

ECEEE Summer Study 2007
05-09 June 2007, France

New challenges for energy certification of dwellings - we keep on learning

Guy Vekemans
VITO



4 juli 2007

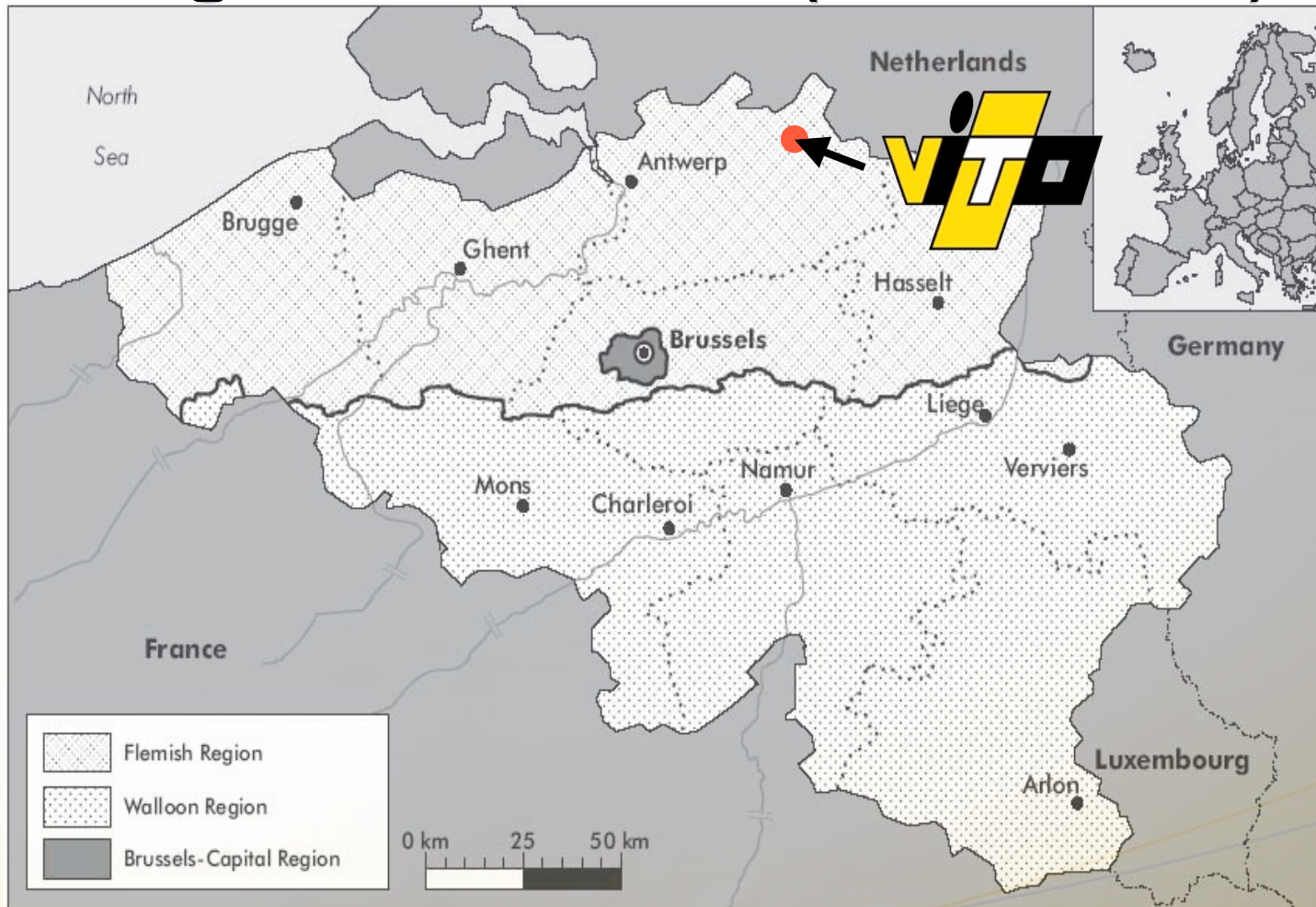
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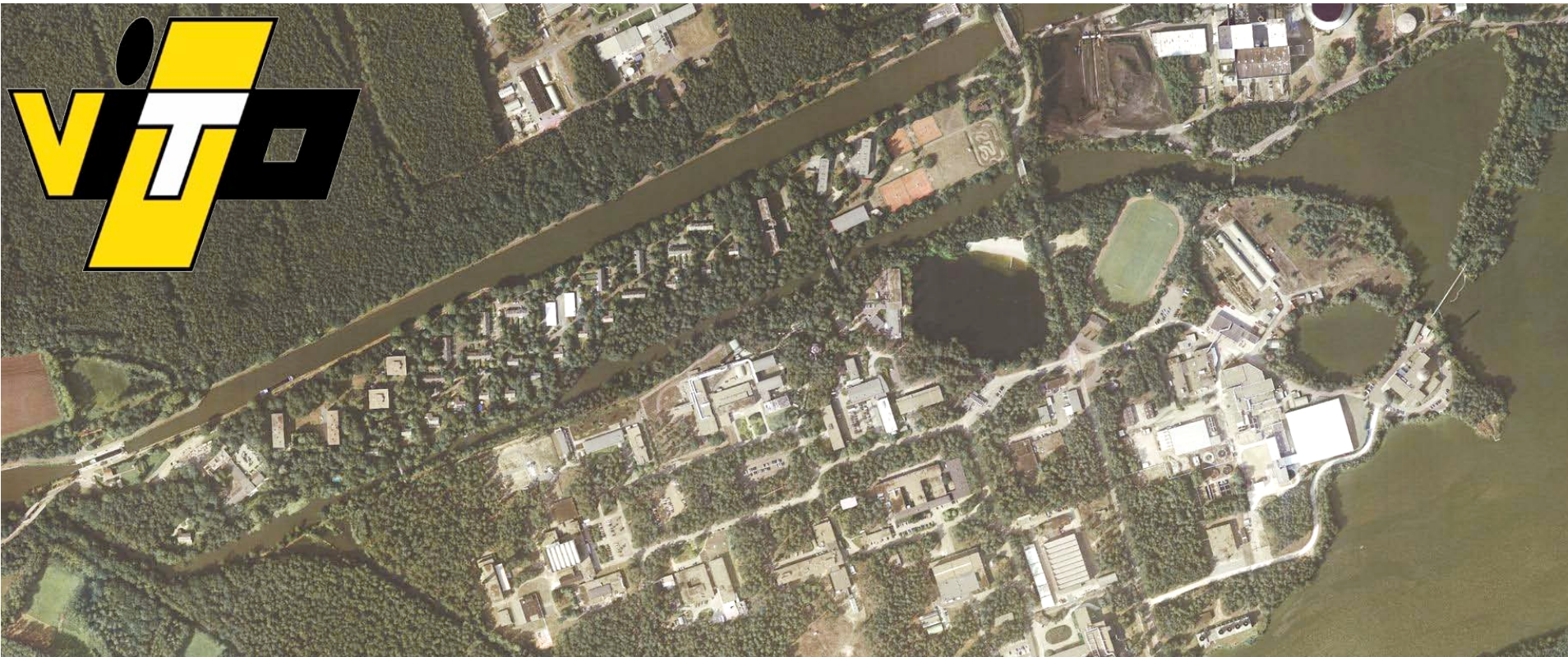


