The Impact of the New Energy Performance Certificates

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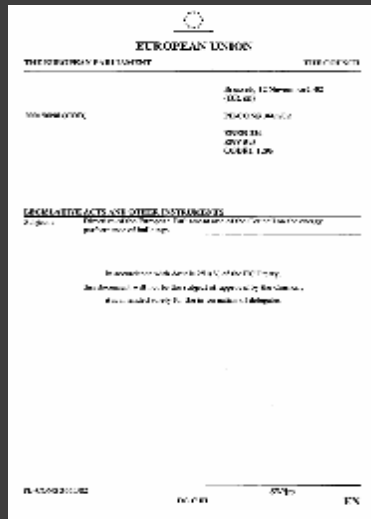
EU Energy Performance of Buildings Directive (EPBD)

Requires Member States to start implementing by 4th Jan 2006, with full implementation of all Articles by Jan 2009:

- Minimum Energy Performance Standards
  - an acceptable methodology for calculating the integrated energy performance of buildings
  - minimum energy performance standards for new buildings
  - minimum energy performance requirements for large **existing** buildings subject to major renovation
- **Energy performance certificates**
  - **provided to prospective purchaser/tenant**
  - **prominent display of the energy certificate in all public buildings and "institutions providing public services"**
- Regular inspection associated with
  - boilers
  - air-conditioning systems



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Using Energy Performance Certificates to Transform a Market

- Existing EU domestic white goods labelling scheme has resulted in demonstrably better products at no greater cost to the consumer
- Articles 7 to10 are designed to build upon the success of the Market Transformation Programme
  - allows prospective purchaser or tenant to make an informed decision
  - will influence the landlord/tenant relationship
  - corporate social responsibility/brand equity implications (e.g.homebuilders, RSL's, public sector, retail, offices, hospitality, etc)
- Phased implementation over 3 year period

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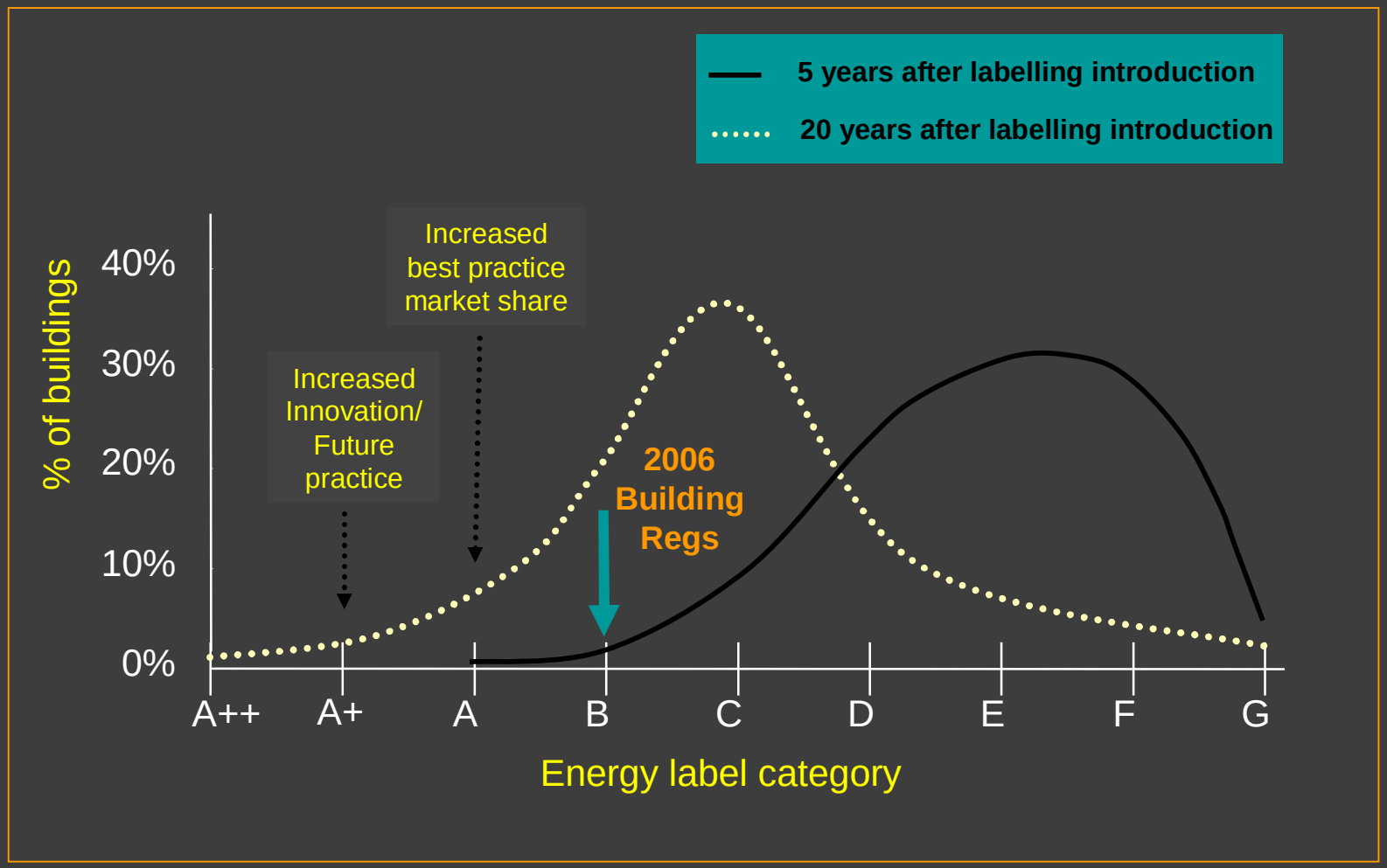
Transforming the market



