



International
Energy Agency

The IEA's Policy Pathways Series



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Guidance on delivering the energy efficiency policy recommendations

1. Across sectors

- 1.1 Measures for increasing investment in energy efficiency;
- 1.2 National energy efficiency strategies and goals;
- 1.3 Compliance, monitoring, enforcement and evaluation of energy efficiency measures;
- 1.4 Energy efficiency indicators;
- 1.5 Monitoring and reporting progress with the IEA energy efficiency recommendations themselves.

2. Buildings

- 2.1 Building codes for new buildings;
- 2.2 Passive Energy Houses and Zero Energy Buildings;
- 2.3 Policy packages to promote energy efficiency in existing buildings;
- 2.4 Building certification schemes;
- 2.5 Energy efficiency improvements in glazed areas.

3. Appliances

- 3.1 Mandatory energy performance requirements or labels;
- 3.2 Low-power modes, including standby power, for electronic and networked equipment;
- 3.3 Televisions and “set-top” boxes;
- 3.4 Energy performance test standards and measurement protocols.

4. Lighting

- 4.1 Best practice lighting and the phase-out of incandescent bulbs;
- 4.2 Ensuring least-cost lighting in non-residential buildings and the phase-out of inefficient fuel-based lighting.

5. Transport

- 5.1 Fuel-efficient tyres;
- 5.2 Mandatory fuel efficiency standards for light-duty vehicles;
- 5.3 Fuel economy of heavy-duty vehicles;
- 5.4 Eco-driving.

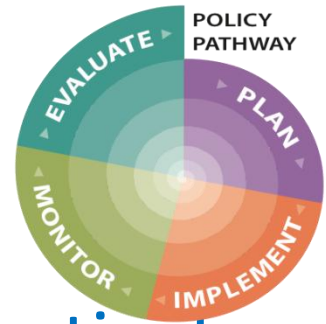
6. Industry

- 6.1 Collection of high quality energy efficiency data for industry;
- 6.2 Energy performance of electric motors;
- 6.3 Assistance in developing energy management capability;
- 6.4 Policy packages to promote energy efficiency in small and medium-sized enterprises.

