

**Innovation for sustainable buildings:
Energy efficiency as part of their full life-cycle**

Event Summary Report

21 March 2019 – European Parliament



With half of all extracted materials and energy, and one third of the total waste generated, the construction sector represents the greatest stake in the European Union's efforts to make our economy circular. In addition, the Paris Agreement demands the building and construction sector to decarbonize globally by 2050, if we wish to avoid the catastrophic impacts of a +2 degree rise in temperature. As a result, the need to see beyond the use-phase of buildings towards their full life cycle (including extraction, manufacture, transport, construction and end of life) is more than crucial.

As it will be impossible to meet our climate and circular economy goals unless we address the total impact of the building and construction sector, research and innovation as well as sharing good practices have therefore a key role to play. As a result, this event brought together policy-makers, the private sector and NGOs to jointly discuss how buildings can be more sustainable, showcasing existing innovations and addressing potential opportunities and barriers in view of the existing EU policies.

The panel included:

- **Maria Spyra**ki, MEP
- **Theresa Griffin**, MEP
- **Bendt Bendtsen**, MEP
- **Paula Rey Garcia**, 'Buildings and Finance' Team Leader, Energy Efficiency Unit, DG ENER, European Commission
- **Josefina Lindblom**, Policy Officer, Sustainable Production, Products & Consumption, DG ENV, European Commission
- **Stuart Reigeluth**, Cities4Forests
- **Quentin de Hulst**, Senior Manager Construction Advocacy and Sustainability, BASF: "Plastics innovations for high performance and circularity in construction"
- **Franc Bogovič**, MEP
- **Anouk Legendre**, XTU: The use of algae for innovative engineering: "In Vivo", a bio façade project in Paris
- **Emmanuelle Causse**, Director of European Affairs, International Union of Property Owners

In her opening speech, **MEP Theresa Griffin** brought up the universal issue of energy poverty, since it affects all of Europe. Poor people are more likely to spend a higher percentage of their income on energy bills than the rich, which makes energy efficiency a social issue as well. Although legislative work preparation is a crucial part of addressing this issue, the implementation is an element that should not be forgotten. With reference to the event, **Ms. Griffin** stressed the importance of these sessions, as they provide a platform for dialogue. Regarding the recent events of young people demonstrating for actions to be taken against climate change, Ms. **Griffin** further argued for the importance of energy efficiency.

In a [video message](#), **MEP Bendt Bendtsen** addressed the key role of energy efficiency, since it is the cheapest way to cut CO₂ emissions. When working towards the targets set in Paris, the sector of sustainable buildings is therefore crucial. Further, just as **Theresa Griffin** had previously stated, **Bendt Bendtsen** argued that making legislation is insufficient and that the work of implementation will have to be shared between policy makers, NGOs and other actors.

Paula Rey Garcia from DG ENER highlighted the importance of the moment, as a revision of the Climate and Energy Framework for 2030, including the Clean Energy for all Europeans package, was just completed. Legislation is only one part though, and now focus needs to be shifted towards implementation. In order to encourage implementation, the latter needs to be made easy and as effective as possible, while the importance of sharing best practices has to be underlined. When speaking about energy efficiency in the building sector, **Paula Rey Garcia** stressed two main areas of importance. Firstly, the renovation of existing buildings, rendering them more energy efficient. Secondly, bringing together a financial component in order to stimulate investments at a much larger scale on a national level through different mechanisms, such innovative financing tools. Further, **Paula Rey Garcia** finished [her presentation](#) by stating that the event's purpose is meant for reflection and looking ahead. She argued that the current legislation is quite narrow in its focus on energy performance, which is however necessary as it is impossible to do everything at once. While moving step-by-step, she did give encouragement towards being ambitious, as that is also a key for success. Next to the focus on increasing building renovation, the latest revision of the energy efficiency legislation on buildings stimulates the roll out of smart technological solutions.

MEP **Maria Spyra** addressed the audience and raised the question of how the problem of energy inefficiency can be solved. She argued that energy efficiency is something that helps to protect both the environment and less fortunate social groups, who are spending more money on less energy, which makes it an even more crucial topic. Buildings are an important starting point, as they are responsible for 40% of energy consumption in the EU and 75% of the EU's buildings are energy inefficient, according to energy efficiency standards. This gives us a huge potential to do a better job, where we can focus on economy, buildings and the social impact. **Maria Spyra** further discussed the importance of funding, where she highlighted the importance of the European Fund for Strategic Investments (EFSI) in support projects for energy efficient buildings. Only innovation will not be enough; there needs to be earmarked funding for the projects, and EFSI is an example where this has been the case.

