
# 49% renewables in buildings by 2030 – How to get there?

12 October 2021, 14:00 – 15:45 CEST

Online Event

## Hosted by MEP Miapetra Kumpula-Natri and MEP Maria Spyraki

Co-Chairs of the European Parliament Intergroup on 'Climate Change, Biodiversity and Sustainable Development'

Speakers:

Event Moderated by **Frédéric Simon**, Journalist, Energy and Environment Editor, Euractiv

**MEP Miapetra Kumpula-Natri (S&D)**

**MEP Maria Spyraki (EPP)**

**Dr. Christoph Riechmann**, Director, Frontier Economics: Study results on system cost optimization

**Renée Bruel**, Director on Buildings, European Climate Foundation

**Alix Chambris**, Vice President Global Public Affairs and Sustainability, Viessmann

**Paula Pinho**, Director on Just Transition, Consumers, Energy Efficiency and Innovation (Directorate B), DG ENER, European Commission

**Professor Nebojsa Nakicenovic**, Deputy Chair, European Commission's Group of Chief Scientific Advisors (GCSA)

**Ilias Grampas**, EU Affairs Manager, EBCD – Secretariat of the European Parliament Intergroup on 'Climate Change, Biodiversity and Sustainable Development'

# Welcome Remarks

## *MEP Miapetra Kumpula-Natri*

> ***''By achieving the 49% target and by renovating existing buildings, we create jobs, we increase living standards and we cut emissions.''***

MEP Ms. Kumpula-Natri started the event by stating that she is truly sorry for those Europeans who in this coming winter are dependent on fossil-based energy sources and will experience the highest energy prices. She explained that the **price of coal doubled**, **gas became ten times more expensive**, and though the rise of carbon price did play a role, it was relatively small. Ms. Kumpula-Natri then mentioned that since **fossil fuels have proven to be less stable and more costly compared to sustainable energy sources**, the transition towards green energy must happen now. The benchmark of 49% renewables in buildings will play an important role in the green transition. Ms. Kumpula-Natri flagged that today, **buildings are responsible for 36% of Europe's greenhouse gas emissions (GHG**) and that **space and water heating account for over 85% of energy consumption** in buildings. Since currently only a fifth of heating installations is renewable-based, we have a great opportunity to reduce GHG in the building sector, she stressed. According to Ms. Kumpula-Natri, **significant energy savings can already be achieved by using new technologies.** The revision of the Energy Performance of Buildings Directive (EPBD) should obligate more buildings, not only the large buildings, to **include Building Automation Control (BAC)**, she argued. Lastly, Ms. Kumpula-Natri emphasized the need for a grander perspective. **By achieving the 49% target and by renovating existing buildings, we create jobs, we increase living standards and we cut emissions.**

## *MEP Maria Spyraki*

> ***''Reducing energy consumption of existing buildings consists of two synergistic approaches: reducing energy need through energy efficiency measures; and offsetting the remaining energy needs through the use of renewable energy systems.''***

In her video message, MEP Ms. Maria Spyraki highlighted the pressing **need to expand the use of onsite renewable energy sources in buildings** and to **reduce total fossil fuel consumption**. She explained that while energy efficiency is being incorporated into new construction sites, **existing buildings account for a majority of the building stock** that will be in place in the foreseeable future. Thus, there is a major opportunity to reduce the building sector's contribution toward global energy consumption by **reducing energy use in existing buildings**. According to Ms. Spyraki, reducing existing building energy consumption consists of two synergistic approaches: firstly, to **reduce the need for energy through the implementation of energy efficiency measures**; and secondly, to **offset the remaining building energy needs through the use of renewable energy systems.** She continued underlining that this requires serious financial support. It is reported that up to EUR 100B is planned for the most vulnerable sectors and regions, and a total of EUR 260B is required to achieve the climate and energy policy targets in 2030. **At least US$ 1T will be invested to support building decarbonization in developing countries by 2030 to meet goals of the Paris Agreement** under which all buildings must be net-zero carbon by 2050. However, less than 1% of buildings meet the requirement at present, she mentioned. Concludingly, Ms. Spyraki underscored that during this event she would like to hear more about the necessary steps, including direct taxation and trading schemes needed to reduce carbon footprints and enable carbon performance in the building sector.

