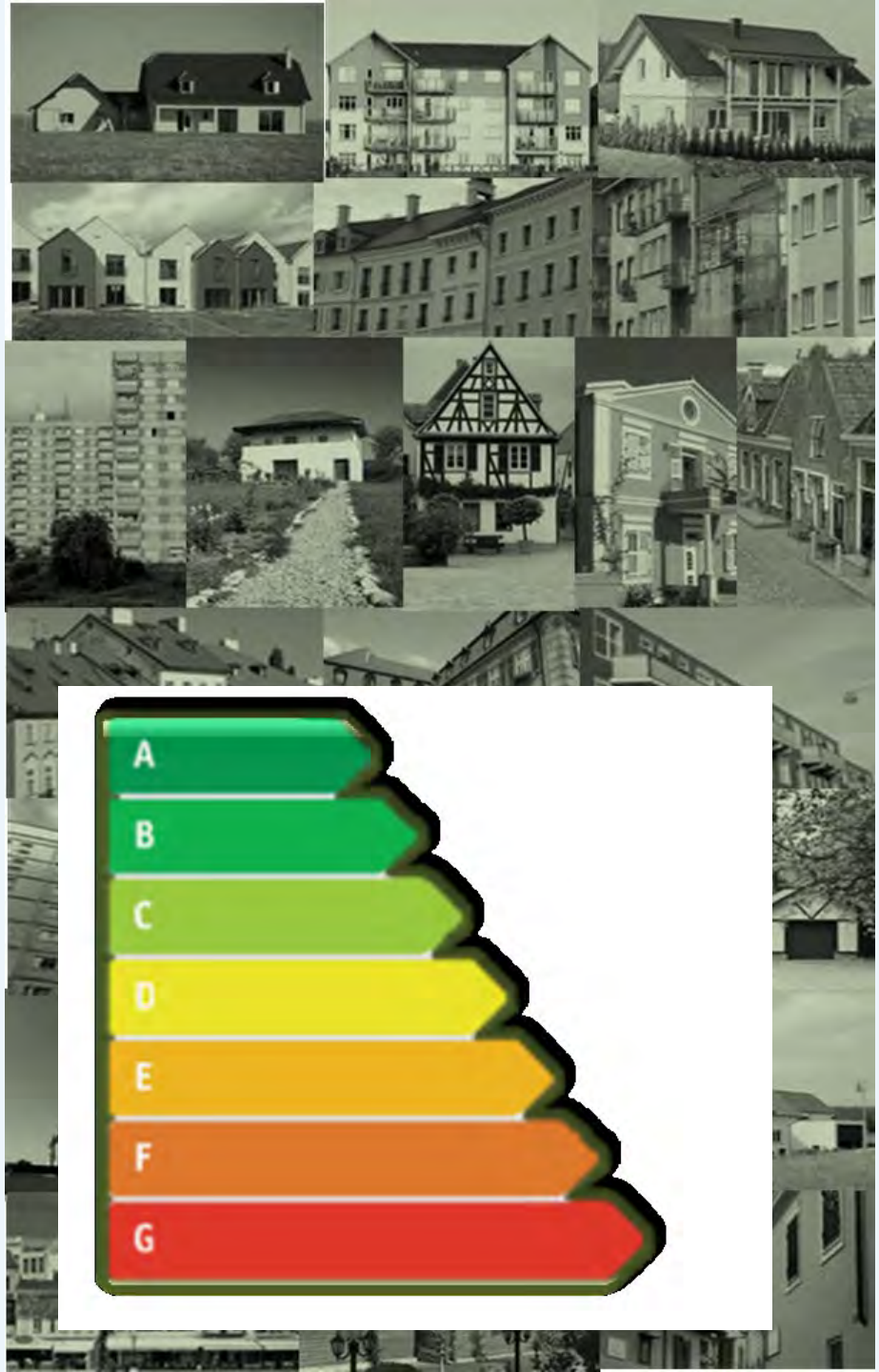

Building Renovation – An Essential Component of Energy Policy

Dan Staniaszek
Buildings Performance Institute Europe

19th National Energy Conference
"Energy and Development 2014"

11-12 November 2014

Athens, Greece

BPIE

Multiple Benefits of Building Renovation

Job creation

Economic activity

Reduction in social security costs

Reduction in energy consumption

Regeneration of urban areas

Property values

Energy security

Comfort and indoor climate

Improved productivity

Fuel poverty alleviation

Increased purchasing power

Reducing CO2

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Buildings EE ranks 1st in Resource Efficiency Potential

