

Introduction to Energy Labelling of Buildings

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Sustainable Energy Ireland



- Statutory authority, established 1 May 2002
- Promoting and assisting sustainable energy:
 - Delivering programmes as directed by Government
 - Providing policy advice to Government
 - Networking with market players
- Five teams including Built Environment
- 42 full time staff, statutory Board
- Reporting to Dept. of Communications, Marine & Natural Resources

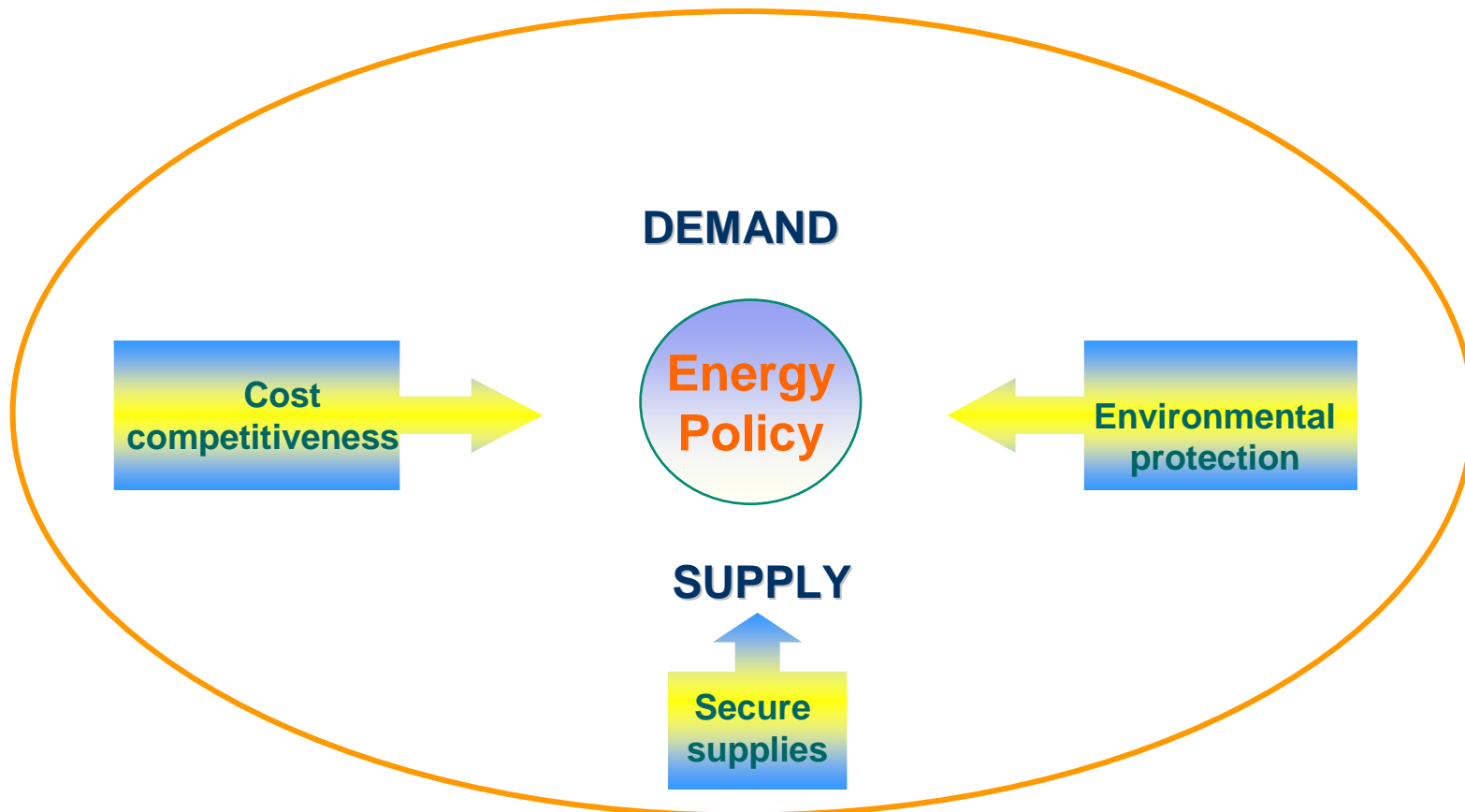
Presentation

- Background
- Requirements of Energy Performance of Buildings Directive (EPBD)
- Key Challenges & Likely Impacts
- European Initiatives
- Irish Perspective
- Further Information