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Legal situation (Flanders)





- Autonomous public research company
- 500 people
- Energy, environment, materials, earth observation



4 juli 2007

EPBD for NEW dwellings

Energy certificate

EPB

Energie Prestatie &
Binnenklimaat

implemented since
01/01/2006

energiecertificaat
nieuwbouw

wooneenheid

identificatiecode	2003/BEK/0185/20033743/N/N/A/01/04	datum ingebruikname	10.07.2006
omschrijving	appartement 5 - verdieping 1	datum vergunning	10.01.2006
postnummer	3271 gemeente Scherpenheuvel-Zichem straat Zwevezeelsesteenweg nummer 333 bus -		

verslaggever

naam	Gompels	voornaam	Jozef	code verslaggever	J4-2006001
postnummer	3200 gemeente Aarschot	straat	Plakkerstraat	nummer	13 bus Z

software voor de berekening van de energieprestatie en het energieverbruik

softwareversie	III-07	de koudebruggen zijn niet meegerekend
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energieprestatie- en binnenklimaatseisen

E-peil: 

JA NEEN

De wooneenheid voldoet aan de energieprestatie- en binnenklimaatseisen.

Het E-peil voldoet.

Het K-peilvolumen, waarvan de wooneenheid deel uitmaakt, voldoet.

Alle constructiedelen voldoen aan de maximale U-waarden of minimale R-waarden.
Volgende constructiedelen voldoen NIET aan de maximale U-waarden of minimale R-waarden:

vloeren muren ramen dak andere constructiedelen

Er is voldaan aan de ventilatievereisten.

Er is voldaan aan het oververhittingscriterium.

primair energieverbruik/m²



verklaring van de verslaggever

Jozef Gompels, aangesteld als verslaggever, verklaart dat het certificaat overeenstemt met de werkelijke uitvoering (afmetingen, materialen, installaties).

