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EU climate ambition and European Green Deal
EU Climate Ambition in the built environment

Buildings are responsible for:
- approx. 40% of the EU’s total energy consumption, and for
- 36% of its greenhouse gas emissions from energy

To achieve the 55% emission reduction target, by 2030 the EU should reduce
- buildings’ greenhouse gas emissions by 60%,
- their final energy consumption by 14%.
How will the Commission reach a solution?

By updating current rules in force, and by proposing new measures.

Key focus of EU legislation lies now on renovation. In the past: more on new buildings.

Renovation as an opportunity to renovate the building to make it more:

- **Energy efficient**: the ambition is to move towards zero-energy buildings, not only for new buildings but also existing buildings!

- **Smart**: the Commission sees potential in integrating more smart infrastructure in buildings e.g. smart charging for electric vehicles
Important before we continue...

• There is not 1 initiative or piece of legislation on “smart buildings”.

• There are multiple policy hooks that cover aspects of “smart buildings”. For instance the Smart Readiness Indicator Regulations, the Energy Performance of Buildings Directive, and many EU funding initiatives and projects, for instance under Horizon Europe.

• The current EU policy ambition is green & digital. This ambition transpires in every policy initiative taken under this legislature.

• The Green Deal and the Renovation Wave allow to hit two birds with one rock: while renovating buildings to make them more energy efficient, it is an opportunity to also make them smarter through the promotion of building automation technologies.
European Commission’s approach to EU energy policies
Green Deal Architecture

Green Deal
Overarching initiative. Released in December 2019.
Political responsibility: Commissioner Timmermans

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<tr>
<th>EU Climate law</th>
<th>EU Circular Economy Action Plan</th>
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<td>55% emission reduction by 2030</td>
<td>Announcement of sector-specific measures. Includes buildings</td>
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Renovation Wave Strategy

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<td>review</td>
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Smart Readiness Indicator
new
The Renovation Wave initiative
What it means for Europe’s buildings and the engineering community
I oversee the implementation of the Green Deal. I do not deal with policy details.

Mr Timmermans
Commissioner for Climate Action

I will help implement the Green Deal in the building sector. My priority focus in this legislature will be to renovate buildings to make them more energy efficient and smarter.

Ms Simson
Commissioner for Energy

The Renovation Wave is in line with the Green Deal objectives

Renovation Wave Strategy
Renovation Wave Strategy takes stock of existing initiatives (Smart Readiness Indicator) and new initiatives (review EPBD).

Smart Readiness Indicator
- Idea is to make buildings smarter through benchmarks
- Measure ICT-readiness of a building in 9 technical domains
- Can be compared to Energy Performance Certificate
- Voluntary scheme
- Applies from 1 January 2021

- Idea is to make minimum performance standards mandatory for existing buildings
- All buildings are in scope, but public ones get priority
- Mandatory scheme
- Review of existing rules foreseen in 2021
What can you expect as technologists/engineers?

Decentralization of the grid continues:
• More integration of RES in buildings, including in heating and cooling applications
• More demand for demand-response applications, for instance smart charging for EVs
• Development of energy communities, for instance through European Smart Cities Marketplace

Focus on energy efficiency & RES integration:
• Scale of renovations will increase tremendously as existing buildings will need to comply with minimum energy performance standards as well
• “Deep renovation standard”? TBD.
• Strengthening the renewable heating and cooling target and introducing a requirement for minimum proportions of renewable energy in buildings

EU funds for R&D for engineers
• Supporting digitalisation in the construction sector through Horizon Europe, Digital Innovation Hubs and Testing and Experimentation Facilities
• Supporting sustainable and decarbonised energy solutions through Horizon Europe and the R&I co-creation space
IEEE activities and initiatives in the area of smart buildings
“The indicator is intended to raise awareness about the benefits of smart technologies and ICT in buildings (from an energy perspective, in particular), motivate consumers to accelerate investments in smart building technologies and support the uptake of technology innovation in the building sector.”

1\textsuperscript{st} stakeholder meeting
SRI 1st technical support study

ENER/C3/2016-554

Aim:

To provide technical support to the DG Energy in order to investigate the possible establishment of an SRI under the EPBD.

Study led on the basis of the EC proposal, focus on the calculation methodology.

March 2017 – August 2018

https://smartreadinessindicator.eu/

Verbeke S., Waide P., Bettgenhäuser K., Uslar M.; Bogaert S. et al.; “Support for setting up a Smart Readiness Indicator for buildings and related impact assessment - final report”; August 2018; Brussels.
Topical expert group C: explore future SRI developments

- Investigate requirements and feasibility an SRI assessment “method C”
- Define a process for updating method A and B
- Self-managed working group
The **purpose** of the position statement is to promote smart buildings as an integrated part of the energy system

**Content:**

1. Contribution of Smart Buildings to the European Green Deal
2. Role of Smart Buildings in the energy system
3. Risks and opportunities of ICT in buildings
4. Recommendations for Smart Buildings legislative work
   a. Energy efficiency and smart management in buildings
   b. Local energy generation, storage and sector integration
   c. Stakeholder-specific incentives: investors, occupants, facility managers
   d. Digitalization and buildings
EPPC Energy WG methodology

- **From Energy WG**
  - Main editor
  - Co-editor(s)

- **Assigning responsibility**

- **Concept note**

- **Setting the scene**
  - for the policy document
  - Reviewed by Energy WG

- **Call for engagement**

- **Wider core group**
  - of technology policy experts willing to contribute to the policy exercise

- **Contributions**

- **Editors**
  - Review and integrate into the document, to the greatest extent practicable, material by volunteers

- **All members**
  - Submit comments and contribute substantive text to the document

- **Final draft**

- **End of editorial process**
  - Edited version circulated to all members

- **Review**

- **Global Public Policy Committee**

- **European Public Policy Committee**

- **Approval**
Other major work of IEEE on Smart Buildings

Many IEEE initiatives and contributions, from components to systems, from education to standards...and more!

- Information acquisition techniques (such as wireless sensor network)
- Building integrated control for energy saving
- Building as a micro grid
- Fire and security in buildings
- Human comfort control in buildings
- HVAC fault detection, diagnosis, and prognosis
- Manufacturing facilities
Thank you