Background

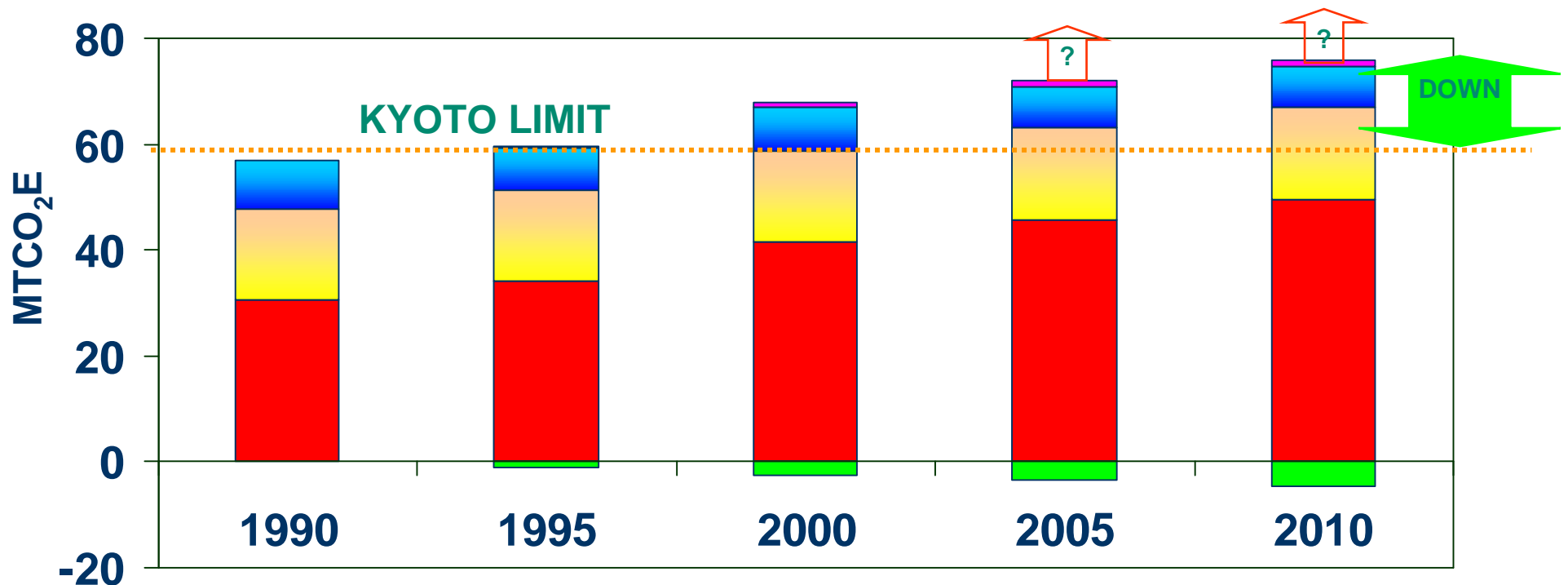
EU Energy Policy: The Key Issues

“SUSTAINABILITY”



