

# Sustainable and Nearly Zero Energy- Building Strategy in Brussels

**Building Renovation Strategies.  
From Directive to Delivery**  
**16 May 2014**

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Sub-Division « Promotion of sustainable buildings »

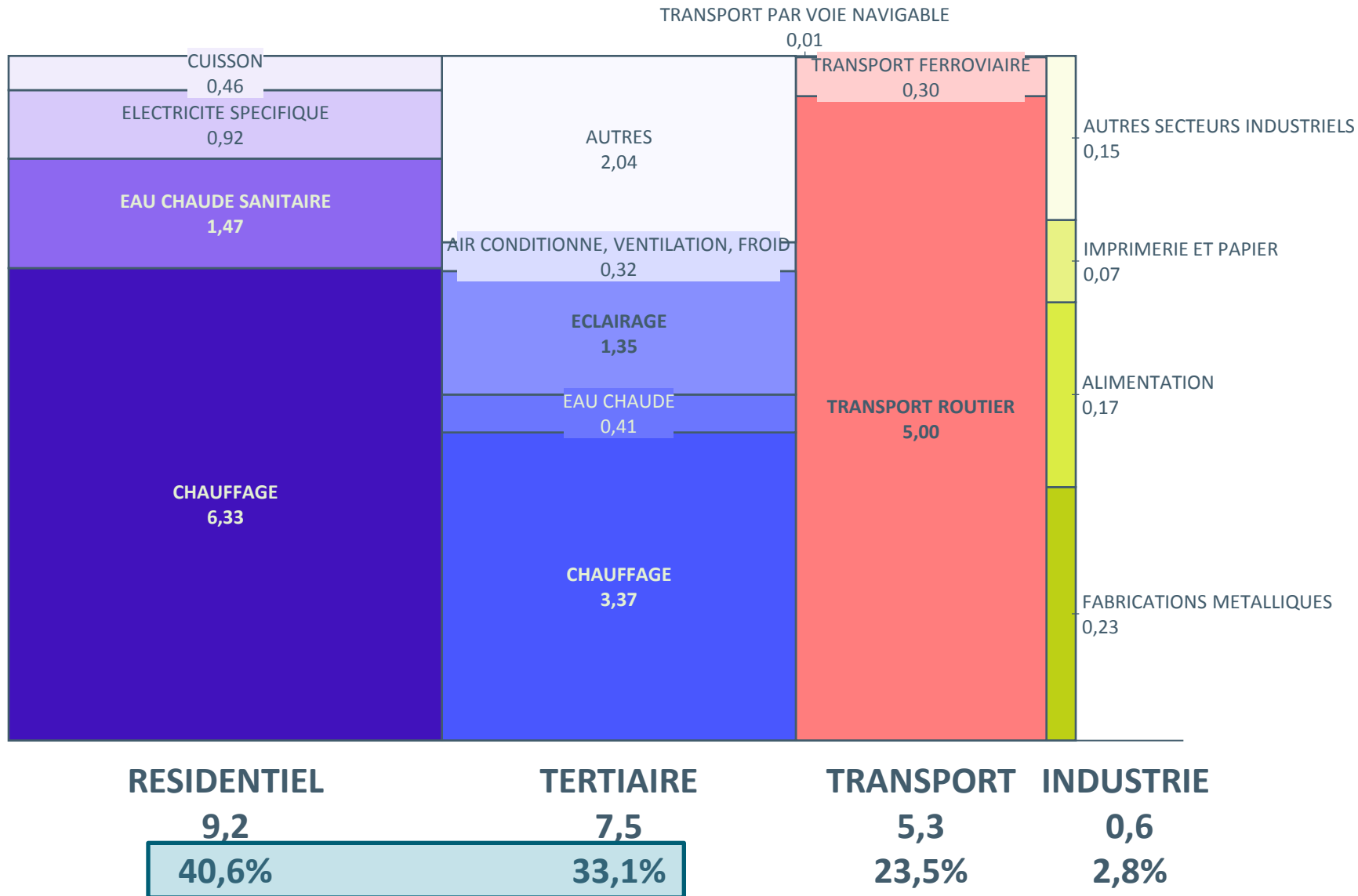
Brussels Environment



**BRUXELLES ENVIRONNEMENT**

IBGE - INSTITUT BRUXELLOIS POUR LA GESTION DE L'ENVIRONNEMENT

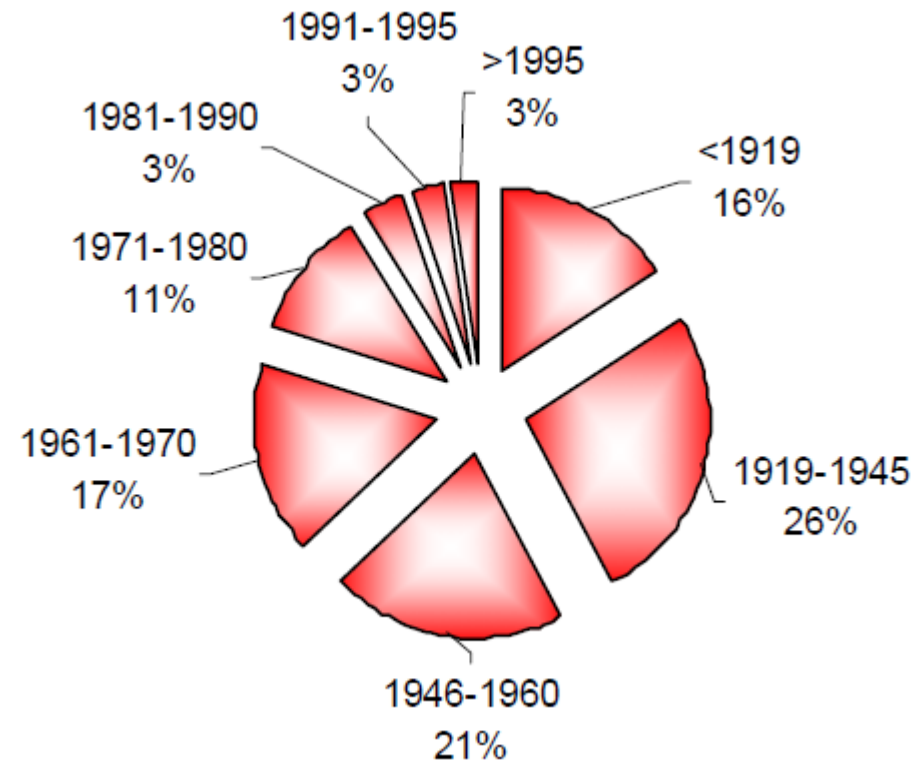
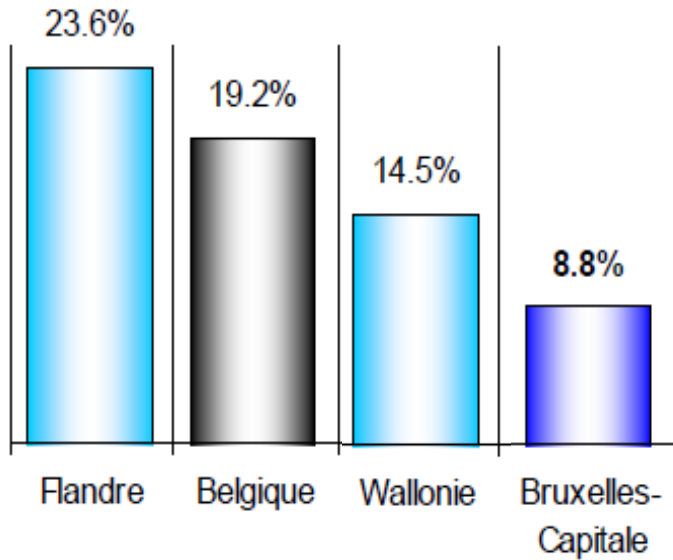
# ENERGY – in Brussels, buildings are the prime goal !



