THE GLOBAL ESCO NETWORK
Spanish ESCO Market – trends and barriers

anese
ANESE is the National Association of Energy Services Companies in Spain, we have more than 10 years of experience since our creation and currently we are more than 120 memberships. It is a non-profit business that aims to structure the ESCO market.
Our Memberships

- Business hub (Foster synergy)
- Working groups
- European and Nationals projects
- Publications and organization of events
- Job Board
- Internal and external communication
- Training courses
- Projects offers

Corporate Partner

Gold
BBVA
Deutsche Bank
nedgia

Silver
cciona energia
EDISON NEXT
DISA

Bronze
ABB
ACV
YGNIS
Artesolar
Bosch

Number
ANESE works step by step with its partners to find common interests and to promote the development of the Efficiency and Sustainability bringing solutions and services to the market.

**WG Financing**
- Identify, coordinate and facilitate access to financing lines for our partners.

**WG Contracting**
- Define a procedure and key clauses to promote the contracting of energy services at both public and private levels.

**WG Technology**
- Technology Guide for Energy Saving and Efficiency. Energy Saving Certificates

**WG Classification**
- First certified classification of energy services companies (ESCOs): ESCO and ESCO + seals.

**WG Energy Transition**
- Promotes work in key sectors related to the energy transition market (self consumption, sustainable mobility, etc).

**WG Renovation**
- Development and analysis of initiatives, solutions and technologies related to the energy rehabilitation of the residential sector.

**WG Energy Communities**
- Understand the business opportunities that arise from energy communities to promote the implementation of projects.

**WG Funding and Grants**
- Inform and analyze the different grant programs related to the activities of our associates. Special focus on NextGenerationEU funds.
ANESE is committed to participating in different projects (European and National), aligned with energy efficiency and sustainability, and business model offered by ESCOs.

- **Project of the Spanish Climate Change Office for the reduction of CO2 emissions.**
- **Promote and accelerate the development of private investments.**
- **Building rehabilitation project to reduce energy consumption (Extremadura).**
- **Promote the use of heat pumps and their combination with renewable energy sources.**
- **European project that will lead to the implementation of the energy efficiency servitization.**
- **Enhance energy efficiency and demand flexibility using Vehicle-to-Grid (V2G) and Vehicle-to-Building (V2B) technologies.**

In addition, ANESE has obtained a new project related to the LIFE 2021 Program (expected kick off: December 2022).
Layout

About ANESE

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Spanish ESCO Market - Opportunities and barriers.

ESCOs Fields of interest.

ESCOs Types of contracts.
### Energy targets - Context

#### 2030 Objectives

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<tr>
<th>Clean Energy Package</th>
<th>GHGs reduction (Compared to 1990)</th>
<th>Renewable Energy Consume</th>
<th>Energy Efficiency (Compared to 2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40 %</td>
<td>32 %</td>
<td>32.5 %</td>
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<td>50 %</td>
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<td>55 %</td>
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<td></td>
<td>23 %</td>
<td>42 %</td>
<td>39.5 %</td>
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</tbody>
</table>

#### 2050 Objectives

<table>
<thead>
<tr>
<th>GHGs reduction (Compared to 1990)</th>
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<tbody>
<tr>
<td>40 - 90%</td>
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<tr>
<td>90%</td>
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</table>

Extraordinary Council of Energy Ministers - political agreement to voluntarily reduce natural gas demand by 15% between 1 August 2022 and 31 March 2023 compared to the average of the same period over the last five years. In the case of Spain, binding gas demand reduction target below 7%.
## Energy targets - Context

### Clean Energy Package - Environment as the main policy (Pre-Covid19)

- The EU Clean Energy Package, proposed by the European Commission in November 2016, includes eight legislative texts on the electricity market and consumers, Energy Efficiency and Energy Efficiency of buildings, Renewables & bioenergy sustainability as well as governance of the Energy Union that set the key energy transition targets.

### Green deal – Speed up the energy transition (Pre-Covid19)

- Increased the EU’s climate ambition for 2030 and 2050: 50% GHGs reductions for 2030 (compared to 1990 levels)
- Renovation of buildings and accelerated the shift to sustainable and smart mobility.
- Prioritised the use of clean, renewable energy by modernising infrastructure and promoting EE.
- Encouraged the circular economy.

