



Certificação Energética e Ar Interior EDIFÍCIOS

PORTUGAL

Impact, compliance and control of legislation

Developments and trends by July 2009



Contents

- Current status of EPBD's implementation in Portugal
- Impact of EPBD in the national requirements
- Compliance and control

Brief history of EP legislation in Portugal

Certification (D.L. 78/2006) is the new “engineer” for real compliance

Legislative progress



- < 1990:** No thermal and energy requirements for buildings
- 1990:** RCCTE – Regulation on Thermal Behaviour in Building (D.L. 40/90)
- 1998:** RSECE – Regulation on HVAC Systems in Buildings (Dec. Lei 119/98)
- 2006:** New legislative package (April 4th)
- **SCE (new)** - Decree-Law 78/2006
 - **RSECE (revised)** - Decree-Law 79/2006
 - **RCCTE (revised)** - Decree-Law 80/2006

Transposes
Directive 2002/91/CE to
national legislation

Stages of implementation of new EPBD legislation

The revised EP requirements are in force since 2006. Certification entered in three phases.



3 July 2006

- New technical regulations came into force (RCCTE e RSECE)

1 July 2007

- Certification of all new buildings (residential and non-residential) above 1000 m², when requesting a construction permit

1 July 2008

- Certification of all new buildings (residential and non-residential) when requesting a construction permit

1 January 2009

- Certification of all buildings (new and existing) for sale and rental

Certificate means compliance to EP requirements (in new buildings)

What the experts does is...

Check compliance to technical standards and / or calculates performance

Identifies and studies potential recommendations and issues the certificate

RCCTE
Residential



Energy performance
rate (asset rating)