McKinsey&Company

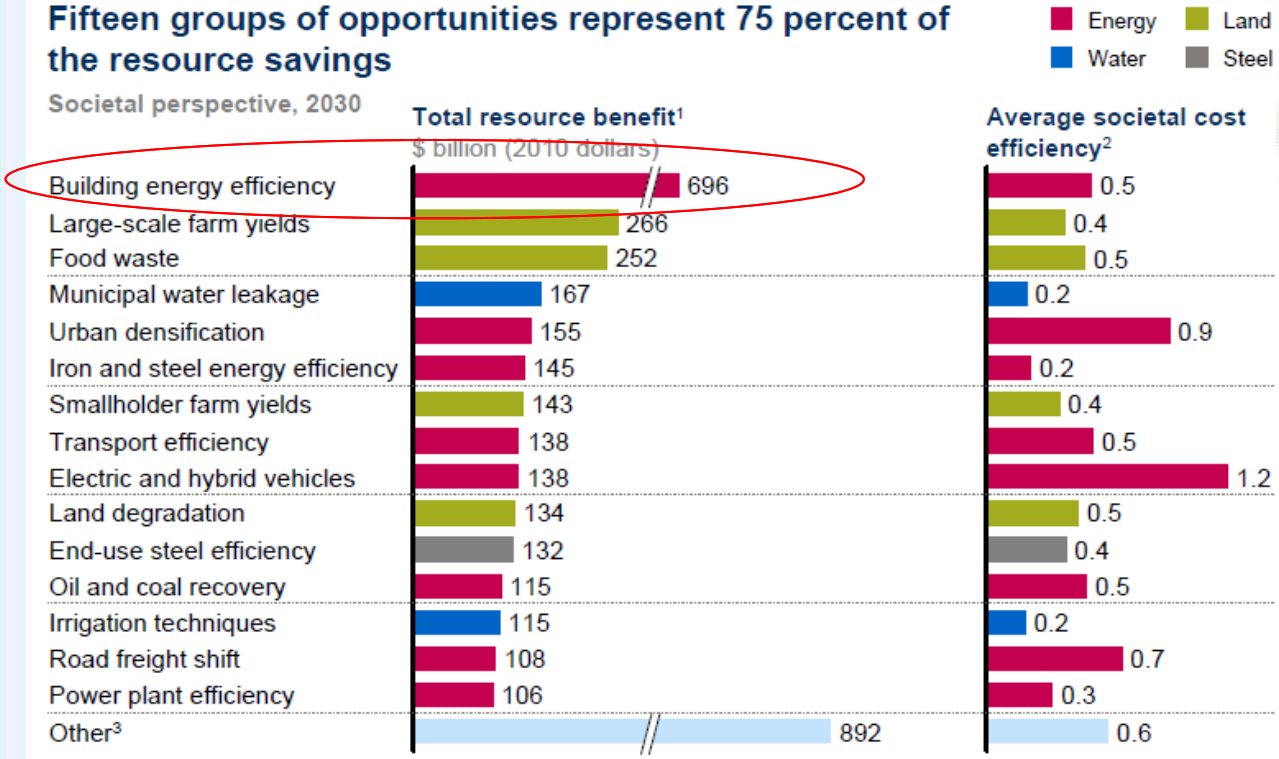
McKinsey Global Institute
McKinsey Sustainability & Resource Productivity Practice

November 2011

Resource Revolution: Meeting the world's energy, materials, food, and water needs

Fifteen groups of opportunities represent 75 percent of the resource savings

Societal perspective, 2030



1 Based on current prices for energy, steel, and food plus unsubsidized water prices and a shadow cost for carbon.
2 Annualized cost of implementation divided by annual total resource benefit.
3 Includes other opportunities such as feed efficiency, industrial water efficiency, air transport, municipal water, steel recycling, wastewater reuse, and other industrial energy efficiency.