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EPBD – Energy Performance Certification

- Energy performance certificate (EPC) no less than 10 years old must be made available to prospective buyer or tenant **(N.B. applies to all domestic and commercial buildings with some exceptions e.g. historic buildings**)
- Certificate must show reference values (e.g. current legal standard and benchmarks)
- May include a CO_2 emission indicator
- EPC's must be accompanied by recommendations for cost effective improvement of the energy performance (N.B. existing buildings only)
- Certificate prominently displayed in all public buildings over 1000m² and "by institutions providing public services" (shops, banks, hotels etc ?)
- The provision of an Energy Performance Certificate introduces a new requirement into the property transaction process.

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Energy rating definitions

- New Building Design Rating
  - a calculation of building energy performance carried out as part of building control submission
  - used to show compliance with Part L energy performance requirements
- New Building Asset Rating
  - a calculation of intrinsic energy performance “as-built”
  - rating base line to be the equivalent ‘notional building’
- Existing Building Asset Rating
  - provided to prospective purchaser or tenant
  - based on the intrinsic energy performance of the building
- Operational Rating
  - used for public display/disclosure purposes
  - based on actual building performance/energy management
    - derived from metered energy data and square meterage

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What methods will be used to prove compliance and derive energy performance ratings?

- New Dwellings
  - dwelling carbon emissions rate calculated using SAP 2005
  - elemental and target u-value method no longer permitted
  - worst acceptable standards for building fabric, air permeability etc
- Existing Dwelling
  - assessment using reduced data-set SAP
  - EPBD compliant Energy Report
- New Non-Dwellings
  - CEN based National Calculation Method

    for simple non-dwellings see www.ncm.bre.co.uk
  - Simulation tools for complex buildings
- Existing Non-Dwellings
  - assessment using SBEM which includes inference engine
  - Operational rating for public display

