ASIEPI
ASsessment and Improvement of the EPBD Impact (for new buildings and building renovation)

www.asiepi.eu

Intelligent Energy Europe

REHVA Supporters Seminar
Brussels, 10 Dec. 2009

Overview of the presentation

- A bird's eye view of the project and some results
- Intercountry comparisons
- Miscellaneous considerations with respect to EPB-requirements

ASIEPI: objectives

- ASIEPI does not intend to develop its own technical solutions(*) but to collect available information, to analyse and structure it, and to bring it to the appropriate target audiences in order to increase the awareness of potential problems and solutions.
- Target groups:
  - the Member States
  - the European Commission
  - professional and industrial organisations

(*) except for benchmarking (WP2)

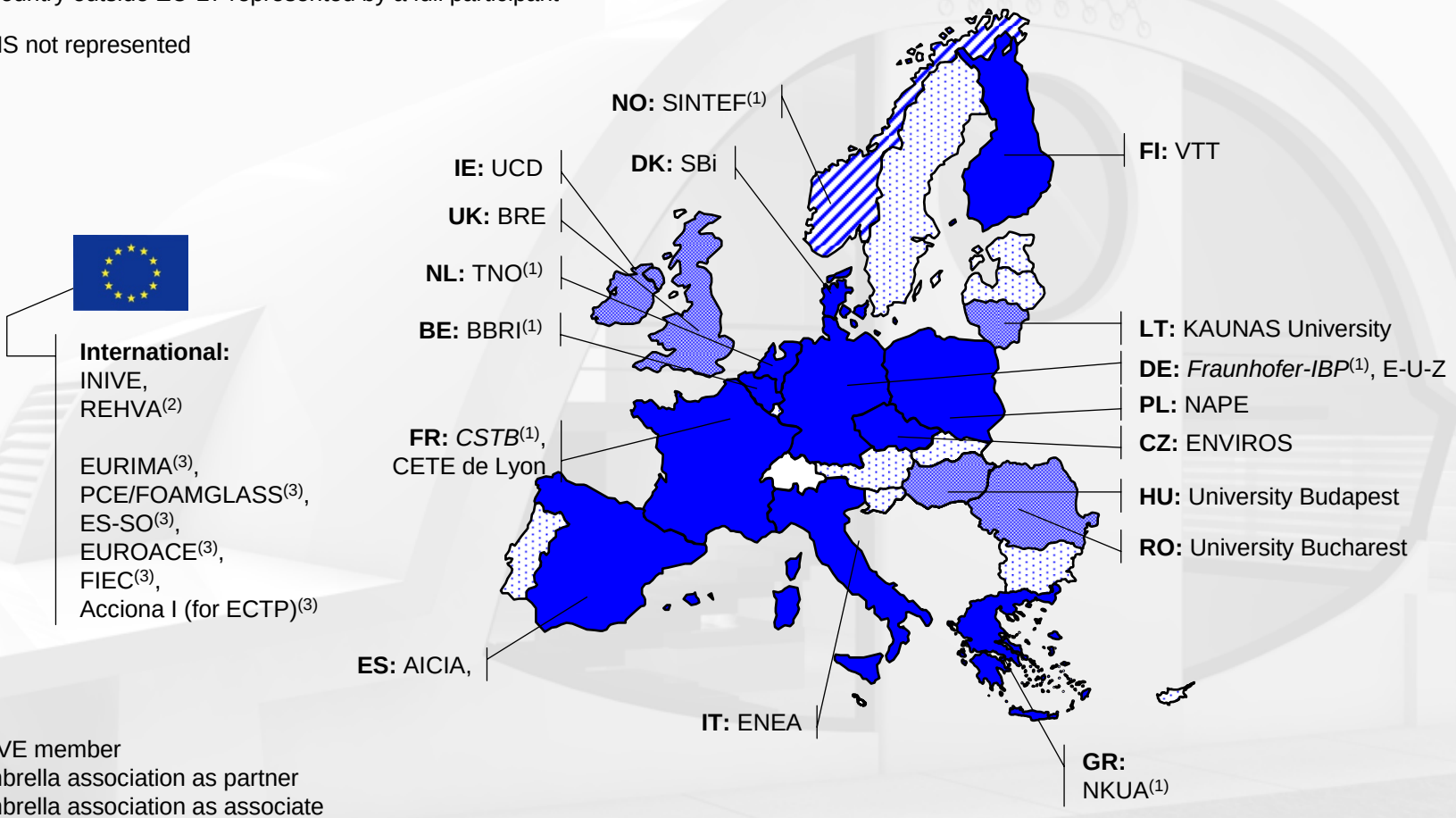
Countries covered by ASIEPI

MS represented by one participant, including INIVE members and national contact points. There might be a second participant from this MS.

MS represented by a national contact point as subcontractor

Country outside EU-27 represented by a full participant

MS not represented



(1) INIVE member
(2) Umbrella association as partner
(3) Umbrella association as associate
In the MS where there are two participants, the national contact point is in *italic*.

6 topics

1. **Intercomparison of the EPB-requirements**
2. Compliance and control of EPB-regulations
3. Thermal bridges
4. Airtightness of the bldg envelope and **ducts**
5. **Equivalence for innovative systems**
6. **Summer comfort and cooling**

➔ **following slides:**
results of the boldened topics

Results

- information papers,
- ppts on demand,
- reports,
- databases (through Buildup),
- 10 internet conferences (incl. recordings),
- 5 workshops,
- papers in conferences

➔ all results are published on www.asiepi.eu

Duct air tightness

- Information Paper: coming soon
  - Duct System Air Leakage — How Scandinavia tackled the problem
- **! Coming ! Webevent !**
  - **How to improve ductwork airtightness - Ongoing developments and success stories in Europe**
  - **Wed. 16 December 2009, 10:00-12:00**
  - **Registration now open ➔ see website**
- Chapter in technical report

Webevent programme: How to improve ductwork airtightness?

- **Introduction to the event**
  - by Dr. Peter Schild, SINTEF Buildings & Infrastructure, Norway
- **Duct leakage problems & consequences in EU**
  - by Samuel Caillou, BBRI, Belgium
- **Including leakage in energy calculations**
  - by Dr. Jean-Robert Millet, CSTB, France
- **Leakage testing methods/requirements**
  - by Dr. Peter Schild, SINTEF Buildings & Infrastructure, Norway
- **Practical solutions for airtight ductwork**
  - by Lars Åke Mattsson, Lindab, Sweden
- **The Scandinavian success story**
  - by Jorma Railio, FAMBSI, Finland
- **Questions, open exchanges on success stories**
  - by the attendees and speakers
- **Conclusion and closure**
  - by Dr. Peter Schild

Equivalence for innovative systems

- Information Papers
  - Assessment of innovative systems in the context of EPBD regulations (P063)
    ➔ general + country approaches
  - An overview of national trends related to innovative ventilation systems (P132)
  - more coming
- Webevents
  - Overview of national approaches for the assessment of innovative systems in the framework of the EPBD
    ➔ recordings on ASIEPI website
  - **! COMING !**
    Stimulating innovation with EPBD, 3 Feb. 2010
- Reports
  - Overview of the assessment of innovative systems across EU
- **! COMING ! Workshop**
  - **Amsterdam (The Netherlands), 3 & 4 March 2010**

Summer comfort and cooling

- Webevents ➔ available on website
  - Summer comfort and air conditioning in Europe: Current trends and future perspectives (17 June 2009)
  - Thermal comfort and cooling demand in the air of climate change (26 Nov. 2009)
- Workshop
  - International Workshop on summer comfort and cooling Barcelona, Spain, 31 March & 1 April 2009
    ➔ many country status reports: available on website
- Information Papers: **coming soon**
  - Summer comfort and cooling: calculation methods and requirements
  - French experiences on handling of alternative cooling techniques
  - Advanced and innovative solar control devices
  - Passive Cooling Heat Dissipation Techniques for Buildings – Experiences

