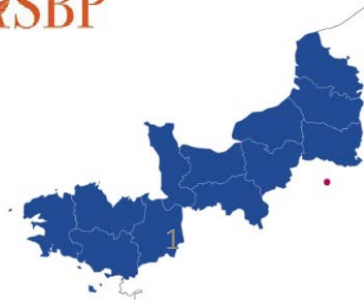


Decarbonising construction in France: the E+C- scheme

ISOBIO project, final event – 29 January 2019
Brussels (Thon Hotel EU), Belgium



Decarbonising construction in France: the E+C- label

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I. Introduction – Decarbonising construction

The Energy Transition for Green Growth Law (2015) sets French **climate change mitigation goals** for 2030:

- -40% GHG emissions relative to 1990
- -20% final energy consumption relative to 2012
- 30% renewable energy in final consumption

Buildings and the construction sector in France (2015) are carbon-intensive:

- 43% of final **energy** consumption
- 23% of **CO2 emissions**

The National Low Carbon Strategy (2015) aims to **reduce GHG emissions from the building sector by 50% in 2030** relative to 2015 and by 87% in 2050.

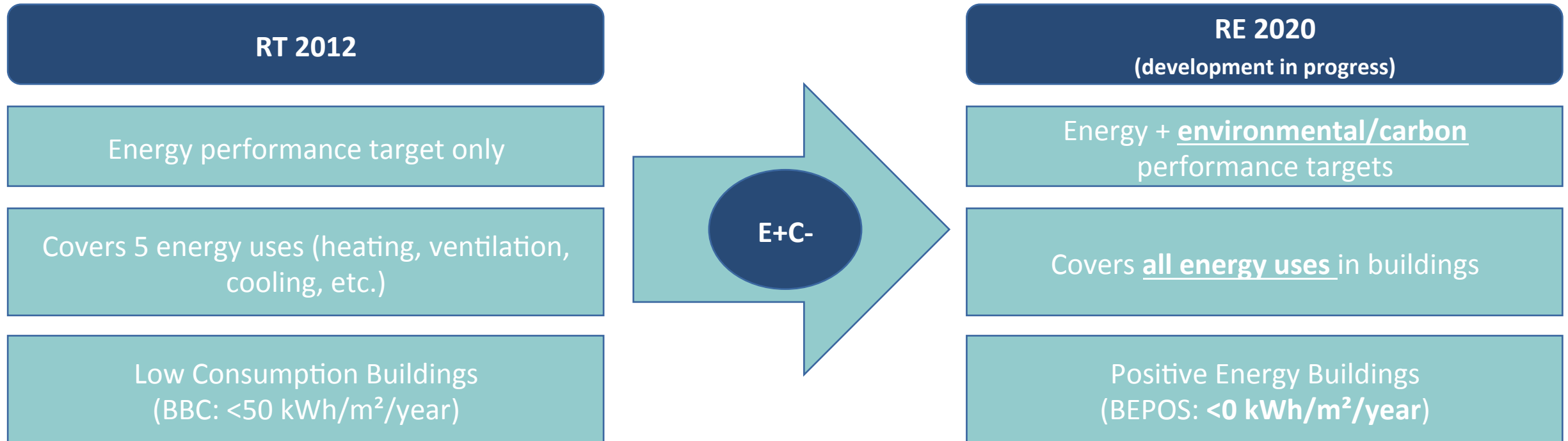
Challenge for the sector is to build:

- **Energy** efficient buildings
- **Renewable energy** producing buildings
- Low embodied **carbon** buildings



I. Introduction – A shifting regulatory framework

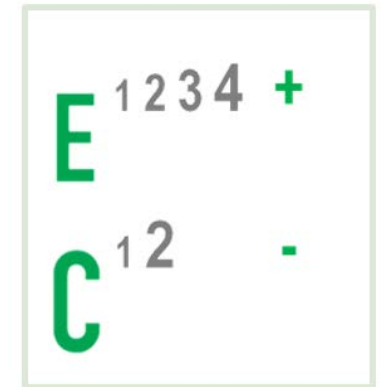
- Shift from **RT 2012** (thermal regulation) to **RE 2020** (environmental regulation)
→ move towards reducing the overall carbon footprint of new buildings
- Goal of the E+C- experimentation: test potential features of RE 2020 before its implementation



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II. E+C- in short – A voluntary labelling scheme