# Presentation of Frontier Economics “Study results on system cost optimization’’

*Dr. Christoph Riechmann, Director, Frontier Economics*

> ***“A mix of technologies is needed for the transition of the heating sector. Hydrogen can make an important contribution and should thus be included in the technology mix.”***

In his presentation on the role of low carbon gasses and hydrogen in the heating of buildings, Dr. Riechmann explained **the challenge of the nature of the housing stock concerning heating and the seasonality of energy use**. According to Dr. Riechmann, **the housing stock is very heterogeneous**, meaning, there is **no ‘one size fits all’ technical solution** to achieve the targets. Moreover, the majority of the housing stock **is not easily converted to apply electric heat pumps**. Currently, more than three-quarters of the housing stock is heated with fossil fuels, providing room for improvement. However, only one out of eight dwellings is of fully renovated standard as would be ideal for the deployment of electric heat pumps. Dr. Riechmann then followed by stressing that **the key challenge that needs to be addressed concerns how to meet peak winter demand in the heating sector.** Heat usage is directly linked to outside temperatures, energy demand rises sharply on colder days. However, **sustainable heating sources cannot practically meet peak demands** without some form of intermediate seasonal storage. Using the example of Germany, to convert peak winter demand to sustainable industry, you would need to more than double the electricity system, he stressed. The problem is thus that **renewable electricity production is insufficient when heat demand is high.** Therefore, it is necessary to produce and secure a lot of energy in those times it is available, and then store it seasonally for later usage. Moving on to **intermediate energy storage**, Dr. Riechmann explained that there are two options to do so sustainably. Firstly, **using the electrical system**, energy needs to be converted into hydrogen and then converted back to electricity when it is needed. This would mean a **significant expansion of the electricity infrastructure**, and it implies conversion losses when the energy is converted. Secondly, **renewable energy can be converted early in the process to hydrogen gas.** This system means **existing gas infrastructure** can be used. Dr. Riechmann concluded that a mix of

technologies is needed for the transition of the heating sector. **Hydrogen can make an important contribution and should thus be included in the technology mix.**

## Interventions

### *Renée Bruel, Director on Buildings, European Climate Foundation*

> ***"We have few scalable clean options for heating until 2030. We need to reduce energy consumption and use heat pumps, including hybrid heat pumps, to deal with energy demand."***

During her intervention, Ms. Renée Bruel emphasized **two main drivers to increase the share of renewables in buildings.** Firstly, to **reduce energy demand**, and secondly, to **replace fossil fuels with renewable technologies**. Reducing energy demand in buildings requires an at least **doubling of the buildings innovation rate**, she argued. A great opportunity to address this problem is the revision of the EPBD. **Minimal energy performance standards** and a **mortgage portfolio standard for retail banks** are needed, she urged. Concerning replacing fossil fuels with renewable technologies, she pointed to the Commission's proposal for a 1,1% annual increase in renewable energy in heating and cooling in buildings. This, Ms. Bruel claims, is insufficient. In relation to hydrogen, she flagged that **green hydrogen is a very costly alternative**, which **will not be available at scale in 2030**. Contrastingly, **heat pumps are six times more efficient and will be cheaper for consumers.** Since we have few scalable clean options for heating until 2030, we need to reduce energy consumption, use (hybrid) heat pumps to deal with energy demand, she argued. To achieve a 49% share of renewables in buildings by 2030, while keeping out biomass energy as much as possible, Ms. Bruel named several recommendations. According to her, a **renewable energy target for new buildings of 100%** is needed, for existing buildings, this can be lower; **biomass needs to be capped** via the REDII; **the renovation rate needs to be doubled at the minimum via the introduction of Minimum Energy Performance Requirements (EPBD)**; a **taxation system that incentivizes clean heating** is necessary; the EU must **ban fossil fuel heating subsidies** (with a temporary exception for compensations for low-income households in times of high energy prices) and an **end date needs to be set for the sale of new fossil fuel boilers**, using the revision of the

Eco-design and the Energy Labelling Directive. The IEA in its Net Zero by 2050 Roadmap recommends an end date for new fossil fuel heating by 2025 worldwide, which is a recommendation we should take very seriously.

