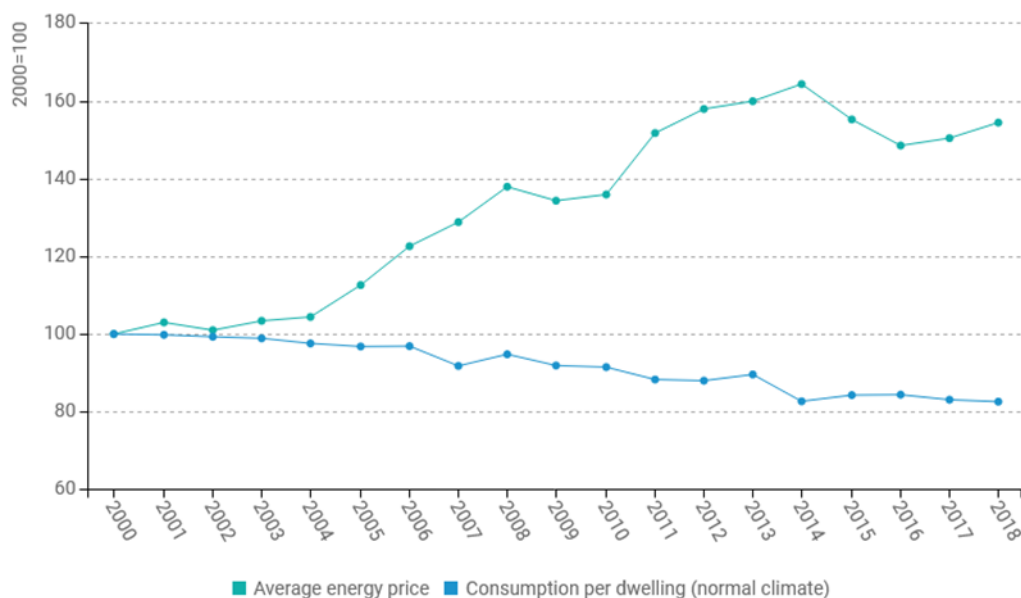
Figure 1: Energy Efficiency Progress for households in EU (incl. UK), Switzerland and Serbia. Source: www.odyssee-mure.eu



¹ <https://www.odyssee-mure.eu/publications/efficiency-by-sector/households/>, accessed on 08/10/2021

While energy consumption in households decreased in the first decade of this century, the development has stagnated since 2014. At the same time, energy prices have continued to increase, as illustrated in Figure 2. This adds an additional burden for most households, in particular for those with low and middle incomes.

Figure 2: Energy consumption per dwelling and energy price development Source: www.odyssee-mure.eu



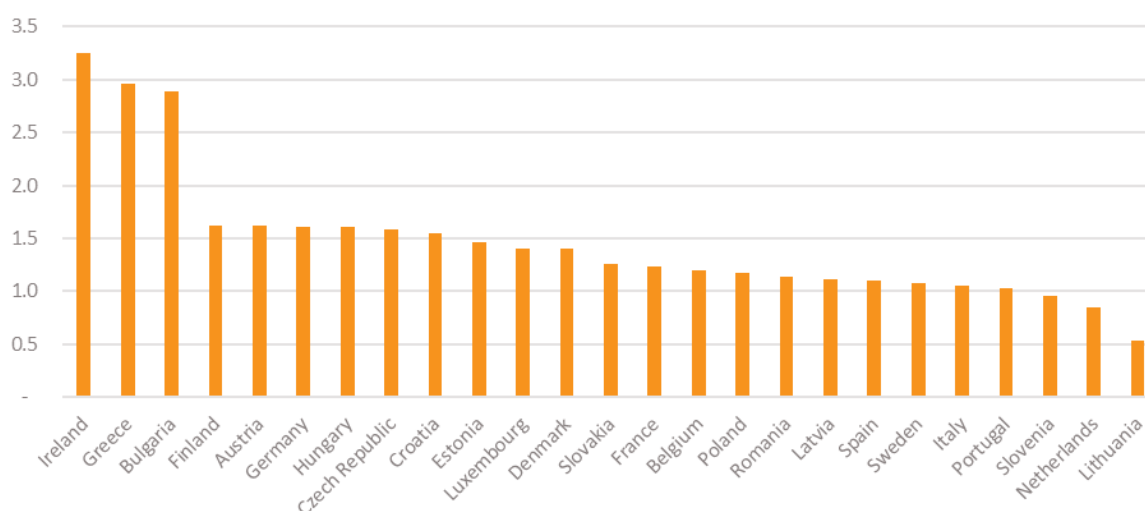
The slowdown of progress in energy efficiency is largely due to the fact that European countries have conspicuously failed to implement ambitious policies and support measures meant to massively scale up renovation rates. Today, the average renovation rate for Europe is still at 1%, while only one fifth of these renovations result in deep energy savings.² A steady high energy consumption combined with the switch to natural gas has pushed the EU into a corner, in which short-term emergency measures - necessary for an immediate solution to face high energy prices (such as on-bill subsidies or joint gas reserves), will not lead to solutions which are sustainable and reliable over the long-term.

