

CAN ENERGY UNION BUILD HEALTHIER HOMES?

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The EU's building stock needs renovation. [Aqwis/Wikipedia]

Can Energy Union build healthier homes?

The EU's Energy Union strategy has the twin goals of fighting climate change and boosting energy security – but could it also build healthier homes for European citizens?

80 million Europeans live in damp and leaky buildings, which creates mould and mildew. The risk of infection almost doubles when mould is present and it can also trigger asthma attacks.

Renovating buildings – where Europeans spend 90% of their time – to take indoor climate into account can boost air quality, exposure to sunlight, and even help sleep.

Sickness hits productivity and well-being, and in some cases, high or low building temperatures can even kill. Lack of sunlight can lead to depression.

There is a relationship between indoor climate and consumers' health, physical and mental well-being, motivation and ability to rest and recover, said Professor Gunnar Grün, of the Fraunhofer Institute for Building Physics, who has studied the connections.

One year after it unveiled Energy Union, the European Commission will propose new legislation to put the vision on the road to reality.

The new guidelines, rules and laws represent an opportunity for policymakers – if they get it right – to increase energy security and combat global warming.

But they could also leave Europeans with healthier homes, while giving local economies a much-needed shot in the arm.

Energy Union

The flagship plan was launched last year in response to two powerful policy drivers; the drive to shift to a low-carbon economy, and to wean the EU off its addiction to Russian gas.

That dependence was brutally highlighted by the Ukraine crisis, and Russia's willingness to use gas supplies to put pressure on countries.

An interconnected Energy Union across the EU would make it possible for shortages in some nations to be made up by others, and bolster energy security across the bloc, the European Commission said in February 2015.

The UN Climate Change Conference in Paris was also weighing heavy on policymakers' minds as they drafted the plan.

Held in December 2015, the COP21 secured a historic international agreement to limit global warming to two degrees above pre-industrial levels, with an aspirational 1.5-degree target enshrined in the deal.

Governments promised to report

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on their progress every five years but, once the celebrations at the Le Bourget centre were over, the EU – a driving force in the pact – had to identify how it would deliver on its promise.

In October 2015, EU leaders had agreed to cut their greenhouse gas emissions by at least 40% by 2030, and to boost their energy efficiency and renewable share by 27%, compared to 1990 levels.

Those goals could still be revised upwards after the successful COP21 but the early signs are that the Commission will stick to the 2030 numbers.

National governments had dropped the executive's original 30% target to 27% in summit talks.

Two masters and multiple benefits

Serving two masters at the same time is never easy. But energy efficiency and, in particular in buildings, answers both policy questions.

Renovating buildings for efficiency reduces the amount of energy used, vital for cutting emissions and supplier-dependence.

70% of the EU's existing building stock is highly inefficient. Buildings are responsible for 40% of the EU's energy consumption and 36% of its CO₂ emissions.

CO₂ is a global warming gas but emissions could be cut by about 5%, the Commission estimates.

The EU imports more than half its energy every year. Meeting Europe's full efficiency potential would cut gas imports by 40% over the next fifteen years, according to Commission analysis.

These are not fleeting benefits either, with buildings in the EU lasting from 50 to 100 years, nine out of ten existing buildings will still be standing in 2050, according to the Renovate Europe campaign.

The campaign says that renovation programs can create two million local

direct jobs by 2020, and stimulate much needed investment in construction – an industry that is a bellwether for the broader economy.

Building renovation for efficiency also means lower bills for consumers. Efficiency renovation, such as insulation, also brings benefits to the indoor climate and so for health.

Efficiency first

The European Commission has recognised the huge potential of energy efficiency, vowing to “put efficiency first” in its Energy Union strategy.

“The energy we don't use is our first fuel”, Commission Vice-President in charge of Energy Union Maroš Šefčovič has said.

Šefčovič and Climate Commissioner Miguel Arias Cañete have also identified the renovation of building stock as vital for security and the environment.

Cañete in October told representatives of Europe's cities and regions to focus their climate change efforts on energy efficiency and especially the renovation of buildings.