SOURCE: McKinsey analysis

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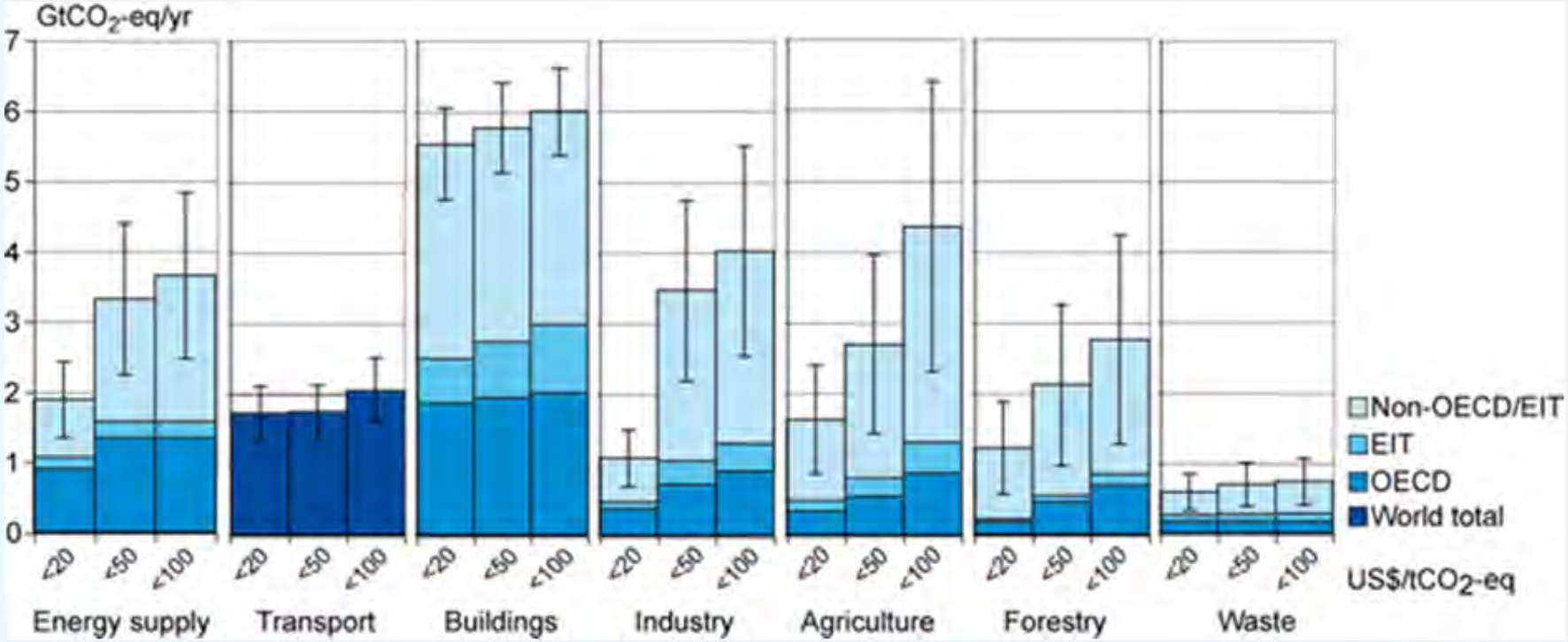
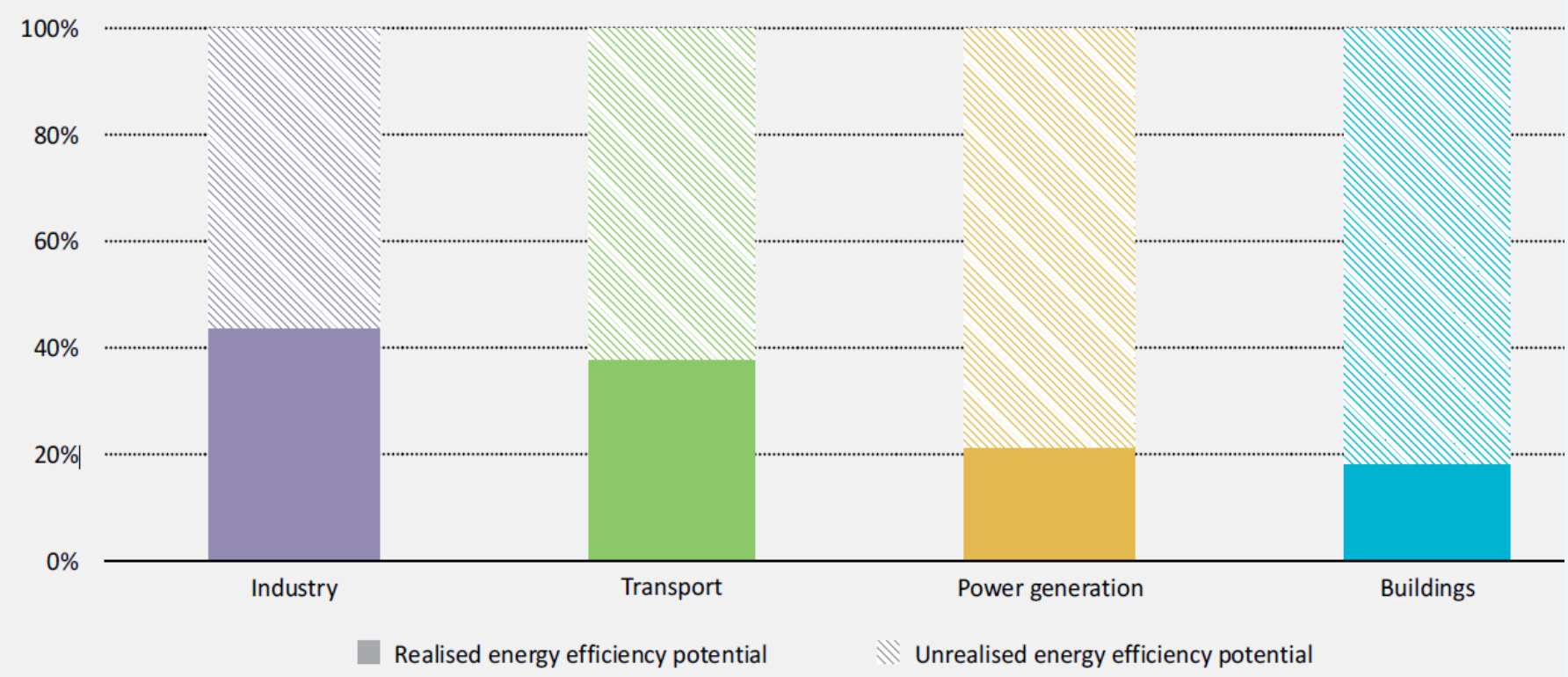
Buildings Represent the Greatest Potential for Low Cost Carbon Savings