Intercountry comparison of the EPB-requirements

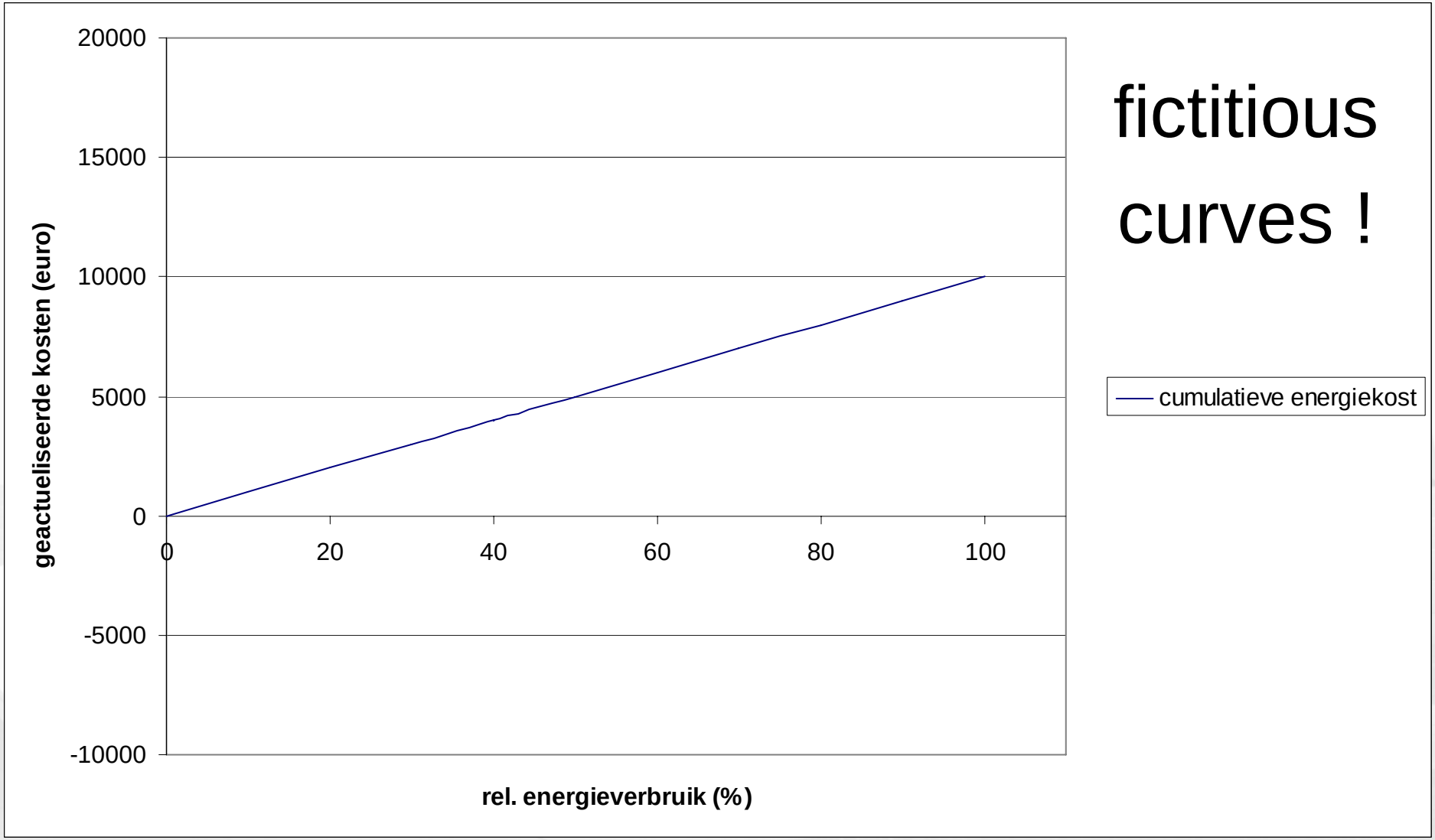
- for an accurate description of the project findings, the reader is referred to the information papers, reports, ppt-on-demand, webevent recordings, etc. that are being published on the website: http://www.asiepi.eu/wp2-benchmarking.html

Miscellaneous considerations with respect to EPB-requirements

Context

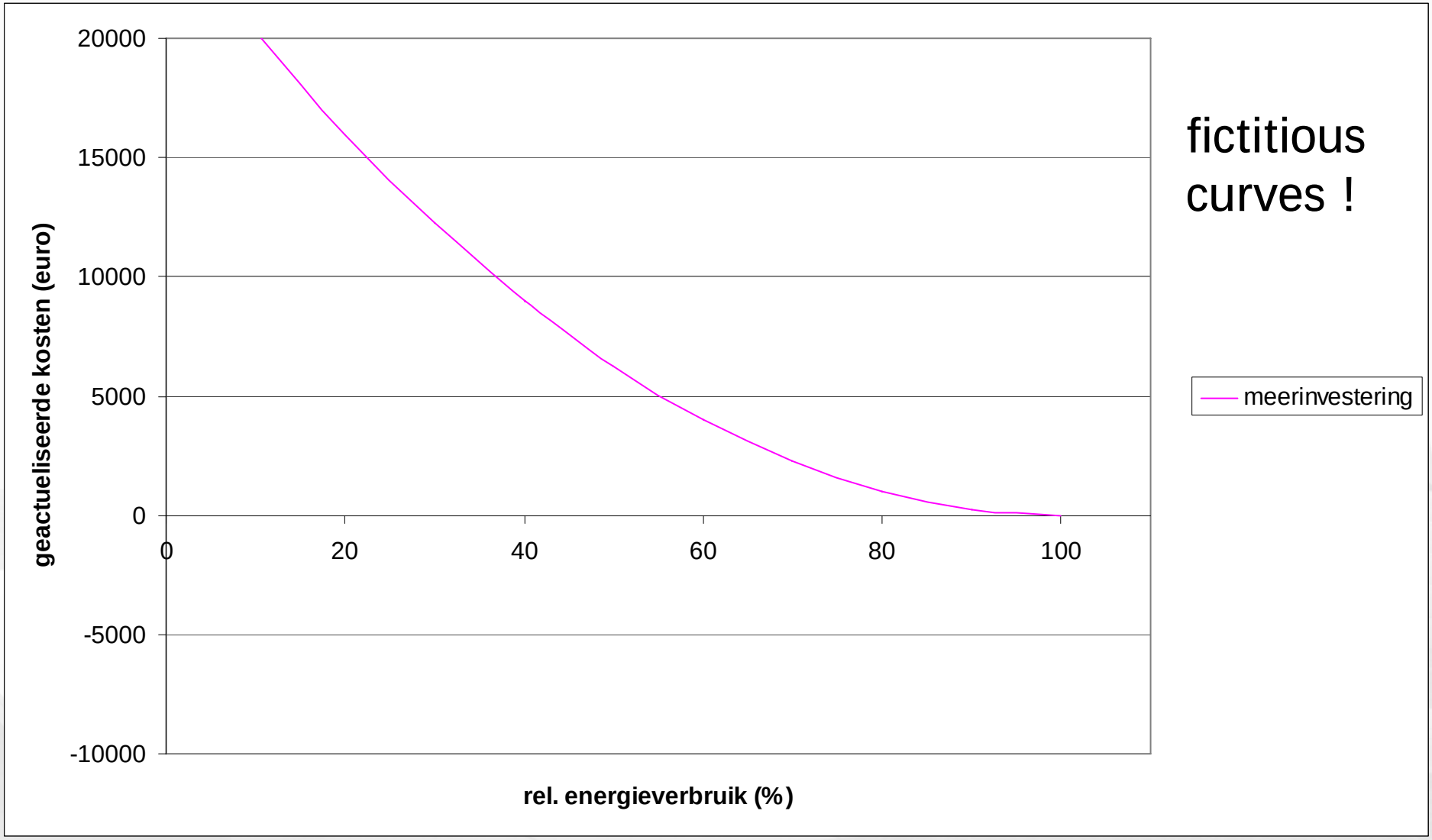
- Not directly based on ASIEPI work, but derived from general familiarity of the partners with the topic
- EPBD-recast relates the EPB-requirements to the "cost-optimum" level (articles 1, 4, 5, ..., annex IIIa, ...)
- I.e. **intra**country comparison between the requirements and the economic optimum