In Brussels, end consumption is mainly due to residential and tertiary buildings, and transport

# Condition of housing units in brussels

Over 9 housing units on 10 are older than 20 years



Distribution of housing units according to age of construction

Figure 57 - Part des logements construits depuis moins de 20 ans  
Source DGSIE - Enquête socio-économique 2001



# Intervention interval

less than 1 housing unit on 10 retrofitted the last 20 years (in 2001)

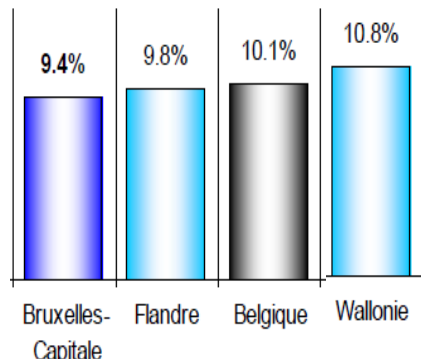


Figure 58 - Part des logements transformés depuis 1991  
Source DGSIE Enquête socio-économique 2001

We don't have much impact on energy prices

energy aspects are rarely the motivation for investment

Nevertheless, the improvement potential of energy efficiency is often important/

→ Key moments to act:

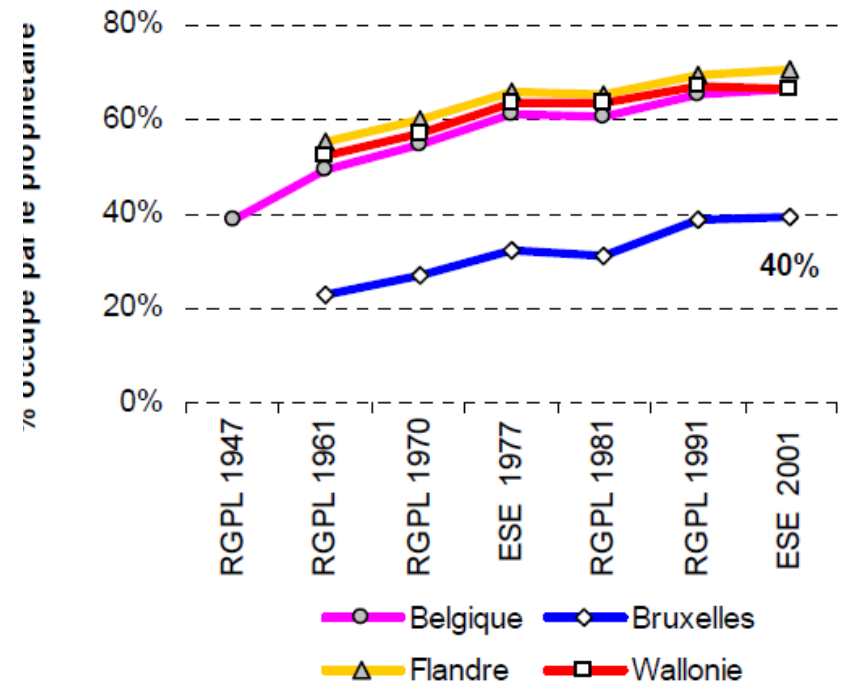
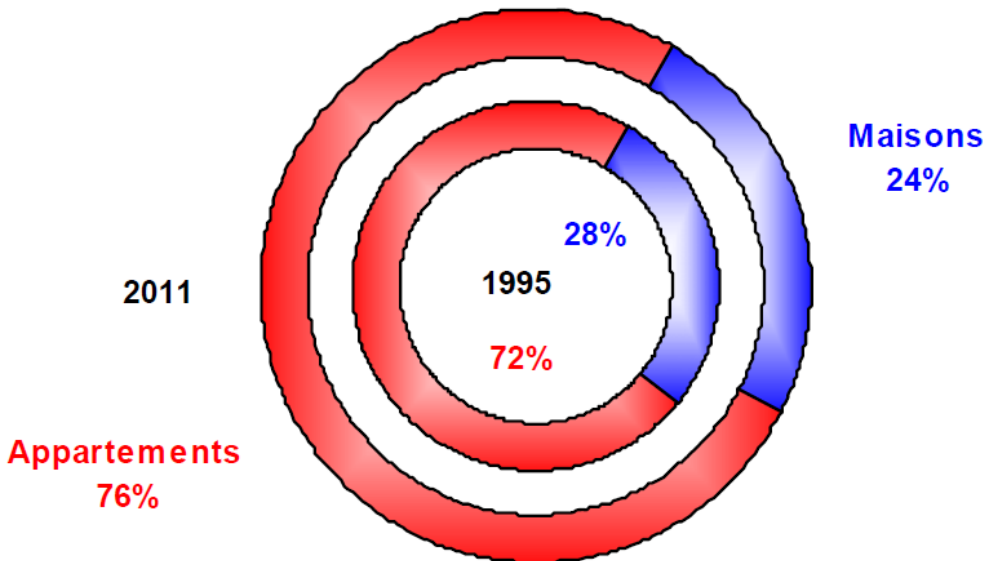
- ▶ Construction +++
- ▶ Heavy retrofit +++
- ▶ Light retrofit++
- ▶ Management of the technical installations ++
- ▶ Behavior +