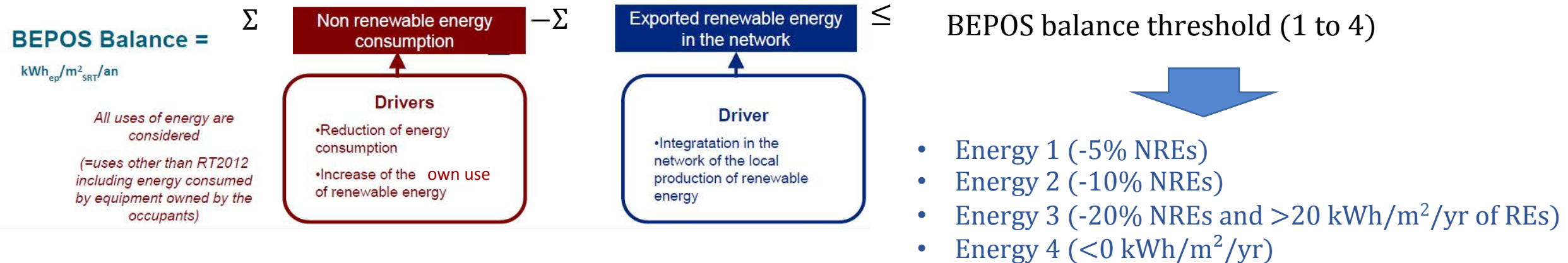
- **Voluntary labelling** system and experimentation for **new constructions** (residential and tertiary) launched in November 2016 by the French State
 - Label delivered by certifying bodies recognised by the State
 - Opportunity for professionals to
 - **Anticipate** future building regulations
 - **Partake** in the development of these regulations (through feedback to the State)
 - **Communicate** on the environmental performance of their buildings
- E+C- buildings
 - **Positive energy (E+)** → high energy performance (operation phase), 4 levels (E1 to E4)
 - **Low carbon (C-)** → high environmental/carbon performance (construction, operation and end of life), 2 levels (C1 or C2)



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II. E+C- in short – The energy performance criterion

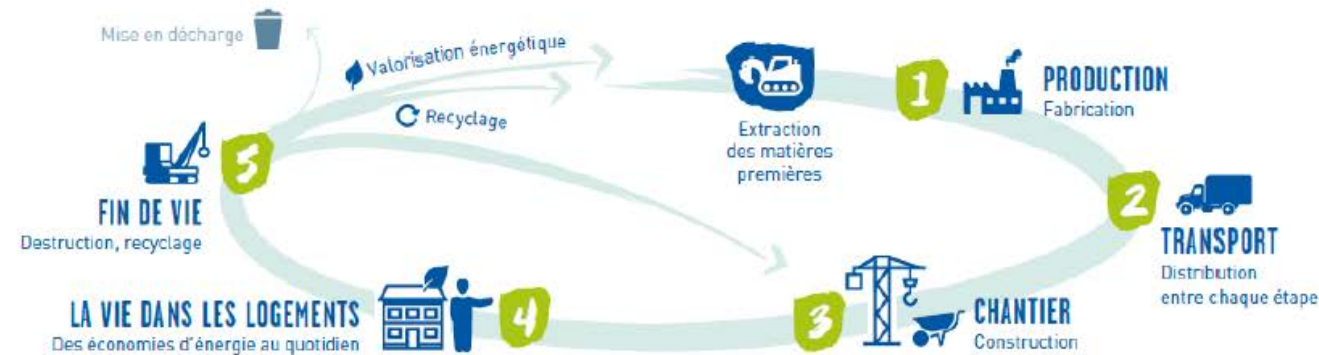
- Energy performance is defined by the BEPOS balance, which is based on a calculation of all uses of energy in the building when in operation -> indicator of the **net consumption of non renewable energy**, as renewable energy production in the building is taken into account
- Energy levels 3 and 4 (combined with Carbon 2 level) give access to a **constructibility bonus** (up to 30% extra area)



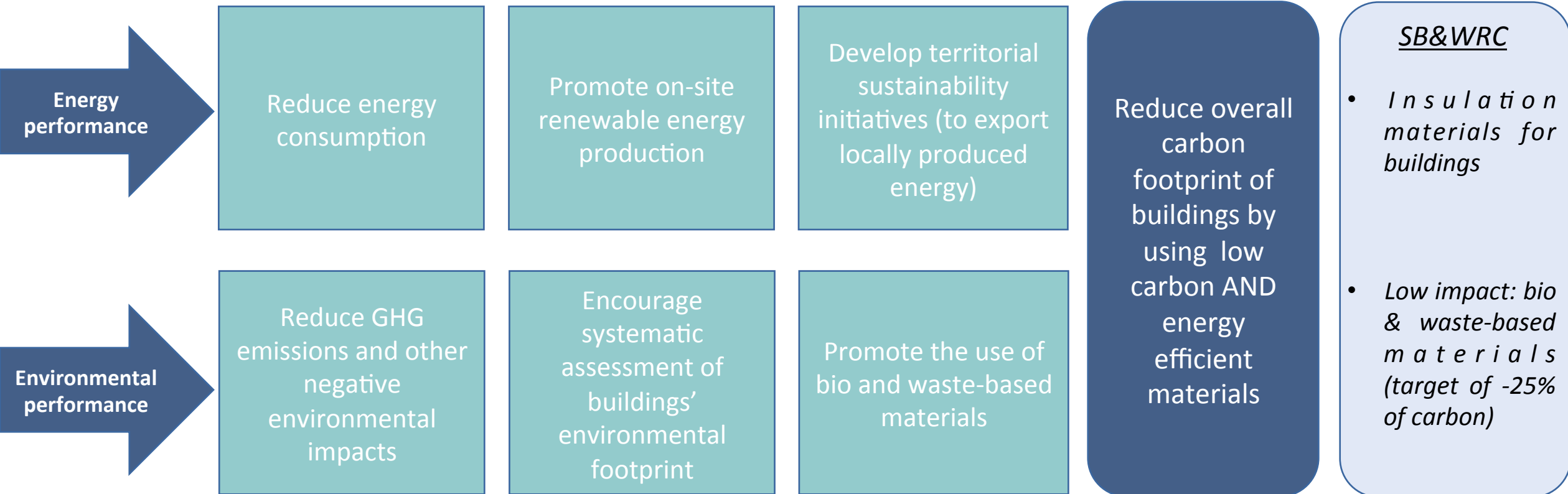
II. E+C- in short – The environmental performance criterion

