Energy Efficiency International Search Conference - Ankara

EE directives and standardisation

Javier Martínez Belotto

Sustainable Financing Manager
ANESE

Table of contents

1. ANESE
2. Directive 2012/27/UE
3. EU Directive 2018/844
4. Energy Efficiency Target
5. Standardisation Strategies

Table of contents

1. ANESE
    - ANESE, Spanish National ESCO Association
2. Directive 2012/27/UE
3. EU Directive 2018/844
4. Energy Efficiency Target
5. Standardisation Strategies

1. ANESE

Network leader and business hub in energy efficiency and sustainability in Spain

Gold:

TÜVRheinland®

endesa

Silver:

DISA

eDF Fenice

Bronze:

acciona Energía

AZORA

BAXI

BOSCH Innovación para tu vida

Buderus Grupo Bosch

CBRE

Deepki

elecgy

Ferroli

greenward PARTNERS

REPSOL

Schneider Electric

smarkia

Suma Capital

tecnalia Inspiring Business

Telefónica

uponor

wilo

Number:

1. ANESE

Partner classification

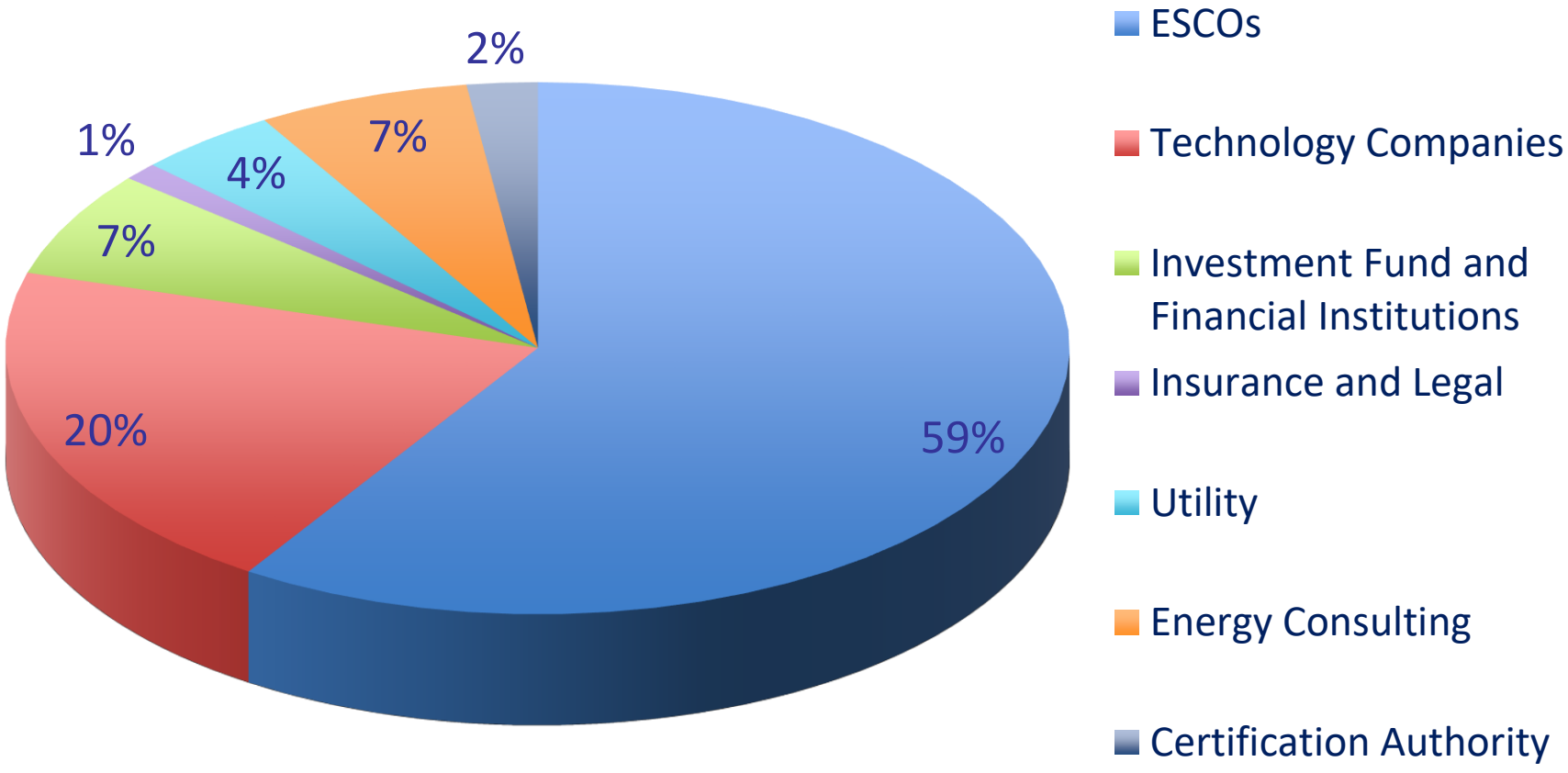


Table of contents

1. ANESE
   - ANESE, Spanish National ESCO Association
2. Directive 2012/27/UE
   - Summary
   - Energy Efficiency obligation schemes
3. EU Directive 2018/844
4. Energy Efficiency Target
5. Standardisation Strategies