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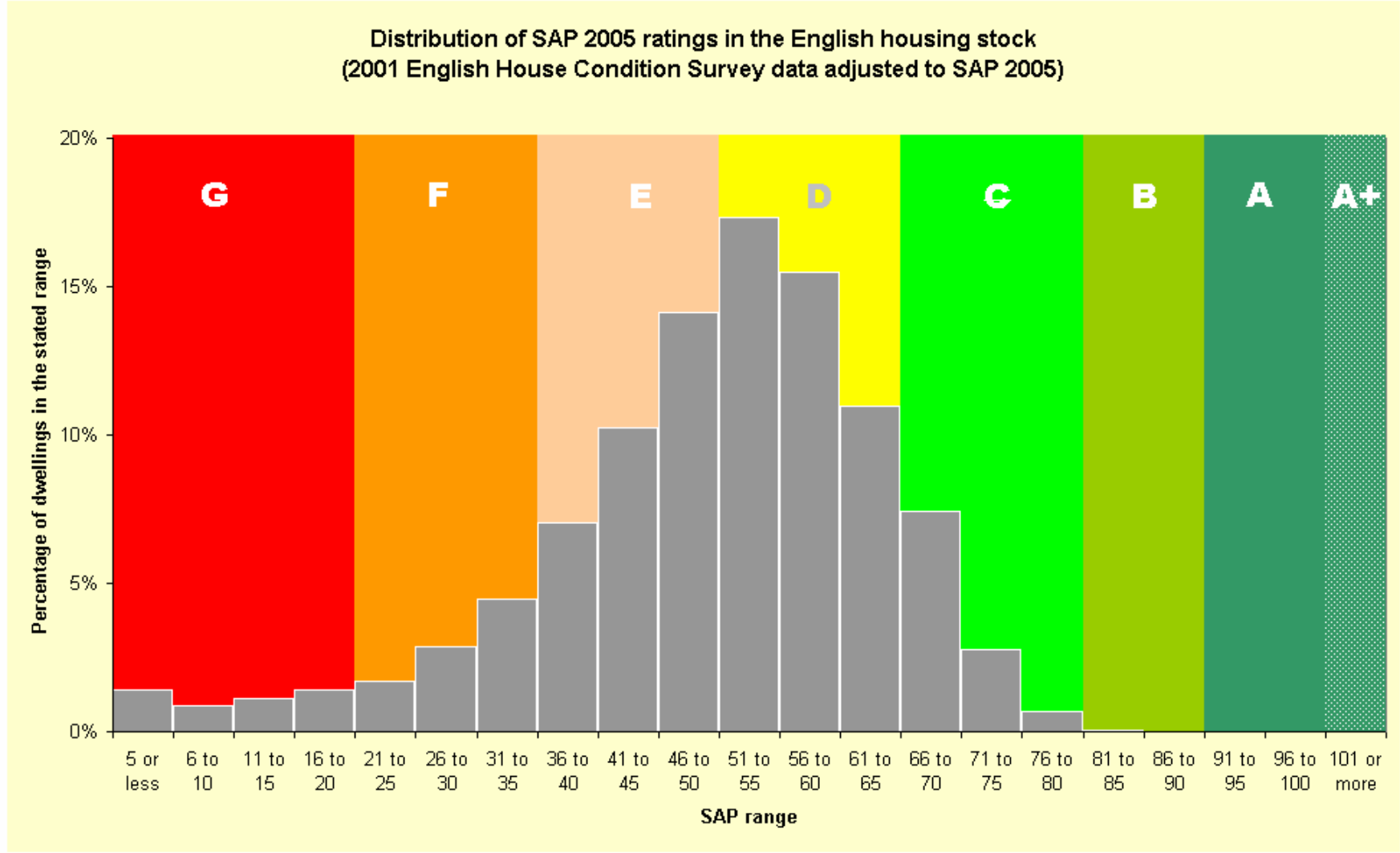
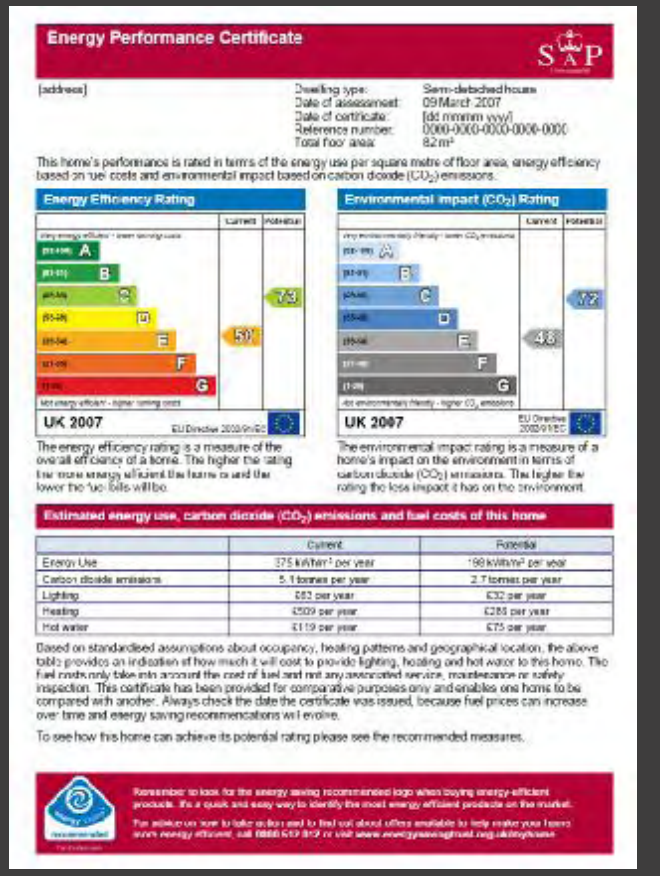
Domestic Building Certification