When you invest, you should be very ambitious on energy criteria given the lifetime of your investment.

# Other brussels particularities

- High part of tenants
- Lots of apartment blocks that are co-owned
- Average income < national average income

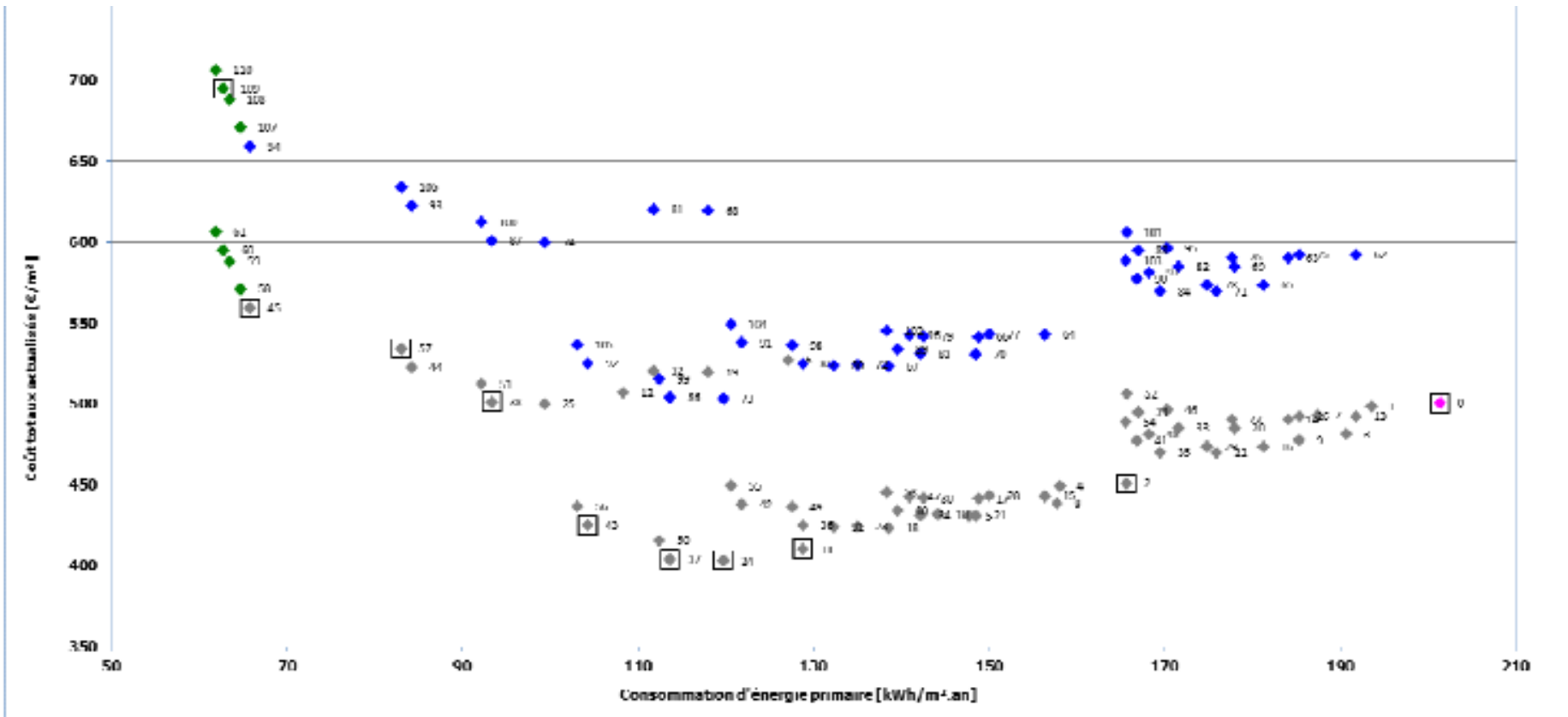


Part des logements occupés par leur propriétaire



# Identification of viable renovation approaches

## Cost-optimum analysis



Isolation passive (ou + que passive)

