



Overview of alternative assessment procedures across EU



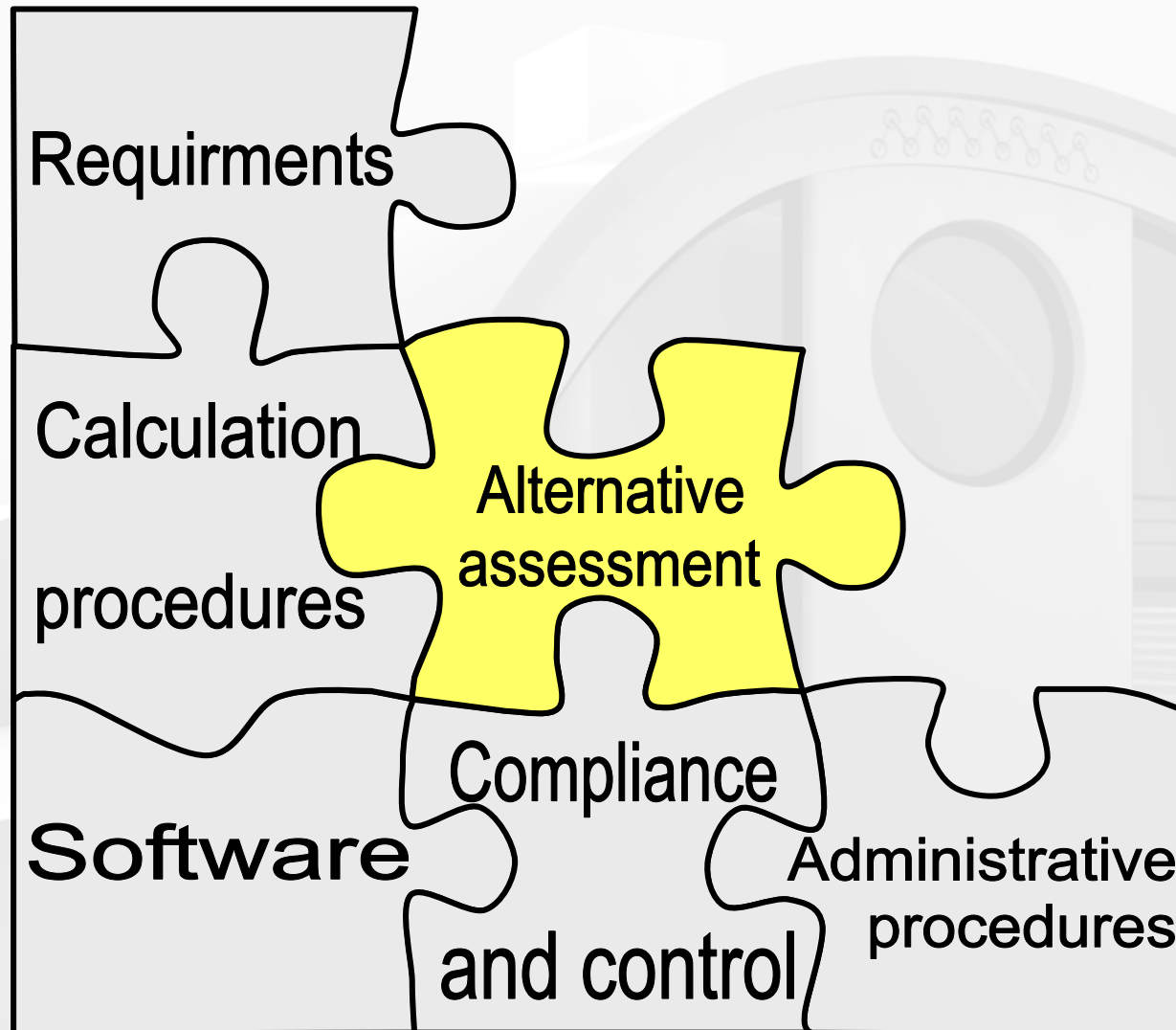


EPB regulations accross Europe

- ❖ Only one EPBD...
- ❖ ... very different EPB regulations !
 - Requirements
 - Calculation procedures
 - Softwares
 - Administrative procedures
 - Compliance and control issues
 - ...
 - Alternative assessment procedures



One of the pieces of the puzzle!