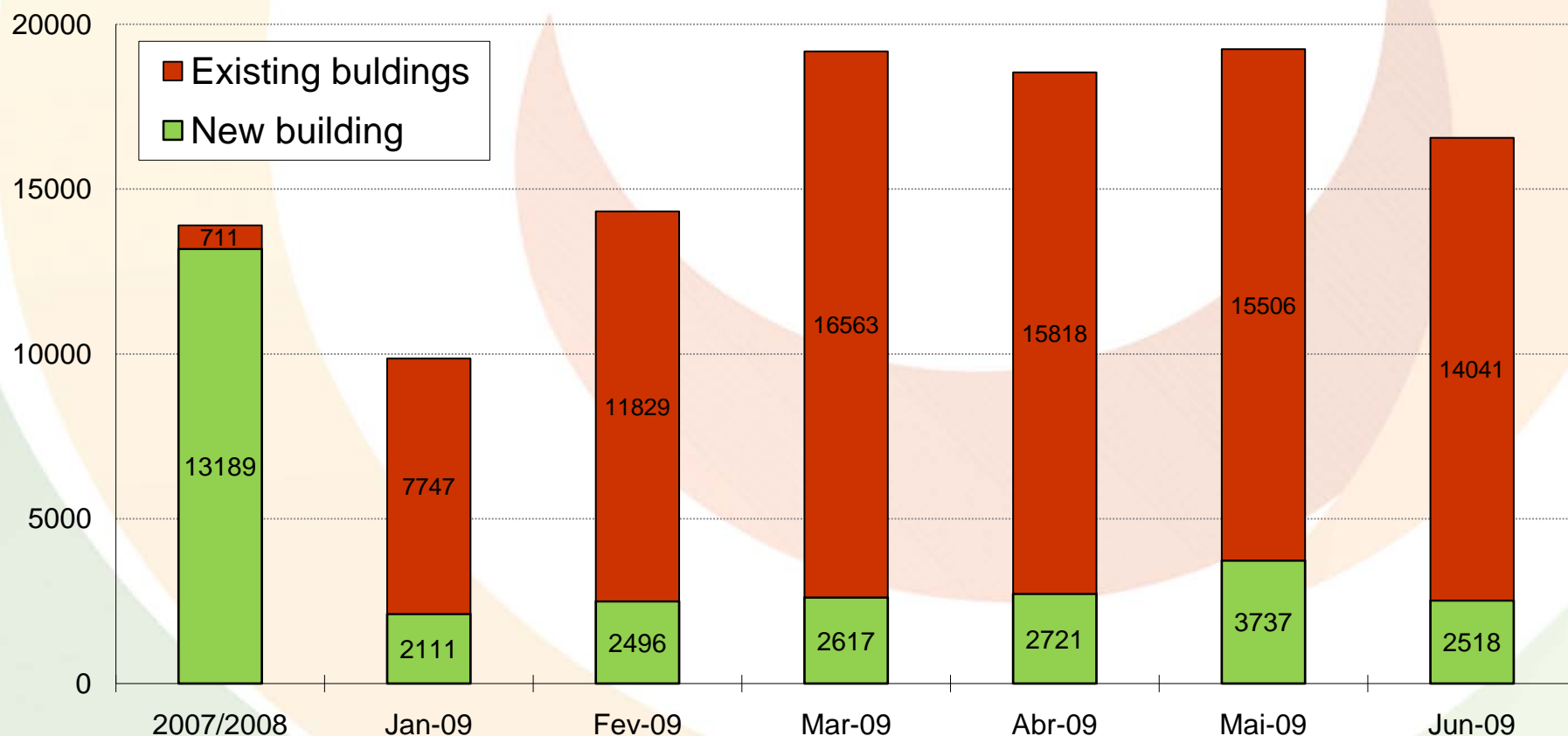
RSECE
Non-residential



Summary table of
recommendations

In Portugal, certification has been adopted by the market

Nearly all licensing (new buildings) and transaction processes (existing buildings) have a certificate