Datum: 13.10.2006
Handtekening: 

Dit certificaat is geldig tot en met **10 juli 2016***

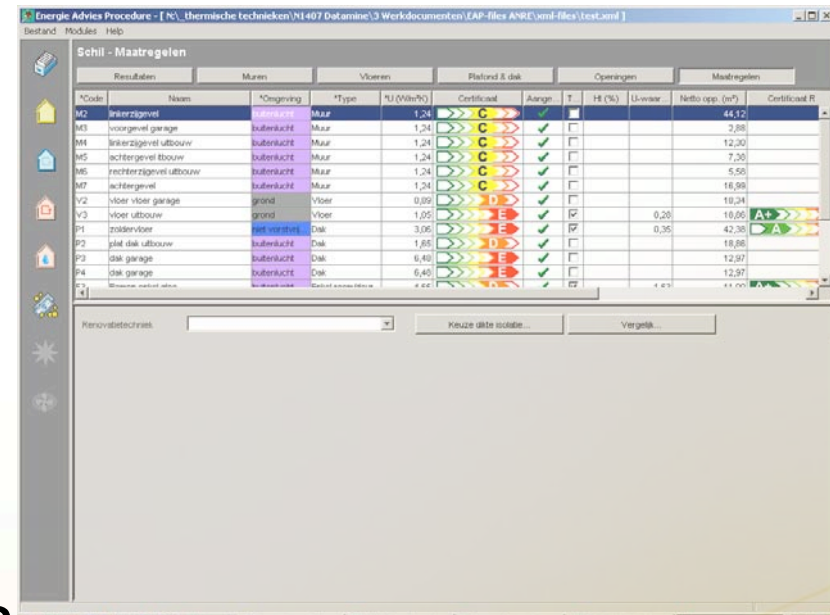
* De eigenaar houdt het energieprestatiecertificaat bij tijdens de volledige geldigheidsperiode. Indien het energiecertificaat niet overeenstemt met de werkelijke uitvoering kan het vervallen.

EPBD for EXISTING dwellings

Energy Advice procedure

EAP

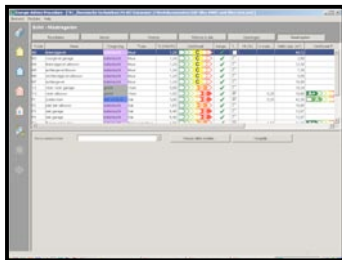
- Voluntary start since 01/10/2005
- Fiscal reduction
- Uploaded in central server
- About 400 certified experts
- Limited application
- Too expensive



The screenshot displays a software window titled 'Energie Advies Procedure - [N:_thermische technieken\N1407 Datamine\3 Werkdocumenten\EAP-files\ANR\wml-files\test.wml]'. The main content is a table with columns for 'Resultaten', 'Muren', 'Vloeren', 'Plafond & dak', 'Overingen', and 'Maatregelen'. The table lists various energy measures with their codes, names, types, and associated values. The 'Certificat R.' column shows energy efficiency ratings from C to A+.

Code	Naam	*Omschrijving	*Type	% U (0/100%)	Certificat R.	Aangev.	T	H (%)	U-waarde	Netto opp. (m²)	Certificat R.
M2	inbrengsel	inbrengsel	Muur	1,24	C					44,12	
M3	voorgevel garage	buiterlucht	Muur	1,24	C					2,88	
M4	inbrengsel uitbouw	buiterlucht	Muur	1,24	C					12,30	
M5	achtergevel ibouw	buiterlucht	Muur	1,24	C					7,25	
M6	rechtergevel uitbouw	buiterlucht	Muur	1,24	C					5,55	
M7	achtergevel	buiterlucht	Muur	1,24	C					18,99	
V2	vloer vloer garage	grond	Vloer	0,09	D					10,24	
V3	vloer uitbouw	grond	Vloer	1,05	E				0,28	10,65	A+
P1	zoldervloer	ind. verstrikt	Dak	3,05	E				0,35	42,38	A
P2	zold. dak uitbouw	buiterlucht	Dak	1,85	D					18,88	
P3	dak garage	buiterlucht	Dak	6,40	E					12,97	
P4	dak garage	buiterlucht	Dak	6,40	E					12,97	