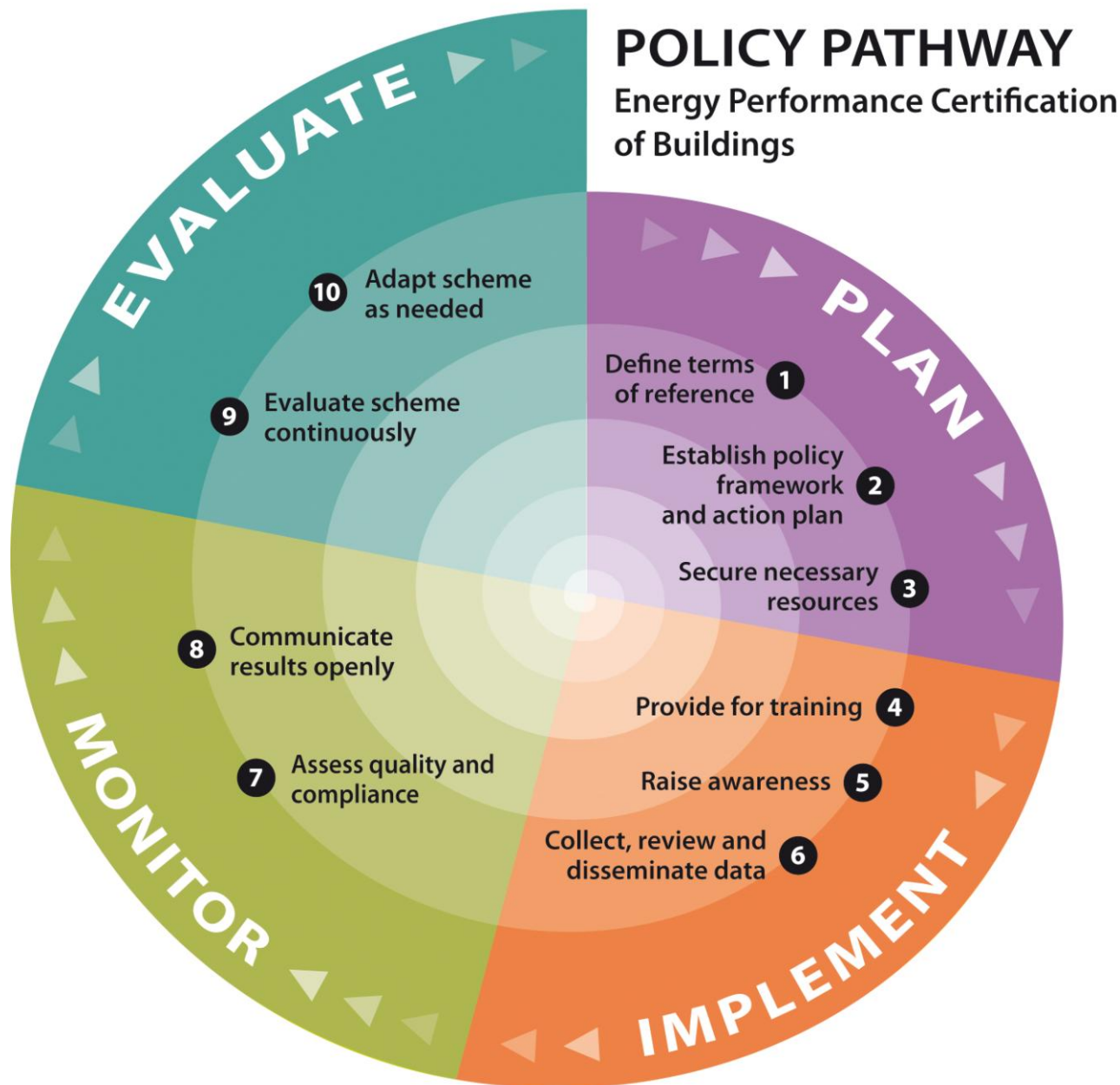
7. Utilities

- 7.1 Utility end-use energy efficiency schemes.

Aims & objectives

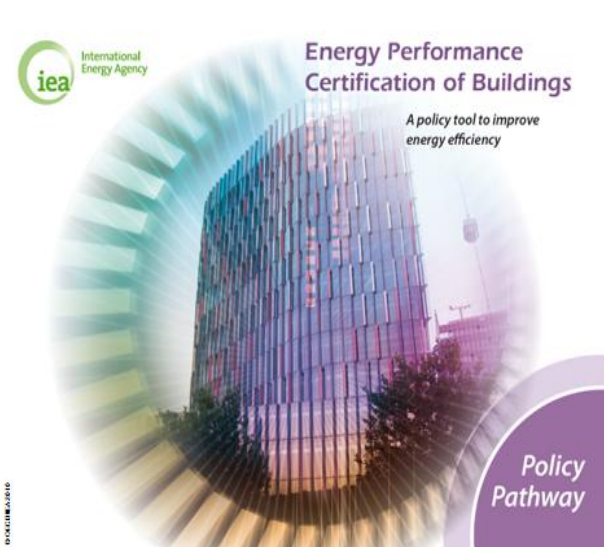


- Assist governments to effectively implement energy efficiency policy
- Identify and communicate proven implementation practices for specific policies
- Over time, to share proven practice for all the policy recommendations



Policy Pathway Series

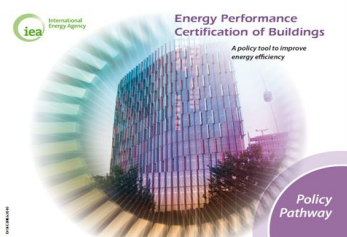
Energy performance
certification of
buildings



Monitoring, verification
and enforcement of
efficient equipment
standards



Energy Performance Certification of Buildings

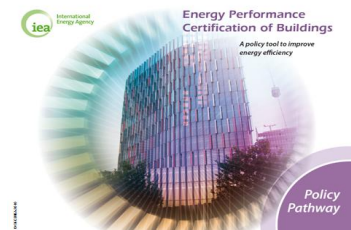


- Very effective tool for promoting energy efficiency in buildings
- In **new** buildings, certification:
 - Ensures compliance with building standards
 - Provides incentives to improve energy efficiency beyond minimum standards
- In **existing** buildings, certification:
 - Incorporates energy efficiency into rental or purchase decisions
 - Provides a marker for energy performance improvement potential

Energy
Performance
Certification
of Buildings

*A policy tool
to improve
energy efficiency*

Voluntary certification



- Most certification around the world is voluntary
- Many voluntary certification schemes are essentially endorsements by credible entities
- Such schemes provide incentives for owners or developers to upgrade energy performance
 - To increase market price
 - To gain market share
- Governments can also implement policies tied to voluntary certification

Voluntary certification: Singapore and US



Energy Smart and Green Mark in Singapore

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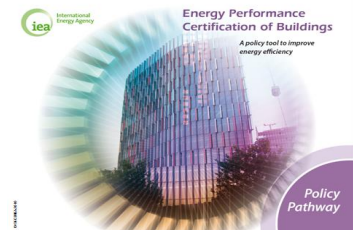