Source: IPCC "Climate Change 2007 : Mitigation of Climate Change".

EIT = Economies in Transition

Over 80% of saving potential in building sector remain untapped



Source: IEA 2014 “Capturing the Multiple Benefits of Energy Efficiency”

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BPIE Estimates of Deep Renovation Potential

- €600-900bn investment potential*
- €1000-1300bn savings potential*
- Net societal benefits ~10 times this amount*
- 70% energy saving potential
- 90% CO_2 reduction potential

** All figures are present value.*

Range reflects different scenarios

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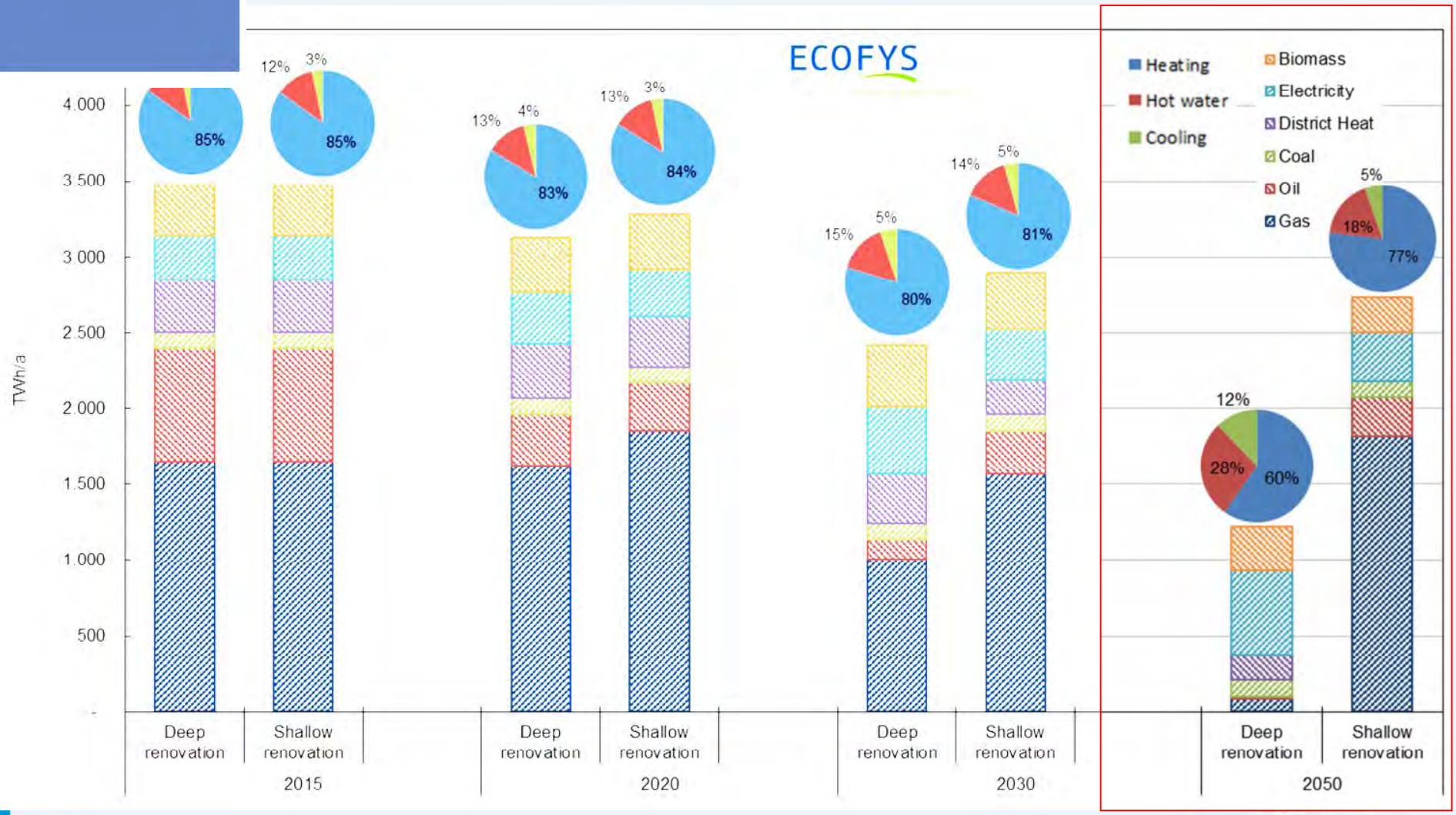
Findings of the Modelling Work