- Domestic buildings uses SAP 2005 for new build and RD SAP for existing homes
- Distribution of SAP ratings in the stock



Draft of Energy Report for Home Information Pack

- Current draft shown
- Design based upon focus group and market research
- The research highlighted that it is important to keep the label simple to maximise consumer understanding and impact
- A simple A to G label, despite its limitations, is thus likely to be adopted



Energy Performance Certificate

SAP

[address]

Dwelling type: Semi-detached house
Date of assessment: 09 March 2007
Date of certificate: [dd mmmm yyyy]
Reference number: 0000-0000-0000-0000-0000
Total floor area: 82 m²

This home's performance is rated in terms of the energy use per square metre of floor area, energy efficiency based on fuel costs and environmental impact based on carbon dioxide (CO_2) emissions.

Energy Efficiency Rating

	Current	Potential
A		
B		
C		73
D		
E	51	
F		
G		

UK 2007

The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills will be.

Environmental Impact (CO_2) Rating

	Current	Potential
A		
B		
C		72
D		
E	48	
F		
G		

UK 2007

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO_2) emissions. The higher the rating the less impact it has on the environment.

Estimated energy use, carbon dioxide (CO_2) emissions and fuel costs of this home

	Current	Potential
Energy Use	375 kWh/m² per year	199 kWh/m² per year
Carbon dioxide emissions	5.1 tonnes per year	2.7 tonnes per year
Lighting	583 per year	532 per year
Heating	4509 per year	2288 per year
Hot water	1119 per year	675 per year

Based on standardised assumptions about occupancy, heating patterns and geographical location, the above table provides an indication of how much it will cost to provide lighting, heating and hot water to this home. The fuel costs only take into account the cost of fuel and not any associated service, maintenance or safety inspection. This certificate has been provided for comparative purposes only and enables one home to be compared with another. Always check the date the certificate was issued, because fuel prices can increase over time and energy saving recommendations will evolve.

To see how this home can achieve its potential rating please see the recommended measures.

Remember to look for the energy saving recommended logo when buying energy-efficient products. It's a quick and easy way to identify the most energy efficient products on the market.

For advice on how to take action and to find out about offers available to help make your home more energy efficient, call 0800 512 012 or visit www.energysavingtrust.org.uk/myhome

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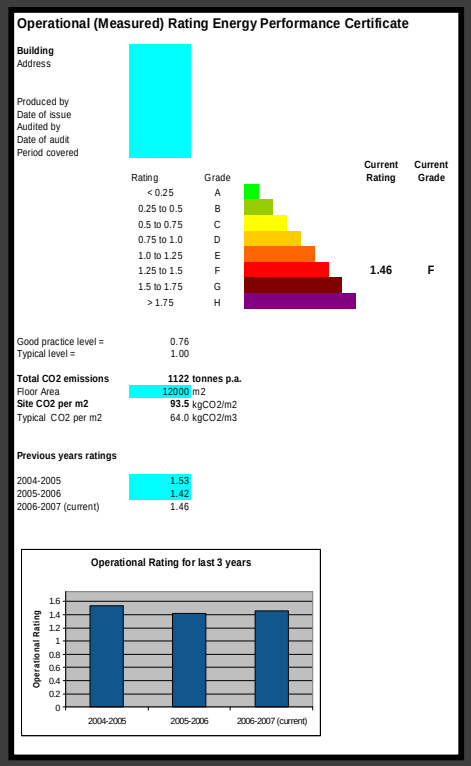
Non-domestic Buildings
Operational Ratings