Présence d'une protection solaire

Tout autre cas

(isolation non passive et pas de protection solaire)

\*Isolation non passive (ou + que passive) correspond à

- Ufenêtre = 0,85 W/m²K
- Ufaçade = 0,12 W/m²K
- Débit de fuite = 1,21 m³/h/m²

Figure 22 : Front de Pareto CTA/EP – variantes architecturales maison individuelle HI-B

# Brussels' policy towards sustainable buildings

→ a match between demand & supply

## Stimulate DEMAND

Requiring QUALITY

### Support Financially

Energy Allowances

Green Loans

### Guide & Sustain

Professionals: Facilitators...

Individuals: House of Sust. Building

PLAGE programme

### Increase, Promote Examples

Exemplary Buildings Programme

Public Authorities set the example

## Improve Knowledge & know-how

### Train to excellence

Designers' training

### Stimulate training sectors

Qualifying training for:  
Workers, Students, Unemployed

Partner:  
CDR Constr.

### Adapt technical framework

Belgian Certification System (Ref.B)

Technical Guide, Supports & Training

## Adapt LEGAL framework

### EPB Legislation / COBRACE

PassiveHouse Standard is the norm

Sustainable Building Certification

.....

## Improve SUPPLY

Partners:  
Cluster EcoBuild  
ABE  
CCB-CCDR

### Stimulate Companies

Awareness

Clustering - Cluster EcoBuild

ProActive Lobbying

Alliance Employment-Environment

GreenBizz (start-up)

Social Economy



## BRUSSELS INTEGRATED PLAN ON AIR – CLIMATE – ENERGY (PACE) AND ITS LEGAL CODE (COBRACE)

- \*A single legislation, a single vision, a single plan
- \*Merges several environmental regulations & transposes new directives
- \*Minimise energy needs and energy dependence;
- \*Use energy from renewable sources and promote rational use of energy (RUE);
- \*Improve the energy performance of buildings;
- \*Reduce the environmental impacts of mobility needs;
- \*Evaluate and improve air quality;
- \*Reduce the emission of atmospheric pollutants;
- \*Highlight the exemplary role of the public authorities
  
- \*New measures : PLAGÉ mandatory, etc.



# Heavy and/ or phased retrofitting

## Chapter « buildings » of the PACE:

- ▶ Reinforcement of exemplarity of public authorities



Plan for Local Action  
for the Management  
of Energy

Sustainable neighborhoods contracts    **12.000** m<sup>2</sup>/year (120 housing units-8 collective facilities)

SDRB  
2014

**54.000** m<sup>2</sup> (P) + **25.000** m<sup>2</sup> after

**26.500** m<sup>2</sup> (P) - urban expansion

SLRB

**231.000** m<sup>2</sup> (P, VLE, LE)

Bruxelles Environnement

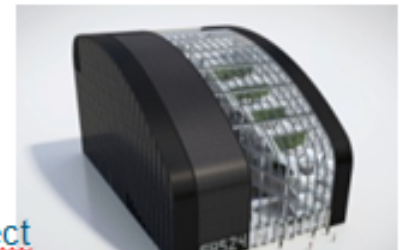
**17.000** m<sup>2</sup>(P)

MRBC

**45.000** m<sup>2</sup>

Local authorities

stimulating effect



Also boosting the private sector !

→ In Brussels there will be much more than **800.000m<sup>2</sup>** of Passive House buildings programmed by 2015 !