1. Deep renovation potential is, on any metric, extremely large and exists throughout Europe
2. Current renovation rates need to ramp up from 1% p.a. to 2.5-3% p.a. through to 2050
3. Need to move swiftly from prevailing shallow renovation to deep renovation
4. Large investments, delivering attractive rates of return (when considered over long term)
5. Costs can be brought down through economies of scale, mandatory minimum requirements, R&D into new holistic solutions…

ECOFYS

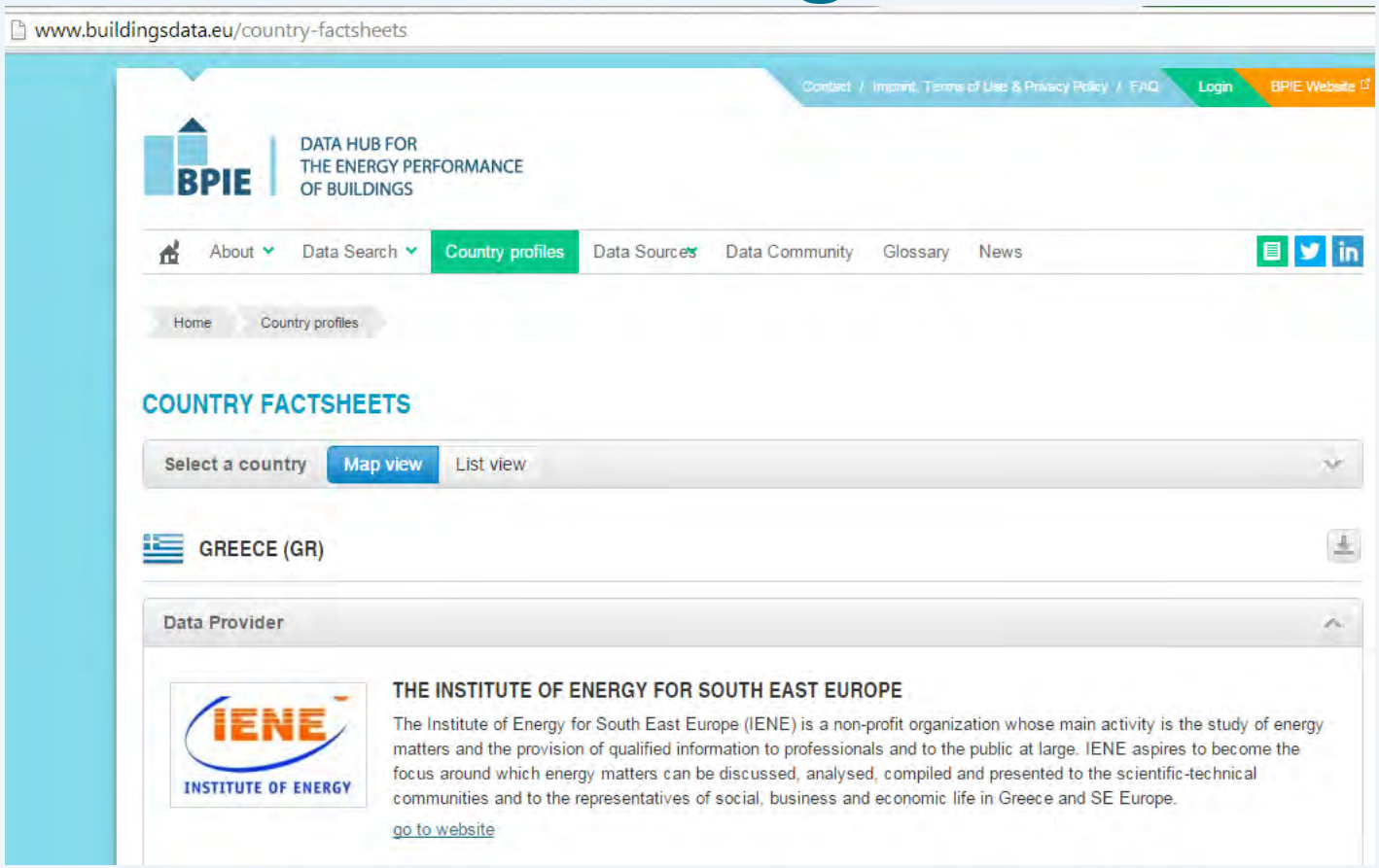
Deep renovation of buildings
An effective way to decrease Europe's energy import dependency

