



ASI EPI WP3

France : Impact, compliance and control of legislation

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Background

- There exists a regulation framework for the energy performance of buildings since 1974
 - 2 major revisions in 1982 and 1989
 - In 2000 : the regulation is based on a calculation method that takes into account summer comfort
- Parallel to the directive, many national initiatives
 - Air law (1996), Climate act (2004), POPE law (2005), Grenelle law (2009)
- => Difficult to isolate the impact of the EPBD



Outline

- Status with EPBD implementation
- Energy performance of buildings trends
- Compliance with EP regulation
- Compliance with EP certificates



Status with EPBD implementation

- Converging actions (EPBD but also national action plans) have lead to :
 - For new buildings
 - More stringent requirements (-15% in RT 2005 compared to RT 2000)
 - Global minimum requirement expressed in kWh-pe/m²/year
 - Feasibility studies over 1000 m²
 - Certificate
 - For existing buildings
 - Certificate when a building is rented or sold
 - Regulation for existing buildings
 - similar to new buildings for major renovations,
 - based on minimum requirements otherwise
 - Feasibility studies over 1000 m² if major renovation
 - Certificate for public buildings



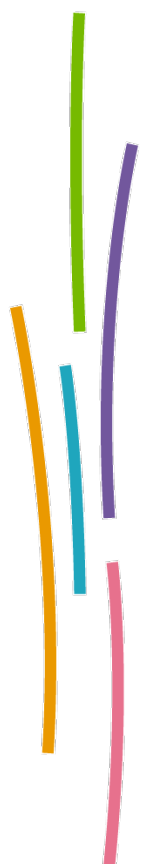
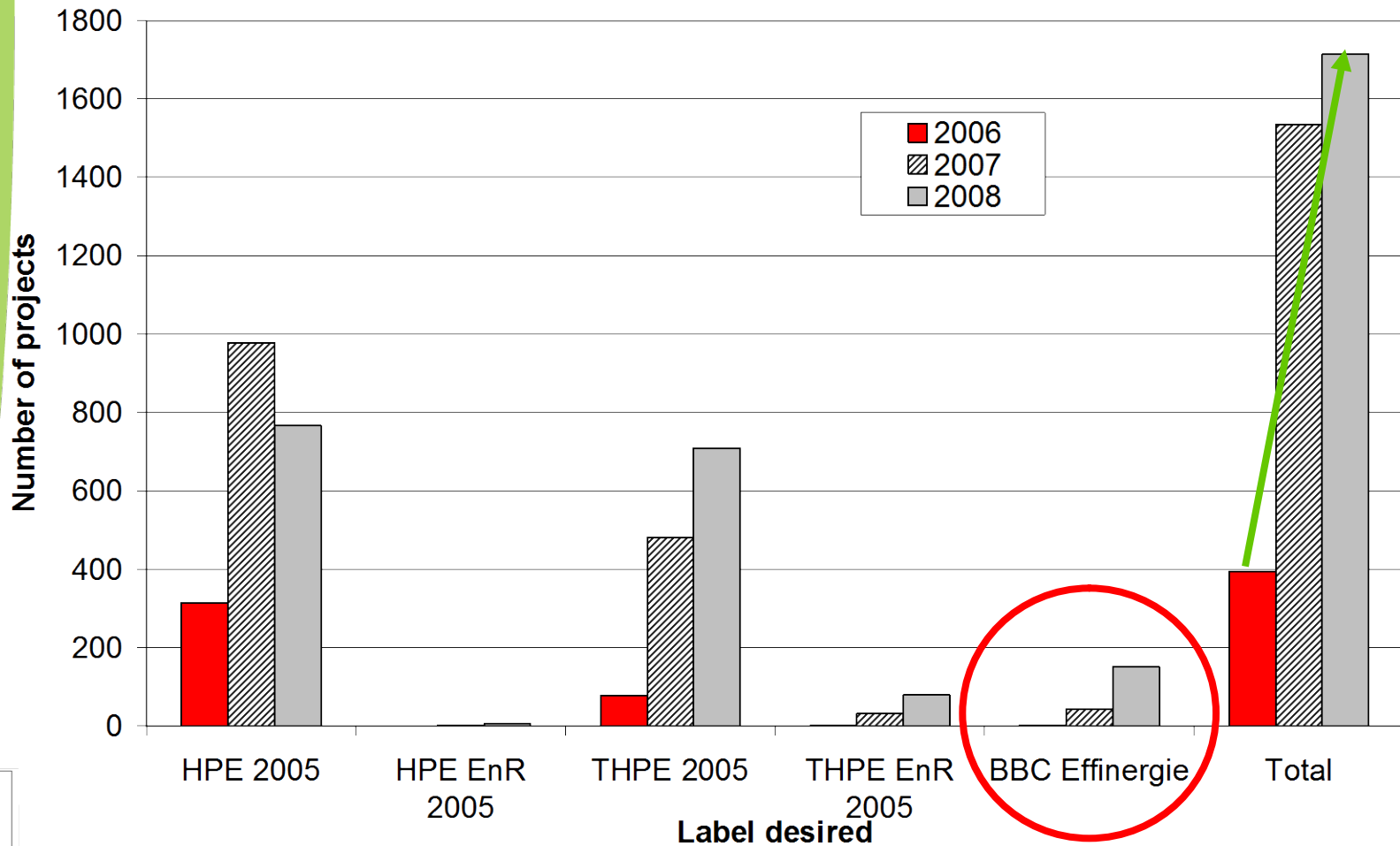
Energy performance of buildings trends