Passive House



US Energy Star

Mandatory performance certification in the EU



- In the EU, buildings energy performance certification is obligatory:
 - For new buildings
 - For transfer of ownership
 - At sale or rental of apartments or units
- Certification label must be displayed for all public buildings.
- Certification label “look and feel” is EU-wide, but performance gradations vary by EU member state
- Portugal and Ireland are examples of good implementation practice

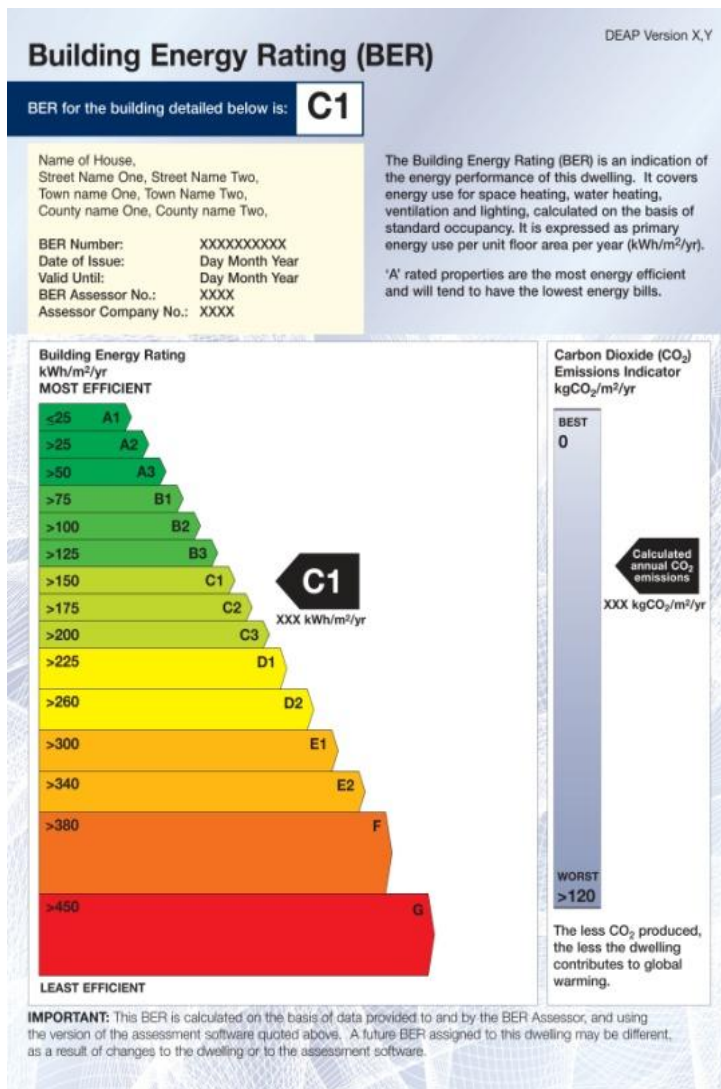
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Building Performance Certification Labels

Energy Performance Certification of Buildings

A policy tool to improve energy efficiency



Certificação Energética e Ar Interior Nº CER 1234567/2007

EDIFÍCIOS

CERTIFICADO DE DESEMPENHO ENERGÉTICO E DA QUALIDADE DO AR INTERIOR

TIPO DE EDIFÍCIO: EDIFÍCIO HABITAÇÃO UNIFAMILIAR / FRACÇÃO AUTÓNOMA DE EDIF. MULTIFAMILIAR

Morada / Situação: Localidade _____ Freguesia _____
Concelho _____ Região _____
Data de emissão do certificado _____ Validade do certificado _____
Nome do perito qualif. _____ Número do perito qualif. _____
Imóvel descrito na _____ Conservatória do Registo Predial de _____
sob o nº _____ Art. matricial nº _____ Fracção autón. _____

Este certificado resulta de uma verificação efectuada ao edifício ou fracção autónoma, por um perito devidamente qualificado para o efeito, em relação aos requisitos previstos no Regulamento das Características de Comportamento Térmico dos Edifícios (RCCTE, Decreto-Lei 80/2008 de 4 de Abril), classificando o imóvel em relação ao seu desempenho energético. Este certificado permite identificar possíveis medidas de melhoria de desempenho aplicáveis à fracção autónoma ou edifício, suas partes e respectivos sistemas energéticos e ventilação, quer no que respeita ao desempenho energético e à qualidade do ar interior.