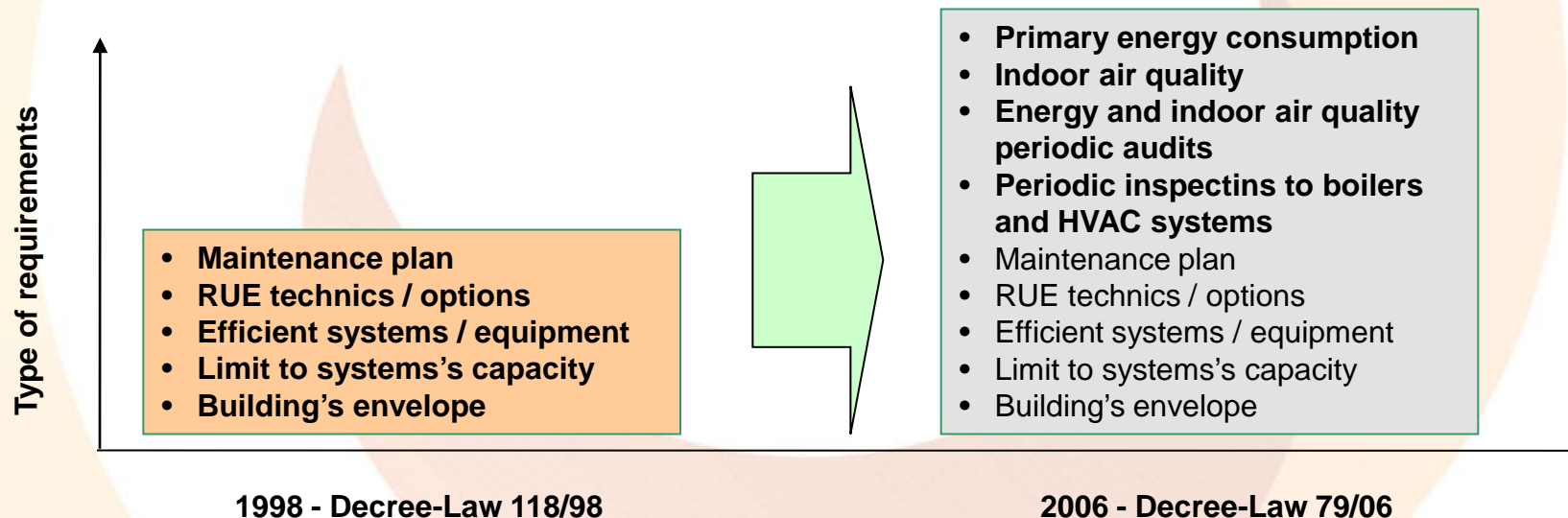
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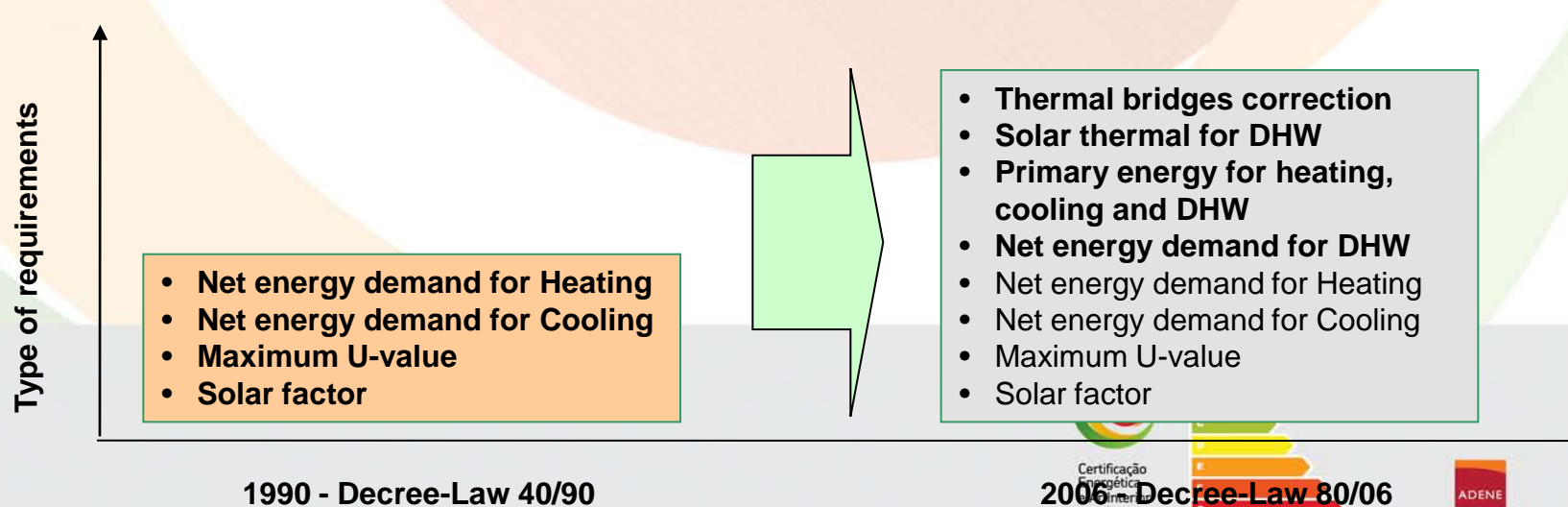
EPBD led to a revision of existing technical regulations

Existing requirements were revised and new requirements were introduced

Non residential / Public



Residential



Some of the current requirements go further than EPBD

Main examples are...



Solar thermal is mandatory for all new residential buildings:

- 1 m² per occupant
- Certified equipment
- Accredited installer
- 6 years maintenance contract

Impact: since 2006, more than 95% of new buildings already predict solar thermal

Minimum values for intake of fresh air in non-residential buildings:

- As m³/(h.occupant) or m²(h/m²)