Kyoto Protocol & Ireland's Greenhouse Gas Emissions

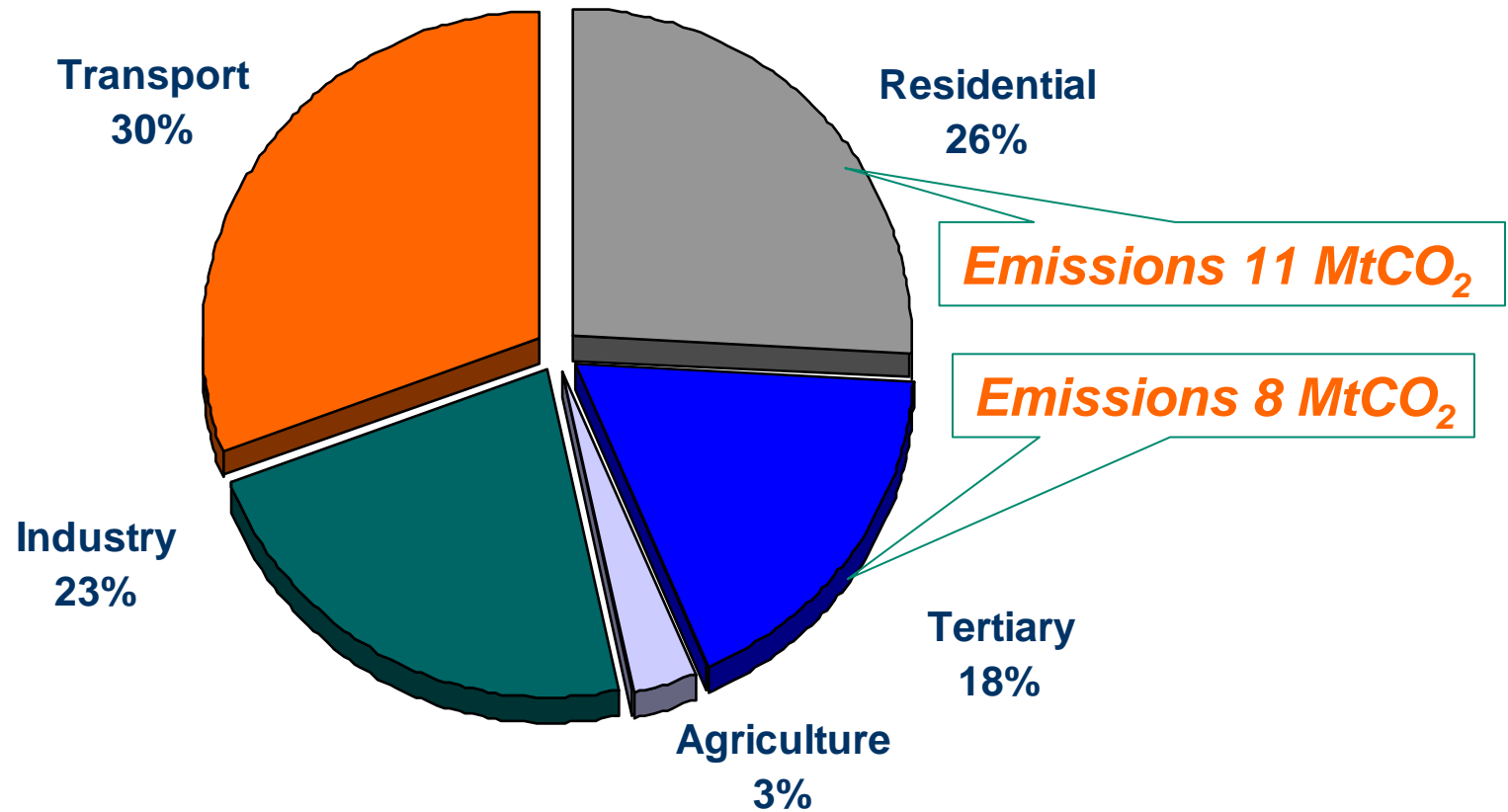
■ Carbon Dioxide ■ Methane ■ Nitrous Oxide
■ Industrial gases ■ Forestry Sinks



Energy Use in Buildings

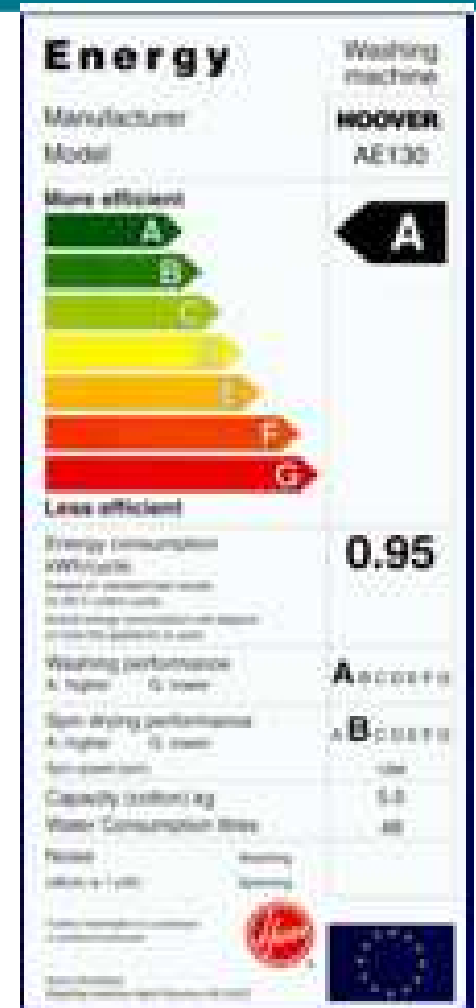
- Buildings use 40% of Europe's Energy
- Buildings give rise to 40% of Europe's energy related CO₂ emissions
- Large energy savings potential in buildings
- Estimated at >20% (EU Action Plan)