- Many things have improved since 2002. Significant steps that have contributed include :
 - PREBAT research and experimentation programme that has raised interest for very low and positive energy buildings through financial incentives and research funding
 - BBC-Effinergie label
 - Total energy consumption (excl. appliances) < 50 kWh-pe/m²/year for residences
 - Label based on regulatory calculation
 - www.effinergie.org
 - Strong financial incentives for BBC-Effinergie compliant buildings



Energy performance of buildings trends

Applications for regulatory-based energy performance labels in France



Energy performance of buildings trends

- Market push and pull mechanisms (1/2)
 - Many incentives, including:
 - Tax deduction, e.g. for solar collectors, heat pumps, low-energy label
 - Many local authorities have launched low energy programmes with specific funding schemes, in general with national energy agency (ADEME)
 - ...
 - Technology is available and rewarded in the EPBD calculations
 - Equivalence principle fully operational. Allows one to perform calculations for systems that were not included in the 2005 revision:
 - Underground heat exchanger
 - Heat pump for DHW
 - Wood-burning stoves
 - RES taken into account
 - DHW solar collectors
 - Photovoltaics
 - Biomass boilers
 - Heat pumps



Energy performance of buildings trends

- Market push and pull mechanisms (2/2)
 - People's awareness
 - Over 5000 professionals have attended the 66 events organized by the Ministry for Energy on the RT 2005 regulation
 - TV programmes and ads
 - Certificates
 - Energy price
 - Clear long term strategy
 - 2012 : requirements aligned with low-energy buildings requirements (BBC-Effinergie) : 50 kWh-pe/m²/year
 - 2020 : generalization of passive or positive energy buildings



Energy performance of buildings trends

- Misc. technical considerations (1/2)
 - Today, it is not required to use RES
 - But there are incentives (calculation is based on solar collectors for DHW for residential buildings)
 - Foreseen : compulsory use of RES in 2012
 - Air conditioning can be used only over 26 °C
 - Additional minimum requirements for ventilation :
 - Reduce air flow rates when unoccupied (non-residential)
 - Insulate ducts in unconditioned spaces
 - In renovation, provisions must be taken to ease the future installation of a ventilation system and to avoid damages



Energy performance of buildings trends

- Misc. technical considerations (2/2)
 - Popular systems:
 - Heat pumps for DHW
 - DHW solar collectors
 - Photovoltaics
 - Biomass boilers
 - Heat pumps combined or not with ventilation and DHW
 - RH-controlled ventilation or ventilation with heat recovery
 - Declining systems:
 - Electric resistance heating
 - Constant airflow ventilation
 - Increased interest for treatment of thermal bridges and envelope airtightness
 - Proposal to have a minimum airtightness requirement for residences for 2012 (aligned with BBC-Effinergie label)