The current debate about solutions to this crisis seems to concentrate on securing energy supply, but seems to ignore the most reliable long-term answer to the problem: minimizing energy needs and boosting the energy performance of the European building stock.

Figure 3 illustrates how the relative share of natural gas used in European buildings grew in the past decades. Most countries saw a growing importance of gas use in buildings, while only a handful of countries saw a decrease in the relative share of gas.

² European Commission (2019): Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU.

Figure 3: Growth factors for gas shares in buildings between 1990 and 2015; Source: own analysis using EUCalc (Kockat and Wallerand, 2020) based on EUROSTAT (nrg_bal_c) and JRC IDEES; including household and service sector buildings



Europe’s dash for gas (Figure 4) during the past decades helped move away from more carbon intensive fuels like heating oil and coal but did little to achieve higher efficiency levels. In fact, absolute gas consumption grew significantly in many European countries (Figure 5).

Figure 4: Average EU gas share of final energy consumption in buildings (EU27 except Malta and Cyprus); Source: own analysis using EUCalc

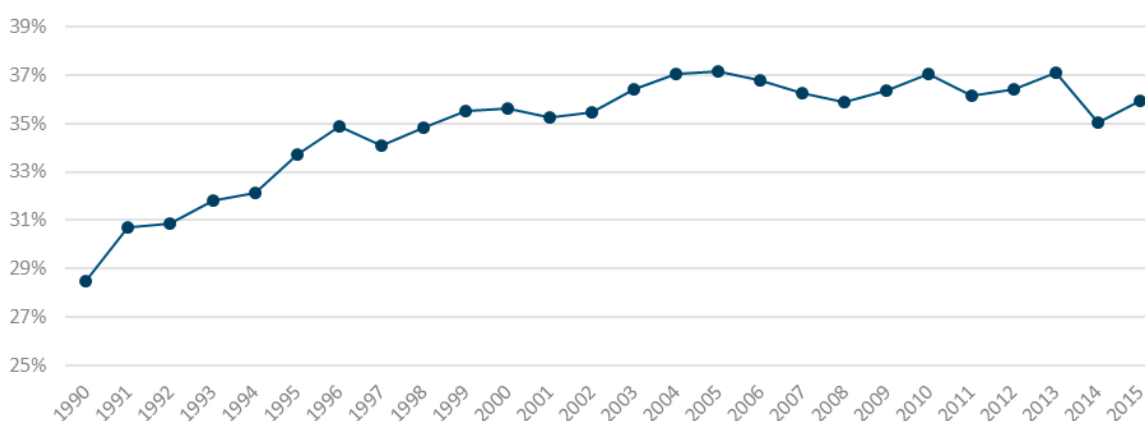
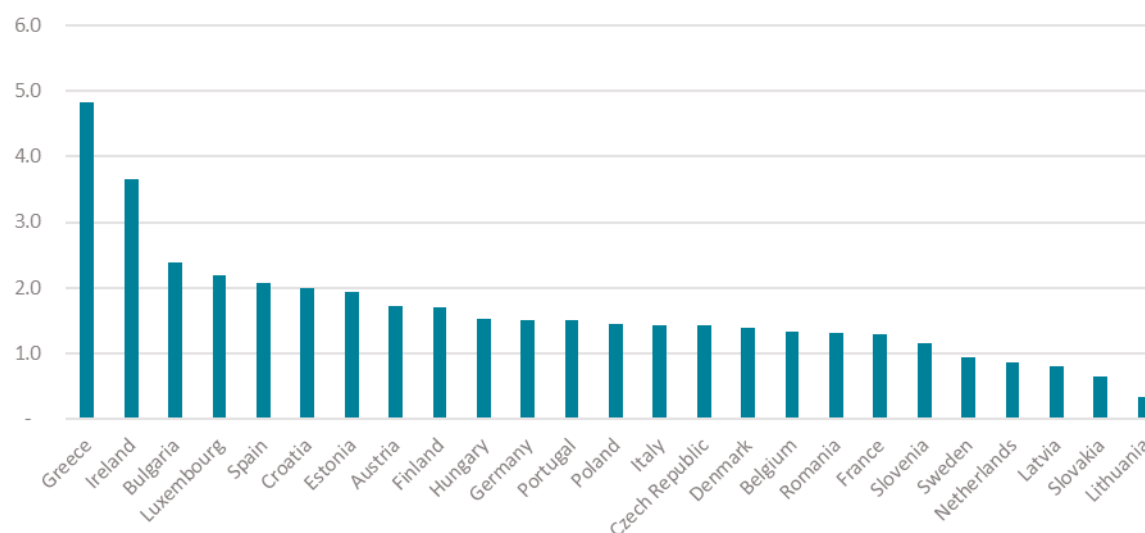