A few words about the standard calculation procedures



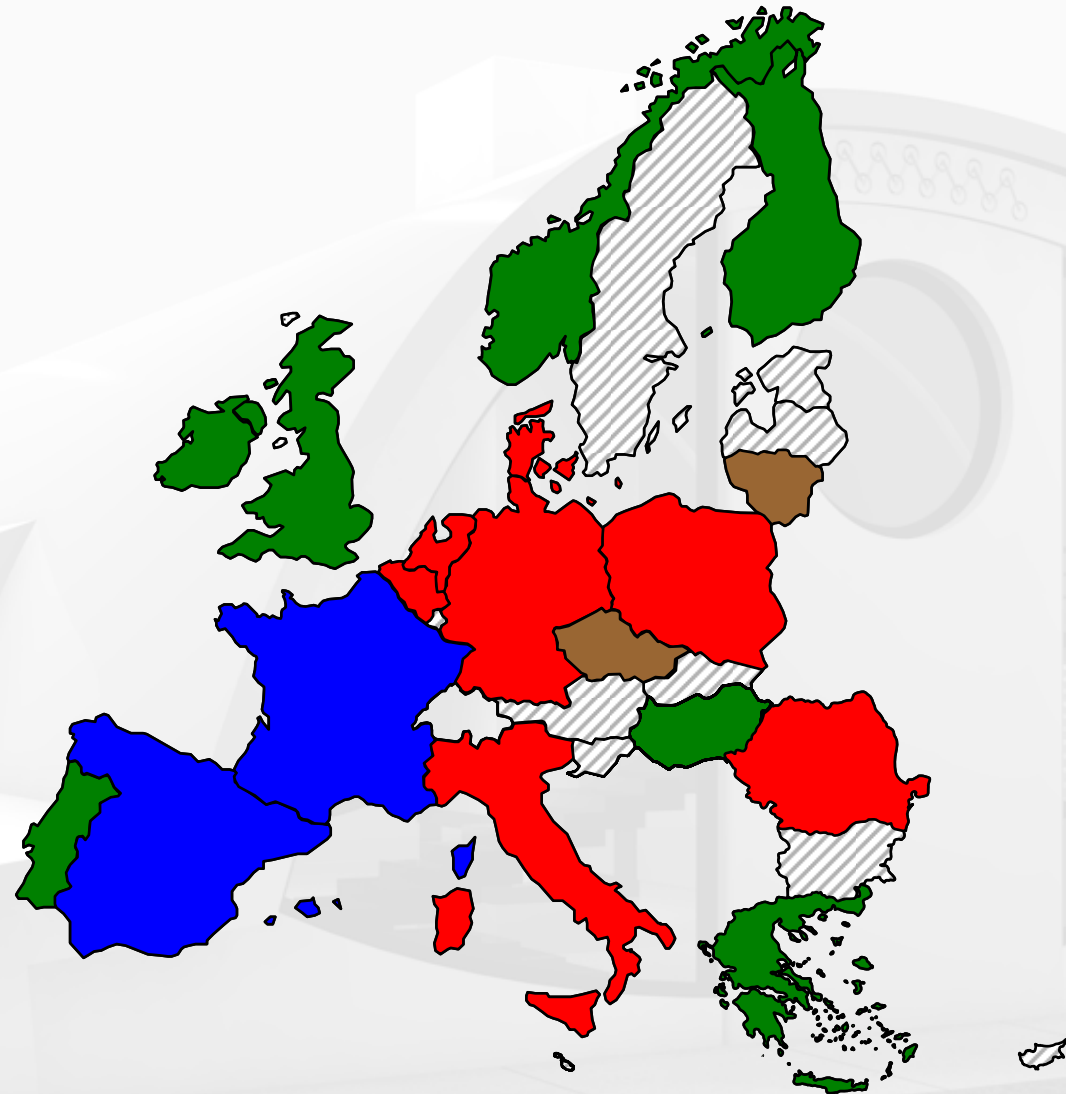
Monthly or dynamic simulations ?