2. Directive 2012/27/UE

Energy efficiency obligation schemes (Art. 7)	Consumer information and empowering programme (Art. 12)	Accreditation and certification schemes (Art. 8 and 17)
Energy Efficiency National Fund (€ 203 million in 2019) ✓	Fiscal incentives ?	Auditors ✓
Energy Saving Certificates ✗	Information ✓	Energy services providers ✓
	Audits ✓	
	Use of individual meters or heat cost for measuring consumption of heating	

Spanish Transposition

pending

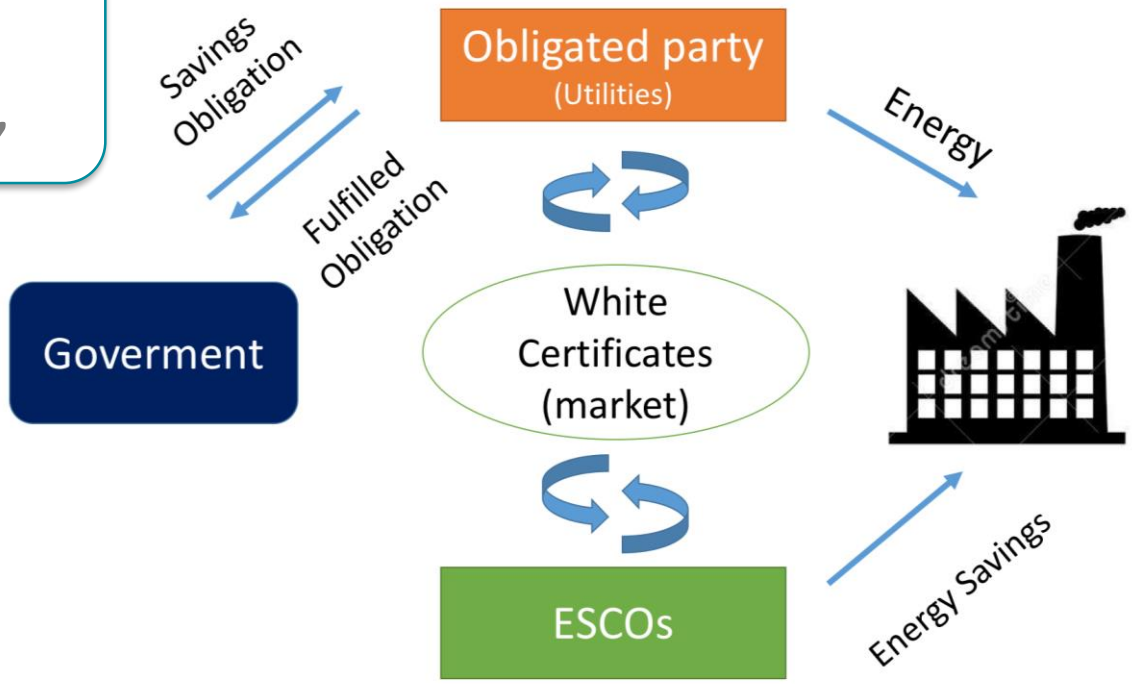
2. Directive 2012/27/UE

Energy efficiency obligation schemes (Art. 7)

Energy Efficiency National Fund (€ 203 million in 2019)

Energy Saving Certificates or "White Certificates"

Each "obligated party" must reduce 1.5 % of annual sales. If not, they must pay a fee.



2. Directive 2012/27/UE

Energy saving certificates or "White certificates"

Italy

France

Saving Target	400 TWh (2017-2020)	220 TWh (2015-2017)
Obligated parties	Gas and electricity utilities with more than 50,000 users (almost 80 companies)	Utilities (almost 2,000 companies)
Entities who can obtain White Certificates	Utilities, ESCOs y final customers.	Obligated parties and public entities
Financial aspects	Cost per Certificate	Cost per reduced kWh
Market	50%	Obligated parties prefer to develop their own measures
Target sectors	Residential, industry and transport	Residential, industry and services

Table of contents

1. ANESE
2. Directive 2012/27/UE
3. EU Directive 2018/844
    - Context
    - Summary
    - Detailed description
4. Energy Efficiency Target
5. Standardisation Strategies

3. EU Directive 2018/844

1. Context

European Union 2030 global commitments

- Reducing **green house gases emissions** at least **40%** in comparison with 1990 levels.
- Increasing **renewable energy consumption** proportion (at least **32%**).
- Achieving **energy savings** (at least **32.5% improvement**).
- Improving: energy security, competitiveness and sustainability.

To achieve these objectives it is necessary to:

- Reviewing and modifying energy efficiency legislation: Directive 2012/27 EU and Directive 2010/31 EU.
- Reinforcing the finance framework with the European Structural and Investment Funds and the European Fund for Strategic Investments

3. EU Directive 2018/844

Decarbonizing the building stock (Art. 2a, 6, …)

- Renovation targets
- Envelope of the buildings

New technologies

- Control systems
- Electric vehicles
- Digitalization

Financing Energy Efficiency (Art. 2a)

- Public and private collaboration
- Project aggregation

Inspections (Art. 14, 15)

Energy Efficiency Certificates

3. EU Directive 2018/844

2. The key role of decarbonizing the building stock for 2050

- The housing stock is responsible of the **36%** of CO2 emissions of the EU. Must be decarbonized to achieve EU 2050.