*Alix Chambris, Vice President Global Public Affairs and Sustainability, Viessmann*

> ***''By scaling up renewable solutions with green electricity and green gases, by activating prosumers and by bringing people along, we can reach the 49% target.''***

Ms. Alix Chambris introduced three building blocks to reach 49% renewables according to Viessmann: Scaling renewable heating, activating prosumers and being people-centric. Firstly, scaling r enewable energy has a huge potential in the building sector since the majority of heating systems still run on fossil fuels and replacement rates are low. Investments in subsidies and supportive regulatory framework conditions are necessary for a green transition in heating, and according to Ms. Chambris, these investment subsidies in buildings pay back for the state as every €1 invested in subsidy schemes for buildings leverages €6-8 across the value chain based on a German study. **Roll-out of heat pumps not only must be accelerated, they should also operate on sustainable refrigerants**, **have low noise levels and optimal system integration capabilities**. Ms. Chambris pointed out that mandatory **H2-readiness requirements in eco-design** are crucial for future-proof gas-based heating systems and to avoid a fossil fuel lock-in. The industry is ready and has the right technologies available to make sure that gas boilers are fit for a 100% hydrogen supply. All heating systems are already fit for 100% biomethane with no extra investment. Secondly, the activation of prosumers has to be improved. According to Ms. Chambris, close to 50% of EU citizens can become active prosumers. Using this potential will **maximize system efficiency and reduce energy costs**. To make full use of this potential, system integration of self-consumption and demand side-flexibility have to be incentivized. Thirdly, Ms. Chambris underlined that **people-centricity is crucial**. Ms. Chambris urged that the revenues of carbon pricing on heating fuels must be directly used in the building sector to mitigate energy prices. Financing instruments and new business models, such as heating as a service, that cushion high upfront costs might prove to be beneficial, she stressed. Finally, Ms. Chambris highlighted that the issue of **peak load demand in an increasingly renewable heating system is currently under-researched**. How to

ensure security of supply via an adequate energy mix and grid expansion in a cost-optimal and system efficient manner has to be a key part of the discussion. Ms. Chambris did not agree with Ms. Bruel concerning cost comparisons of hydrogen and electricity use in buildings according to which hydrogen would be much more costly. Other research shows the opposite. According to Ms. Chambris, it is key to consider the system costs in this comparison: then, a balanced energy mix including green gas in heating (which includes hydrogen) is cheaper when factoring all system costs, compared to full electrification of heating.

### *Paula Pinho, Director on Just Transition, Consumers, Energy Efficiency and Innovation (Directorate B), DG ENER, European Commission*

> ***"The added value of the renewable building benchmark for heating and cooling is to signal the level to which renewable heating should be scaled up for buildings by 2030. Complementary, the EPBD will address how to make buildings fit for renewable energy sources."***

Ms. Paula Pinho started by stressing the importance of the Eco-design and Energy Labeling Directive for space and water heaters. In the Commission's efforts to decarbonize this sector, **energy efficiency is the guiding principle**, she explained. She then followed by explaining that the **Renewable Energy Directive is aimed, notably to strengthen key provisions to ultimately replace fossil fuels with renewable energy** through the legislation. Concerning the revision of the EPBD, the Commission strives to make buildings more efficient. It aims to **at least double the renovation rate by 2030.** However, to do so, Ms. Pinho emphasized, triggers are needed. In the ongoing **EPBD revision, the introduction of minimum** energy performance standards **for buildings to be sold or rented out is being considered**.

Ms. Pinho argued that **the EPBD and the Energy Efficiency Directive will complement each other.** The 49% benchmark in buildings leaves maximum flexibility to the member states on how to achieve it. And the EPBD addresses the energy efficiency at the level of buildings. To do so successfully, Ms. Pinho continued, **large investments in the building stocks are needed.** Public money needs to lever private investments and enhance innovation and the development of new technologies. Ms. Pinho concluded that the added value of the renewable building benchmark for heating and cooling is in particular to signal the level to

which renewable heating should be scaled up for buildings by 2030. Complementarily, the EPBD will address how to make buildings fit for renewable energy sources. **Reinforced assessable private and public funding will be key to fill in the investment needs for decarbonization of the building stock.**

