

THE FRENCH EPB REGULATION FOR NEW BUILDING - LCA



RESTREINT



INTERNE



SECRET



ENGIE, a global energy player focusing on 30 countries

FOUR CORE ACTIVITIES FOR REACHING ZERO CARBON BY 2045

Renewable production

Gas : 4GW H2 production by 2030, supporting 20% of share of biogas by 2030 in France

Electricity : Growth of +4GW/y to +6GW/y WW

Heat : +8GW in distributed heat by 2030

Infrastructure

Gas, Electricity and District Heating/Cooling Infrastructure operator worldwide

Energy Solutions

Energy efficiency solutions in B2B and B2C sectors

Thermal and Supply

Traditional thermal electricity production aiming to zero carbon (mainly using H2 and bioCH4)

Energy Supply to B2B and B2C

Reaching zero carbon in buildings

The roadmap for decarbonizing new buildings should follow the path of

1. Energy demand reduction
2. Energy Efficiency First approach
3. Renewable Energy Supply

The French regulation RE2020 for new building, enforced since early 2022, focuses on

1. Limiting Heating and Lighting needs
2. Limiting Total and Non-Renewable Energy Production
3. Limiting Carbon emission evaluated in Life Cycle Analysis

It applies to all residential and non-residential buildings¹

Reaching zero carbon in buildings

The roadmap for decarbonizing new buildings should follow the path of

1. Energy demand reduction
2. Energy Efficiency First approach
3. Renewable Energy Supply

The French regulation RE2020 for new building, enforced since early 2022, focuses on

1. Limiting Heating and Lighting needs
2. Limiting Total and Non-Renewable Energy Production
3. Limiting Carbon emission evaluated in Life Cycle Analysis

It applies to all residential and non-residential buildings¹

Limiting Energy use

Limiting Energy use is, in agreement with EPBD, done via Primary Energy Consumption limitation.

1. Total Primary Energy consumption encompasses all energies that are invoiced. E.g. On-site Solar is free.
2. Non-renewable Primary Energy consumption set to zero on-site use of biomass and the renewable share of district heating.

They rely on Primary Energy Factors (see EN 17423)

1. Prospective (2035) Primary Energy Factor for Electricity of 2.3 (with respect to 2.9, excluding LCA, according to Eurostat data, 2.58 conventionally for other regulation in France). For both Total and Renewable Energy Factor
2. Historical Primary Energy Factors for other Energy vector (gas, biomass, district heating)



How to compare the French Regulation with other European Regulation ? PEF are very specific, Climate is specific, and the computing kernel is specific, encompassing thermal transmission aspects and HVAC efficiency modelling

ENGIE is in favor of a **LEVELLED PLAYING FIELD** by using the most recent Primary Energy Factors for all energy vectors
ENERGY EFFICIENCY FIRST PRINCIPLE, in primary energy, is key for evaluating the holistic impact of building consumption

Carbon emission in Life Cycle Analysis

What is a holistic evaluation ?

In the Energy sector : accounting for all the resources necessary for supplying the building.

They are incorporated in

1. Primary energy factor (PEF)
2. Carbon emission coefficients
3. Any other coefficients (Water use, air quality, land use ...)

Direct energy use only can be incorporated, of indirect energy and material use

1. For CONSTRUCTING the plants and infrastructures
2. For OPERATING/ MAINTAINING the plants and infrastructures
3. For DECOMMISSIONING the plants and infrastructures

Incorporating these in PEF and carbon emission factors would increase them

1. PEF in France do not include these indirect effects
2. Carbon emission factors do include these indirect effects

Carbon emission in Life Cycle Analysis

What is a holistic evaluation ?

And what about the material sector ? According to the IEA, per year, the building construction industry represents ~30% of the carbon emission of buildings, 70% being the energy use

For new buildings, it represents between 50% (fossil gas fueled building) to 80% (low carbon electricity/heat/gas fueled building)

The French regulation for new buildings addresses the carbon impact in a Life Cycle Approach that considers the carbon emissions of construction, operating, energy use, and decommissioning the building

A limitation on the Carbon Emission due to energy use for heating/cooling/lighting/ventilation

A limitation on the Carbon Emission due to construction/operation/decommissioning

All without considering market-based tools (green certificates)

Not considering market-based tools (notwithstanding reasonable issues that have to be addressed) does not help promoting the use of green contract by end-user that are one of the booster for green energy production

Conclusion and openings

The French RE2020 goes beyond the draft EPBD in that respect – LCA analysis for CO₂ emission is a very efficient tool.

LCA is also a mindset as it requires a holistic reasoning. For example, banning fossil fuel boilers would require to ban any indirect fossil use through electricity and district heating consistently.

Thus, Energy First Principle remain the main pillar in order not to transfer any significant impact beyond the scope of analysis.

What about existing buildings ? Practical issues hinder the process to go to LCA. Every new building can be easily evaluated in LCA provided that LCA databases are available. This is not the case for renovation where circular economy and material reuse should be pushed forward in the first place.



Thank you for attention



RESTREINT



INTERNE



SECRET