- Indeed, **50%** of final energy consumption is related to heating and cooling (**80%** of it takes place at the housing stock). **It will be necessary to renovate the house stock at a yearly rate of a 3%.**

Therefore,

Directive 2018/844 obligates European countries to develop long term renovations strategies that:

- Ensure measures to improve energy efficiency will go beyond **envelope renovations acting over all elements and facilities of the buildings** (passive elements, HVAC and lighting facilities),

- Encourage the **development of financing mechanisms** to mobilize energy efficiency improvements in the building stock.

3. EU Directive 2018/844

3. New technologies implementation

Innovation and new technologies enable the global decarbonisation of the economy

- **Automatization and self-regulation devices** for efficiently keeping comfortable indoor conditions.
- Supporting the **development of charging infrastructure for electric-vehicles** and the use of their batteries as energy sources.
- **Electric vehicles** together with a well-developed renewable energy supply to reduce CO2 emissions.
- **Digitalization and IT systems** provide consumers with accurate information about their consumption habits and enable DSO sand TSOs to efficiently manage the grid.

3. EU Directive 2018/844

3. New technologies implementation

Non-residential buildings with HVAC facilities over 290 kW need to be equipped with automatization and control systems before 2025.

- These systems will track, analyse and manage energy consumption and will detect and correct deviations. In addition, these system will enable the **communication between connected technical facilities**.

- That will take place for HVAC facilities with nominal powers higher than **70 kW** and will evaluate their performance and equipment sizing.

- If these facilities are under the "control" of an **Energy Performance Contract** do not need to be inspected.

3. EU Directive 2018/844

3. New technologies implementation

Electromobility requirements for

- **New non-residential buildings** (or for existing one that are going to be highly renovated) with more than **10** parking spaces:
  - **1** charging point for every **10** parking spaces.
  - Installing **electric conduits** for charging points for 1/5 parking spaces.
  - If these buildings are used by **SMEs** these requirements will not be applied.

- **New residential buildings** (or for existing one that are going to be highly renovated) with more than 10 parking spaces:
  - Installing **electric conduits** for charging points every parking space.

3. EU Directive 2018/844

4. Financing Energy Efficiency

It is important to develop strategies to improve financing mechanisms and mobilize investments, such as:

- Public administration and private entities collaborations
- Reliable documents and contracts such as: Energy Efficiency Certificates and Energy Performance Contracts.
- Accesible and efficient advising tools such us “one-stop shops”.
- Aggregating projects in portfolios to be financed.
- Using public funds to leverage more private investments.
- Following Eurostat rules.

3. EU Directive 2018/844

5. Inspections and Energy efficiency certificates essentials

Inspections

- That will take place for **HVAC facilities** with nominal powers higher than **70 kW** and will evaluate their performance and equipment sizing.
- If these facilities are under the "control" of an **Energy Performance Contract** do not need to be inspected.
- If these facilities are equipped with **automatization and control systems** are also exempted.

Energy efficiency certificates

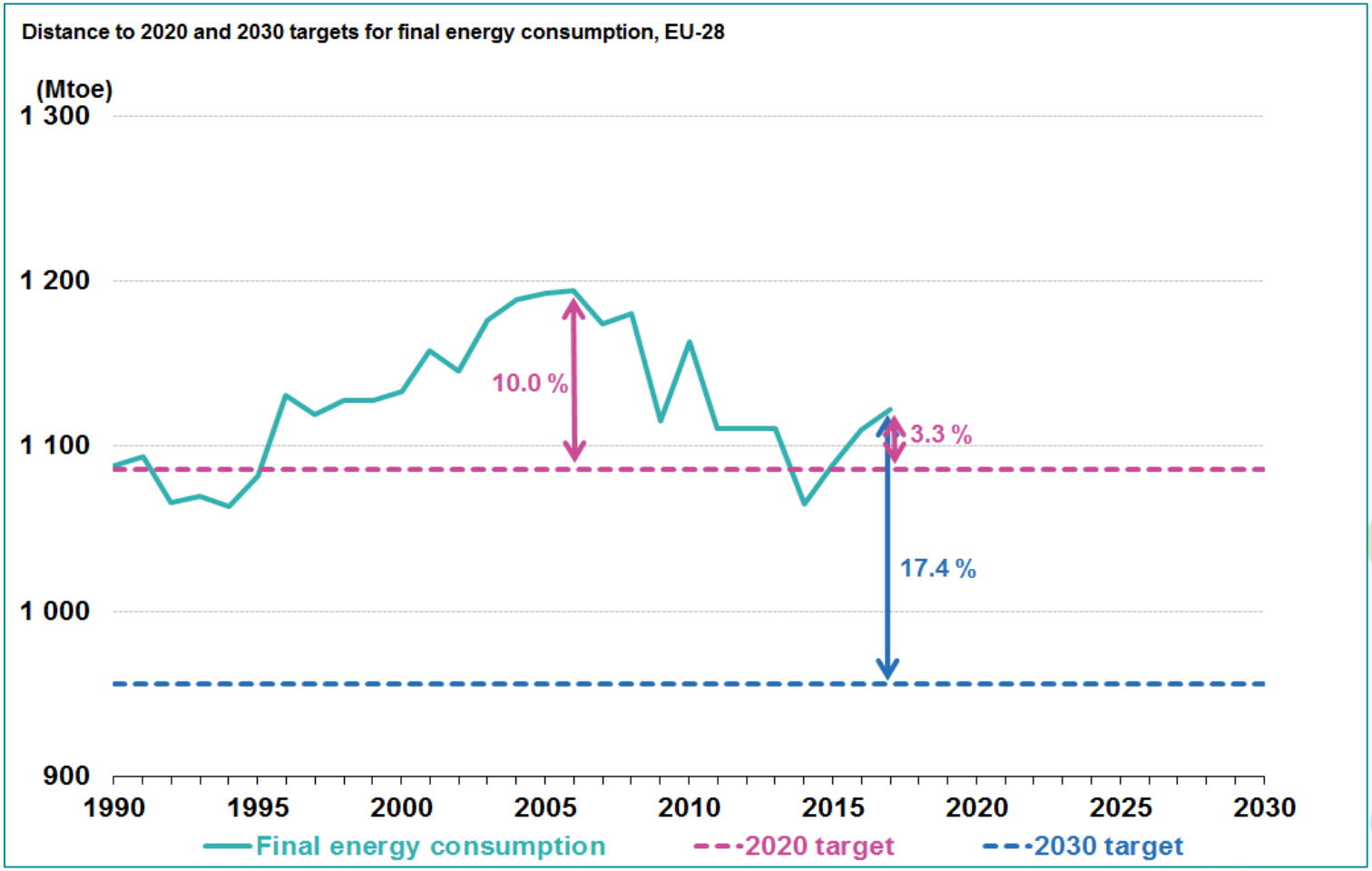
- Guaranteeing **homogeneous calculation parameters** for both, the certification process and the energy efficiency minimum requirements.
- European states must **inform owners and tenants** about energy efficiency certificates.