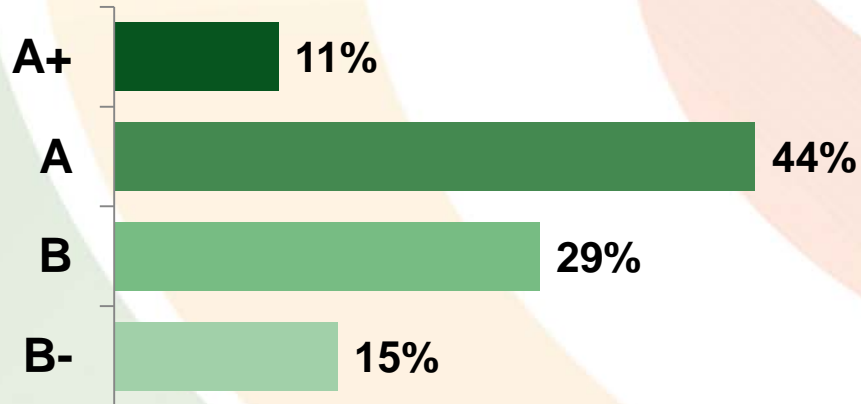
ANEXO VI
Caudais mínimos de ar novo

Tipo de actividade		Caudais mínimos de ar novo	
		[m ³ /(h.occupante)]	[m ² /(h.m ²)]
Residencial	Salas de estar e quartos	30	
Comercial	Salas de espera	30	
	Lojas de comércio		5
	Áreas de armazenamento		5
	Vestibúlos		10
	Supermercados	30	5
Serviços de refeições	Salas de refeições	35	
	Cafetarias	35	35
	Bares, salas de cocktail	35	35
	Sala de preparação de refeições	30	
Empreendimentos turísticos	Quartos/suites	30	
	Corredores/átios		5
Entretenimento	Corredores/átios		5
	Audatório	30	
	Zona do palco, estúdios	30	
	Café/foyer	35	35
	Piscinas		10
	Ginásio	35	
Serviços	Gabinetes	35	5
	Salas de conferências	35	20
	Salas de assembleia	30	20
	Salas de desenho	30	
	Consultórios médicos	35	
	Salas de recepção	30	15
	Salas de computador	30	
	Elevadores		15
Escolas	Salas de aula	30	
	Laboratórios	35	
	Auditórios	30	
	Bibliotecas	30	
	Bares	35	
Hospitais	Quartos	45	
	Áreas de recuperação	30	
	Áreas de terapia	30	

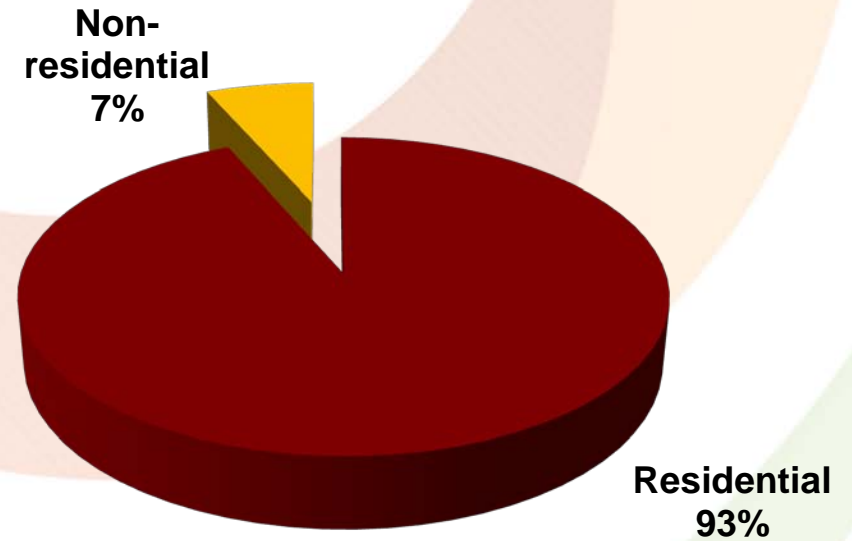
More than half of new buildings have A or A+ rates

Probably there is room to tighten EP requirements in new buildings...

Distribution of energy rates for new buildings (since July 2007)



Distribution of type of new building (since July 2007)



Recommendations are the real added value of a certificate

ADENE instructed experts to pay particular attention to this part of the certificate...

4. PROPOSTAS DE MEDIDAS DE MELHORIA DO DESEMPENHO ENERGÉTICO E DA QUALIDADE DO AR INTERIOR

Sugestões de medidas de melhoria (implementação não obrigatória) (destacadas a negrito aquelas usadas no cálculo da nova classe energética)	Redução anual da factura energética	Custo estimado de investimento	Período de retorno do investimento
1 Colocação de isolamento térmico XPS com 8mm de espessura em paredes.	Q Q	Q Q Q	Q Q
2 Aplicação de caixilharia de alumínio com vidro duplo incolor	Q	Q Q Q	Q
3 Retirar o tecto falso	Q	Q	Q Q Q Q
4 Colocação de um sistema tipo bomba de calor para aquecimento	Q Q	Q Q Q	Q Q Q
5 Colocação de um sistema tipo bomba de calor para arrefecimento	Q Q	Q Q Q	Q Q Q

As medidas de melhoria acima referidas correspondem a sugestões do perito-qualificado na sequência da análise que este realizou ao desempenho energético e da qualidade do ar interior do edifício ou fracção autónoma e não pretendem por em causa as opções e soluções adoptadas pelo(s) arquitecto(s), projectista(s) ou técnico(s) de obra.