Shallow or Deep? Impact on energy imports



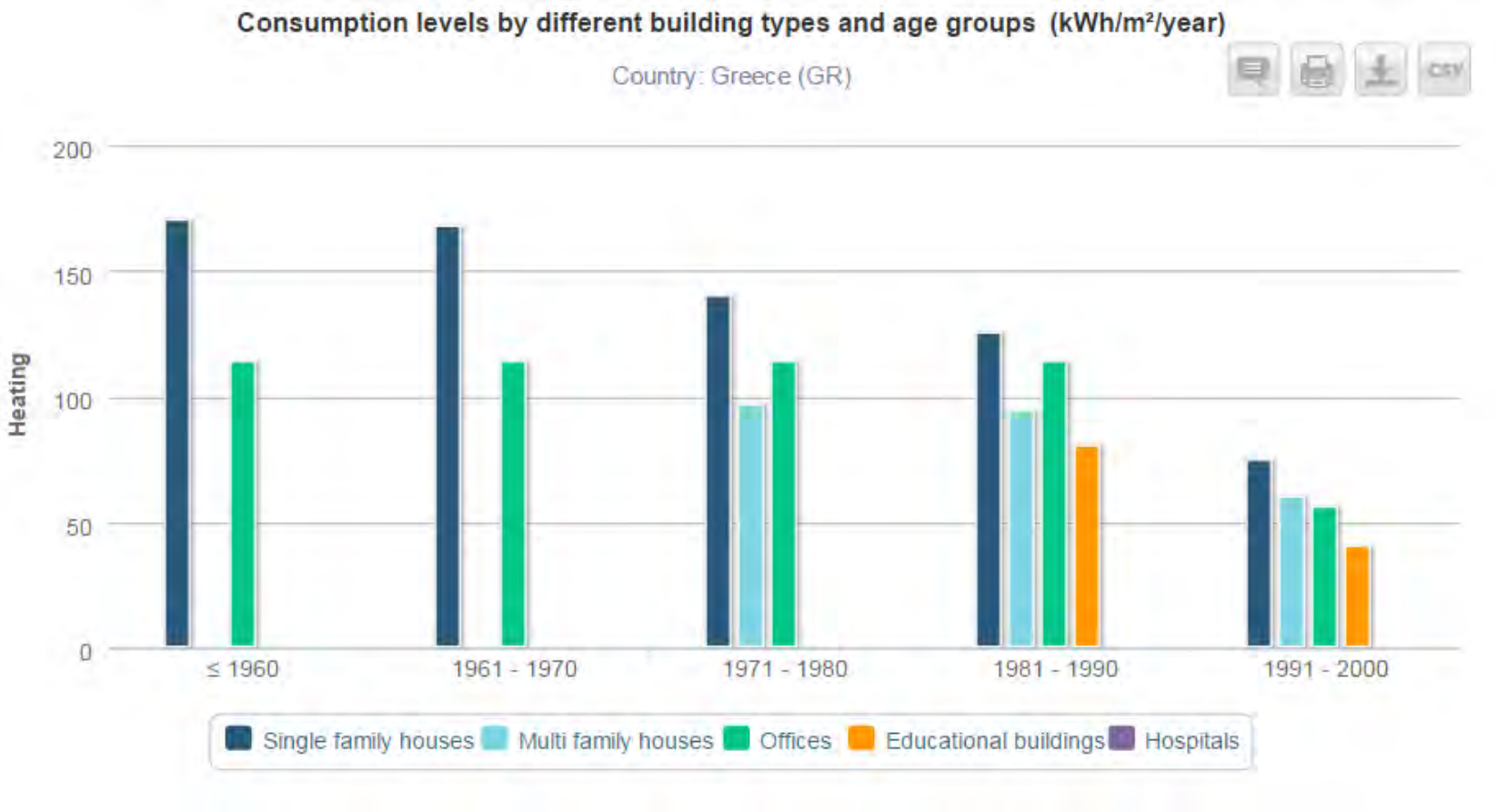
Source "Deep Renovation of Buildings", ECOFYS 2014, commissioned by Eurima

