Switch2Save workshop:
Novel approaches to building envelopes designs: smart plug and play systems
20/10/2022 | On-line

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869929.

Workshop Notes

The role of smart windows in EU's Energy Efficient Buildings Strategy

- Air conditioning (cooling) accounts for 20% of energy demand of buildings in summer; cooling energy demand is 3 times higher in buildings with large windows and high wall-to-window ratio
- 30% of the energy demand is caused by radiation energy transfer through windows
- Glass developed through Switch2Save has 20% energy saving potential. Cooling energy demand can be reduced for up to 50% through smart windows.

Different approaches towards smart building envelopes designs – Examples of EU funded projects

PLURAL

- Plural aims to design a range of adaptable, scalable, off-site prefabricated Plug-and-Use kits.
- Integration of hybrid passive and active systems into one kit that allows it to work in synergy for façade retrofitting

Powerskin+

- All-combined modular energy management package that follows superior energy efficient and sustainable design standards, especially fitted for modern non-residential buildings
- Provide retrofit market with highly adaptive multi-case energy efficient and management systems but also looking into new buildings

How to bring innovative solutions to the market - Climate smart and cost-effective glass

- New technology needs to break the trend
- Dynamic glass increases cognitive ability, improves productivity and wellbeing
- Insulated glass market expected to double by 2030
- Smart windows market expected to grow to $5,9bn by 2030
- EC technology is better fitted for building facades
- Working with the glass industry to meet their needs – collaborating with real estate developers etc that come up with creative ideas that require development of new technology, whether it is to meet energy saving targets or improve wellbeing (elderly care building, school)
- ESG – growing and driving force behind real estate
- Scalable and sustainable business model with production and sales running

Challenges and advantages of upgrading facades with EC glass

- Installing the new smart windows into existing façades poses challenges as it adds weight that hasn't been considered in the building construction (static calculating when adding weight to the façade)
- Environmental product declaration declares the environmental impact of a product throughout its life cycle. Environmental certification of safety, toxicity or hazards are not included by should be followed

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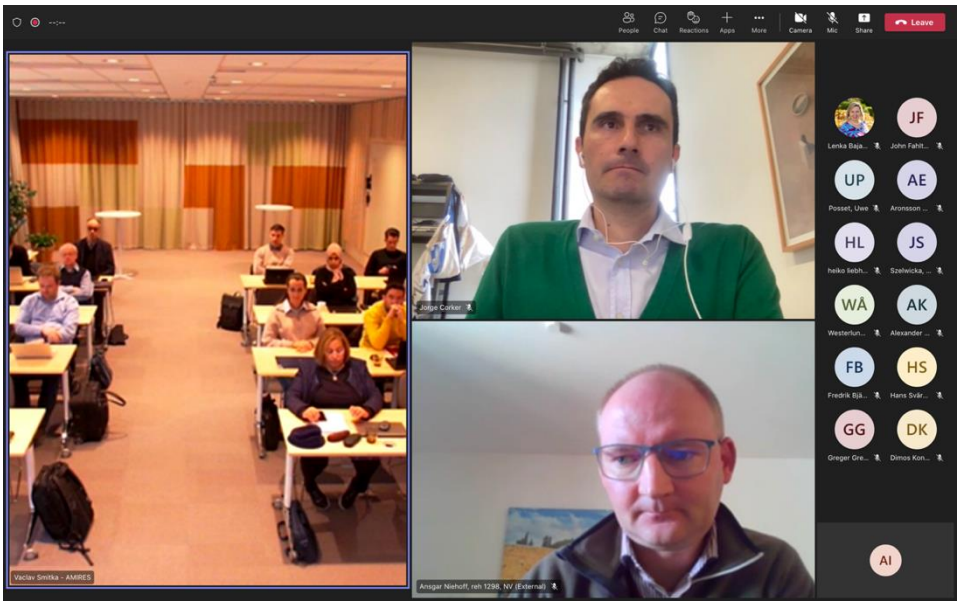
Round table discussion

- Most building companies don't know about advanced technologies, construction industry is conservative. Problem: building constructors are different from building owners hence saving on energy cause during the building's exploitation is not their concern
- Commercial target audience: instead of construction companies, innovative solutions are better marketed towards property owners, energy consultants, architects
- Current energy crisis completely disrupts the market with energy prices growing. Although consumers are seeking energy-efficient solutions to reduce the energy demand in their homes, prices of materials and production has massively increased. Because of that, production is disrupted, and the price of innovative technologies becomes too high for an average costumer to afford.



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