Monthly

Dynamic

Both

Other



Source: ASIEPI questionnaires + *Country reports 2008*, available at www.buildingsplatform.eu.



Monthly or dynamic simulations ?

❖ Both usually depends on the case:

- **Portugal:** Residential buildings must be assessed by a rather tight simulation model, based on average seasonal performance (spreadsheet calculation, very simple and easy). Non-residential buildings (with an installed HVAC power above 25 kW – otherwise they follow the residential requirements) must be assessed by detailed hourly simulation. [Source: ASIEPI questionnaire]
- **Finland:** The D5 calculation method has to be used for calculating the energy consumption when issuing energy certificates for small residential buildings (less than 6 apartments). When applying for the building permit or issuing energy certificates for other building types (new buildings), EN standards and other calculation methods can also be used. [Source: ASIEPI questionnaire & Country reports 2008]
- **United Kingdom:** For non-domestic buildings there is a choice between SBEM, which is a free-issue monthly calculation or approved dynamic simulation tools. For dwellings one of a number of approved implementations of the monthly SAP algorithms must be used. [Source: ASIEPI questionnaire]
- **Hungary:** In general, the calculation is based on mean values. Dynamic simulation is accepted and advisable in case of buildings with sophisticated energy system. [Source: ASIEPI questionnaire]
- **Greece:** Monthly method for residential or small buildings, dynamic simulation if necessary. [Source: ASIEPI questionnaire]



Monthly or dynamic simulations ?

❖ Other means:

- Czech Republic: A simplified **dynamic** multi-zone calculation, loaded as **one typical day for each month** in one hour stages, is used. [Source: ASIEPI questionnaire & Country reports 2008]
- Lithuania: The standard calculation methodology is based on **yearly** average values. [Source: ASIEPI questionnaire]



Fully described or open approach ?

Fully

Open
or both



Source: ASIEPI questionnaires + *Country reports 2008*, available at www.buildingsplatform.eu.



Fully described or open approach ?

- ❖ Fully described is compatible with free software choice
- ❖ Open means different things in different Member States:
 - **Portugal:** For large non-residential buildings, commercial software tools complying with accuracy requirements based on ASHRAE standard 140-2004 must be used to calculate energy consumption, using detailed hourly simulations on a yearly basis. [Source: Country reports 2008]
 - **United Kingdom:** Software tools have been developed by Government (SBEM and SAP); however other software packages, dynamic simulation models and SBEM interfaces can be used if these are approved by Government. [Source: Country reports 2008]
 - **Ireland:** Building designers and BER assessors can apply either an official simplified asset based calculation procedure entitled “Simplified Building Energy Model” (SBEM) or an approved dynamic simulation software package. [Source: Country reports 2008]
 - **Norway:** The calculation method is NS 3031:2007. It explains how to calculate both net and primary energy consumption. This standard says that one may use ISO 13790:2008 (either simple monthly or dynamic hourly method) or any other advanced energy simulation software that has been validated according to EN 15256. A few software tools are already available. [Source: ASIEPI questionnaire]
 - **Finland:** The D5 calculation method has to be used for calculating the energy consumption when issuing energy certificates for small residential buildings (less than 6 apartments). When applying for the building permit or issuing energy certificates for other building types (new buildings), EN standards and other calculation methods can also be used. [Source: ASIEPI questionnaire & Country reports 2008]



How to handle innovative systems in the EPB regulation?