Ireland: Breakdown of energy related CO₂ emissions, 2002



Energy Labelling & Market Transformation

- EU labelling of household appliances
- Increased energy awareness and informed consumer choice
- Better products at no greater cost to the consumer
- 30% increase in efficiency of new refrigerators and freezers 1996 - 2000
- By 2000, 50% of cold appliances were Class A in some markets



Energy Performance in Buildings Directive (EPBD)

- Proposed Directive – May 2001
- Published in EU Journal – 4 Jan. 2003
- Transpose into National Law – 4 Jan. 2006
- Possible 3 Year extension until 4 Jan. 2009 for Articles 7, 8 & 9 due to lack of qualified accredited experts
- Tight timescale



Requirements of the EPBD

Main Requirements (1)

- Framework for calculation methodology
- Minimum energy performance requirements for new build and major renovations
- New buildings >1000m² to consider feasibility of alternative energy systems
- Energy certification (rating) of buildings with Advisory Report

Main Requirements (2)

- “Public Buildings” >1000m² must display energy certificate in a prominent place
- Inspection of air conditioning systems and possibly boilers
- Certification and inspection by qualified and/or accredited experts
- Must be carried out in an “independent manner”

Article 7 – Energy Performance Certificate



- Energy Performance Certificate to be provided when buildings constructed, sold or rented
- Valid for 10 years maximum
- Common/representative certificates for apartments or units in blocks
- Will enable consumer to compare & assess energy performance
- Will provide recommendations for energy improvements (Advisory Report)
- Large “Public Buildings” must display certificate & may display climatic factors

Articles 8 & 9 - Inspection of Boilers & Air Conditioning Systems



Article 8

- Regular inspection of boilers (>20kW using non-renewable liquid or solid fuel)
- Boilers >100KW - Inspection every 2 years (4 years for gas)
- Inspection of heating installations with boiler >20kW and >15 years old
- **OR** provide advice on boiler replacement, etc.

Article 9

- Regular inspection of air conditioning systems (>12kW)

Key Challenges & Likely Impacts

Key Challenges

Methodology

- Calculation and survey methodology (new Vs existing, residential Vs non-residential)
- Repeatability (data capture, assumptions, modelling)
- Credibility (Quality Assurance)
- Differentiation between buildings
- Advisory Report & product databases
- Ease of use for assessors
- Easily understood & useful for consumers

Residential Sector



Source: Energy Saving Trust

Non-Residential Sector



*Source: Energy Saving Trust
Freeimages.co.uk*

Key Challenges

Training & QA

- Training and certifying a large number of independent experts for energy rating and inspections
- Residential market energy rating – estimate 170,000 transactions/yr, requiring up to 2,000 assessors
- Possibly less than 1 weeks training for energy rating of residential buildings (pre-qualifications will be required)
- Engineers, Surveyors, Architects, Building Services Engineers, etc. will be well placed to do this work
- Accreditation and registration schemes
- Auditing of assessors

Key Challenges

ICT Development

- Calculation and survey software
- National Database
- Administration systems

General

- Industry consultation
- Legislation and enforcement
- Cost implications
- Property Market
- Promotion

Likely Impacts

Energy Certificates

- New obligations on building vendors and landlords
- New element (and cost) in conveyancing procedures
- Enable comparison of buildings/dwellings
- Increased awareness of energy performance
- Visible incentive to improve energy efficiency
- Advisory report with list of recommendations