Table of contents

1. ANESE
2. Directive 2012/27/UE
3. EU Directive 2018/844
4. Energy Efficiency Target
5. Standardisation Strategies

4. Energy Efficiency Target

Progress made by Member States towards the national energy efficiency targets for 2020 and towards the implementation of the Energy Efficiency Directive as required by Article 24(3) of the Energy Efficiency Directive 2012/27/EU



Source: Eurostat

Table of contents

1. ANESE
2. Directive 2012/27/UE
3. EU Directive 2018/844
4. Energy Efficiency Target
5. Standardisation Strategies
   - Energy Efficiency in Buildings
   - Energy Services in Public Administration
   - ESCO Classification
   - KPIs indicators
   - Energy Efficiency Cycle

5. Standardisation Strategies

Why is it essential to work on improving the energy efficiency of buildings?

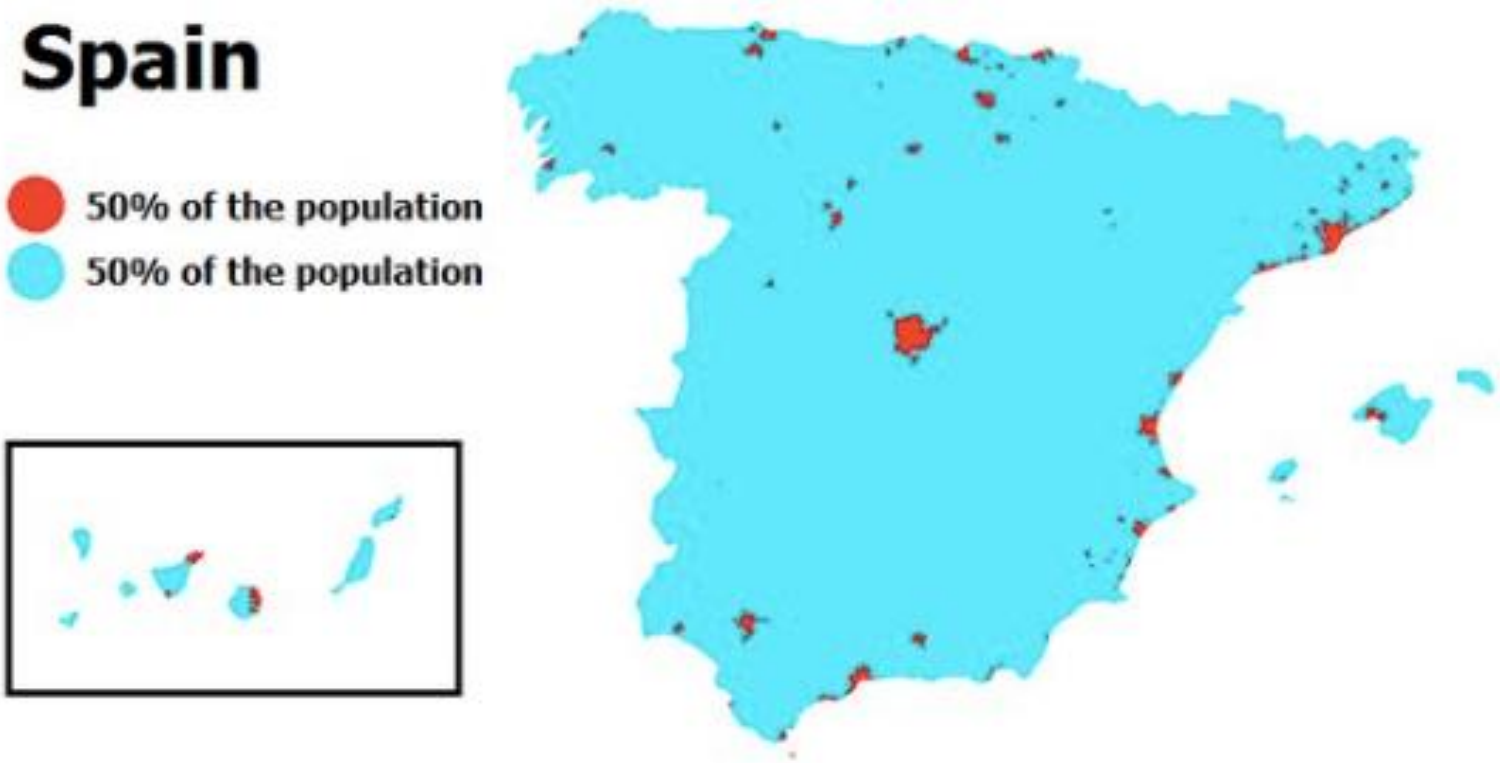
- **55%** of people on our planet live in cities and this percentage is increasing, **68%** in **2050**