3 paths can be observed in EU

❖ Specific legal framework

- e.g. Belgium, Finland, France, Germany, Spain
Netherlands

❖ No specific legal framework, but included in the general legal framework

- e.g. Denmark

❖ Flexibility in the calculation process

- e.g. Portugal



3 paths can be observed in EU

❖ Specific legal framework

❖ No specific legal framework, but included in the general legal framework

- Is it compatible with a strict control framework?

❖ Flexibility in the calculation process

- Not compatible with a fully described approach
- Is it compatible with a strict control framework?



Definition of innovative systems

❖ In the context of EPB regulations, **innovative systems** (or technologies) are defined as:

- systems (or technologies) that, in most cases, improve the building's energy performance

AND

- whose performance **cannot be assessed by the standard EPB calculation procedure** in a particular country.



When is an alternative assessment needed?

Standard calculation procedure	Is the alternative assessment procedure applicable?
May specify a fixed/default value and specifies the conditions to use better values	Usually not
Specifies a fixed/default value but don't specify the conditions to use better values	Could be
Don't integrate the system/technology in question	Yes
Don't this type of energy use	No



When is an alternative assessment needed?

Standard calculation procedure	Examples with Belgian method
May specify a fixed/default value and specifies the conditions to use better values	Heating: heat recovery efficiency → no fixed/default value → efficiency to be measured according to EN 308
Specifies a fixed/default value but don't specifies the conditions to use better values	Domestic hot water: Production efficiency
Don't integrate the system/technology in question	Demand controlled ventilation system
Don't this type of energy use	Lighting in dwellings Hot water production in offices



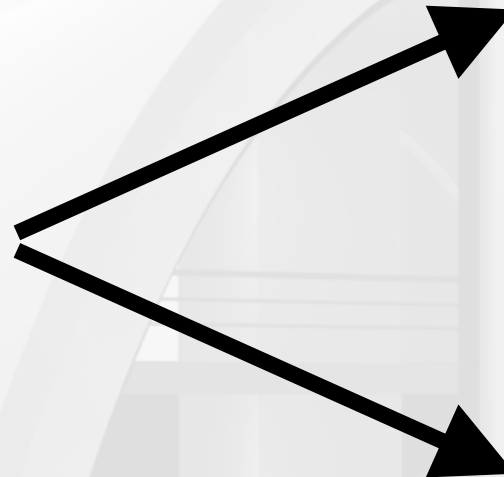
When is an alternative assessment needed?

Standard calculation procedure	Is the alternative assessment procedure applicable?
Specifies a fixed/default value but don't specifies the conditions to use better values	Same procedure in e.g. Netherlands Another procedure in e.g. Germany No procedure in e.g. Belgium
Don't integrate the system/technology in question	e.g. Belgium, Finland, France, Germany, Spain, Netherlands



Alternative assessment is applicable to?

Alternative
assessment



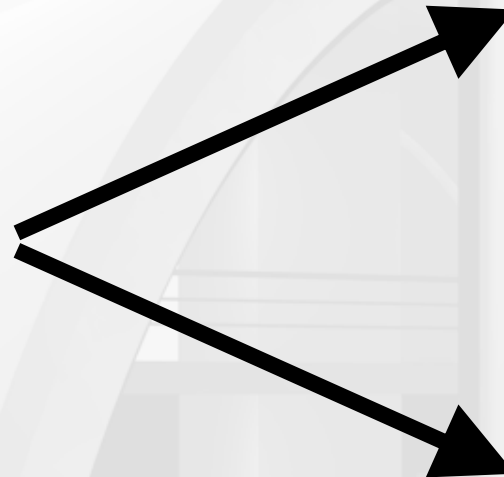
Buildings

Systems



Alternative assessment is applicable to?