Total present cost of the future energy bills

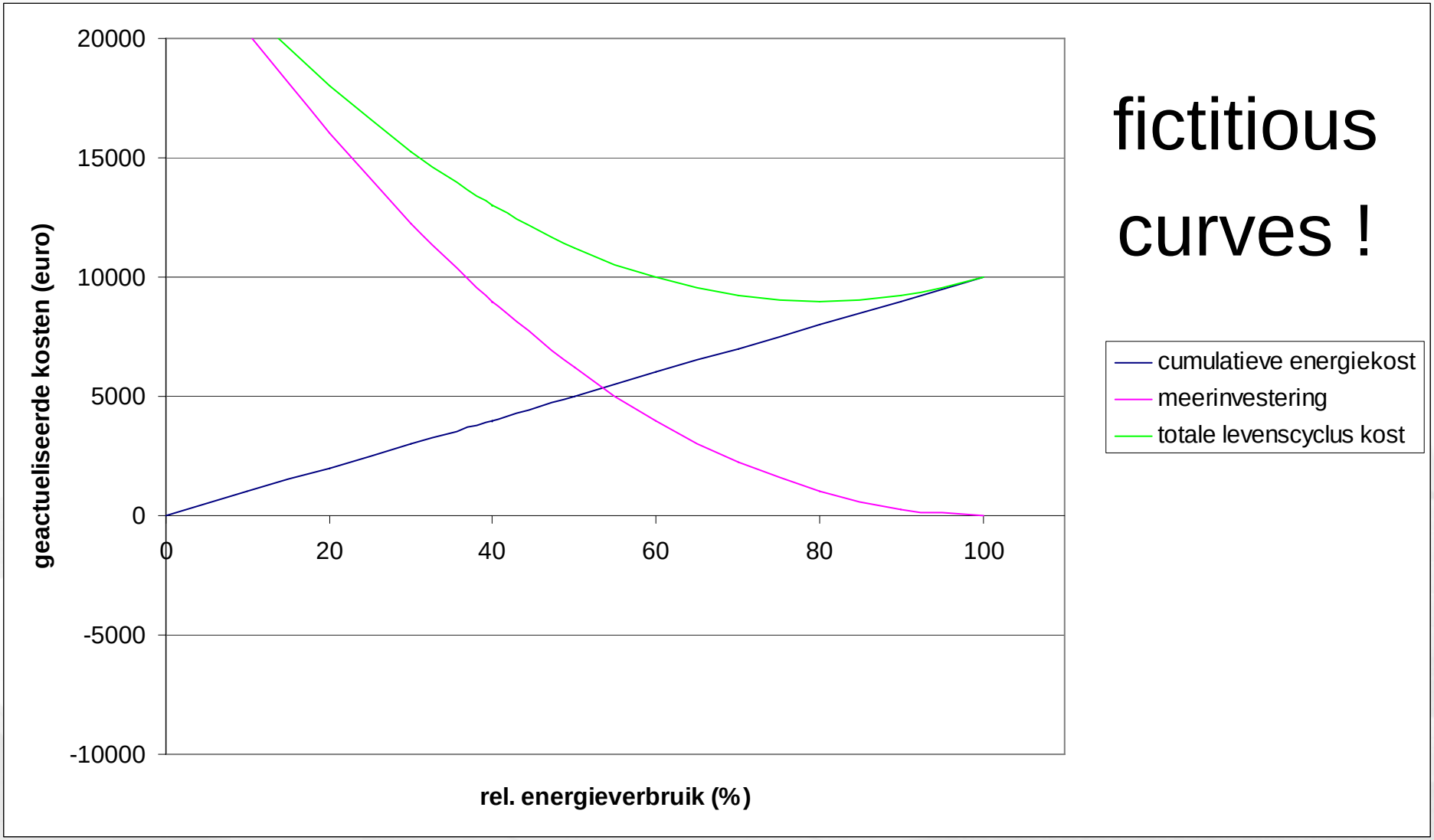


fictitious curves !