Legendas	Redução anual da factura energética	Custo estimado de investimento	Período de retorno do investimento
	Q Q Q Q mais de 1000€/ano	Q Q Q Q mais de 5000€	Q Q Q Q inferior a 5 anos
	Q Q Q entre 500€ e 999€/ano	Q Q Q entre 1000€ e 4999€	Q Q Q entre 5 e 10 anos
	Q Q entre 100€ e 499€/ano	Q Q entre 200€ e 999€	Q Q entre 10 e 15 anos
	Q menos de 100€/ano	Q menos de 200€	Q mais de 15 anos

SE FOREM CONCRETIZADAS TODAS AS MEDIDAS DESTACADAS NA LISTA, A CLASSIFICAÇÃO ENERGÉTICA PODERÁ SUBIR PARA...

B

Pressupostos e observações a considerar na interpretação da informação apresentada:

São apresentadas 4 medidas de melhoria que devem ser tidas em conta, 1ª - aplicação de 8mm isolamento térmico XPS pelo interior das envolventes opacas verticais, 2ª - substituição dos vidros existentes por vidro duplo e caixilharia de alumínio, 3ª - retirar o tecto falso permitindo aumentar a inércia da fracção e 4ª - a introdução de equipamentos de aquecimento e arrefecimento de classificação A+. Esta última medida é a que mais contribui para o aumento da classificação energética da fracção, mas as restantes medidas devem ser tidas em conta em particular o isolamento das envolventes.

Short description of recommendations

Range of values for:

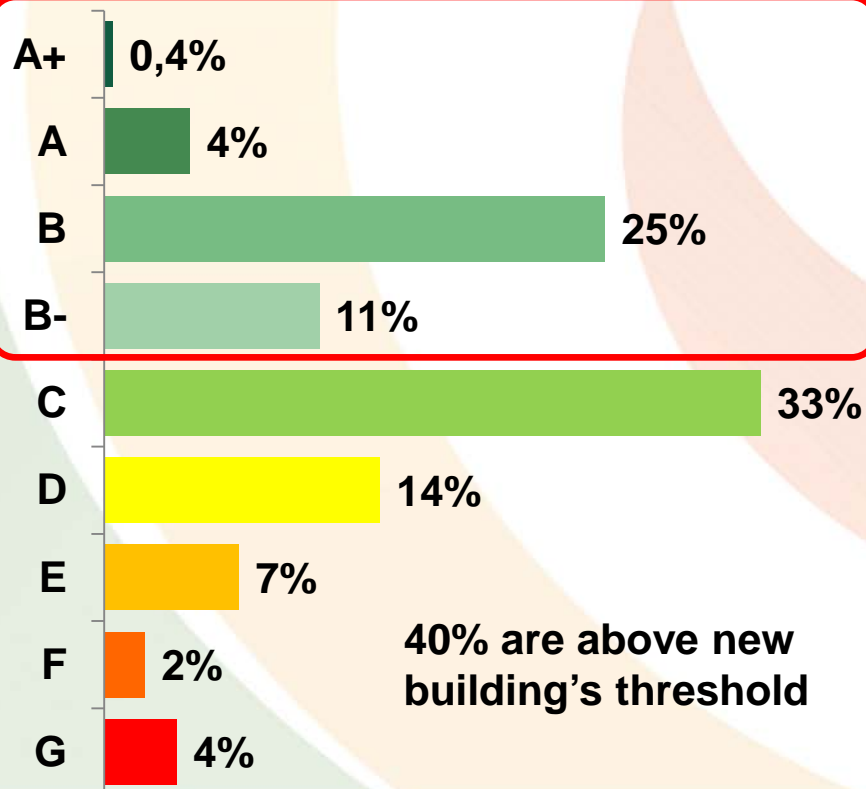
- Reduction of the energy bill
- Estimated cost of investment
- Payback period