1. ETIQUETA DE DESEMPENHO ENERGÉTICO

INDICADORES DE DESEMPENHO

Necessidades anuais globais estimadas de energia primária para climatização e águas quentes _____ kgpe/m².ano

Valor limite máximo regulamentar para as necessidades anuais globais de energia primária para climatização e águas quentes (limite inferior da classe B*) _____ kgpe/m².ano

Emissões anuais de gases de efeito estufa associadas à energia primária para climatização e águas quentes _____ toneladas de CO₂ equivalentes por ano

CLASSE ENERGÉTICA

A	A+
B	B+
C	C
D	D
E	E
F	F
G	G

2. DESAGREGAÇÃO DAS NECESSIDADES NOMINAIS DE ENERGIA ÚTIL

Necessidades nominais de energia útil para...	Valor estimado para as condições de conforto térmico de referência	Valor limite regulamentar para as necessidades anuais
Aquecimento	kWh/m ² .ano	kWh/m ² .ano
Arrefecimento	kWh/m ² .ano	kWh/m ² .ano
Preparação das águas quentes sanitárias	kWh/m ² .ano	kWh/m ² .ano


NOTAS EXPLICATIVAS


As necessidades nominais de energia útil correspondem a uma previsão da quantidade de energia que terá de ser consumida por m² de área útil do edifício ou fracção autónoma para manter o edifício nas condições de conforto térmico de referência e para preparação das águas quentes sanitárias necessárias aos ocupantes. Os valores foram calculados para condições convencionais de utilização, admitidas como idênticas para todos os edifícios, de forma a permitir comparações objetivas entre diferentes imóveis. Os consumos reais podem variar bastante dos indicados e dependerem das atitudes e padrões de comportamento dos utilizadores.


As necessidades anuais globais de energia primária (estimadas e valor limite) resultam da conversão das necessidades nominais de energia útil em indigamens equivalentes de petróleo por unidade (kgpe) de área útil do edifício, mediante aplicação de factores de conversão específicos para cada forma de energia utilizada (0,258 kgpe/kWh para electricidade e 0,086 kgpe/kWh para combustíveis sólido, líquido ou gasoso) e tendo em consideração a eficiência dos sistemas adoptados ou, na sua inexistência, sistemas convencionais de referência.

As emissões de CO₂ equivalentes traduzem a quantidade anual estimada de gases de efeito de estufa que podem ser libertados em resultado da conversão de uma quantidade de energia primária igual às respectivas necessidades anuais globais estimadas para o edifício, usando o factor de conversão de 0,0012 toneladas equivalentes de CO₂ por kgpe.

A classe energética resulta de acordo com as necessidades anuais globais estimadas e os limites admissíveis de energia primária para aquecimento, arrefecimento e para preparação das águas quentes sanitárias no edifício ou fracção autónoma. O melhor desempenho corresponde à classe A+, seguido das classes A, B, C e seguintes, até à classe G de pior desempenho. Os edifícios com licenciamento de construção posterior a 4 de Julho de 2008 apenas poderão ter classe energética igual ou superior à B+. Para mais informações sobre o desempenho energético, sobre a qualidade do ar interior e sobre a classificação energética dos edifícios, consulte www.dnec.pt.

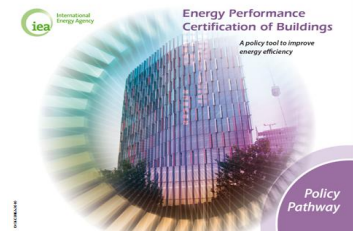
Entidade promotora:  **Adem** Associação para a Energia

Entidade superventora do DCE:  **Direcção Geral de Energia e Geologia**

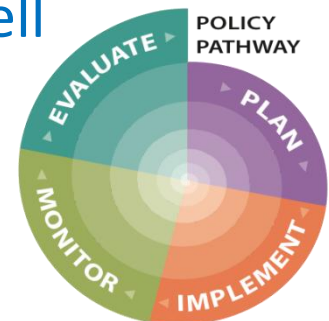
 **Agência Portuguesa do Ambiente**

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Lessons learned



- Key lessons from Irish and Portuguese experience:
 - Identify and resolve key questions early in the process
 - Engage stakeholders in planning
 - Build capacity (e.g., training certification assessors) ahead of implementation
 - Coordinate with other policies (e.g., subsidies and incentives)
- Basic Policy Pathway scheme fits quite well
 - Plan
 - Implement
 - Monitor,
 - Evaluate and Improve






Monitoring, Verification & Enforcement (MV&E) of Equipment Efficiency Standards



- MV&E is critical for successful outcomes of equipment standards and labeling programmes
- The complexities of MV&E are not obvious but need to be communicated
- MV&E requires building new technical and administrative capacity
- MV&E design should:
 - match needs with resources and keep up with evolution of standards programmes;
 - Be tailored to legal requirements and capacity level of both public and private sector.
- International cooperation can be an important shortcut