- This **55%** of urban inhabitants generate **80%** of world GDP
- In some parts of the world such as the American continent, Europe and Oceania have already reached levels above **70%**

- Cities consume **75%** of the world's resources and energy and generate **80%** of greenhouse gases, occupying only **3%** of the territory on our planet

5. Standardisation Strategies

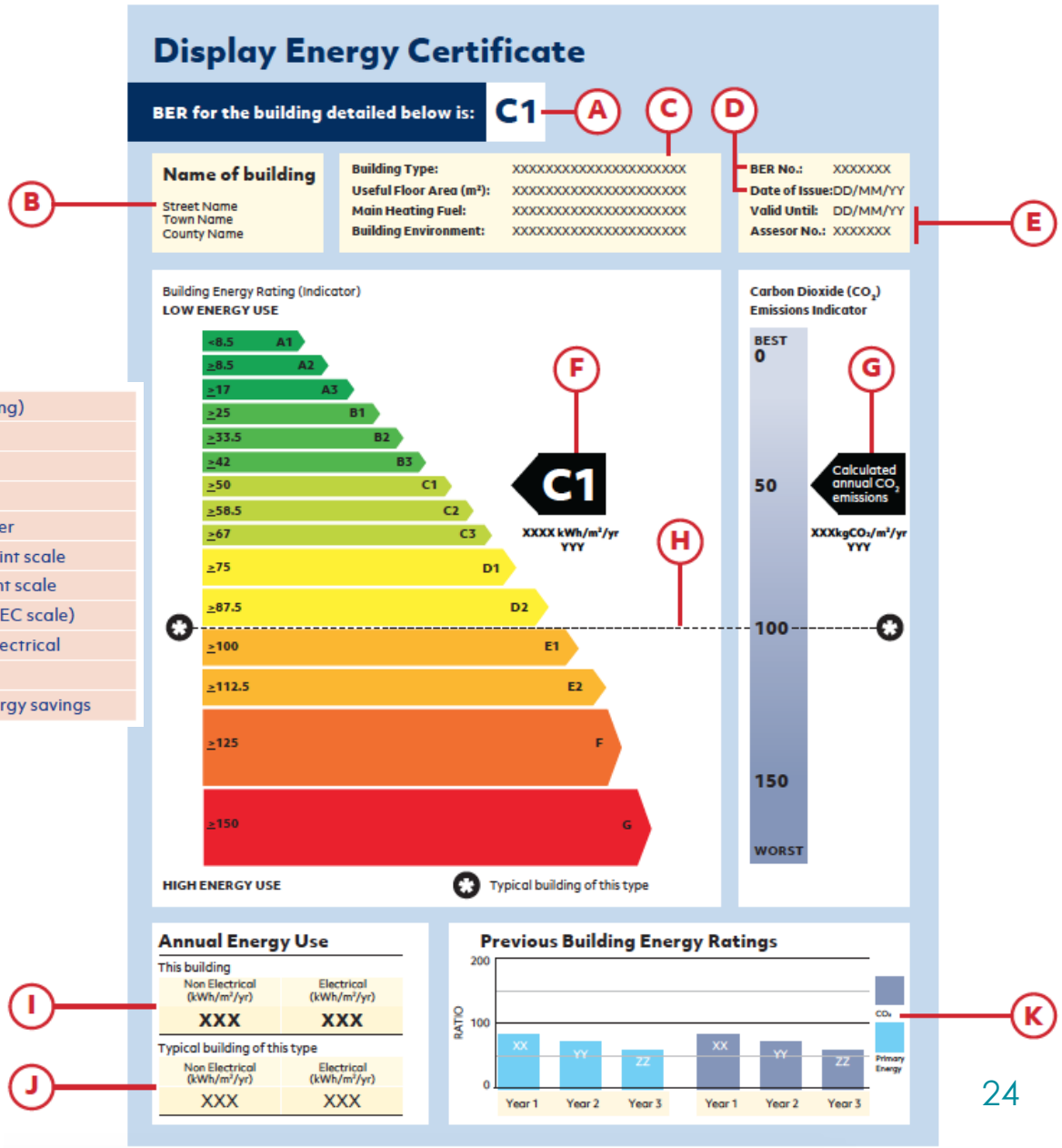
Why is it essential to work on improving the energy efficiency of buildings?