New energy rate, if all recommendations marked in bold are implemented

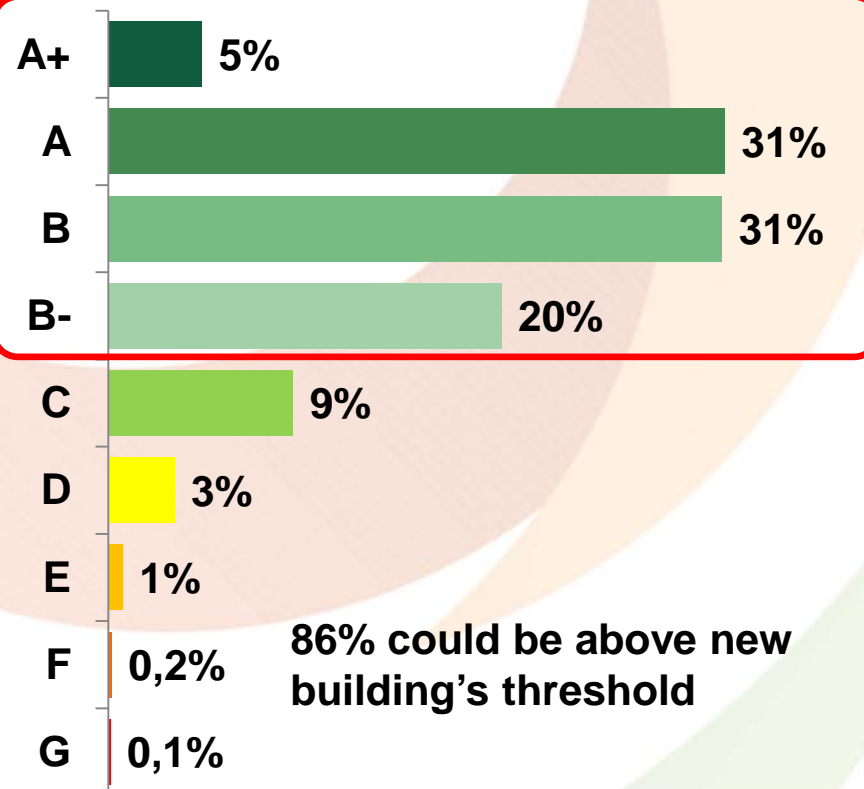
More than 100.000 certificates for existing residential buildings

If all measures that are suggested by the experts on those certificates were implemented then...

Energy rating (real) before recommendations



Energy rating (estimated) after recommendations



About 2/3 of recommendations are on DHW, H and ST systems

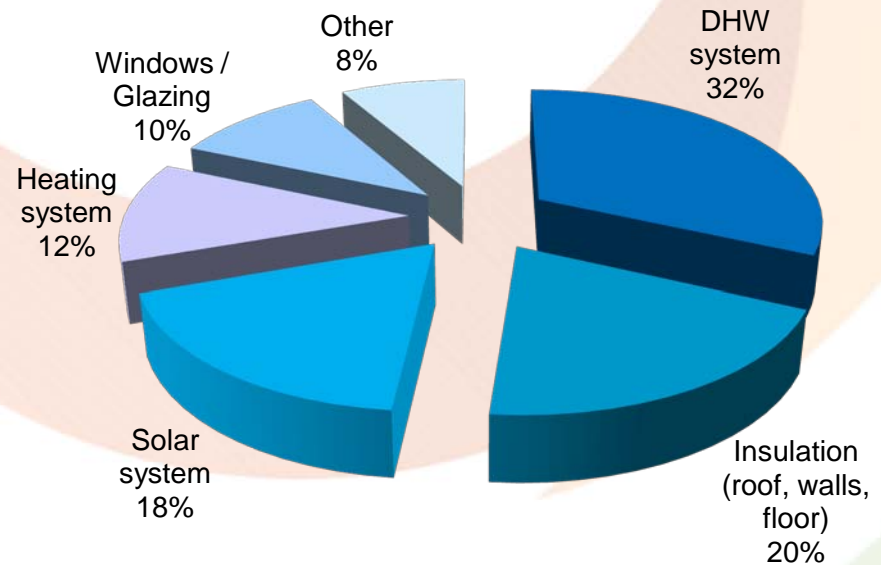
EP rating should give more focus on the quality of the building's envelope...