Equipment efficiency standards and labels

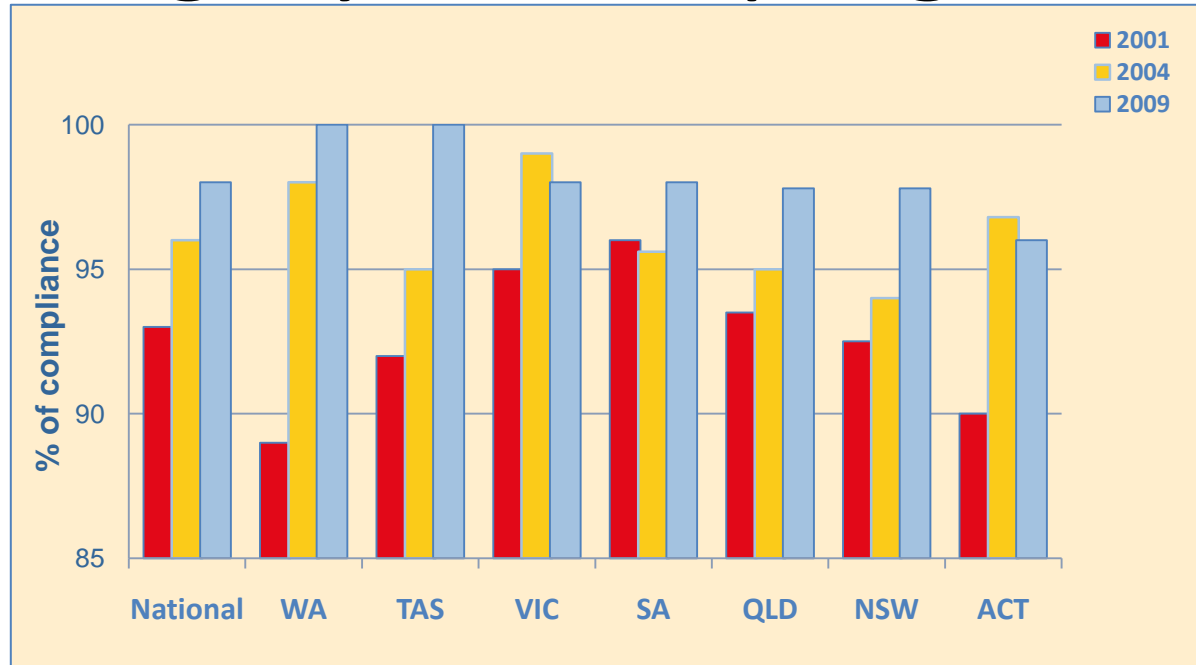


Energy		Fridge-Freezer
Manufacturer Model		
More efficient  Less efficient		A
Energy consumption kWh/year <small>(Based on standard test results for 24h)</small>		325
<small>Actual consumption will depend on how the appliance is used and where it is located</small>		
Fresh food volume l Frozen food volume l		190 126 
Noise <small>(dB(A) re 1 pW)</small> <small>Further information is contained in product brochures</small>		
<small>Norm EN 153 May 1995 Refrigerator Label Directive 94/16/EC</small>		

Policy
Pathway

Standards & labels (S&L) programmes are a common policy tool for promoting energy efficiency in equipment

MV&E activities ensure the integrity of S&L programmes



Benefits of MV&E:

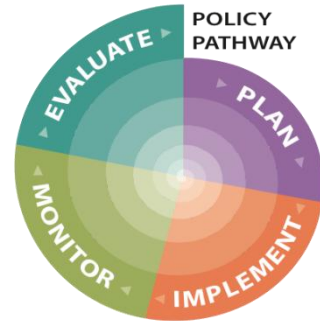
- Assures policy makers expected outcomes will be achieved
- Sends clear signals to domestic and overseas equipment manufactures
- Gives confidence to consumers

Insights so far....

- Many countries have experiences (30 years) with energy efficiency policies and available to provide advice
- Sharing experiences helps leapfrog potential policy pitfalls for countries embarking on process
- Implementation important to achieve energy savings – different ways to get results
- Country feedback positive – Russian translation
- Use lessons learned by others. Don't reinvent the wheel!

*Policy
Pathway*





Schedule of work 2010/2011

Policy Pathway	When?
Public-private partnership for energy efficiency finance	September 2011
Light duty and heavy duty vehicle fuel economy standards	October 2011
Energy efficient windows	November 2011
Energy management in industry	February 2012



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For more information
on Policy Pathways:

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www.iea.org