“We can make considerable gains [...] energy efficiency has an important role to play in the achieving of our climate goals in the EU and globally,” he said.

Research has shown that deep renovation of buildings could save billions of euros in electricity grid and generation investment.

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The Commission has also pushed to make it easier for building renovation programs to access the multi-billion euro Juncker Investment Fund, although barriers to raising the necessary investment remain.

Private investment in energy efficient needs to increase fivefold by 2030, according to a group set up by the European Commission and the United Nations Environment Programme (UNEP) Finance Initiative.

Unless that happens, the EU risks missing its 2020 and 2030 energy efficiency targets, its report said.

Existing legislation

Implementation of existing efficiency legislation by national governments has also been poor.

A year ago, every member state of the European Union, with the sole exception of Malta, was hit by legal action over failures to translate the EU's Energy Efficiency Directive into national law.

The Energy Performance of Buildings Directive was initially supposed to reduce the EU's energy consumption by up to 6%. The directive was recast in 2010 to cover residential and non-residential buildings.

All new structures in the EU were required to be nearly zero-energy buildings by 2021, with a 2019 target for the public sector but implementation on the ground has been poor.

The Commission has said that enforcement of energy efficiency

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legislation will be tougher in the future.

Opportunity

While challenges such as investment remain, the Commission has the chance to send a signal to national governments and investors.

This year, it will revise the Energy Efficiency Directive and the Energy Performance of Buildings Directive; part of the first wave of Energy Union-related legislation.

Drafting those revisions in such a way

as to incentive not only efficiency but also the indoor climate would be a first step towards building the next generation of energy efficient and healthy homes in the EU.

This Special Report, published the week of Healthy Buildings Day (April 20), will investigate what can be done and what benefits could be won.

But why should EU officials legislate to encourage healthy renovation? The answer lies with the consumers, according to the VELUX Group's Ingrid

Reumert, who will have to pay for their home renovations.

"Research has revealed that there are multiple drivers that can motivate home owners to renovate such as improved health and better indoor climate as well as increased energy performance," she said.

"There is a need to create incentives by making an attractive legislative framework that integrates energy efficiency and other key parameters for indoor comfort, health and well-being."

54 million Europeans must choose between eating and heating

An estimated 54 million Europeans suffer from energy poverty, according to a European Commission analysis, which blames rising prices, low income and energy inefficient homes for forcing people to choose between eating or heating.

You are in energy poverty if you cannot afford to heat your home at an affordable cost. Almost 11% of the EU's population are faced with that reality, according to the Commission.

Despite this, less than a third of the member states officially recognise energy poverty, and only a few define it in their national laws.

Consumers spend on average 6.4% of their total consumption on electricity, gas, heating and cooling – up by 15% compared to five years ago.

Fuel poverty is not about being poor, but about a combination of low-quality housing and high energy prices causing financial difficulties, and ultimately compromising health and well-being.



British pensioners march against fuel poverty in November 2014. [Weekly Bull/Flickr]

There are three basic solutions to fuel poverty; increasing household income, reducing prices or cutting demand through energy efficiency measures.

The responsibility for ending energy poverty lies with national governments but the European Commission's Energy Union strategy can be harnessed to help alleviate the problem.

Commissioner Věra Jourová, speaking in London in February, said, "We have now a unique opportunity to set in place an Energy Union that works in the interests of consumers."

As explained in Monday's Special Report (18 April), the renovation of Europe's inefficient building stock has been identified as one way to meet the Energy Union's twin goals of fighting climate change and boosting energy security.

But, as reported, renovations for efficiency can also bring health benefits at the same time as cost savings.

In London, Jourová said, "We could ensure that funding schemes are easy available to all vulnerable consumers to invest in energy-efficiency improvements, especially in buildings."

Around 40% of energy used in the EU is consumed in buildings, of which 80% is used for heating and cooling.

While such schemes are a member state competence, the European Commission can incentivise better practice through Energy Union related legislation, some of which is expected this year.

Bills expected include revisions to the Energy Efficiency Directive and the Energy Performance in Buildings

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Directive.