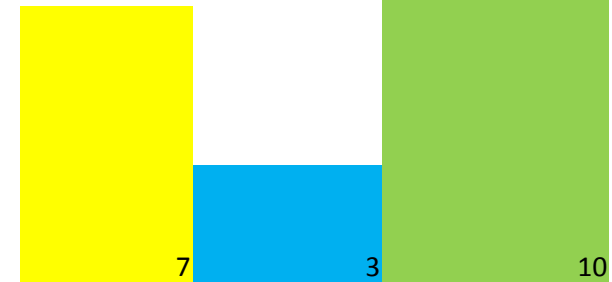


# Heavy and/ or phased retrofitting

- Alternative financing tools: grants, green loans, notion of occupancy cost

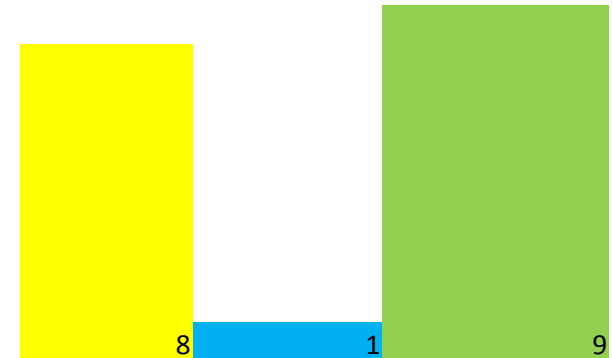


**BEFORE  
RETROFIT:**



**RENT + ENERGY BILL = OCCUPANCY COST**

**AFTER  
RETROFIT:**



# Heavy and/ or phased retrofitting

- Labelling and certification tool for sustainable buildings

## SUSTAINABLE BUILDING” QUALITY LABELLING

Evaluate the environmental and energy performance of Belgian buildings with a view to international recognition

REFERENTIEL B

ACCUEIL  
LE RÉFÉRENTIEL «BÂTIMENTS DURABLES»

## TECHNICAL GUIDE FOR SUSTAINABLE BUILDINGS

Guide for good practice and technical solutions for sustainable construction and refurbishment



# Heavy and/ or phased retrofitting

## Training for professionals

- Energy management
- Passive and low energy
- Acoustics
- eco-materials
- Water
- Waste
- Territory and environment



## Alliance employment-environment

**What?** Stimulate transition of construction firms to sustainable construction



# Heavy and/ or phased retrofitting

- Guide and sustain professionals and citizens :

## Technical helpdesk for professionals

- Free multidisciplinary assistance by independent experts at each stage of your project
- For contractors, developers, managers, head of technical services, installers, etc.
- Areas of expertise:
  - RUE and energy management
  - High energy performance buildings
  - Renewable energy
  - Cogeneration and heat pumps
  - Environment
  - ---





# Status of the transposition

## Transposed

- Article 3
- Article 4
- Article 7
- Article 12
- Article 15
- Article 16
- Article 18
- Article 19
- Article 20