- Environmental performance is determined by a **LCA of the building**, over a reference period of 50 years, from its construction to the end of its life
- **Several environmental impacts** are assessed for different stages of the building's life cycle:
 - Acidification potential
 - Eutrophication potential
 - Ozone depletion potential
 - Photochemical ozone creation potential
 - Primary energy use
 - Global warming potential

- In particular, the **carbon performance of the building (GHG emissions)** takes into account:
 - **Energy use in operation** → measured with the *Eges* indicator
 - **Embodied carbon in construction** products and equipment → measured with the *Eges PCE* indicator
- **2 different levels of carbon performance** can be obtained: Carbone 1 or 2



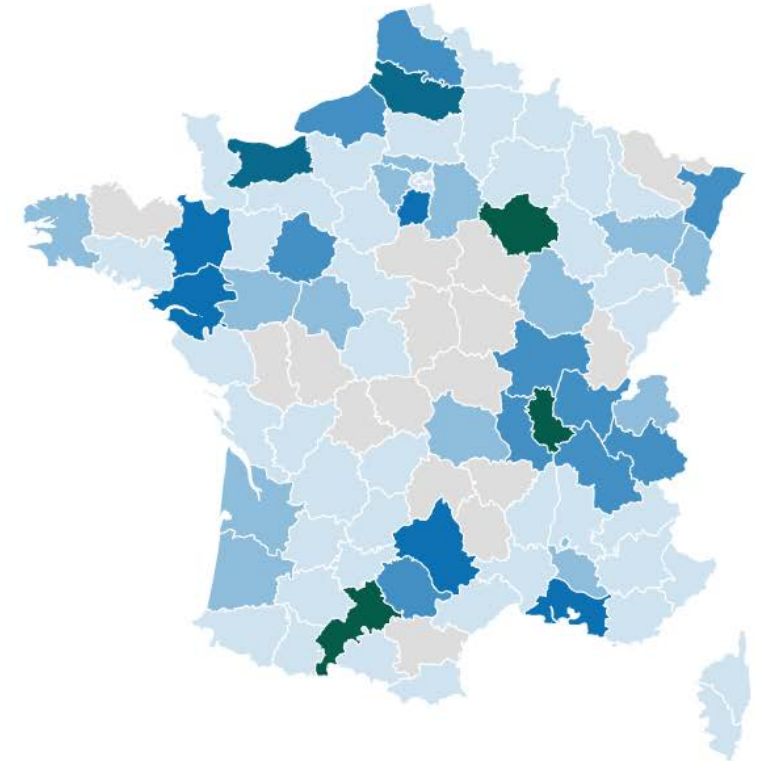
II. E+C- in short – Broader environmental goals



III. Insights and feedback from the E+C- scheme so far

Key figures

- Started in November 2016
- **594 buildings** have taken part in the experimentation so far:
 - **60% are individual residential**
 - 25% are collective residential
 - 15% are tertiary buildings
- 22% of them have obtained an energy performance level > Energy 2
- 10% of them have obtained an environmental performance level > Carbon 1



Nombre de bâtiments							
Aucun	Moins de 5	Entre 5 et 9	Entre 10 et 14	Entre 15 et 19	Entre 20 et 29	Entre 30 et 50	Plus de 50

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III. Insights and feedback from the E+C- scheme so far

Benefits of the experimentation for participants

- Anticipate, better understand and contribute to upcoming environmental regulations
- Learn how to use LCAs in the context of construction to guide design choices
- Develop innovative solutions to reduce the environmental and carbon footprint of buildings
- Strengthen collaboration between different stakeholders in the construction industry around environmental issues

Difficulties encountered

- Highly ambitious targets (especially Energy 4 and Carbone 2 levels) given current conditions
- Technical and administrative barriers (INIES database, Environmental and Health Data Sheets) limiting the use of low-carbon construction materials and the conduct of LCAs
- Official LCA methodology reported as not fully clear and coherent
- Additional costs for construction



IV. Looking forward

Next steps toward the RE 2020

- By end 2018: Written contribution of actors with a technical expertise
- 2019 first quarter: Analysis of this contributions by Expert Groups
- 2019 first quarter: Analysis and integration of the feedback provided by the experimentation to complete the design of RE 2020
- 2019 first semester: Actors express their positions in Concertation Groups
- 2019 to 2020: State prepares the RE 2020 and
- Summer 2020: Publication of the new regulation



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