A report by think tank Insight Energy for the European Commission identified energy efficiency measures for retrofitting buildings as vital to address energy poverty.

Strong incentives to encourage low income households to put energy efficiency measures in place, as well as raising awareness, are needed, it said.

But it also called on the Commission to allocate a higher share of EU funds to renovation programmes for the energy-poor, low-income and vulnerable categories of people.

The Renovate Europe campaign said, "Improving the energy performance of buildings addresses a root cause of energy poverty.

"An energy efficiency home guarantees permanent energy savings year on year and leads to lower energy bills for all citizens."

The Velux Group is carrying out an affordable and easy to reproduce climate renovation in Anderlecht,

Belgium. As well as cutting energy bills, it also improves the indoor climate, which can have health and well-being benefits.

Energy costs for a 1920s 80 squared metre semi-detached house will be cut by €4,200 each year, the company estimates.

The bottom 20% in Belgium live on an estimated €11,000 a year, according to the OECD. Assuming a constant rent, the energy saving equals a 40% increase in disposable income.

Bulgarians suffer the most

Eurostat figures for 2014, the most recent year with complete results, showed that almost half of Bulgarians suffer from energy poverty.

40% of its 6.9 million 2014 population – about 2.8 million people – can't afford to heat their homes.

The figures, obtained by EurActiv.com, revealed that just over a third of Greeks (32.9%) – more than 3.5 million people – were in the same situation.

28% of the Portuguese population,

27.5% of Cypriots, 26.5% of Lithuanians and 22.1% of Maltese are in energy poverty, according to the EU's statistics service.

Latvia (16.8%), Romania (12.3%), Hungary (11.6%) come next in the scale. Italy scores at 18% and Spain 11%.

Energy poverty is particularly prevalent in southern and central European households but by no means exclusively so.

The United Kingdom has a higher percentage (9.3%) of its total population – equivalent to about 5.85 million people – and more people suffering from energy poverty than Poland (9%).

That is less than the 10.2% average across the EU. 4.9% of Germans and 5.9% of French people suffer from energy poverty.

Luxembourg has the lowest levels of energy poverty, 0.6%, but it is a small country. Just 0.8% of Sweden's 9.6 million population, about 76,800 people, live below the energy poverty line.

Building renovation can stop colds and coughs, says study

Europeans living in unhealthy homes suffer flu-like symptoms and fatigue more often, research published today (20 April) has found, but building renovations can help prevent colds and coughs.

The findings could increase pressure on EU policymakers to incentivise healthy building renovation, at the same time, as energy efficient renovation.

The Healthy Homes Barometer



Can building renovation cure the common cold? No, but it can help prevent it. [Sid/Flickr]

study, conducted by the Germany's prestigious Humboldt University and the Velux Group, surveyed 14,000 people in 14 EU countries.

Much efficiency renovation, such as insulation, brings health benefits by preventing mould, for example.

The potential costs to society

of sickness – in sick days, lower productivity, and lower quality of life – caused by indoor climate is billions of euros, according to the study authors.

27 million working days were lost in the UK alone, thanks to minor illnesses

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such as coughs, colds or flu, in 2013.

Home satisfaction

Good indoor climate even trumps energy cost savings in what gives the most home satisfaction, they said.

Getting consumers on board will be vital to actually convince them to renovate their homes.

"The fact that what makes a healthy home is also what makes us happy without home is a huge boost to the public debate about sustainable building," said Michael K. Rasmussen, of the Velux Group.

"The results should be noted in the building industry and among political decision-makers, and should help set the direction for the renovation of existing building stock in Europe and for new buildings," said Michael K. Rasmussen, of the Velux Group.

The European Commission is due to unveil revisions to the Energy Efficiency Directive and the Energy Performance in Buildings Directive this year.

Healthy homes advocates, such as Velux, are pushing for language to encourage national governments to drive energy efficient and healthy renovations.

Five factors

The study identified five factors that determine whether a home is healthy or not. They are;

- good sleeping conditions;
- comfortable indoor temperatures;
- sufficient daylight;
- fresh air;
- healthy levels of humidity.