Initial extra investment

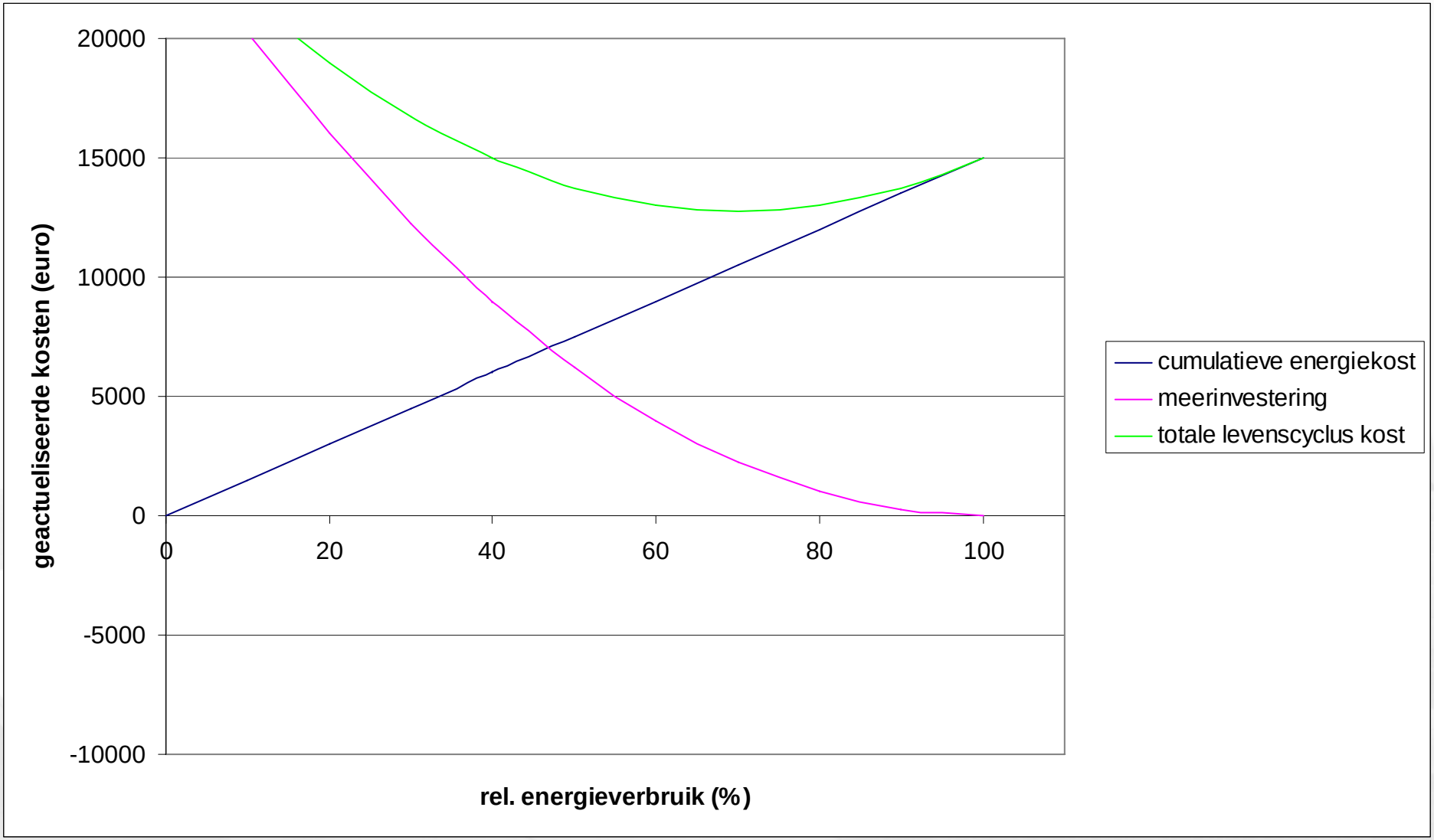


Sum = total life cycle cost

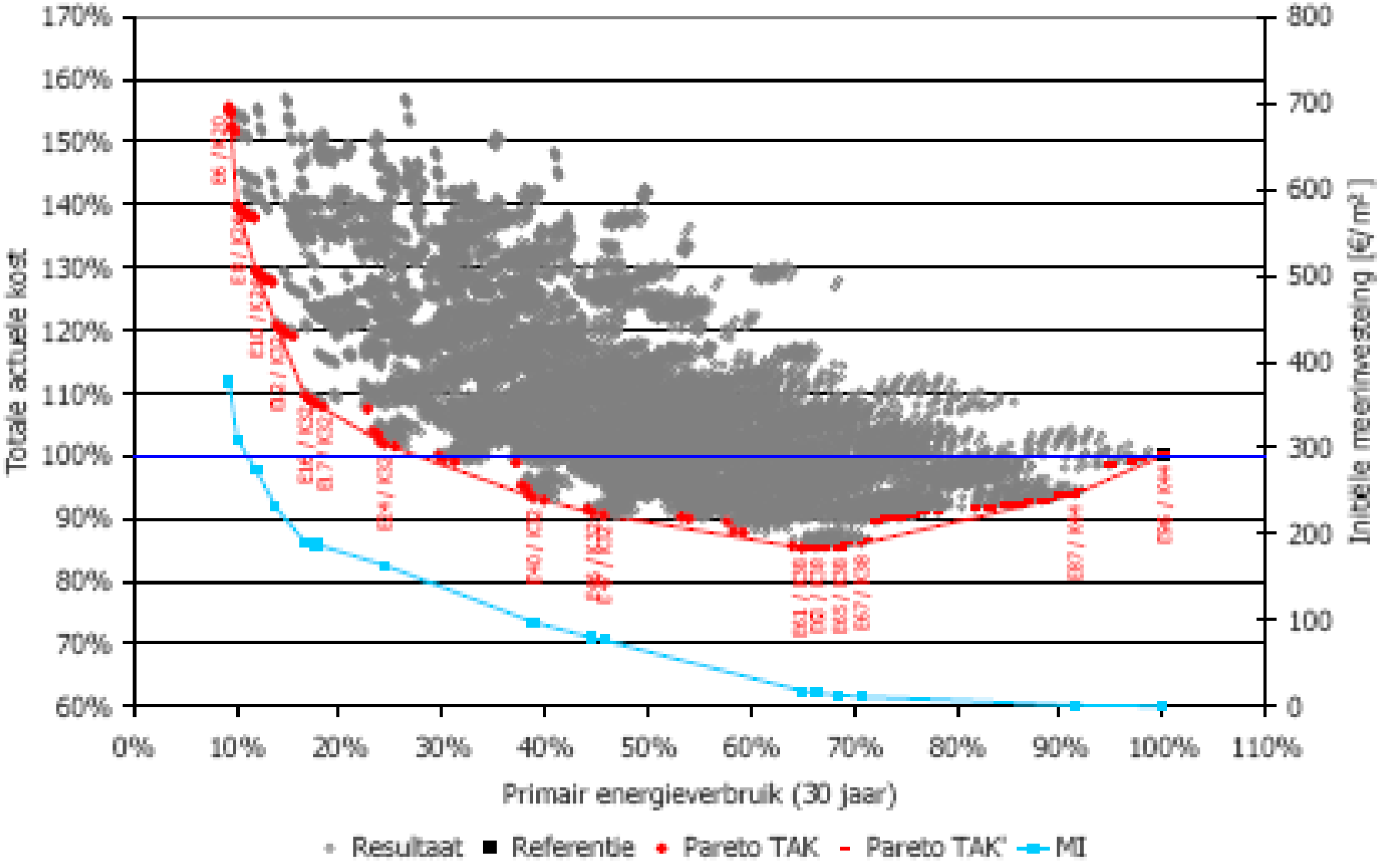


fictitious curves !