- Based on measured in-use consumption data
- Includes intrinsic performance, plus effect of:
  - Actual plant performance
  - Actual occupancy, location, etc
  - Actual management practices by occupants at the time
- A comparative rating with respect to benchmarks
- Used to establish scope for improvement
- Must recommend improvement measures
- No theoretical calculation required



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Types of building – public sector display of certificates Article 7.3)

1a	Offices with public visiting – naturally ventilated – open plan
1b	Offices with public visiting – air conditioned – open plan
1c	Town Halls
2	Primary schools
3a	Secondary schools
3b	Sixth form colleges
3c	City academies, tech college etc
4	Leisure centres with swimming pools
5	Leisure centres without swimming pools
6	Libraries
7	Hospital campus public buildings
8	Museums
9	Public halls
10	Law courts
11	University campus public buildings
12	Employment centres

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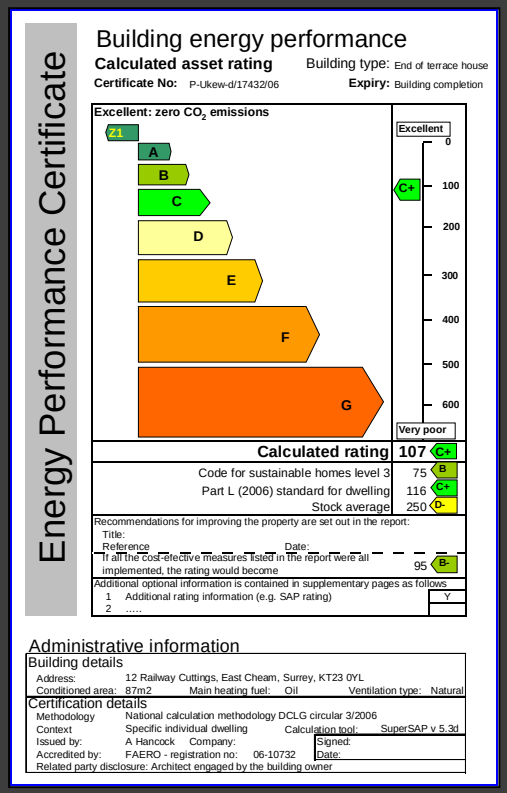
Asset Rating - the calculation methodology

A methodology which calculates ‘integrated energy performance of buildings’ (Art 1),

- Taking account of (Annex):
  - Indoor conditions
  - Fabric performance
  - HVAC and DHW
  - Lighting and daylighting
  - Position and orientation
  - Passive design features
  - Renewable and chp options
- Doesn’t specifically mention controls – but vital
- For a wide range of non-domestic buildings
- For a standardised use of the building (Art 2)