Europeans who live in cold houses or have mould in their homes are about 50% more likely to get illnesses like nose and throat infections.

Among Europeans with mould in their home, up to 60% suffer dryness or irritation of the throat compared to 40% who do not have mould.

78% of Europeans were too cold at some point last winter. 15% of those surveyed said this was the case all the time.

71% of those surveyed do not have optimal sleeping conditions. One in three reported very bad or fairly bad sleep quality in the last month.

Having enough daylight almost halves the risk of being fatigued. 40% of Europeans lacking daylight in their living room seldom feel energised. That drops to 23% in homes with appropriate levels of daylight.

Owners of well-ventilated homes are less likely to have low energy levels. Europeans who never air out their homes are twice as likely to get tired compared to Europeans who air two to four times daily.

Renovating the EU's highly inefficient building stock has been identified as one way for the Energy Union strategy to meet its twin goals of fighting climate change and boosting energy security.

As well as cutting emissions, it can also save consumers money.

Today is Healthy Buildings Day (20 April). Read the rest of this week's Special Report for coverage of the day's events, including the 2nd Healthy Buildings Day conference.

Commission considering health rules in Energy Union efficiency bill

The European Commission will consider including indoor climate rules in its forthcoming legislation on Energy Union, the Commission Vice-President in charge of the strategy yesterday (20 April) revealed.

Maroš Šefčovič said that officials would factor in the requirements – which bring health and well-being benefits – in research feeding into the revised Energy

Performance in Buildings Directive.

But Šefčovič said such legislation would only apply to nearly zero-waste energy buildings.

"The Commission will study possibilities to include indoor environment requirements for nearly zero-energy buildings within the impact assessment process," Šefčovič said.

"This is a great and important step but this deals with new builds mainly and major renovations. If you really want to make a change you have to look at the existing building mass," said Ingrid Reumert, of the Velux Group.

"But we're pleased, we're supportive of this step because the standards for new builds tend to set the standards for renovation," the Velux vice-president for sustainability said, "the legislation for new builds is an important signal and can have a wider impact than was

intended."

The bill, which can be amended by the European Parliament and Council of Ministers during the legislative process, will be put forward in the autumn, alongside changes to the Energy Efficiency Directive.

Šefčovič told delegates at the Healthy Buildings Day Conference in Brussels that the new bills would be presented at the same time as a new Smart Financing for Smart Buildings initiative.

Energy Union

This week's Special Report has highlighted the way that building renovation can be incentivised by the EU's Energy Union plan, which has the twin goals of fighting climate change and

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boosting energy security.

Šefčovič said the Commission considered energy efficient buildings as “one of the key pillars to deliver the Energy Union.”

Building renovation for energy efficiency can bring significant cost, emissions, and energy savings. If properly planned for – and properly encouraged by policymakers – there can be additional health benefits.

Factors such as temperature, daylight and ventilation all have an impact on health and well-being.

Crucially, indoor climate has been shown to be a stronger motivating factor for consumers to go ahead with renovations in the first place.

75% of Europeans surveyed in the Healthy Homes Barometer 2016 wanted to reduce their energy costs, 73% wanted to improve their overall wellbeing. Half of the Europeans have made changes to their homes in the last five years.