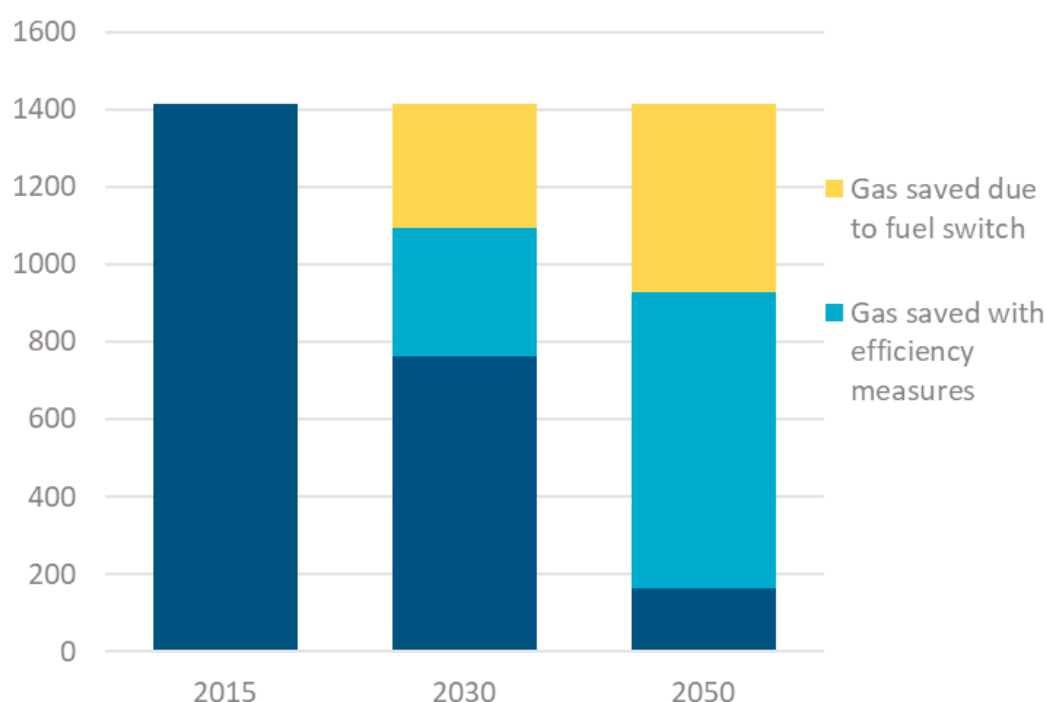
Figure 5: Growth factors for gas consumption in buildings between 1990 and 2015; Source: own analysis using EUCalc



This development is antithetical to the EU’s commitment to become climate-neutral, and it torpedoes efforts to increase energy security.