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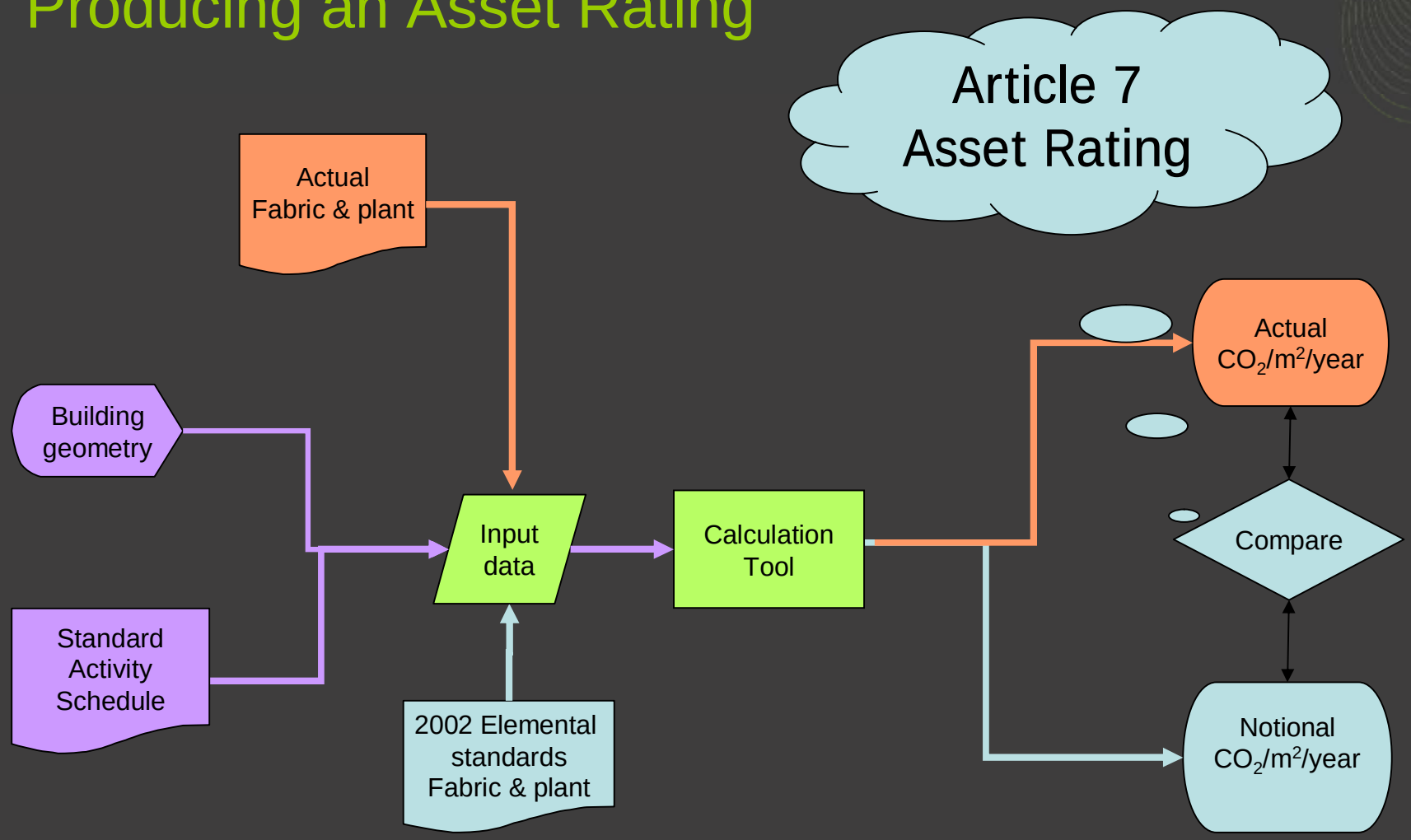
Producing an Asset Rating



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Building Certification – requirements for independent experts

- ODPM Advisory Group established in June 2004 to determine:-
  - Training and qualification requirements
  - Quality assurance framework and policing requirements
  - Professional indemnity/risk issues
- DCLG have appointed Asset Skills to develop National Occupational Standards (NOS) for Energy Assessors. NOS being developed for:-
  - New Build Homes – SAP (Standard Assessment Procedure) methodology
  - Marketed sales of “second hand” homes – RDSAP (Reduced Data Standard Assessment Procedure)
  - Homes when let in both the private rented and social rented sectors (also RDSAP)
  - All other non-domestic property when sold or let – SBEM (Simplified Building Energy Model)
  - Operational ratings of public buildings and probably others with large footfall
  - Air Conditioning systems and central heating boilers

asset skills

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Implications of energy labelling/certification

- Significant new drivers for building clients, owners and operators associated with:-
  - Brand equity/CSR issues
  - Environmental reporting (and disclosure requirements) associated with property portfolios
  - Impact on asset value (positive and negative)
- Introduces new requirement into the property transaction process
- Building energy labelling will make architectural greenwash more difficult
- Greater integration of passive energy systems:-
  - free cooling/heating
  - passive/natural ventilation
  - optimised use of daylight
  - exploiting the thermal mass