Likely Impacts

New Buildings

- Rating will most likely be done off the plans
- Minimum energy performance standards will be set in Building Regulations
- Energy rating will be provided by the owner to prospective buyers/renters
- Feasibility of alternative energy systems must be considered in large new buildings (>1,000m²)

Likely Impacts

Existing Buildings

- Rating will most likely be based on a building survey
- Energy rating will be provided by the owner to prospective buyers/renters
- No minimum energy performance standards
- Certificate and Advisory Report are for information only (upgrading of building will not be mandatory)

Major Renovations

- Minimum energy performance standards will be set in Building Regulations

Key Challenges



Services

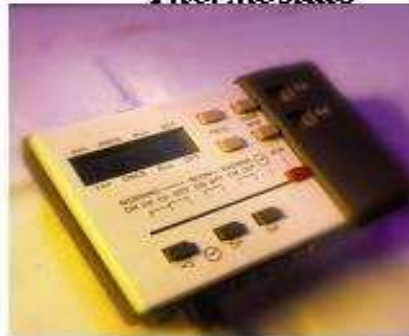
- New demands for training and auditing of assessors
- New demands for energy efficient materials, products and services
- Tools & systems development

Likely Impacts

Condensing Boiler



Thermostats



Loft Insulation



Source: Energy Saving Trust

Likely Impacts

Developers/Architects

- Requirements for upskilling, probably in CPD framework
- Regular review of Building Regulations (5 years)
- Impact on building design, management decisions and property value
- Energy rating as marketing tool
- Demands for higher standards of energy efficiency
- Renovation – retrofitting of energy efficient measures

Likely Impacts

Local Authorities

- Policing Building Regulations Part L
- Ensuring compliance of LA estate newbuild with Part L
- Producing energy rating certificates for rented stock
- New demands for energy assessors and training
- Public display of energy certificates in buildings >1000m² (even if not being sold or rented)
- Possible inspection of boilers and heating systems
- Inspection of air conditioning systems

European Initiatives

European Initiatives – CEN Standards



- CEN given mandate from EC to develop standards for calculating the energy performance of buildings
- 31 Standards proposed
- Draft Outline Standards – March 2004
- Draft Standards (Stage 32 Working Doc.) – July 2004
- Draft Standards (Stage 40 prEN) – April 2005
- CEN Standards are aimed to facilitate implementation of EPBD by Member States (MS)
- **ADOPTION OF ALL, SOME OR NONE OF CEN STANDARDS IS AT DISCRETION OF MSs**

European Initiatives – EDMC



- Energy Demand Management Committee (EDMC)
(Art. 14 Committee)
- SEI and DEHLG represented on EDMC
- CEN Monitoring Sub-Group
- Concerted Action

Irish Perspective

Irish Initiatives



- Implementation is the joint responsibility of:
 - Department of the Environment, Heritage and Local Government (DEHLG)
 - Department of Communications, Marine and Natural Resources (DCMNR)
- EPBD Working Group established (co-ordinated by SEI)
- NSAI Energy Performance Standards Committee established to review CEN Standards

Draft Action Plan

Timescales

- Drawn up by EPBD Working Group
- Submitted for Ministerial Approval in February 05
- Due to be published shortly
- 3 months public consultation period
- Final Action Plan July/August 2005
- Legislation to be introduced in Jan 2006