Josefina Lindblom, representing DG ENV, discussed the importance of looking at energy consumption of buildings during *a full life cycle*. Not only should one examine the energy consumption of buildings when they are in use, but one should also look at the energy usage from the moment materials are extracted from the ground, and further through construction, renovation and deconstruction. This is something that the sector is well-aware of, but that is easily forgotten,

which is why she urged the MEPs not to lose sight of this perspective. In [her presentation](#), **Josefina Lindblom** argued that in order to “Paris Prove” buildings, a full life cycle perspective is needed. One way of doing this, and therefore bringing buildings into a circular economy, is through a tool, developed by DG ENV. It is called “Level(s)” and aims at bringing life cycle thinking into mainstream market. “Level(s)” is made up by ten indicators that make it easy to look at the performance and therefore aspires to be the common language that has been missing in order to move the mainstream market into the circular economy. The tool is being tested in 140 normal building projects right now and the results of the tests will be ready in half a year.

Stuart Reigeluth represented Cities4Forests and [presented](#) how his organization connects people with nature. Since more than half of our planet's population lives in urban areas, accessibility to forests is limited for most people, which is a problem due to the many benefits of trees and forests for cities and people. What Cities4Forests does is that it provides technical assistance, supports with peer-to-peer learning and advocates for the many benefits of the project. So far 52 cities have signed on to the organization, covering many different parts of the world. While concluding his presentation, Stuart Reigeluth showed [a video from The Economist](#), explaining the benefits of building with wood and timber.

Quentin de Hults, from BASF, represented the chemical and plastic industry in the event. In [his presentation](#), he argued that plastic is a material of choice in many building applications. The “champion” as he described it, is plastic foam insulation, which is of great importance when it comes to buildings and their energy efficiency. He presented a timeline of development of plastic insulation materials since the 1950 and towards always higher performance to save not only energy but also space and resources. After having showed the importance of life cycle thinking and the developments towards more circularity, Quentin de Hults concluded with three policy recommendations for sustainable buildings. Firstly, he argued that there has to be an aim for almost zero energy building stock, meaning there have to be more and better renovations. Secondly, Life Cycle Assessment (LCA) of buildings must be used to consider all building stages and all implications of design options. Lastly, Mr. **de Hults** argued for a supportive and technology-open framework for recycling, which should include chemical recycling.

MEP **Franc Bogovič** brought up the very important aspect of citizens’ participation in these legislations. In the case of energy efficiency, the point is quite obvious; with more energy efficient buildings, people will pay less in energy bills. Having previously been a mayor in a rural area in Slovenia, Mr. **Bogovič** brought up the importance of local actors, as many success stories came to life in his municipality within energy efficiency. Moreover, the MEP looked positively towards the future because there is a lot of support for the work of energy efficiency, linked with many possibilities. These possibilities involve technological advancements that did not always exist and that prove the importance of sharing best practices all around Europe.

Anouk Legendre from XTU introduced the example of photosynthetic buildings, which is a vision of evolving cities. Being an architect, she and her team have developed living buildings, made up of algae. The algae are placed in tubes of water, and incorporated into the design of the buildings, such as in the exterior walls or roof. In the tubes, they will grow because of the carbonic gas, and they then function as a storage of energy. Through putting these algae on skyscrapers, one can store as much energy as in a big forest. **Anouk Legendre** further explained that this is not just a vision, but about to become a reality as her team has won a competition, which led to a building of their design, with a bio façade, is now in construction. More information can be found on [her presentations](#).

In [her presentation](#), **Emmanuelle Causse**, from the International Union of Property Owners (UIPI) talked about what it would take to get EU citizens on board to make the shift to a more sustainable building stock. Her organization represents the 70% of the EU population that live in their own house as well as European private individual landlords which own a very substantial part of the overall rental market sector. In her view, increasing sustainability of building is a good thing only if it is affordable! It also needs to be done for and with the people, this means by favoring a bottom up approach. She mentioned that the energy performance of buildings directive sets clear objectives for decarbonizing the building stock by 2050, but sustainability is a greater step. In her view, it is important not to impose sustainability on citizens but rather, at this stage, to educate them first by raising awareness, bringing to the market more sustainable and affordable construction products and solutions to boost building efficiency, health and comfort, incentivize sustainability uptake and, finally but not least, make sure that we produce products and build to last.

A member of the audience raised a question to Mr. **de Hults** asking how plastic foam isolation products can be recycled, as incineration was the only option a few years ago. **Quentin de Hults** clarified that energy recovery remains a very valid options that is now being complemented by different options like PolystyreneLoop for EPS and chemical recycling for all type of plastic waste.

[All meeting documents can be found here.](#)