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Provisional implementation schedule (current thinking of officials – not yet endorsed or adopted by Ministers)

	Key date
SI laid giving official implementation schedule	Q1 2007
EPCs for construction of new dwellings & marketed sales of all dwellings	June 2007
EPCs for sale of non-marketed dwellings Display certificates for central govt buildings > 1,000m^2	October 2007
EPCs for construction sale or rent for non dwellings >1,000m^2 Commence ac system inspections (cif January 2009)	January 2008
EPCs for sale or rental of non-dwellings > 500m^2 EPCs on construction of all non-dwellings Display certificates for remaining public buildings > 1,000m^2	April 2008
EPCs for rented private sector & social housing dwellings EPCs for sale or rental of all remaining non dwellings	October 2008

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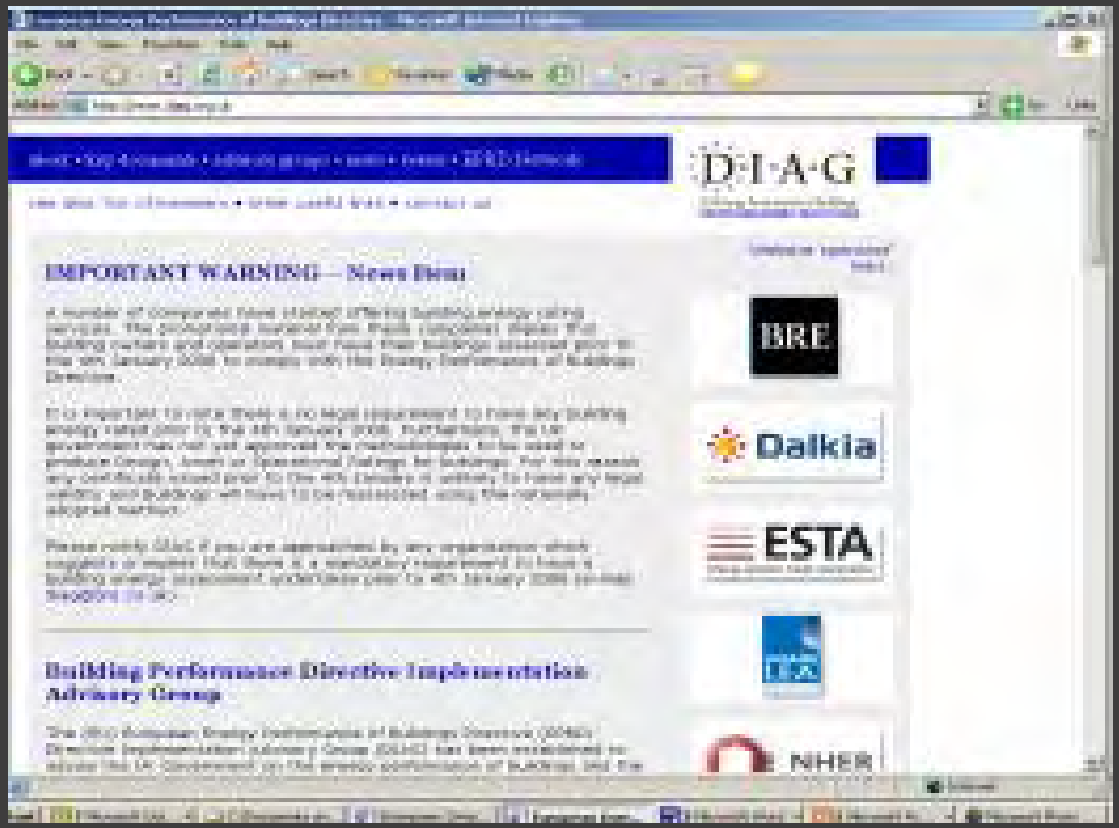
Summary

- To download a copy of the EPBD, Briefing Notes and other key information visit

www.diag.org.uk



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