Information in the certificate

- €1250 to €6500 investment per building
- Average 6 to 11 years payback
- Potential saving of 0,4 toe/year per building (primary energy)

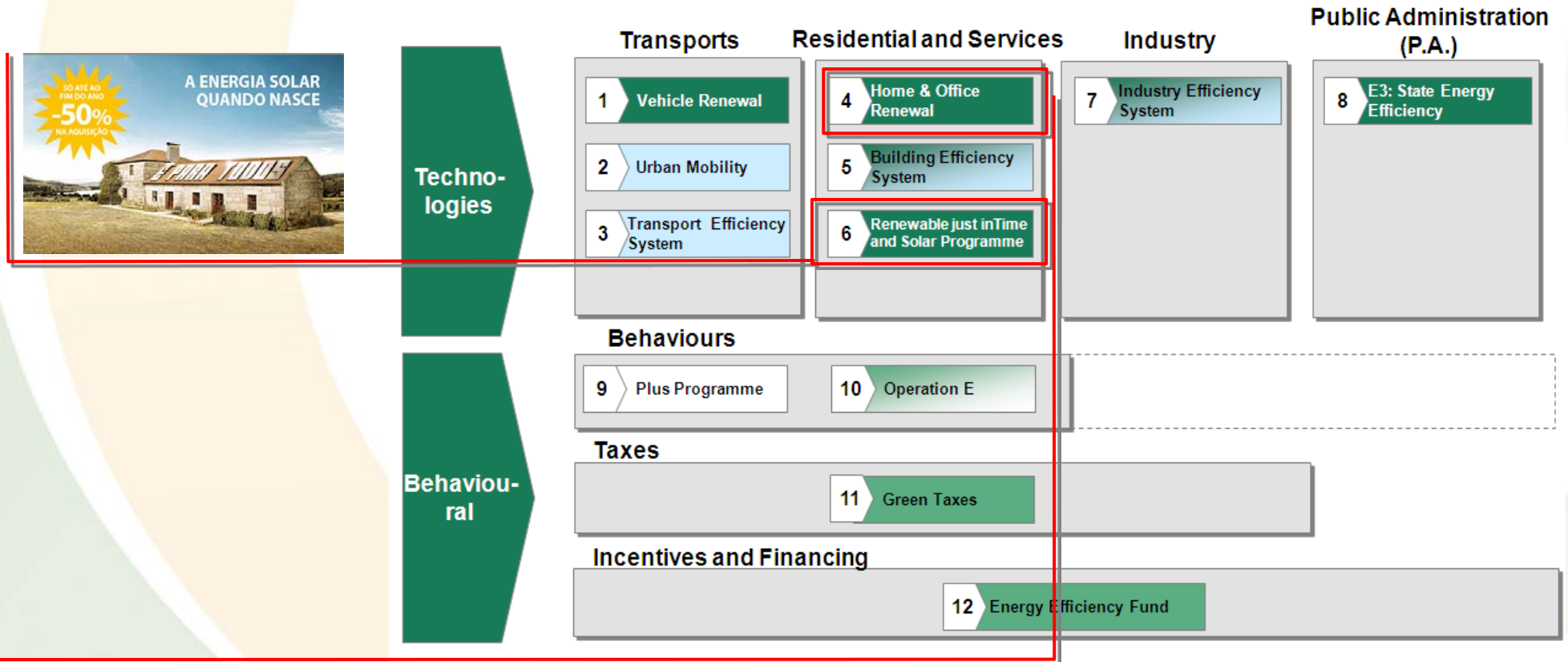
Real energy savings

Expert's recommendations focus on the following areas:



National Action Plan for Energy Efficiency (PNAEE)