5. Standardisation Strategies

Energy certifications in buildings in Europe

A	Display Energy Certificate rating (also known as Actual Building Energy Rating)
B	Name and address of the building
C	Technical information about the building, e.g. floor area, fuel type, etc
D	Unique Building Energy Rating number
E	Information about the expiry date of DEC and Assessor's Registration Number
F	DEC rating for building and consumption in terms of kWh/m²/yr and DEC point scale
G	CO_2 emissions emitted by the building in terms of kgCO_2/m²/yr and DEC point scale
H	Benchmark for typical building of this type (representing 100 points on the DEC scale)
I	Annual Energy Use of building in kWh/m²/yr in terms of electrical and non-electrical
J	Annual Energy Use of typical building of similar type
K	Comparison of current DEC with previous 2 years to show any significant energy savings



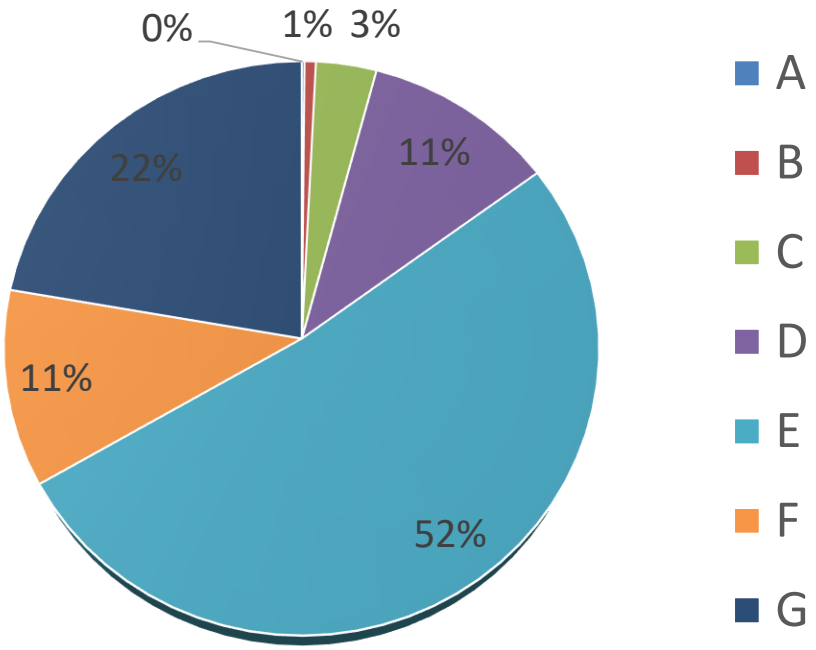
Source: Dublin Energy Agency

5. Standardisation Strategies

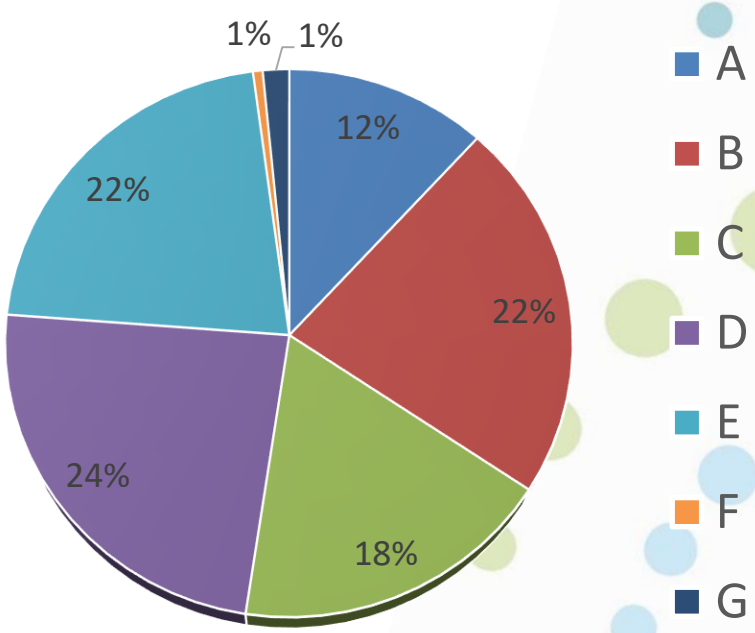
Energy certifications in buildings: Spain

✓ **2,6** million existing apartments were analysed **96%** are D or less (CONSUMPTION)

Existing buildings (CONSUMPTION)
N = 2,606,216



New buildings (EMISSIONS)
N = 40,690



Building clasification in Spain by comsumption (Source: MINETUR, Dec. 2017)

5. Standardisation Strategies

Operational model to tender Energy Services Contract in Public Administration

Problems	Solutions
Quantify Energy Performance Contract as debt	EUROSTAT ✓ Dissemination ✓ Application handbook
Budget structure *(there are many chapters to a single type of contract)*	INTEGRATED BUDGET ✓ Application handbook
Difficulties preparing tenders of energy services with guaranteed energy savings	STANDARIZATION ✓ Standardized contracts ✓ Uniform procedures ✓ Dissemination and training ✓ Technical assistance

5. Standardisation Strategies

Spanish ESCO Classification

There are two certification levels:

- **ESE**, even if they **do not have signed EPC contract**, have proven capabilities to sign EPC contracts and are **ready to do** so.