BPIE's Buildings Data Hub

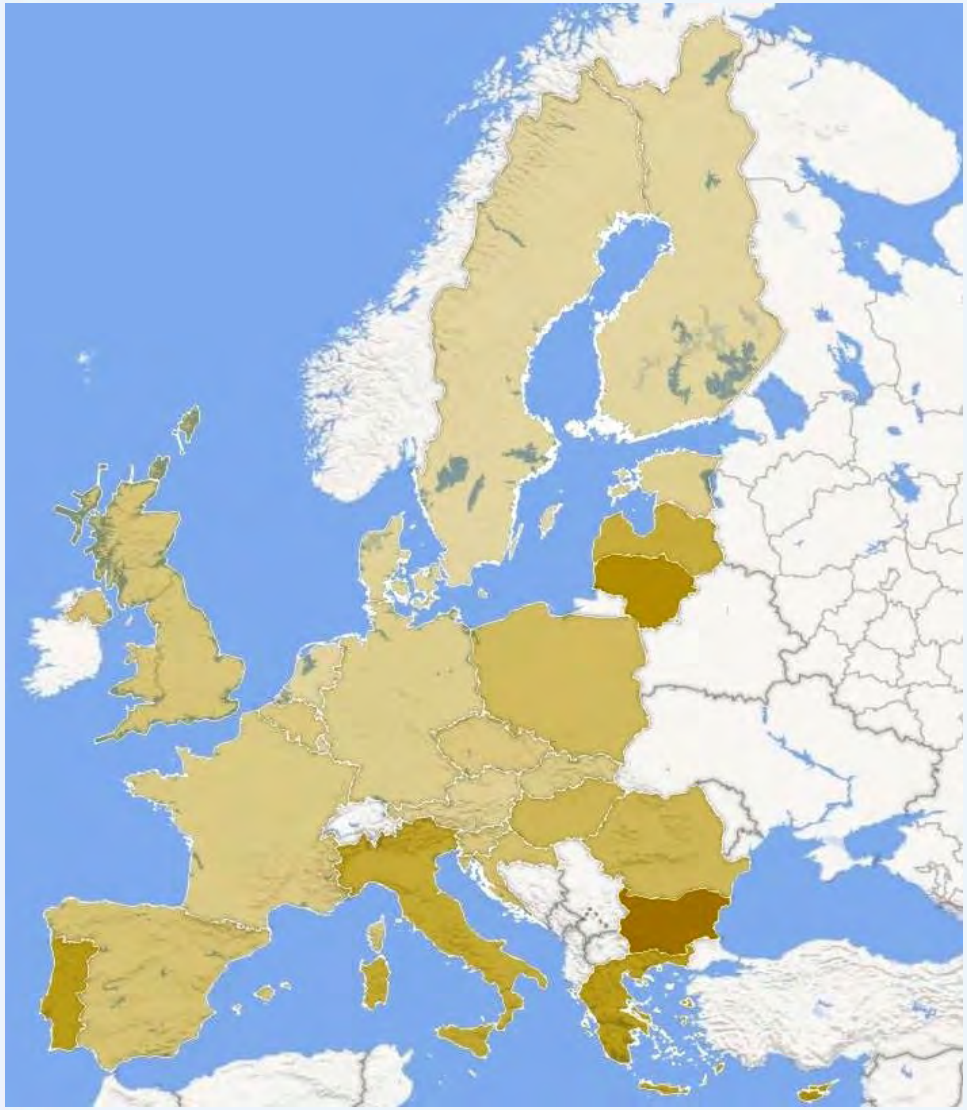


- www.buildingsdata.eu

Older buildings have potential to save energy



Inability to keep home adequately warm in the EU



- **Bulgaria** (46.5%) and **Lithuania** (34.1%) have highest rates of people not able to keep homes adequately warm, followed by **Cyprus** (30.7%), **Portugal** (27%) and **Greece** (26.1%).
- Not so in “cold” Scandinavia:
  Sweden (1.4%)
  Finland (1.5%)
  Denmark (2.6%)

- min. (0.6%) - 10%
- 10.1% - 20%
- 20.1% - 30%
- 30.1% - max. (46.5%)

Source: BPIE, based on Eurostat data

Article 4, Energy Efficiency Directive

Member States shall establish a **long-term strategy** for **mobilising investment** in the **renovation of the national stock of residential and commercial buildings, both public and private**. This strategy shall encompass:

- An **overview of the national building** stock based, as appropriate, on statistical sampling;
- Identification of **cost-effective approaches to renovations** relevant to the building type and climatic zone;
- **Policies and measures to stimulate cost-effective deep renovations** of buildings, including staged deep renovations;
- A **forward-looking perspective to guide investment decisions** of individuals, the construction industry and financial institutions;
- An **evidence-based estimate of expected energy savings and wider benefits.**

A first version of the strategy shall be published by 30 April 2014 and updated every three years thereafter.