EPBD for EXISTING dwellings



New energy certification procedure

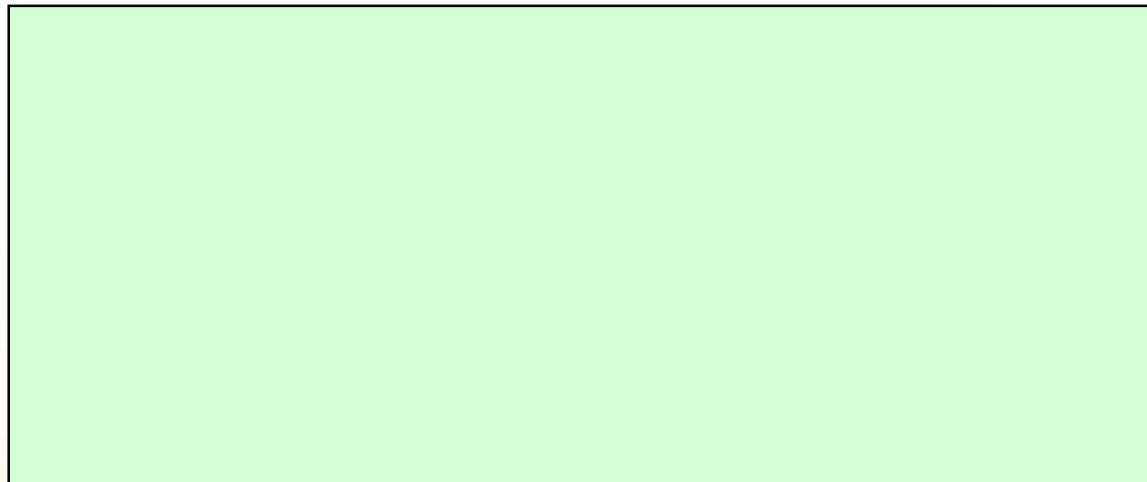
STEP

- Technical procedure revised
- Software ready: autumn 2007
- Implementation by law:
 - 01/01/2008 sold dwellings
 - 01/01/2009 rented dwellings

EPBD for EXISTING dwellings

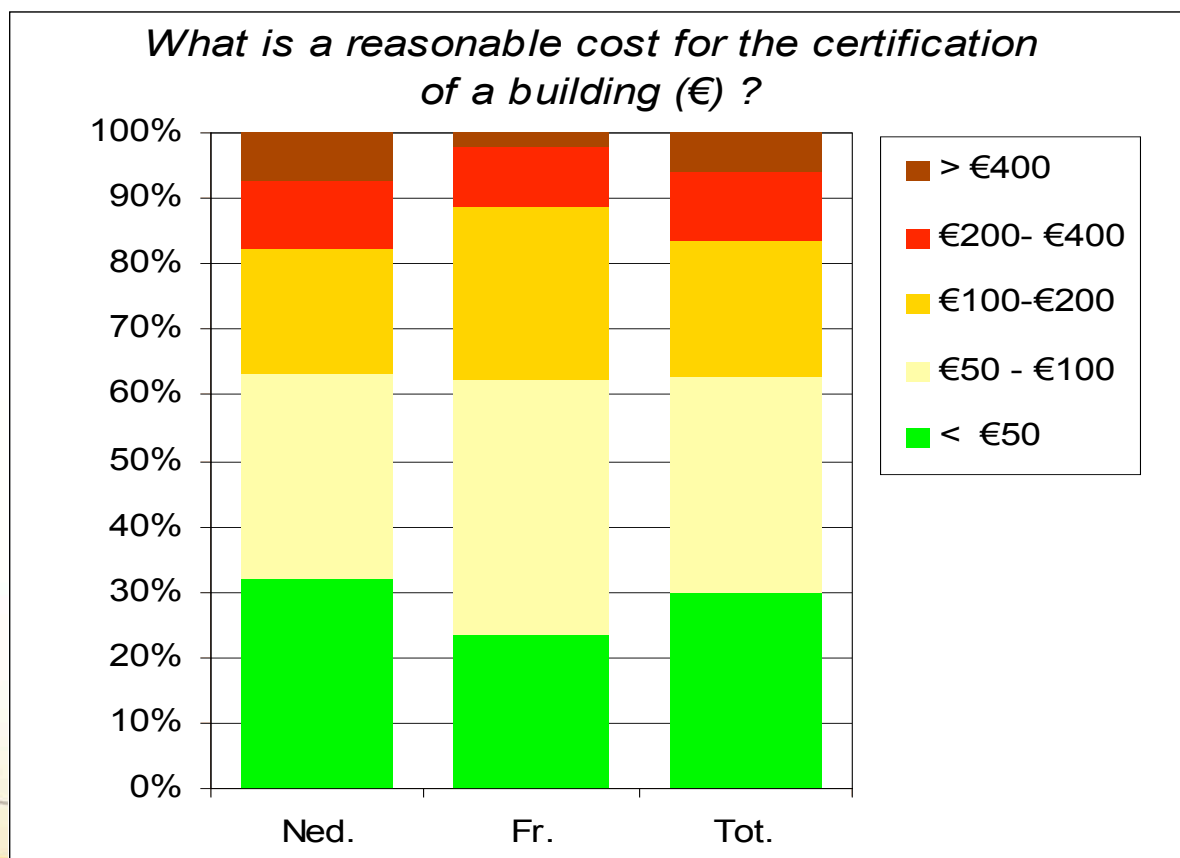
Replacement of boilers > 15 year

- Simplified tool for installers
- Implementation 01/2008



The challenges – cost reduction

Figure :Results of enquiry on the market acceptance of audits and certification (Ned= Flemish, Fr= Walloon)