So far, the main effort has been on support the introduction of solar thermal technology



• Efficient Window Measure

- Incentives for replacing inefficient glass surfaces
- Involving rehabilitation of approximately 200 thousand homes by 2015



• Thermal insulation measure

- Incentives for thermal insulation
- 100 thousand retrofitted homes by 2015





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Certification is the main driver for compliance

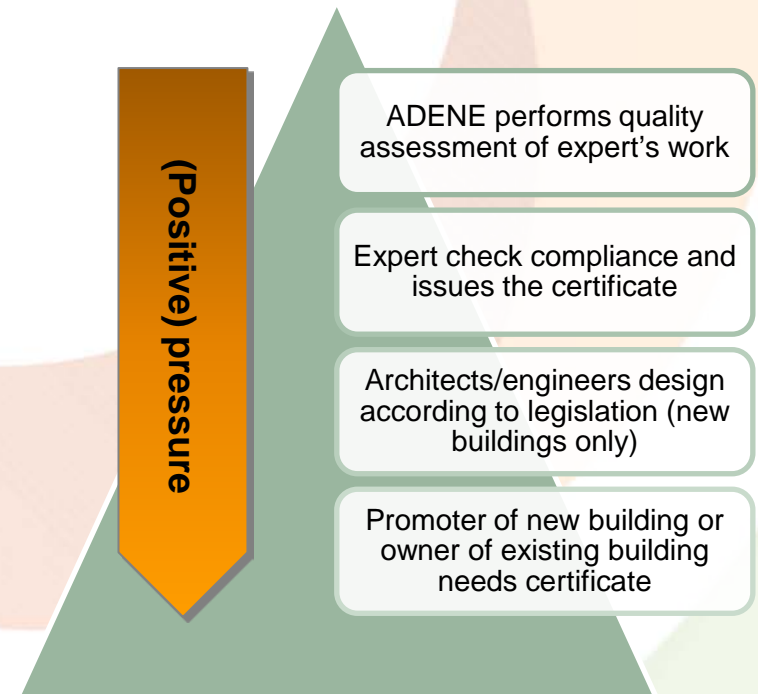
Control of compliance to EP requirements is made by quality assessment of the expert's work

- **New buildings**

- ✓ Number of certificates issued is more than 90% the number of building permits
- ✓ Nearly all municipalities are asking for a valid certificate to prove compliance to legislation
- ✓ Strong promotional effort made by ADENE close to Municipal services and promoters proved to be successful

- **Existing buildings**

- ✓ Although no official statistics are available, nearly full compliance is also estimated
- ✓ This is the result of close communication to market agents (public and private notary, real state agencies, banks, etc.)



Control mechanisms need to be extended

Relating databases will allow fast tracking and action in cases of non-compliance

- **Control mechanisms**

- ✓ Experts: detailed quality assessment and soft checks
- ✓ Currently 2 to 3% of certificated are subjected to quality assessment
- ✓ No other mechanisms are yet in place, although some are being prepared
- ✓ Information from central registry and other databases will be matched and potential lack of compliance will be investigated

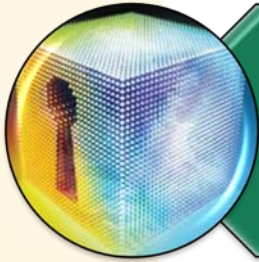
- **Penalties**

- ✓ Applicable to experts and building promoters/owners
- ✓ Values range from €250 to €45 000
- ✓ There are several ongoing processes to apply penalties to qualified experts

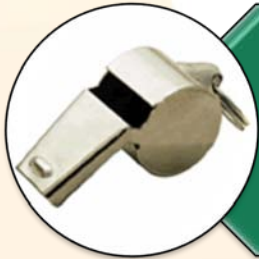


Main upcoming challenges

After setting up the certification and building up its capacity, it's now time to...



Match information from different sources to detect situations of non-compliance to certification and EP requirements



Reinforce the quality control over the expert's work, applying penalties to those that don't perform adequately



Create suitable support mechanisms to promote practical implementation of the recommendations made in the certificates

www.adene.pt

THANKS



“One day all buildings shall be green”