## *Professor Nebojsa Nakicenovic, Deputy Chair, European Commission's Group of Chief Scientific Advisors (GCSA)*

> ***"Better and more efficient buildings do not only reduce energy demand and GHG emissions, but they also improve the quality of life and benefit both society and economy."***

Professor Nebojsa Nakicenovic presented the challenge of achieving 49%. He started by highlighting the **Evidence Review Report and the Scientific Opinion of the Science Advice Mechanism of the EU Commission.** Professor Nakicenovic argued that **the EU should use a holistic approach to maximize synergies and avoid trade-offs across technologies, regulatory and market measures and social behavioural changes.** Most importantly, the EU's energy policy should **have a social focus, to prevent an increase in energy poverty.** He then continued by stressing the three recommendations by the European Commission's Group of Chief Scientific Advisors. Firstly, **the EU should develop a flexible, efficient and resilient EU energy system for delivering clean, assessable and affordable energy services by integrating decarbonised energy sources, electrification and the use of blue and green hydrogen.** The scaling up will require flexible energy pathways and huge investments in energy generation, transmission, storage and end-use systems. Secondly, **the EU should recognise the roles of all actors and stakeholders in creating an inclusive and participatory environment that incentivises and supports low-carbon energy choices.** In buildings, everyone needs to be a prosumer, he emphasized. Direct participation and innovation of all stakeholders thus need to be supported. Thirdly, **the EU should support a coordinated combination of policies, measures and instruments, including carbon pricing as a driving force, to shape an effective, consistent and just regulatory system.** A clear political commitment towards high carbon prices is necessary. Professor Nakicenovic then concluded that better and more efficient buildings do not only reduce energy demand and GHG emissions, they improve the quality of life and benefit both society and the economy.

# Q&A Session with the audience

A question was raised **about preparing the readiness of buildings to cope with electrification as a new form of heating.** Ms. Bruel was eager to point out that **for existing buildings this can be a challenge.** However, she said, some member states are already working on this. She then gave the example of The Netherlands which introduced minimum isolation standards for buildings.

Concerning **the introduction of minimum standards** on readiness through the revision of the EPBD, Ms. Chambris argued that **a mandatory electrification requirement would go against EU treaty law** since member states are allowed to decide on their own energy mix. The EU can make a framework to incentivize sustainable energy, she added.

On the inclusion of a preparedness for buildings clause in the fit for 55 package, Ms. Pinho elaborated **that the Commission is currently looking into minimum performance standards and energy performance certification schemes.** Additionally, Ms. Pinho then argued that **upscaling the workforce to increase expertise is vital** since it is considered a barrier now.
When asked why the Commission has not proposed a ban on fossil fuel boilers, Ms. Pinho explained that one should keep the energy mixes of the member states in mind. Some member states still rely heavily on fossil fuels for heating, which would indicate a lack of national political support. Hence the Commission chose for a gradual phase-out.

Ms. Chambris then added that it goes **against treaty law to fully phase out gas heating**, since member states may decide on their own energy mix. Instead, **fossil fuel boilers can be *phased down*, or converted to work on green gasses.** At this point, Mr. Riechmann interjected, saying he agreed that fossil fuel boilers fueled by green gasses are part of the solution, thus should not be phased out. Ms. Bruel added that the EU indeed cannot ban certain appliances, but it **can and does set efficiency standards, including on heating appliances.** She also pointed to

**the IEA's roadmap to net-zero by 2050, which stated that after 2025, no new fossil fuel boiler must be installed worldwide.**[1]

## Closing Remarks

*Ilias Grampas, EU Affairs Manager, EBCD – Secretariat of the European Parliament Intergroup on 'Climate Change, Biodiversity and Sustainable Development'*

In his closing remarks, Mr. Ilias Grampas underlined **the importance to review the contribution of the building sector to reduce its energy consumption.** In order to achieve EU climate neutrality by 2050, **the EU should proceed the implementation of energy implementation measures and review new technologies available today**. Lastly, he mentioned the importance of **offsetting the remaining building energy needs through the use of renewable energy systems.**

1. [1]**Excerpt IEA Road to Net Zero 2050, p. 99:**

I Over 80% of the appliances sold are the most efficient models available by 2025 in advanced economies and by the mid-2030s worldwide**. There are no new fossil fuel boilers sold from 2025, except where they are compatible with hydrogen**, and sales of heat pumps soar.