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No strategy submitted
The ten examined strategies
Countries not examined
Brussels Capital Region

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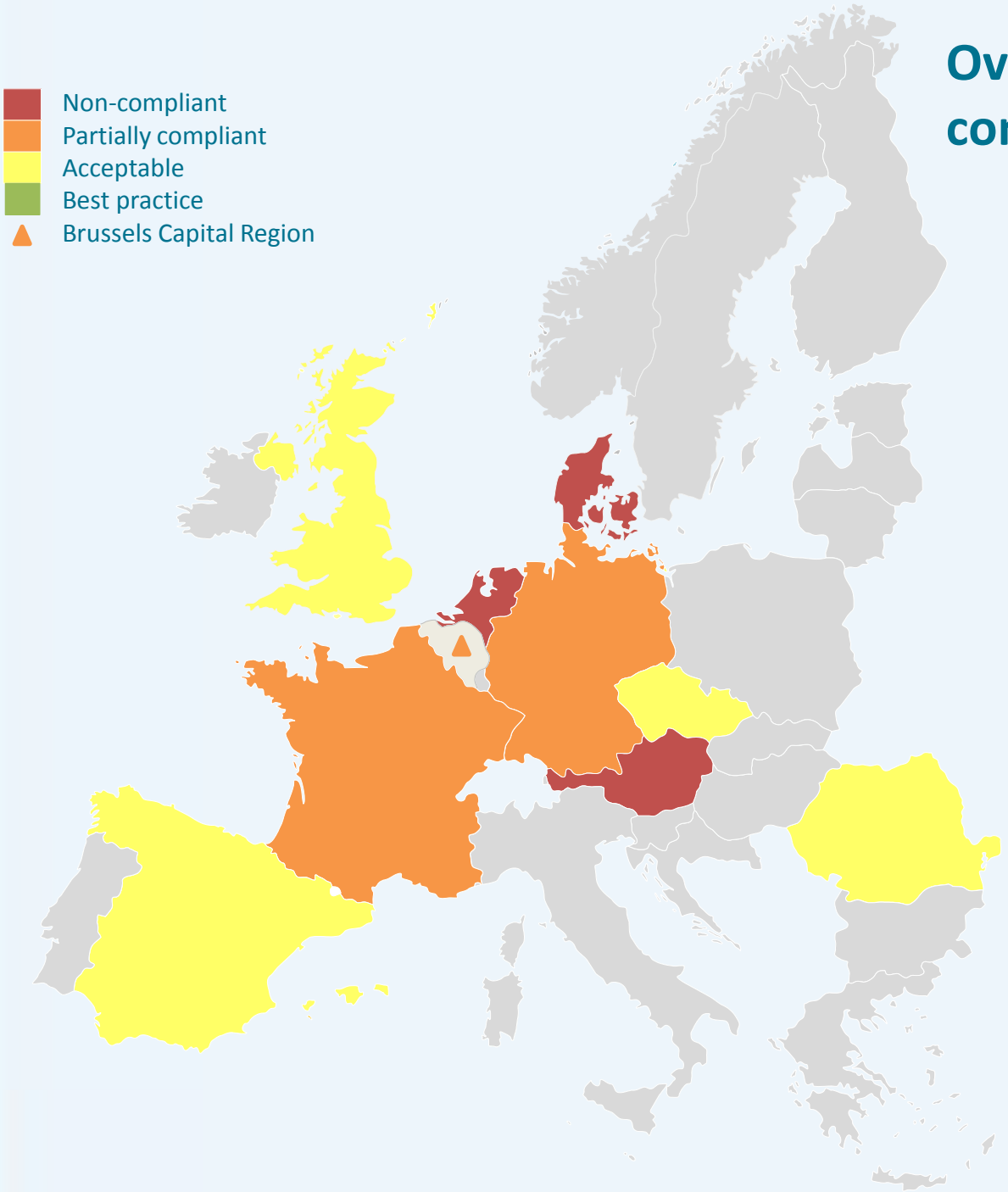
Overall level of compliance with Article 4



Strategies do not set a clear, strategic path for the renovation of national building stocks.

N.B. No strategies were considered “best practice”.

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Recommendations

Stakeholder involvement: valuable input (improved quality and easier delivery and implementation)

Building stock: detailed breakdown is fundamental for next steps in the strategy (ideally online)

Cost-effective approaches to renovation: summary of cost-optimality analysis (c.f. EC guidelines)

Policies: holistic coverage and geared towards achieving deep renovations

Forward-looking perspective: long-term signals, roadmap (key dates, targets, milestones).

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Recommendations

Recognition of building market dynamics, adapted to needs, desires and motivations of building owners.

Quantification of benefits (economic impact, societal benefits and environmental improvements)

Healthy buildings: daylight, ventilation and good IAQ for well-being of occupants

Implementation and enforcement of strategies at MS and EU level to ensure practical achievement

Ongoing review and revision: update and resubmission every 3 years

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