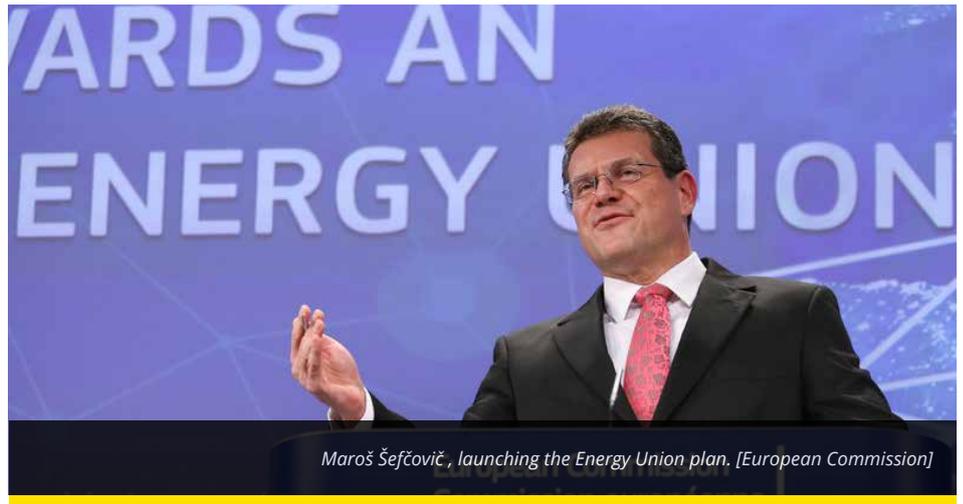
The Commission is hamstrung to an extent because any hard rules on indoor climate would be the responsibility of national governments.

The Slovak Commissioner, who was interviewed by EurActiv.com before the conference, said, “Although EU legislation has an energy focus, it nevertheless reminds Member States of their responsibility [...] to ensure appropriate general indoor conditions and avoid possible negative effects such as inadequate ventilation.”

National regulations on indoor environment are generally in place, Šefčovič said, but there were “considerable discrepancies” across the EU.

Speaking at an earlier Healthy Buildings Day event in the European Parliament, Paula Rey Garcia, head of the buildings team in the Commission’s energy department, said the current legislation requested that factors, such as air quality, were taken into account.

But the way that is put into effect is left to member states. Commission



Maroš Šefčovič, launching the Energy Union plan. [European Commission]

research had found that “health-based regulations” were hardly found in national rules for energy performance.

Little appetite for change

Rey Garcia warned that there was little appetite from member states for a big revisions of the directive.

But she pinpointed a more detailed clarification of indoor climate requirements as one possible way to drive change.

Šefčovič’s speech signalled a willingness from the European Commission to think more broadly than just efficiency when it came to driving the EU building stock.

He said, “Around 70% of the EU population lives in privately owned residential buildings. We spend most of our days in the indoor environment of our workplaces or our homes.

“Therefore improving them through smart design or renovation can have a major impact on our health and quality of life as well as offering solutions to some of our most important societal and environmental issues.”

Citing research released yesterday, Šefčovič said energy costs were a key concern for citizens and that buildings are primarily to give indoor comfort for citizens.

“These two aspects are not conflicting: they can go hand in hand,” he said.

Šefčovič said that renovation would

also give a boost to the construction sector. The sector is still at 30% to 40% of the activity seen before the financial crisis.

“The construction sector generates around 9% of the EU’s GDP and provides 18 million direct jobs,” he told delegates.

Two thirds of the EU’s buildings were built when energy efficiency requirements were limited or even non-existent; most of these will still be standing in 2050,” he added, underling the potential of the sector.

As already reported this week, energy poverty – defined as the inability to afford to adequately heat or cool a home – can also be alleviated by renovation.

Deaths from cardiovascular diseases are directly linked to excessively low temperatures.

Research by the World Health Organisation in 11 European countries estimated that almost 13 out of every 100,000 people die every year from low temperatures.

45% of Europeans surveyed in the Barometer keep temperatures too low to save money.

Just heating and cooling buildings accounts for half of the EU’s annual energy consumption, out of which 45% of energy is used in the residential sector, 37% in industry and 18% in services.

The EU has adopted a heating and cooling strategy to improve efficiency in the area.

Energy Union boss wants wave of public finance to spur building renovations

The European Commission's Energy Union chief Maroš Šefčovič is pushing for new public financing instruments to kick-start a wave of building renovation in Europe.

He outlined a vision where buildings would not just be a foundation of the Energy Union strategy he helms – but also interconnected nodes of the Big Data economy of the future.

Šefčovič revealed that the European Commission would present a new Smart Financing for Smart Building initiative in the autumn, alongside revisions to the Energy Efficiency Directive, and Energy Performance in Buildings Directive.