Alternative
assessment



Buildings

e.g. France,
Netherlands

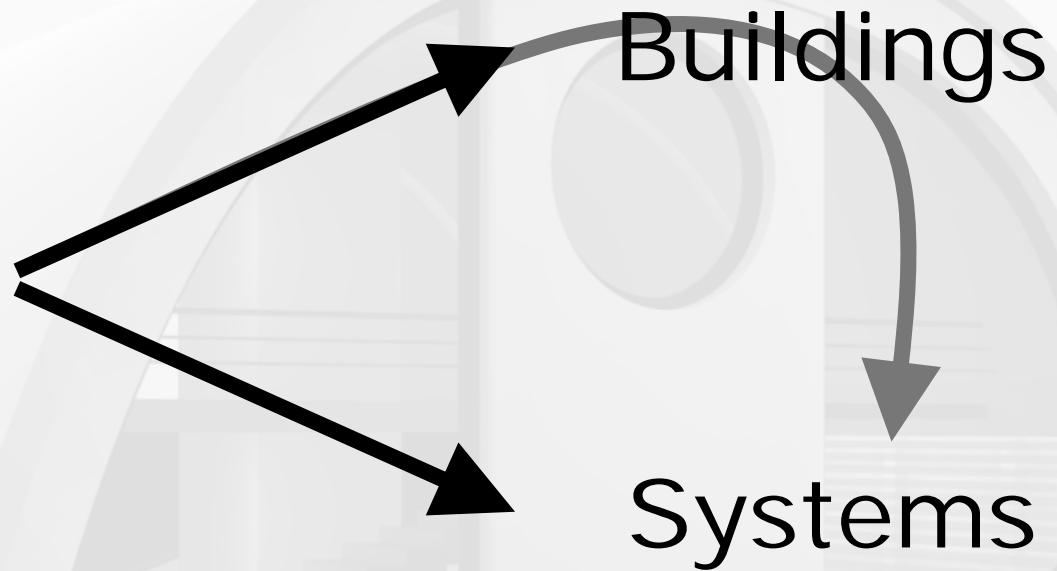
Systems

e.g. France,
Belgium (currently)



Alternative assessment is applicable to?

Alternative
assessment





In practice, for systems...

❖ Belgium/France

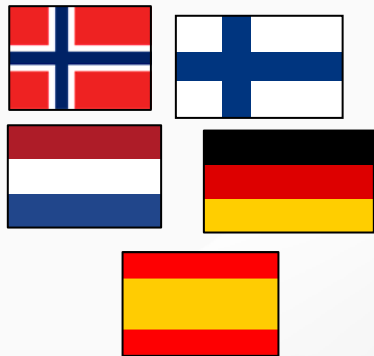
- An alternative assessment is done for a system.
- The authorities evaluate it for a set of buildings.
- If accepted, the building designer uses the decision without further paper work.

❖ Netherlands

- An alternative assessment is done for a system.
- The building designer uses it.
- The authorities evaluate it on a case by case.



Who evaluates the alternative assessment?





Quality of alternative assessment studies?

Centralised approval body?

or at least
acceptance criteria?

Technical framework about
how to make studies?

Specifications about
who can make the study?



Quality of alternative assessment studies?

Centralised approval body?

e.g. Belgium, France, Spain

or at least
acceptance criteria?



Technical framework about
how to make studies?

e.g. France (in some cases)

Specifications about
who can make the study?

e.g. Belgium



Link with the standard calculation procedures ?

❖ Changing a value

- Easiest for the person in charge of the EPB calculations, but not always flexible

❖ Implementing another piece of software

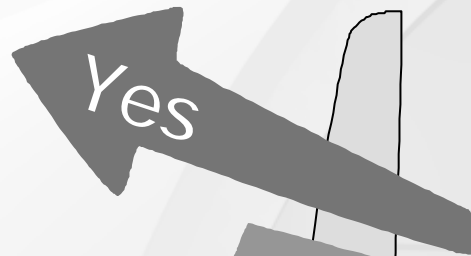
- e.g. "additionnal capabilities" in Spain
- Easy for the person in charge of the EPB calculations

❖ Requires separate calculations

- More difficult for the person in charge of the EPB calculations



Also for existing buildings that are sold or rented ?





Thanks for your attention...



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