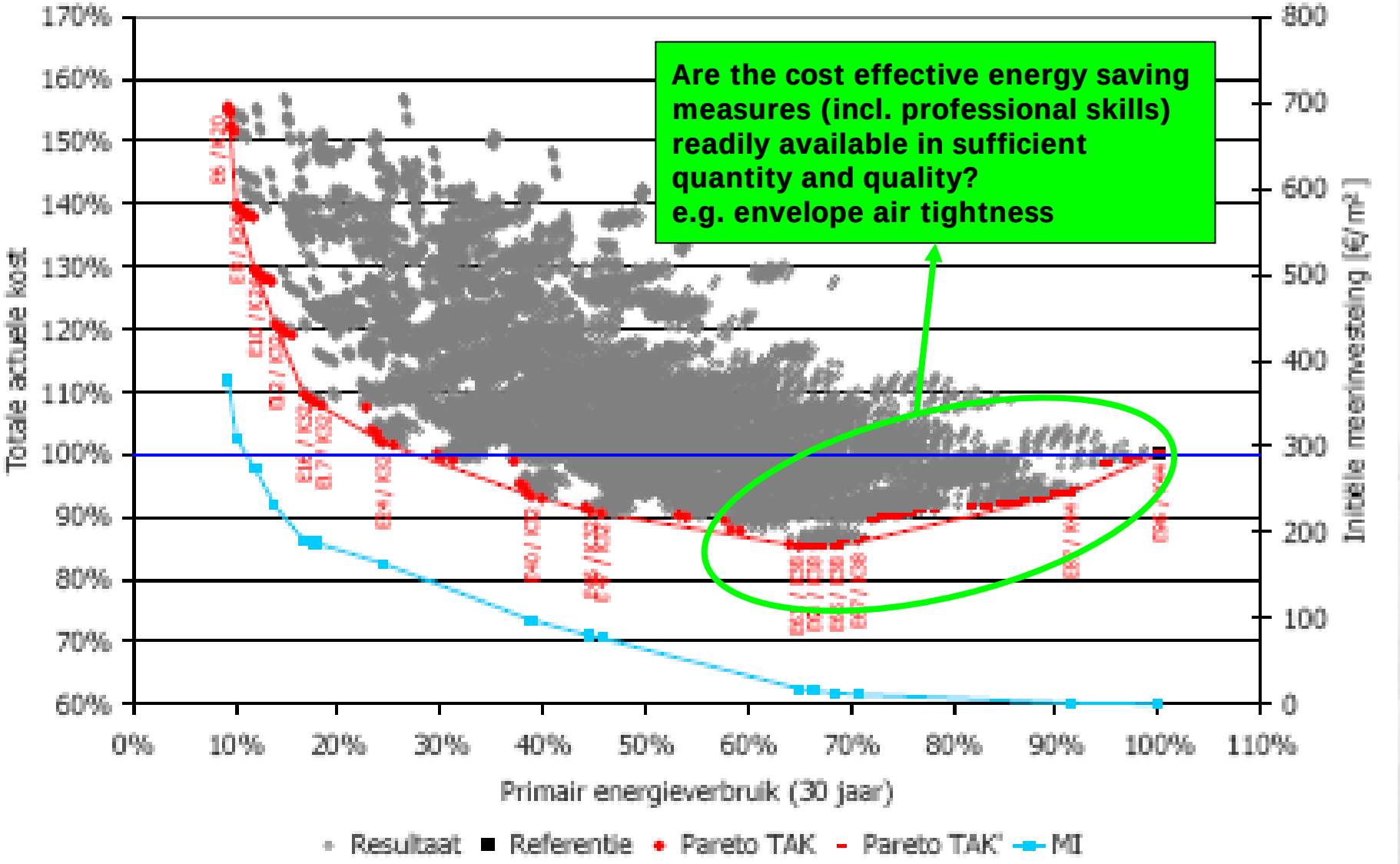
Faster energy price rise



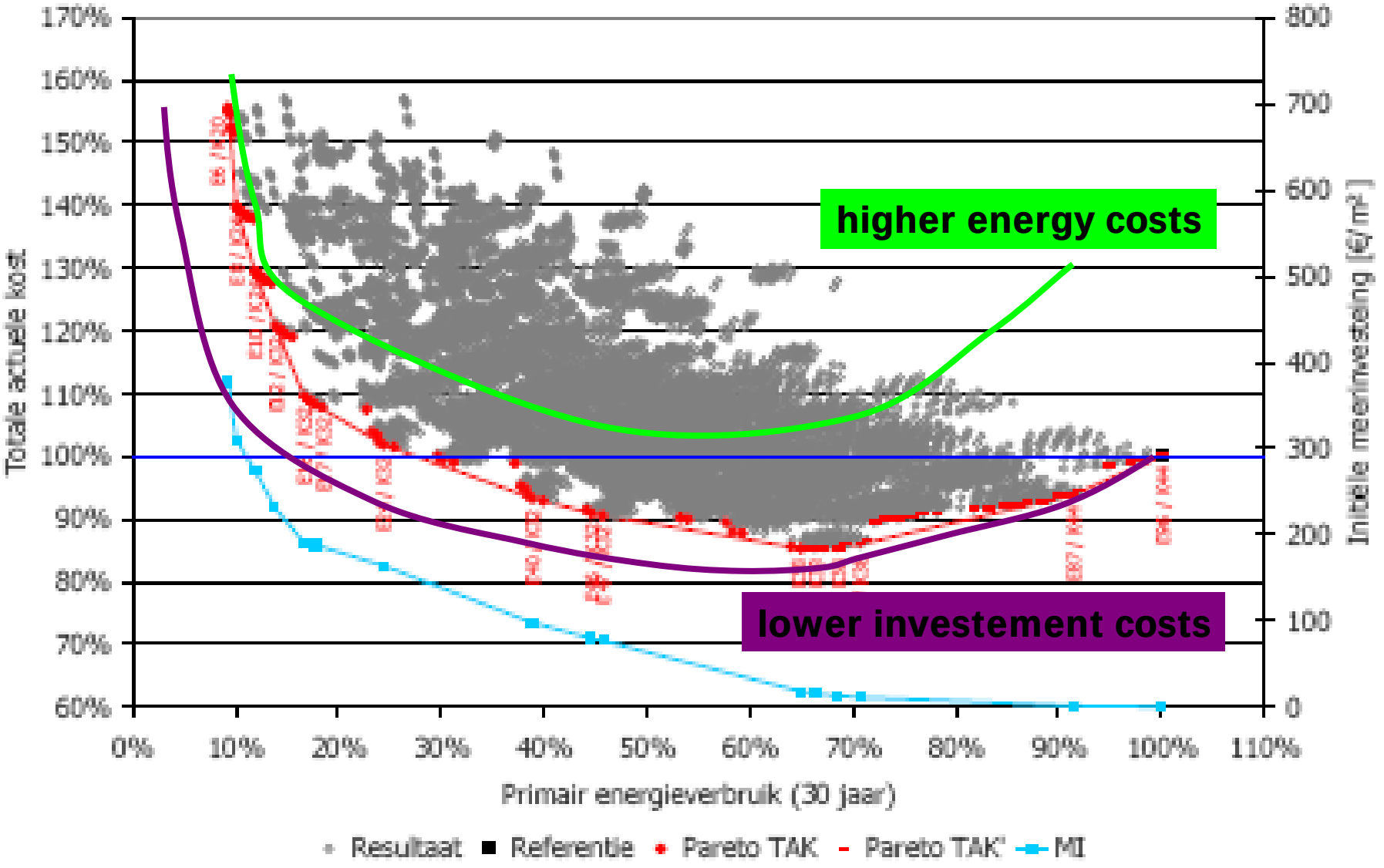
Determining the economic optimum



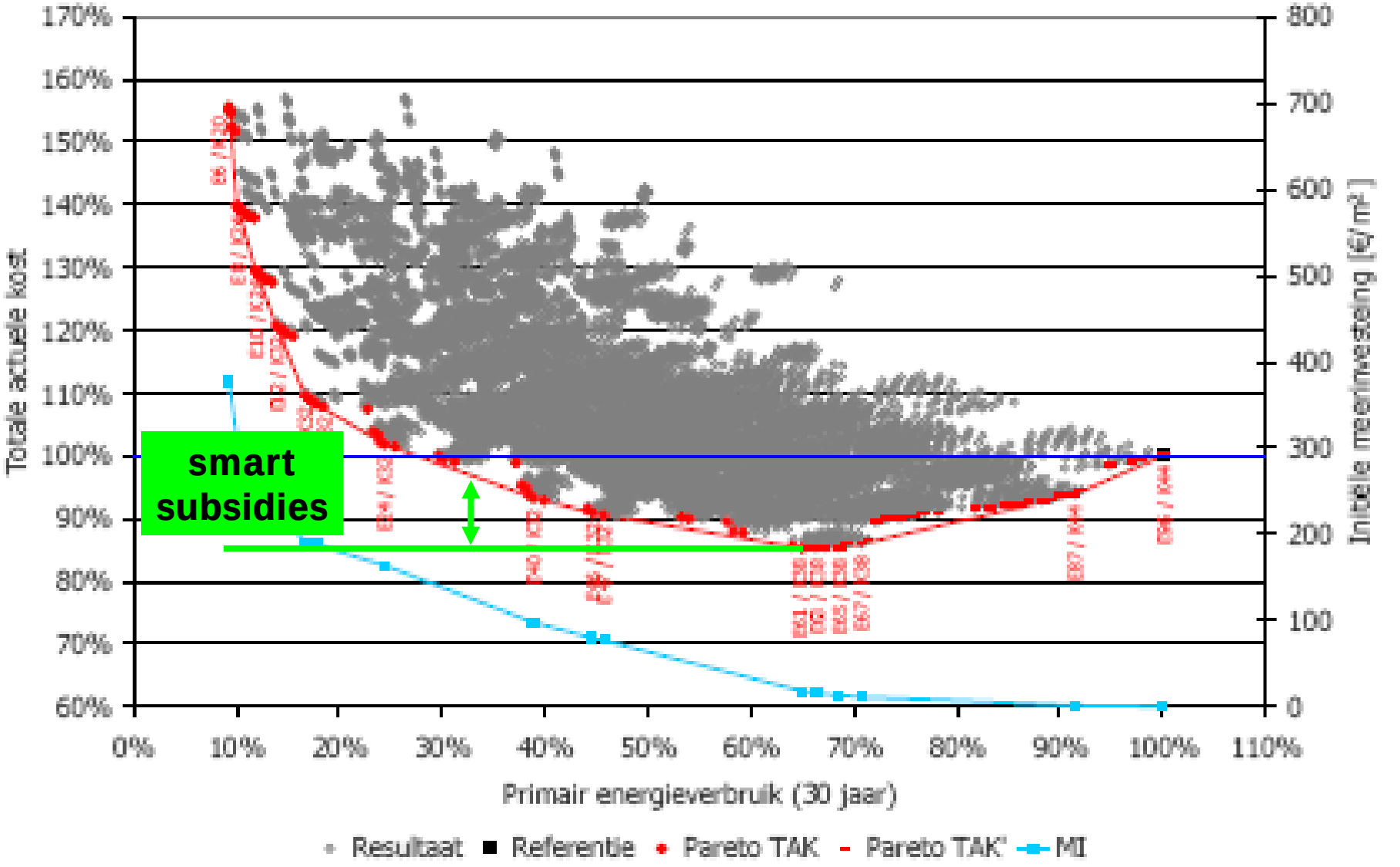
Achieving the economic optimum in practice



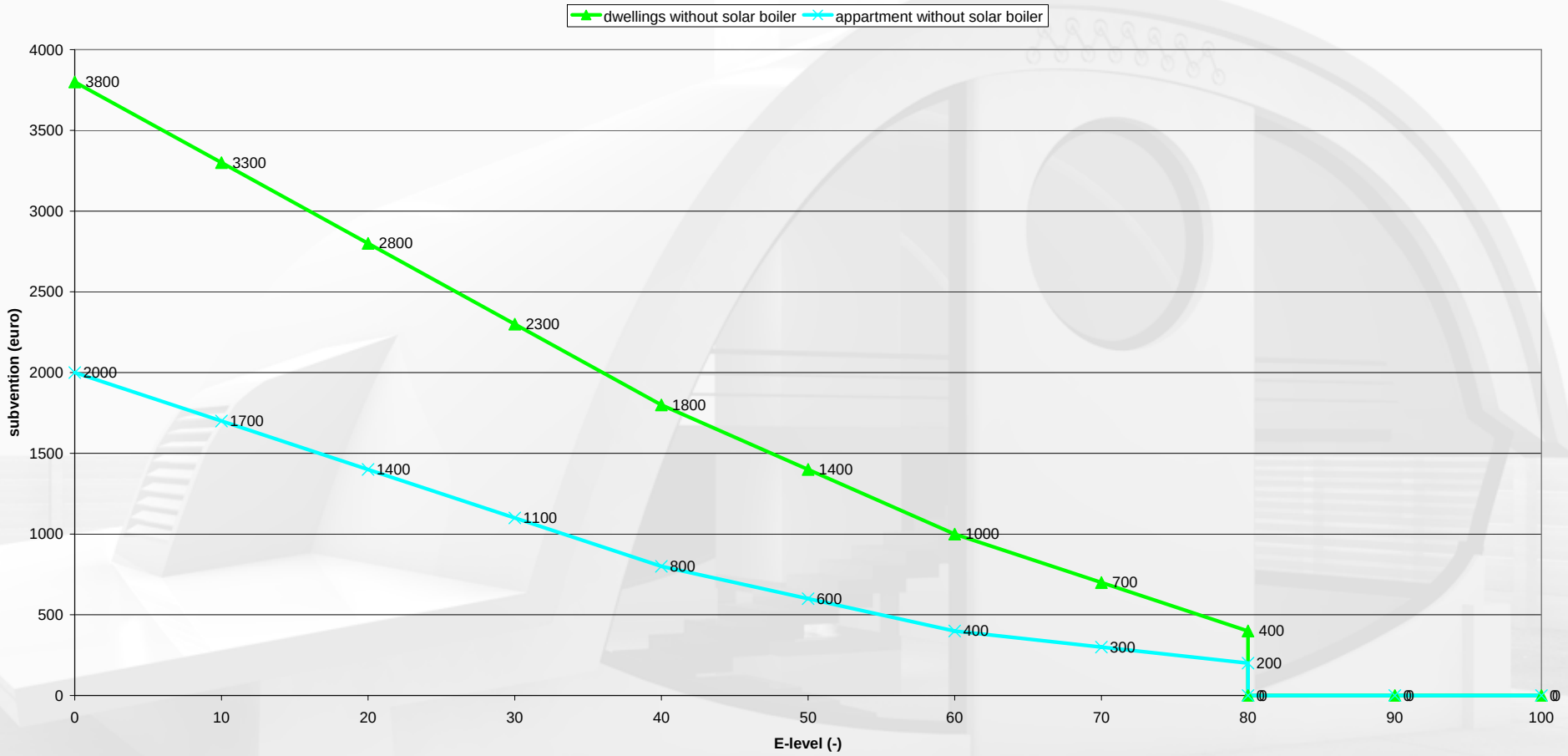
Moving the economic optimum to better energy performance level