- **Begin: 250-2000 €**
- **Afterwards: 400-600 €**
- **Acceptable: 200 €?**



**Requirement
from
government**



The challenges – cost reduction

Simplifying the procedure?

Activity	Normal time spent	Simplified version
Analysis of envelope	2-4 h	1-1,5 h
Analysis of installation	0,5-1 h	0,5 h
Advice	1-2 h	0,5 h
Transport	0,5-1h	0,5-1 h
Total	4-8 h	2,5-3,5 h

The challenges – cost reduction

Geometrie

Projectie

Compositie

- Difficult when:**
- Building practices diverse
 - Individual process
 - Complex geometry (>3/4 before 1970)

type 1 : 100%



type 2
87m²



The challenges – experts & training

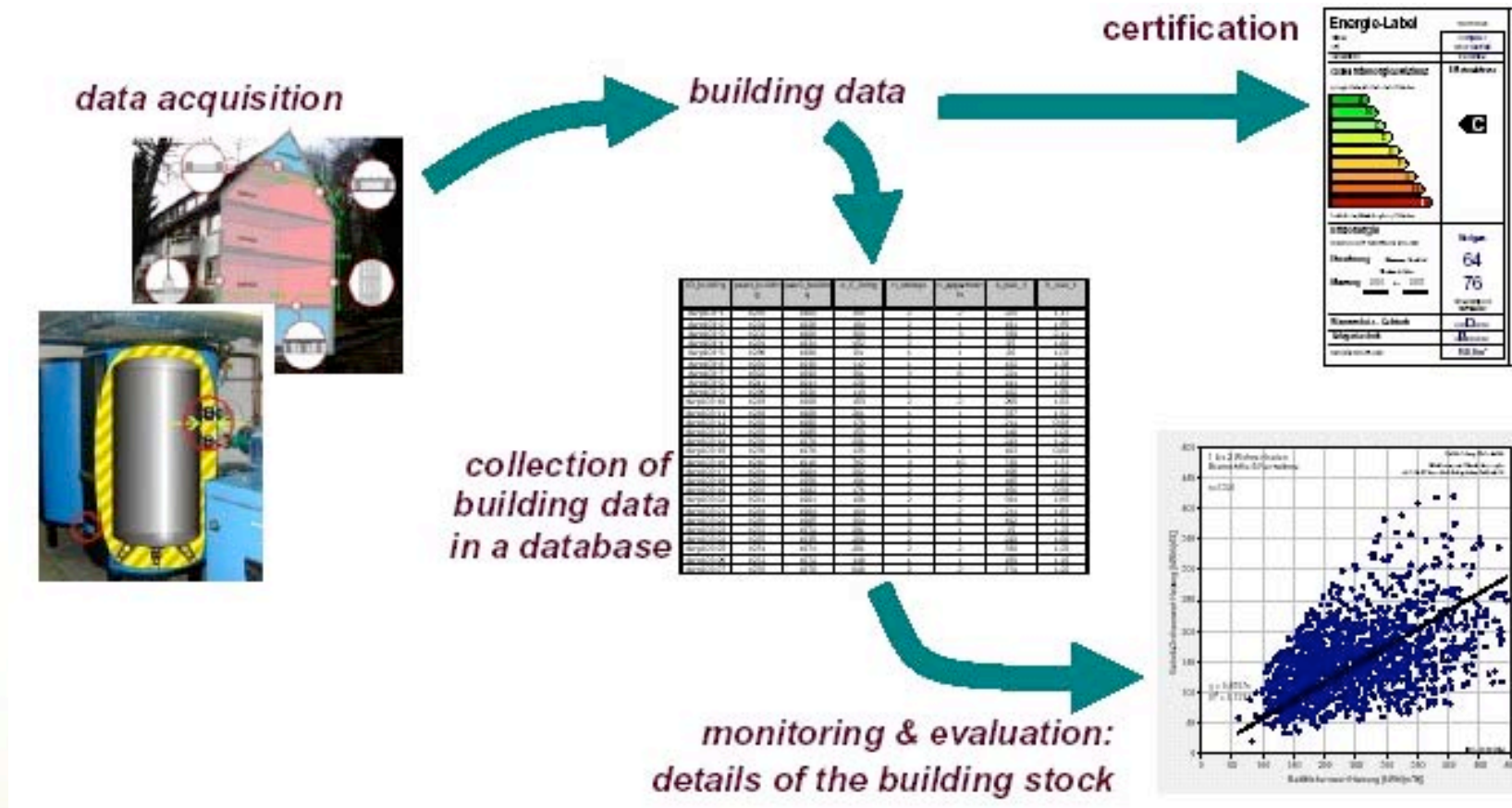
Flemish Region

- 350 accredited
- Few active – hidden experts
- No diploma requirements
- 3 day theory
- 2 day practical
- Towards higher technical experts

About 20 technical checkings

- technical observation not always correct
- quality check is necessary in first phase, web based
- attention for reproducibility

The challenges – building energy data

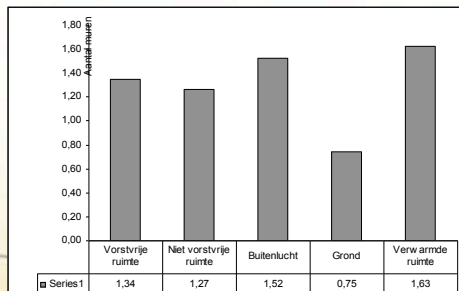
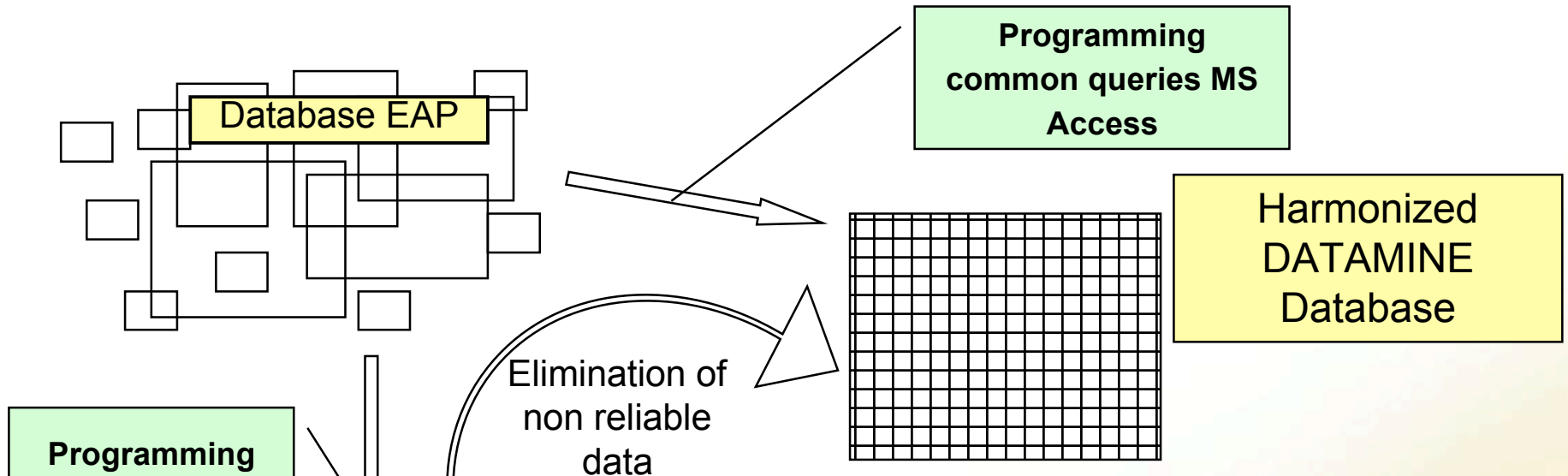