The pathway to near-zero CO₂ emissions from energy consumption in buildings by 2050 shows how gas consumption, and therefore the exposure to gas price volatility, could be decreased to achieve the EU’s 2030 milestone. This scenario,³ which is based on a mix of policies supporting a fuel switch to renewable heat and energy renovation of buildings, would allow Europe to move away from its dependence on gas imports and its exposure to price volatility. Efficiency and renewables are mutually supportive; each would roughly contribute half of the absolute reduction in gas consumption, as shown in Figure 6.

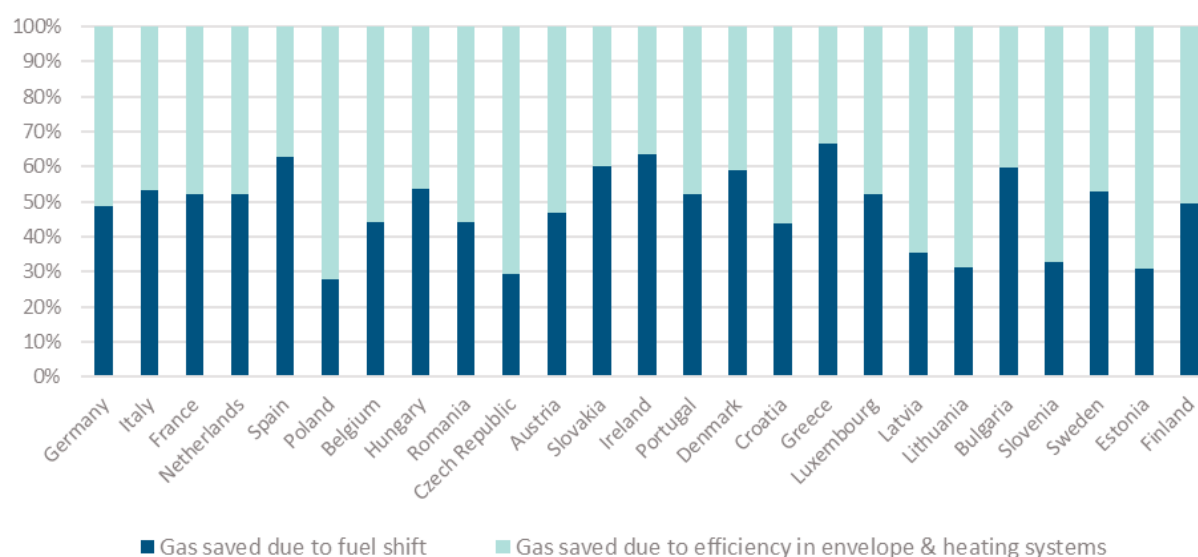
Figure 6: Gas consumption reduction in buildings in TWh in the EUCalc scenario “Ambitious” from 2015 to 2030 and 2050; Source: EUCalc was used to estimate savings due to fuel switch and efficiency measures based on average energy savings across all energy carriers



Energy efficiency gains through deep renovation of European buildings must be a key pillar of Europe’s move to a higher level of affordable and renewable energy, and it is essential for the European journey to climate-neutrality. Figure 7 shows the efficiency gains and the fuel switch to renewable heating in the buildings sector of EU countries which will be delivered with a strong and effective package of policies and support instruments.

³ The scenario was created by using the EU-funded EUCalc model.