Moving the economic optimum to better energy performance level



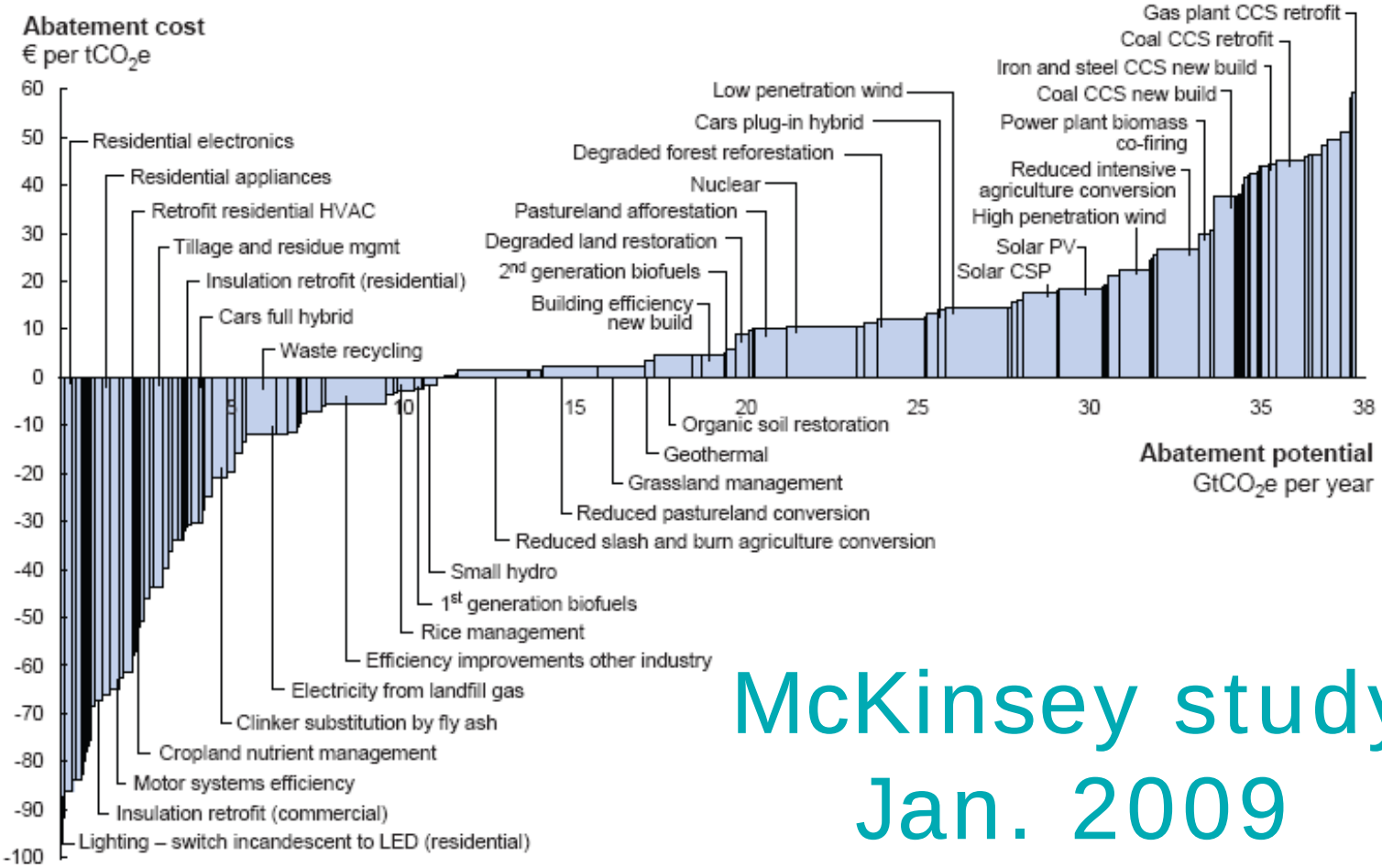
Example of EP-subsidies: Flanders, Belgium



Setting the EPB-requirement beyond the economic optimum: may be cheaper than other measures

Exhibit 1

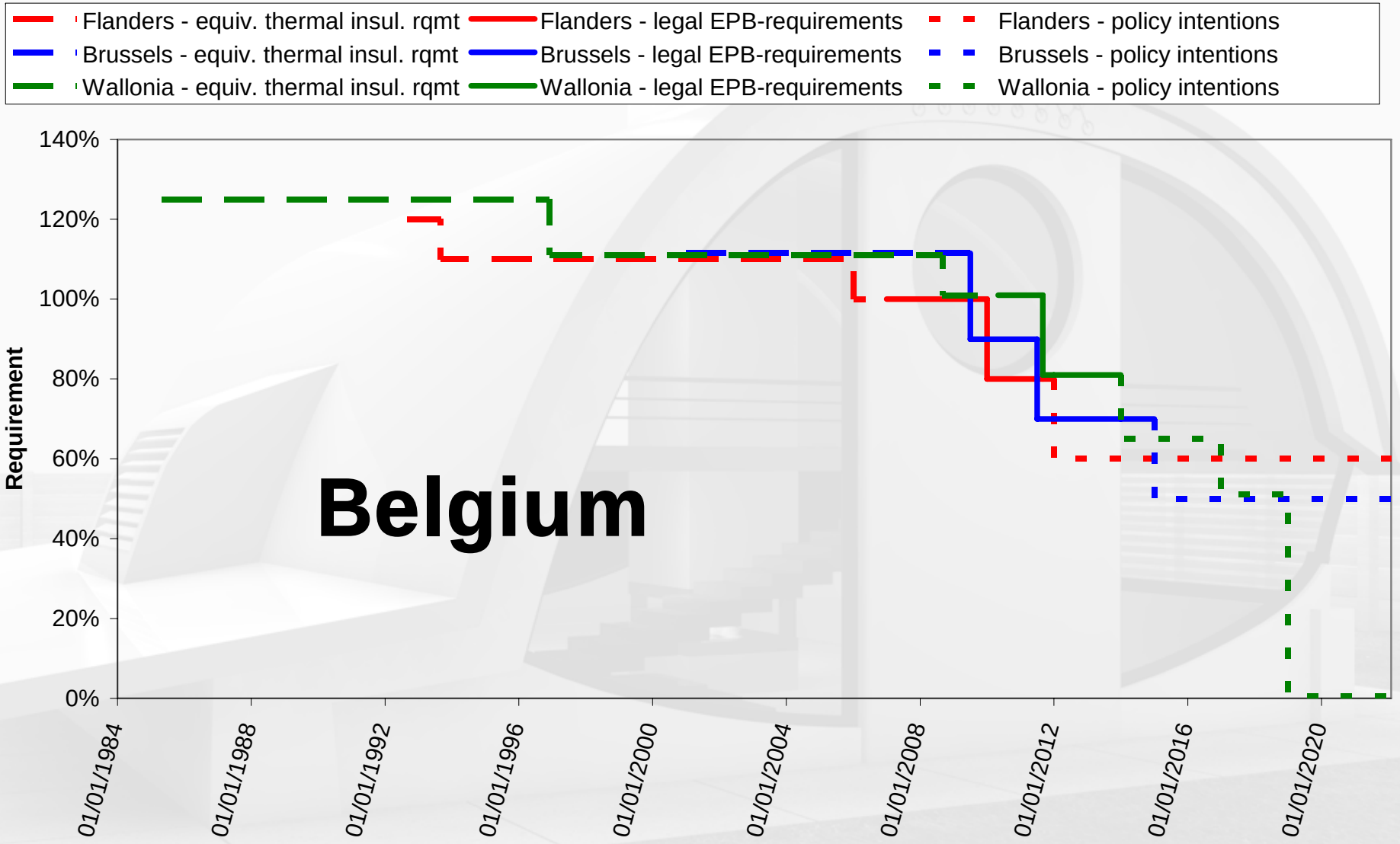
Global GHG abatement cost curve beyond business-as-usual – 2030