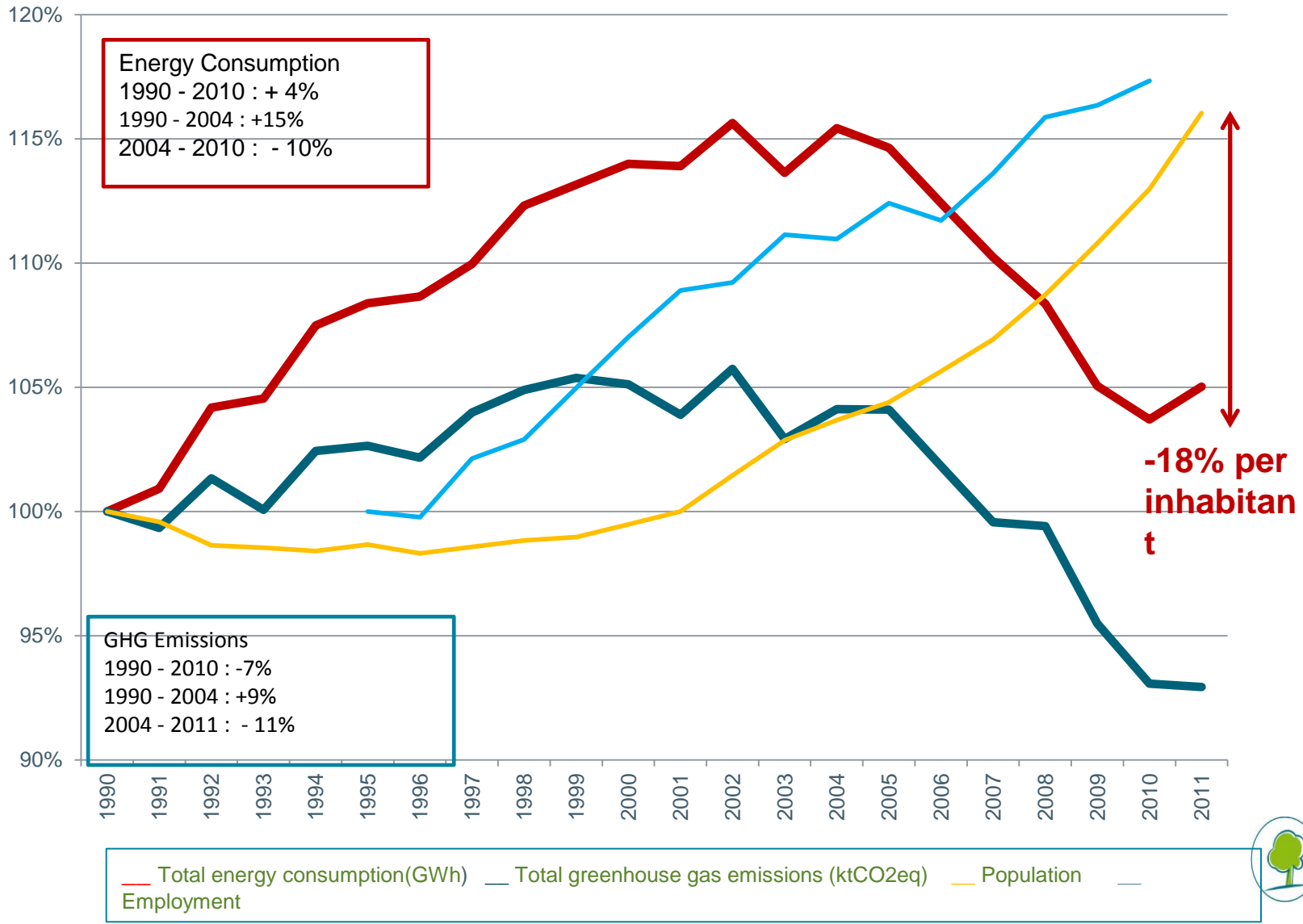
## Partially transposed

- Article 5
- Article 6
- Article 8
- Articles 9-11
- Article 14
- Article 17



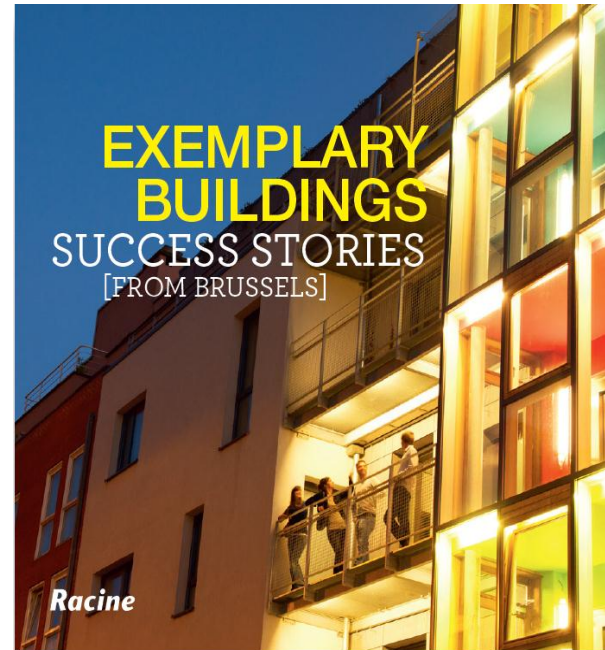
# Near Zero Energy Building strategy: a succes story started from scratch in 2004

## Evolution of energy consumption and greenhouse gas emissions in Brussels – at constant climate- between 1990 and 2011



# Questions

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[www.bruxellesenvironnement.be/batimentsexemplaires](http://www.bruxellesenvironnement.be/batimentsexemplaires)