- **ESE plus**, for those companies that can prove their expertise in providing energy services with **evidence** (i.e.: signed EPC).

ESE plus can be specialised in:

- lighting,
- engines,
- HVAC systems,
- regulation and control systems,
- building renovation,
- industrial applications.

5. Standardisation Strategies

Spanish ESCO Clasification

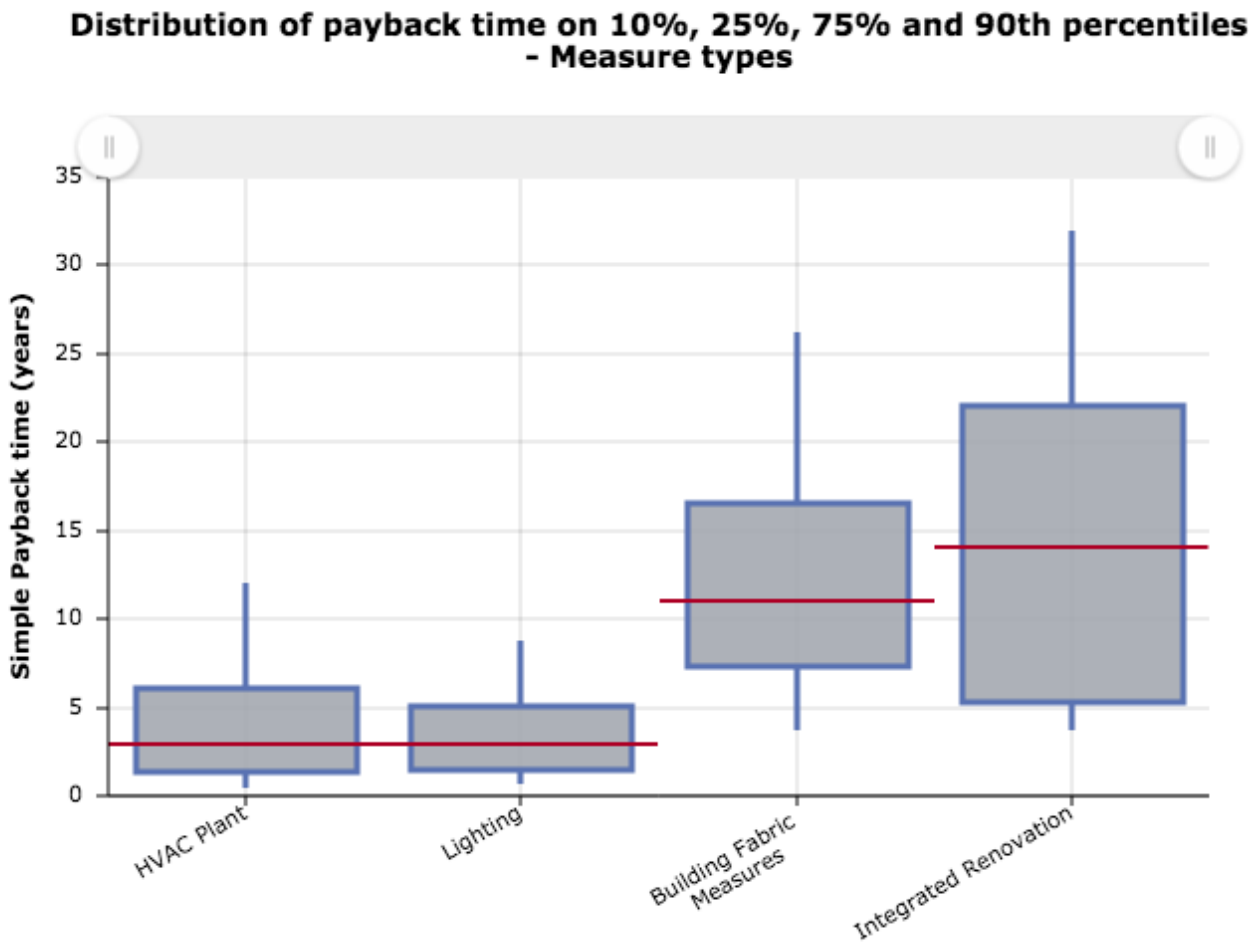
	Certified ESCO according to ANESE's SEAL (ANESE's Certificate/Seal)	Energy Services Company (ESCO) (Directive 2012/27/EU
Provides energy services and improves energy efficiency	yes	yes
The payment of energy services is based (fully or partially) on the performance of energy efficiency improvement.	yes	no
Employees shall have suitable technical or professional qualifications: • University degree. • Certificate of professionalism	yes	yes
Must have technical means to provide the energetic services	yes	yes
Must prove that implements a protocol of measures and verify energy savings during the life time of the project/contract	yes	no
Must be registered in the Official Agency of each country and must have a Civil liability	no	yes
Must be audited to demonstrate that it is qualified to carry out ESCO model of guarantee of savings.	yes	no
Can certify in several technologies, depending on its specialities: Lighting; Engines; Heating and Cooling Systems, Regulation and Control Systems; Thermal Enclosures; Industrial Applications	yes	no