Figure 7: Shares of gas consumption reduction potential in buildings in the EUCalc scenario “Ambitious” between 2015 and 2030; Source: EUCalc was used to estimate savings due to fuel switch and efficiency measures based on average energy savings across all energy carriers



Short-term solutions such as increased financial support for vulnerable groups are an appropriate and necessary political response in a time of crisis, but should not dilute attention and commitment to pushing long-term sustainable solutions. Improving the energy performance of European buildings is the most reliable and safest strategy to reduce EU’s exposure to future energy cost spikes, and policy making should move from serious words⁴ to serious action and serious political support.



The current energy price crisis should fast track efforts to deploy deep energy renovation. It requires committed national strategies to reduce energy consumption of buildings. Significant funds are available in Europe, both from the increasing revenues of the European Emission Trading System as well as from the Recovery and Resilience Facility.

⁴ European Commission President von der Leyen at the EU Sustainable Investment Summit on 08/10/2021 (online): “... the health of our planet can only improve with a global wave of sustainable investment. And 2021 can be a ‘make-or-break’ year in the fight against climate change.”



The fast track could be launched by the following actions:

- Use the EU ETS revenues to kick-start renovation efforts by allocating them to immediate comprehensive energy audits of buildings. These audits will prepare deep renovation plans with a focus on the worst performing buildings, also known as Building Renovation Passports. This will result in a transparent definition of investment opportunities for the coming years.
- Use the Recovery and Resilience Facility funds (RRF) to provide a mix of financial support consisting of grants, preferential zero-interest loans, and bank guarantees to trigger investments by different owner groups. Most national recovery plans make significant funding available for renovation.
- Invest a share of the RRF in an initiative to boost skills and innovation in the construction sector so that renovation service supply can meet the growing demand.

Ad hoc short-term measures to protect vulnerable citizens against severe consequences of energy price spikes need to go hand-in-hand with measures to deliver sustainable, long-term solutions with deep renovation of the building stock. The revision of the Energy Performance of Buildings Directive (EPBD), expected at the end of this year, is the perfect opportunity to bring this much needed change to life and deliver those deep energy renovation policy solutions with long term benefits. Besides this “fast track for renovation” measures, a [comprehensive and ambitious revision of the EPBD](#) is therefore needed.

EUCALC METHODOLOGY AND DATA SOURCES

EUCalc includes household and service sector buildings

Kockat, J. and Wallerand, S. (2020) 'Buildings module documentation (including households and services) - WP2 - EUCalc'. Brussels: European Calculator Project, Available at: https://www.european-calculator.eu/wp-content/uploads/2020/06/EUCalc_Building_documentation.pdf.

EUROSTAT (2017) *Energy Balance*. Available at: https://ec.europa.eu/eurostat/databrowser/view/nrg_bal_c/default/table?lang=en.

JRC-IDEES, Mantzos, L. *et al.* (2017) *JRC-IDEES: Integrated Database of the European Energy Sector: Methodological note*. doi: 10.2760/182725. <https://publications.jrc.ec.europa.eu/repository/handle/JRC112474>.

Copyright 2021, BPIE (Buildings Performance Institute Europe).



Except otherwise noted, the reuse of this document is authorised under the [Creative Commons Attribution 4.0 International \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/) licence. This means that reuse is allowed provided appropriate credit is given and any changes are indicated.*

How to cite this briefing: BPIE (Buildings Performance Institute Europe) (2021). Taking back control: Reducing Europe's vulnerability against energy price volatility by fast tracking deep building renovation; Available at: <https://www.bpie.eu/publication/taking-back-control-reducing-europes-vulnerability-against-energy-price-volatility-by-fast-tracking-deep-building-renovation/>



BUILDINGS
PERFORMANCE
INSTITUTE EUROPE



Rue de la Science 23 B-1040
Brussels Belgium

Sebastianstraße 21 D-10179
Berlin Germany

www.bpie.eu



BPIE (Buildings Performance Institute Europe) is a leading independent think tank on energy performance of buildings. Our vision is a climate-neutral built environment, aligned with the ambition of the Paris Agreement, and in support of a fair and sustainable society. We provide data-driven and actionable policy analysis, advice, and implementation support to decision-makers in Europe and globally.