Draft Action Plan Structure



**Section 1:
Overview, Requirements, Principles, Timescale**

**Section 2:
Policy,
Legislation**

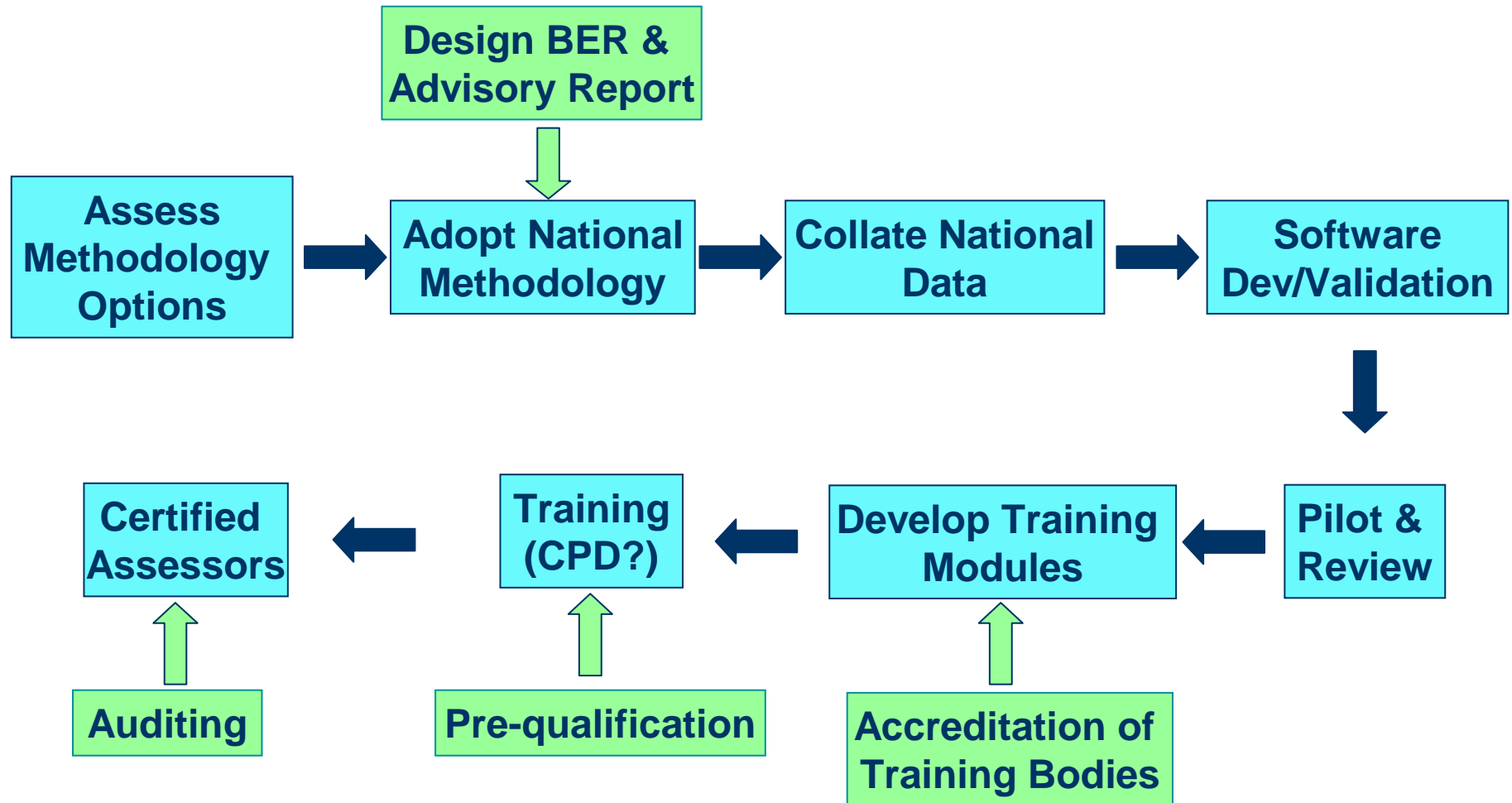
**Section 3:
Institutional
Arrangements**

**Section 4:
Technical Systems
Development**

**Section 5:
Consultation, Promotion, Information**

**Appendix
Timetable for Implementation**

Draft Action Plan – Sequence of Events



Studies

- Review of existing Home Energy Rating Schemes (completed)
- Review of Heat Energy Rating Vs EN832 (completed)
- Review of Options for meeting the EPBD requirements with regard to Boilers (ongoing)
- Review of Calculation and Survey Software Options (ongoing)
- Review of Administration Software Options (ongoing)
- Review of current practices regarding inspection of Air-Conditioning Systems in Ireland (2005)
- National study on feasibility of alternative energy systems in large new buildings (2005)

Further Information

Further Information

- www.sei.ie & www.epbd.ie
- EPBD Webzine (2005)
- www.kyotobuildings.net
- www.diag.co.uk
- www.enper.org
- www.europrosper.org