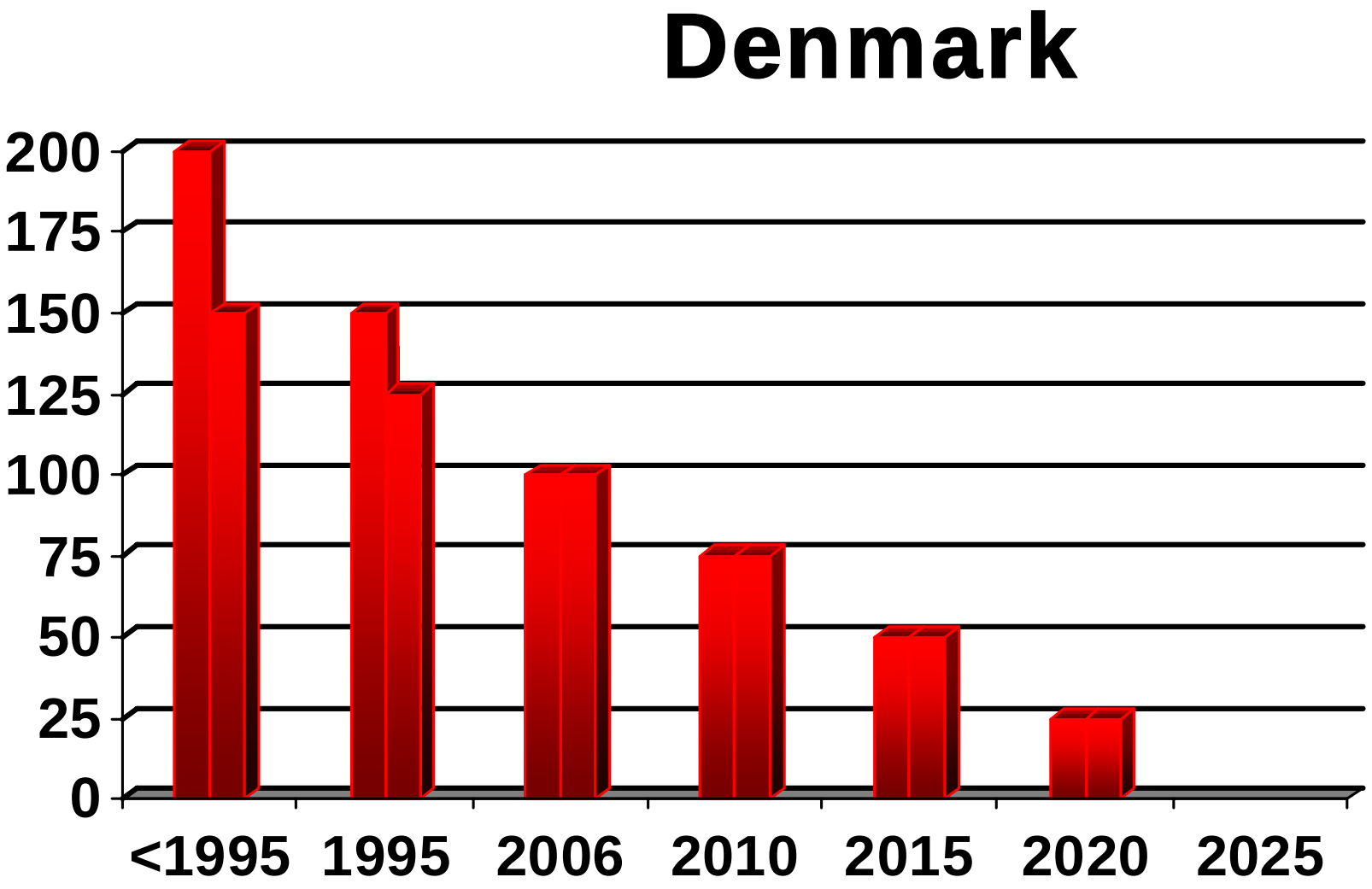
McKinsey study
Jan. 2009

Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.
Source: Global GHG Abatement Cost Curve v2.0