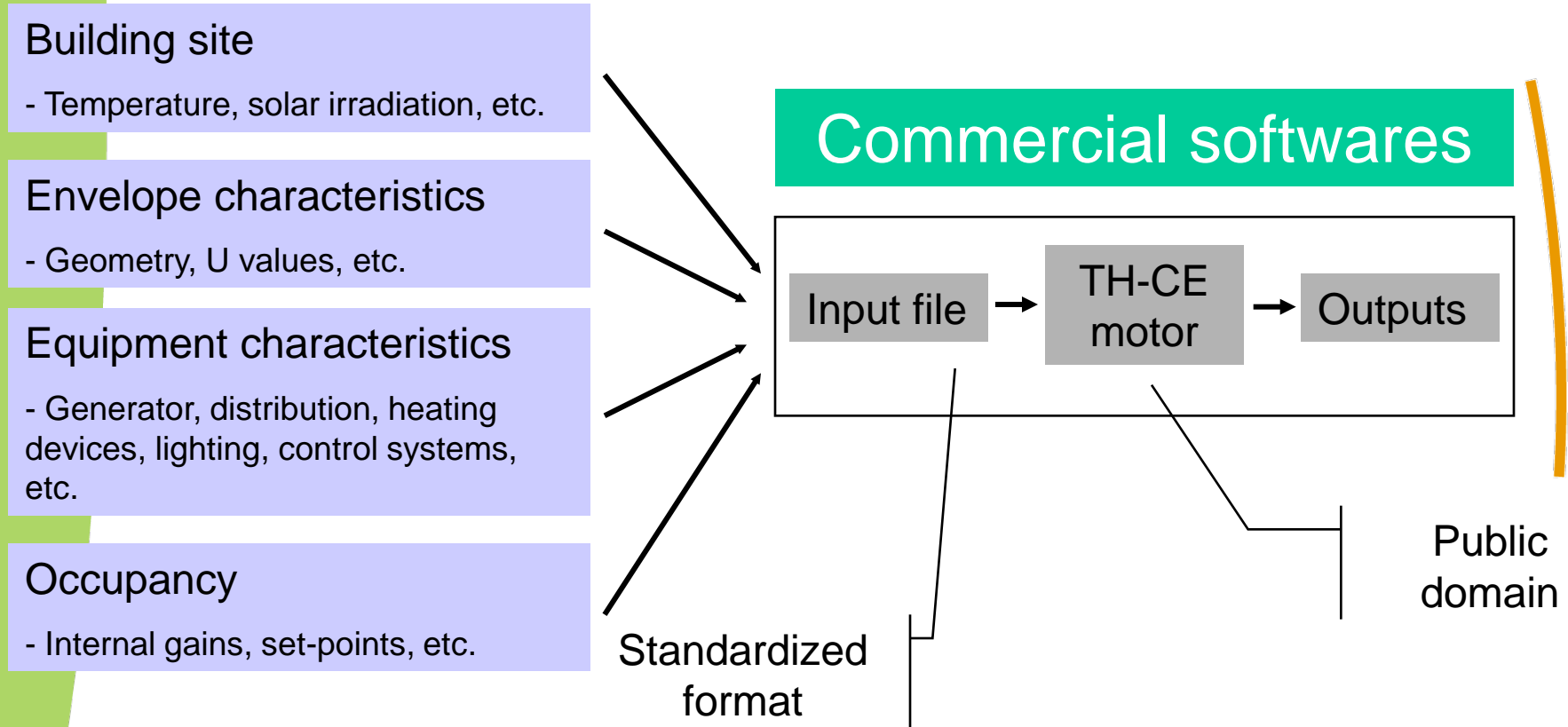


Compliance with EP regulation

- Key principles
 - Building owner is responsible
 - Signs commitment to comply with regulations with building permit
 - Must be able to prove that his building complies with the regulation
- Control procedure
 - Controls performed by state employees in CETE
 - Control based on :
 - Analysis of plans, specifications, calculations
 - Visit on site
 - Visit at commissioning
 - Method is defined at national level and a software tool helps controllers through the process
- No scheme defined yet to perform controls on existing building



Compliance with EP regulation



Lecointre, W., Carrié , F. R., Fournier, M., and Garin, D. 2006. Control of the EP-regulation in 3 French regions : Approach and preliminary results on 29 buildings. In EPIC/AIVC Conference, Lyon, France, November 2006. pp. 279-284.

Compliance with EP regulation

- Work in progress
 - Test of automatic screening based on input file database



Compliance with EP regulation

- Expertise to check compliance
 - Qualification process with training now operational
 - Describes technical and legal trainings to follow, library and tools, and number of controls to perform with a senior
 - Senior qualification can be obtained after 3-year experience
 - Network of inspectors who meet regularly



Compliance with EP regulation

- Control of qualification
 - Once qualified, there is no specified scheme to control the employee but specific quality control procedures (e.g., under ISO 9001) may be defined



Compliance with EP regulation

■ Penalties

- Up to 45 k€ (raised to 75 k€ if repeated)
- If non-compliant, minutes are sent to attorney general
- In general, no direct financial sanction but the owner must undertake remedial actions to comply with regulation
 - Sometimes very costly



Compliance with EP certification

- Key principles
 - Compulsory when renting or selling + every new building
 - Must be attached to contract
 - Must be available to candidates for renting or buying
- Qualification and independence of assessors
 - Independence criteria are identical to those established for asbestos and lead diagnostics
 - They received qualification after training with a body approved by the state
 - Certification of the qualification is valid 5 years. Theoretical and practical examination every 5 years.
 - Control based on analysis of 10 diagnostics during this period
- Penalties
 - 1500 €
 - qualification or insurance requirements are not met for the assessor
 - owner using unqualified persons