5. Standardisation Strategies

KPIs: the Smart Indicator

De-risking Energy Efficiency Platform (DEEP)

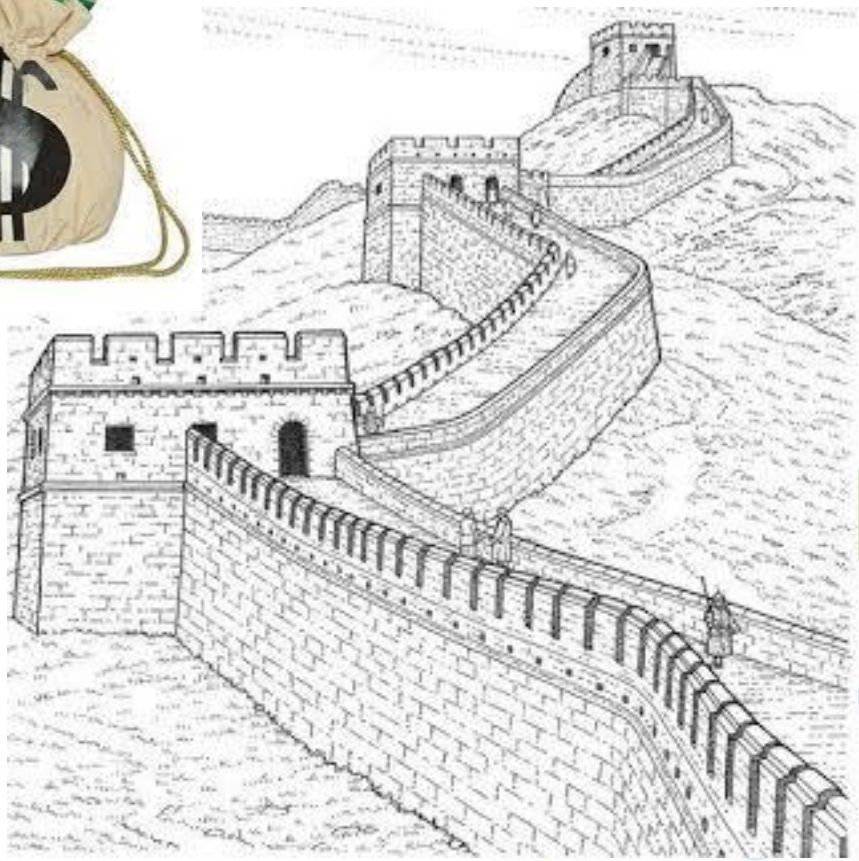
More info: https://deep.eefig.eu/

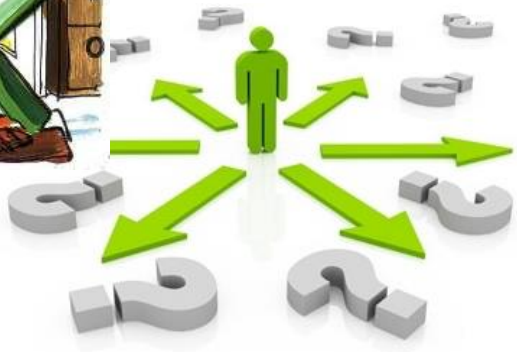


N = 3.500
Source: DEEP

5. Standardisation Strategies

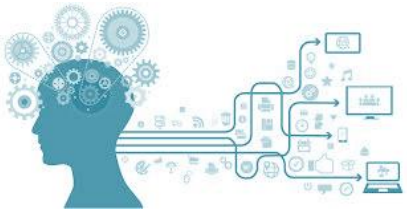
What can we do?



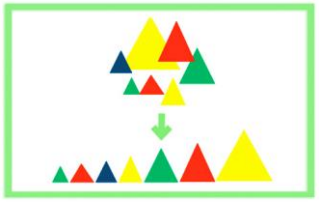


Energy Efficiency Cycle

1 Data collection



2 Data analysis



3 Segmentation Benchmarking

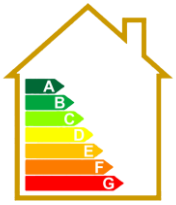
4 Allocate finance and taxes

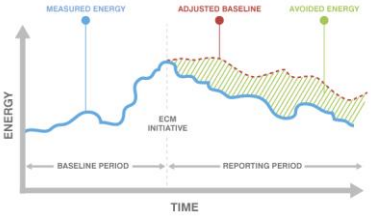
5 Provide the support

&

ESCo

6 CONTROL M&V and Certification





Thank you very much

Javier Martínez Belotto
jmartinez@anese.es
Responsable de Financiación Sostenible

+34 91 737 38 38
C/. Goya, 47, 7º planta
28001 – Madrid