"In an ideal world I'd like to see new financing instruments that could start a wave of energy efficiency or better quality smartening of our buildings across Europe," he told EurActiv.com

"This could be a multi-purpose exercise: not only for energy efficiency but also transforming buildings into nodes for the new synergised platform for the Big Data economy of the 21st century."

The Commission has identified buildings as one of the central pillars of its Energy Union strategy, which aims to boost the bloc's energy security and fight climate change.

Building renovation can cut emissions, reduce energy dependence, consumer costs and energy poverty.

As this week's Special Report has shown, it can also benefit health and well-being, as well as stimulate investment in the construction sector and wider economy.



Building renovation can give a spur to the economy, as well as other benefits. [Charles Stirton/Flickr]

"It is clear that achieving our 2030 targets [...] will not be possible if we overlook the enormous potential of buildings in Europe," said Šefčovič.

EU leaders have agreed a cut of at least 40% in greenhouse gas emissions by 2030, and an increase of 27% in energy efficiency and renewables.

The vow was the cornerstone of the EU's commitment to cap global warming at last year's landmark UN Climate Change Conference in Paris.

"[Buildings] are natural candidate for our attention and a proper regulatory approach. But it is very difficult to implement regulation if you do not have the finances. So what we are considering right now is how to find the proper incentives," Šefčovič said.

Private sector

After first presenting the Energy Union, Šefčovič travelled around Europe to drum up support for the strategy.

"I was asked everywhere: how can you help us – private citizens and business owners – to gain the technical expertise, advice and financial assistance for renovation, for smartening our buildings and increasing energy efficiency?" he said.

It was imperative, Šefčovič told EurActiv.com, to unlock private investment into the energy efficiency market.

"The energy efficiency market must mature and become fully investible," he said.

Ingrid Reumert, vice-president at the Velux Group, agreed. She said that people's savings could now cover renovation costs, despite the after-effects of the financial crisis.

It was up to the private sector to convince consumers to reach into their pocket. "We believe in the strength of market forces," she said.

But revising and strengthening Energy Performance Certificates (EPCs) would be a major boost to businesses, Reumert added.

EPCs give information to consumers about the energy performance of a building. It is mandated by the EU's Energy Performance in Buildings Directive, which the Commission is currently reviewing.

"People make the decision to renovate at certain times, usually when buildings change hands," she said.

That was also the time they would

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look at the certificates. Widening their scope to include indoor climate could also bring added health benefits, she said.

Šefčovič said he was approached by green financing coalitions on his Energy Union tour.

Such coalitions were often pension funds looking to make long-term investments.

“We would like to have a kind of one stop shop for smart cities and mayors, where by clicking on a link a city mayor can get ideas, information on where to go, how to do them, where they can get advice, and to really start to use the leverage of public money to get more private funds into this project,” he added.

Public financing

There was also a role for public financing, the Commission vice-president said, both through existing EU initiatives such as the Juncker Investment Plan, and future ones.

“We are currently working on a financing instrument for smart buildings, and at the moment we feel that DG Energy is doing a great job,” he said.

“But to get it to the required scale we would need to include our colleagues from DG ECFIN, we would need to work even closer with Commission Vice-President Jyrki Katainen,” he added.

Katainen, in charge of jobs and growth, is overseeing the Juncker Plan, which aims to unlock €315 billion of private investment through €21 billion of public risk guarantees.

While building renovation projects were often too small to gain Juncker Plan funding, there are recent examples of projects being aggregated to be big enough to get the loan guarantees – which convince private investors to invest,

“If you look at the results of the Juncker Plan, you will see that energy projects account for more than a third

of funding, and I would say that about half of these investments are linked to energy efficiency,” said Šefčovič.

“When I saw what could be done by establishing an appropriate platform, as they did in France, aggregating energy for 40,000 households and really transforming the whole region through one investment project, I thought this was a model that could be applied right across Europe.”

EU funds

The EU budget for 2014-2020 significantly increased the contribution to building renovation, he said.

The European Structural and Investment Funds would allocate about €19 billion for energy efficiency, notably in buildings and district heating and cooling. And the Horizon 2020 programme will allocate €2.5 billion for energy efficiency.

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