European project (IEE) DATAMINE

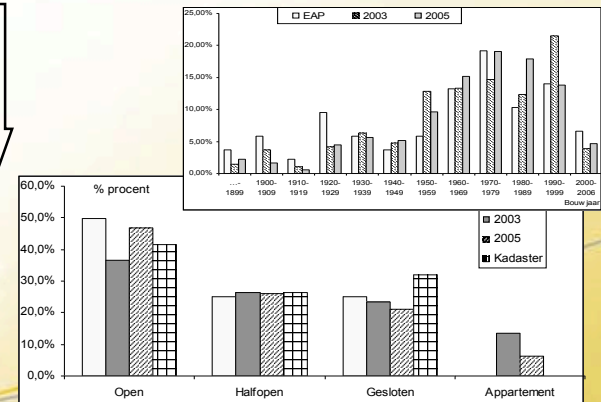
	Participant name		Country
1	Institut Wohnen und Umwelt GmbH (Coordinator)	IWU	Germany
2	Narodowa Agencja Poszanowania Energii S.A.	NAPE	Poland
3	Energy for Sustainable Development Ltd	ESD	UK
4	EBM-Consult BV	EBM	Netherlands
5	Politecnico di Torino - DENER	POLITO-DENER	Italy
6	National Observatory of Athens	NOA	Greece
7	VITO nv Energietechnologie	VITO	Belgium
8	Österreichische Energieagentur – Austrian Energy Agency	A.E.A.	Austria
9	Slovenian Building and Civil Engineering Institute	ZRMK	Slovenia
10	Ecofys S.L.	Ecofys	Spain
11	Energy Action Ltd	Energy Action	Ireland
12	Sofia Energy Agency	SOFENA	Bulgaria