Some examples of (past and planned future) tightening



Some examples of (past and planned future) tightening



Some examples of (past and planned future) tightening

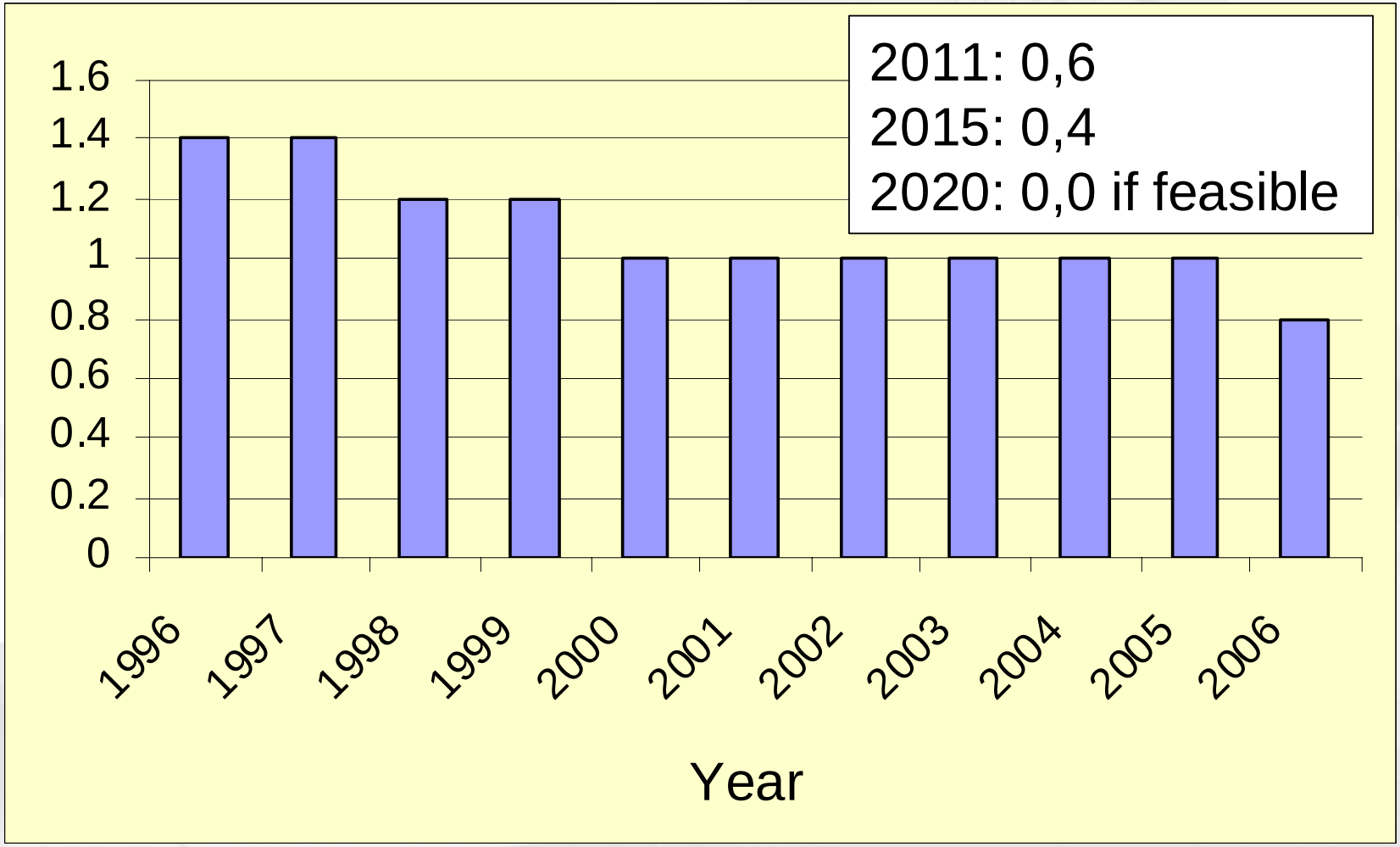
Finland

Reference values for maximum heat loss	Year 1976	1978	1985	2003	2007	2010
Wall, U-value (W/m²,K)	0.40	0.29	0.28	0.25	0.24	0.17
Roof, U-value (W/m²,K)	0.35	0.23	0.22	0.16	0.15	0.09
Floor, U-value (W/m²,K)	0.40	0.40	0.36	0.25	0.24	0.16
Window, U-value (W/m²,K)	2.1	2.1	2.1	1.4	1.4	1.0
Door, U-value (W/m²,K)	0.7	0.7	0.7	1.4	1.4	1.0
Air-tightness, n50 (1/h)	6	6	6	4	4	2
The yearly exhaust air heat recovery efficiency	0 %	0 %	0 %	30 %	30 %	50 %
Thermal transmittance (W/K)[1]	***2017***	***1905***	***1879***	***1367***	***1353***	***917***
Change 1976 =100	*0 %*	*-6 %*	*-7 %*	*-32 %*	*-33 %*	*-55 %*
The EPDB-effect					*-1 %*	*-33 %*

[1]A typical 3-floor apartment house design in Finland

Some examples of (past and planned future) tightening

the Netherlands



Some examples of (past and planned future) tightening

England and Wales

Communities and Local Government

Part L in a developing policy landscape

New Stock

Target:

all new homes to be zero carbon from 2016

Ambition:

all new non-domestic buildings to be zero carbon from 2019

2016 2019 2030 2050

Existing Stock

Consultation proposal:

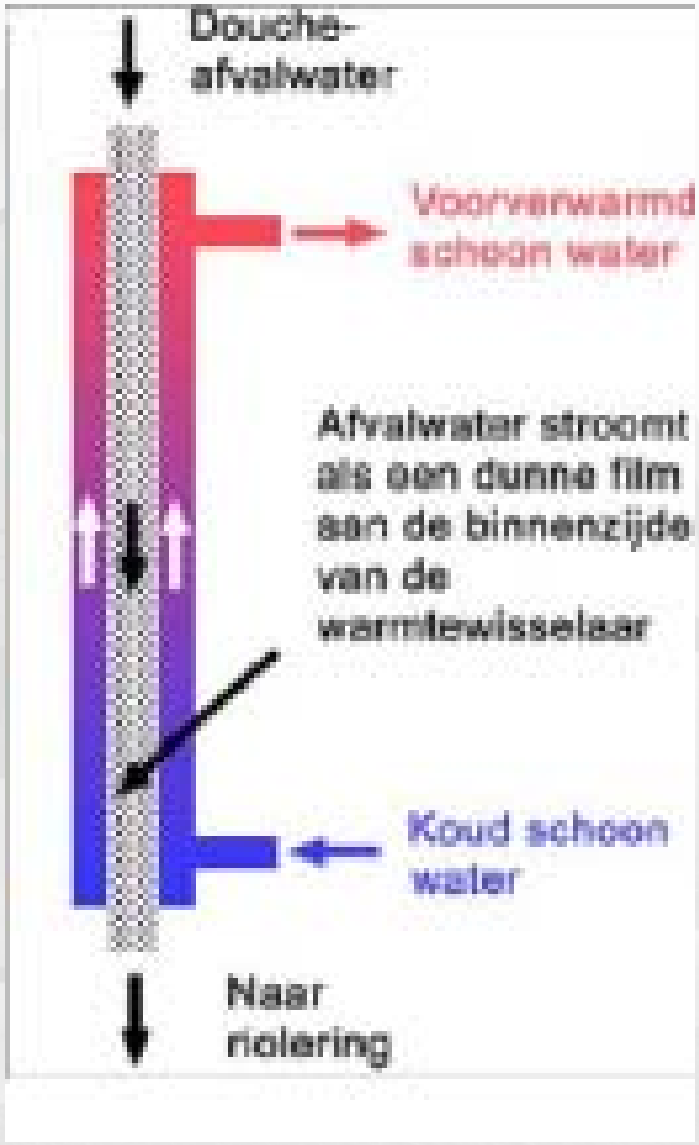
cost-effective energy efficiency measures available to all households

Consultation proposal:

emissions from households (and business premises) reduced by at least 80%, and as far as possible be approaching zero

Interaction between the EPB-calculation method and the economic optimum

- An EPB-calculation method should include as much as possible all technologies that can be cost-effective in a given country
  ➔ otherwise energy saving opportunities are missed
- Regular updating with new (proven) technologies, e.g. heat recovery from shower drain water to preheat cold water in the NL



Precise product characterisation in support of shifting the economic optimum

clear testing standards → reliable testing facilities → production monitoring → publication of product data

Belgian example, e.g. trickle ventilators

RÉGION DE BRUXELLES-CAPITALE
BRUSSELS HOOFDSTEDELIJK GEWEST

RÉGION WALLONNE

Base de données de produit PEB - OUVERTURES D'ALIMENTATION REGLABLES A LONGUEUR VARIABLE

ID Produit	Fabricant	Produit	Classification du produit	Débit en position ouverte				Débit en position fermée		Autorégulation	Test du critère de confort	Statut	T0	T1	Marque additionelle	fiche
				2 Pa		10 Pa										
				L0, 2 Pa (m)	q1, 2 Pa (m³/h.m)	L0, 10 Pa (m)	q1, 10 Pa (m³/h.m)	L0c, 50 Pa (m)	q1c, 50 Pa (m³/h.m)	classe ()						
Tunal Top ep-ZR	TUNAL	Tunal Top ep-ZR	4.1.2222	0,04	59	0,07	77	-	-	P3	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 75 ep-S	TUNAL	Tunal 75 ep-S	4.1.1221	0,02	50	0,03	115	-	-	Sans autorégulation	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 75 ep-L	TUNAL	Tunal 75 ep-L	4.1.1221	0,02	76	0,03	173	-	-	Sans autorégulation	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 75 ep-XL	TUNAL	Tunal 75 ep-XL	4.1.1221	0,06	105	0,06	238	-	-	Sans autorégulation	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 75 ep-ZR	TUNAL	Tunal 75 ep-ZR	4.1.1222	0,02	70	-0,07	59	-	-	P3	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 65 ep-HD	TUNAL	Tunal 65 ep-HD	4.1.1221	0,04	65	0,04	147	-	-	Sans autorégulation	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 65 ep-FL	TUNAL	Tunal 65 ep-FL	4.1.1221	0,03	50	0,03	114	-	-	Sans autorégulation	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-
Tunal 45 ep-	TUNAL	Tunal 45 ep-	4.1.1221	0,03	44	0,03	101	-	-	Sans autorégulation	Non disponible	1	19/11/2009	19/11/2011	Qualicoat	-

➔ **would be more efficient on a European level**

Quality assurance in order to really achieve the envisaged energy savings

- relatively new technologies
  ➔ market at large may not yet be very familiar with
  ➔ improper application may lead to substandard operation.
  Intensive professional education may be the key to minimise this problem.
- other technologies
  ➔ intrinsically more fragile, more susceptive to perturbations of all kinds
  ➔ much more difficult to master well in practice.
  Quality assurance schemes may be very important
  ➔ advisable to only reward such systems with their full theoretical energy savings in the EPB-method if strict quality assurance schemes have been applied in the given project.

Thank you for your attention.

Acknowledgements and disclaimer

This presentation has been written
in the framework of the IEE SAVE ASIEPI project.

ASIEPI receives funding from the Community's Intelligent Energy Europe programme under the contract EIE/07/169/SI2.466278.