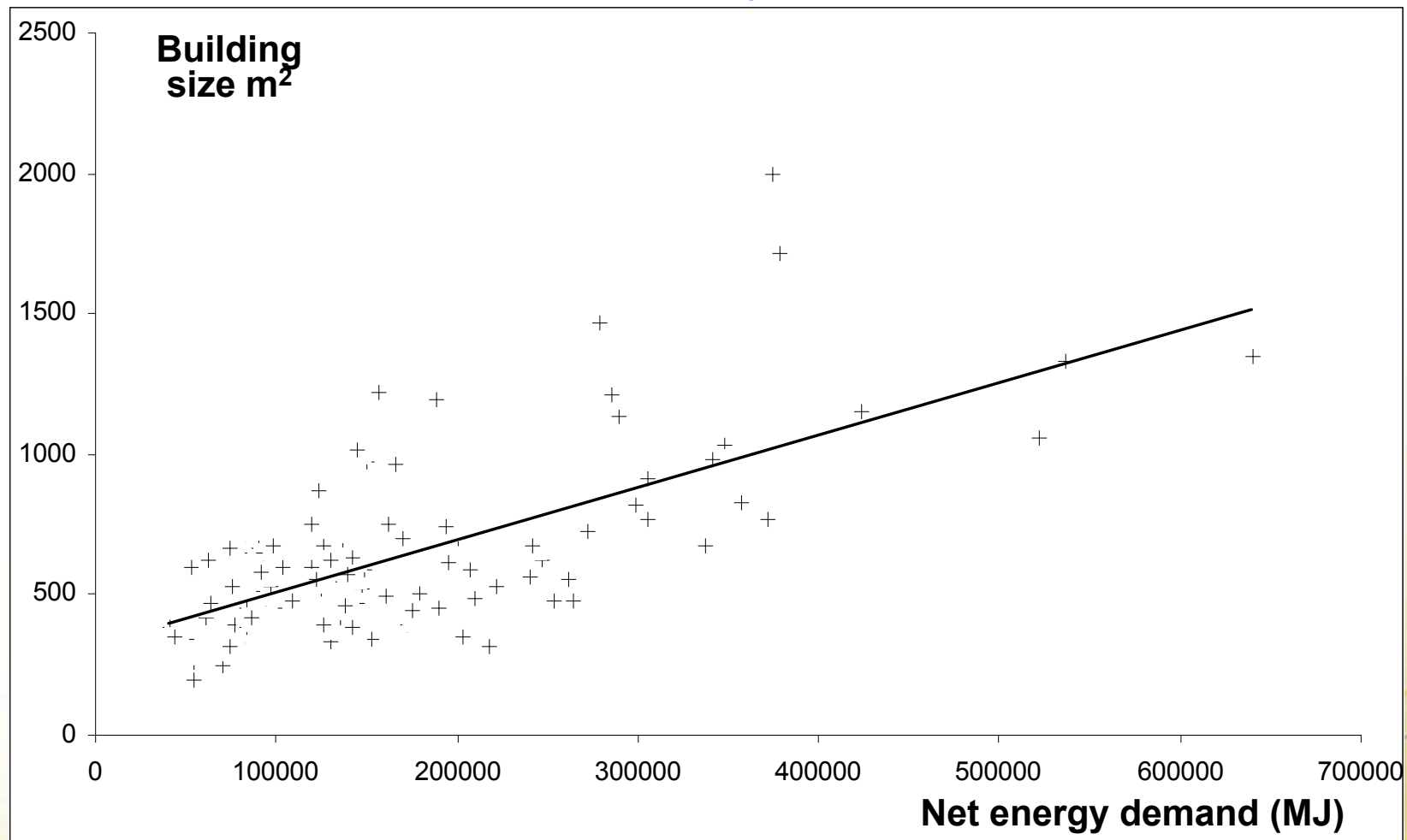
Preliminary results



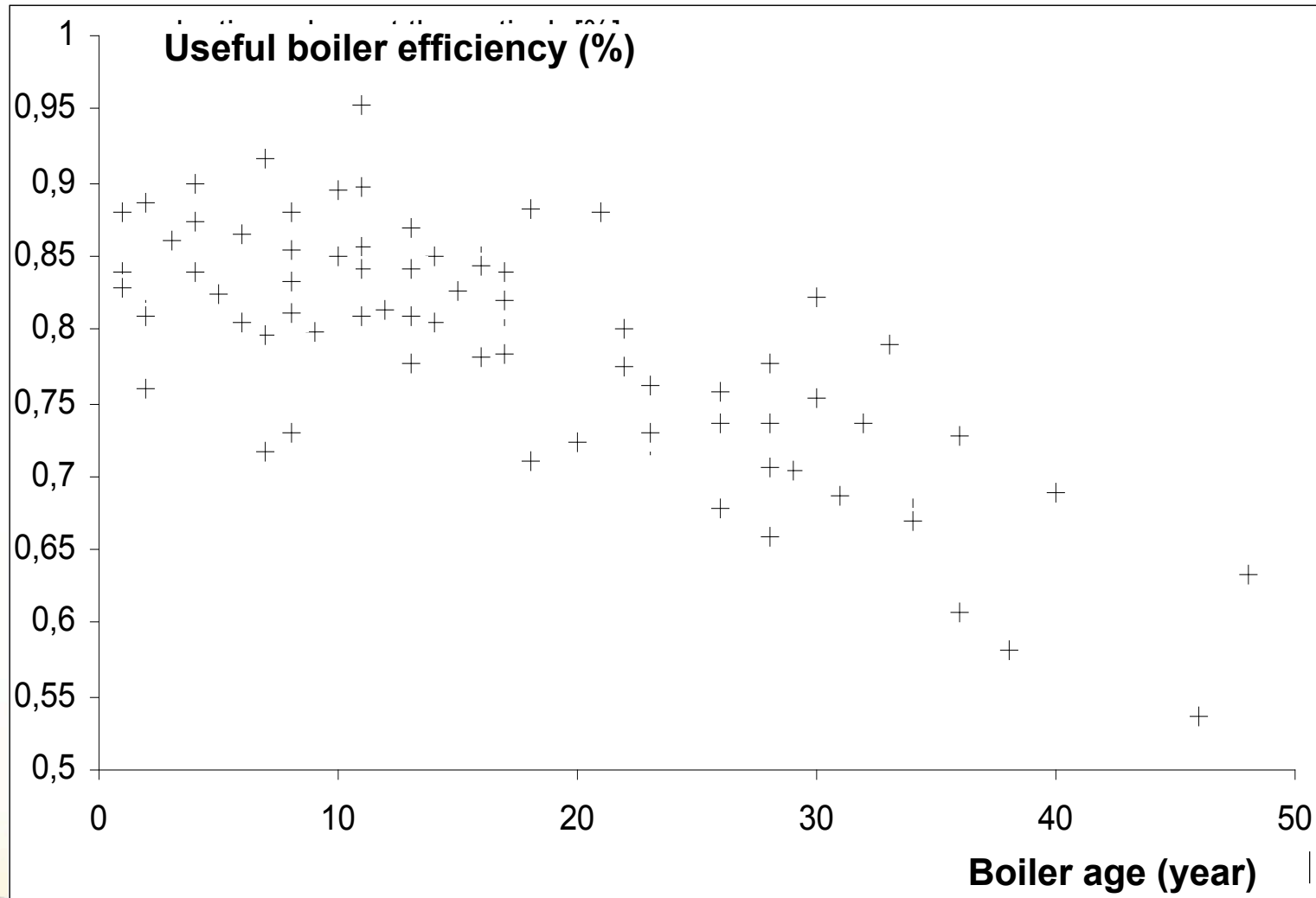
Country specific analyses



Preliminary results



Preliminary results



Opportunities

- Within the context of energy certification
 - Automatic check of experts: notification of large discrepancies
 - Building up a building typology
 - Refinement of classes for energy labels
 - Definition of default values for buildings
- Within a larger policy frame:
 - Data for the energy balance of a country/region
 - Follow up and improvement of effects of EPBD



Conclusions

- Major challenges in Belgium
 - Cost reduction vs individual building practice
 - Quality check is necessary/reproducibility is important
 - Web based software can allow datamining opportunities