### Next Generation

- **800 € billion** (€390 billion in grants €360 billion in loans). Capital raised on financial markets.

### FIT FOR 55

**Economic recovery leveraged on the Energy Transition**

- Set of proposals to revise and update EU legislation and to put in place new initiatives with the aim of ensuring that EU policies are in line with the climate goals agreed by the Council and the European Parliament.
- Fit for 55 refers to the EU's target of reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990. The proposed package aims to bring EU legislation in line with the 2030 goal.

### REPowereu-
Reduce dependence on Russian fossil fuels and fast forward the green transition

- Deployment of renewable energy and EE: Obligation to install SPV on new public, commercial and residential buildings; increase production (10 Mtons) and import (10 Mtons) of green hydrogen and biomethane production (35 bcm) by 2030; streamlining the processing of large renewable energy projects and doubling of the rate of deployment of heat pumps.
- REPowereu requires an additional investment of **€210 billion between now and 2027**.
Energy targets - Context

Spanish Strategic Energy and Climate Framework

- Different governance tools were developed to achieve the decarbonisation targets:
  - PNIEC 2021-2030: short- and medium-term roadmap and targets reviewed every 5 years.
  - ELP 2050: long-term roadmap and targets reviewed every 5 years (on the basis of the PNIEC update).

- Setting new goals and policies:
  - Development of the Contingency Plan + RDL 14/22 (urgent measures).
  - PNIEC update.
Spain's recovery and resilience plan

4 transversal axes

- Ecological Transition, a Green Spain (37% BDGT)
- Digital Transformation, a Digital Spain (33% BDGT)
- Gender equality, Spain, a country without gender gaps.
- Social and Territorial Cohesion, a cohesive and inclusive Spain

1. **140 €Bn Budget allocation**
   - 72 €Bn in grants.
   - 68 €Bn in loans.

2. **Regional Administrations** (Autonomous Communities and Local Authorities) managed +50% of recovery funds.

3. Focus on public-private partnerships, through various financial instruments.

4. Implementation through an inclusive governance structure.

**Leverage policies (b€)**

1. Urban and Rural Agenda: 22
2. Resilient infrastructures and ecosystems: 17
3. A just and inclusive energy transition: 12
4. An administration for the 21st century: 7
5. Modernisation and digitisation of the industry: 24
6. Pledge for science and innovation: 23
7. Education and knowledge: 25
8. The new care economy and employment policies: 8
9. Promotion of the culture and sports industries: 2
10. Modernisation of the tax system: -

**Total EU Funds 2021-2026 to Spain**: 140
The Energy System Integration Strategy

1. A more circular and energy efficient energy system
2. More electrification of consumption, based on renewables
3. Renewable and low carbon fuels (incl. hydrogen) in hard-to-abate sectors

**Consumers** can choose the best clean option for their needs

**Infrastructure** is planned in an integrated way, looking jointly at gas, electricity, heat and hydrogen

**Digitalisation** fully enables a smarter system

Market data from 2015 to 2020 has been analyzed.

The last edition had the participation of 44 ESCOs from Spain and Portugal.
ESCOs market - Spain

**General information**

- **Energy Savings**: 37% average per project
- **Emissions Reduction**: 45.4 Tn CO2 average per project
- **Budgetary project**: 706,971 € average per project

**ESCOs Turnover**

- **2020**: 1.604 M€

**ESCOs size**

- Large (> 250 workers)
- Medium (50 - 250 workers)
- Small (<50 workers)

**Emissions Reduction**

- 37% average per project
- 706,971 € average per project

**Emissions Reduction**

- 45.4 Tn CO2 average per project
ESCOs market - Spain

**Implemented technologies**
- Energy Monitoring & Management: 68%
- Indoor lighting: 55%
- Heating and cooling: 55%
- Outdoor lighting: 42%
- Self consumption: 47%
- Industrial Processes: 34%
- Engines: 13%
- Sustainable Mobility: 26%
- Building Envelope: 13%

**Scope of activity**
- Public 13%
- Private 34%
- Public + Private 53%

**Savings**
- ESCOs market - Spain

- 2020

**Scope of activity (per Technology Application)**
- 53%
- 45%
- 20%
- 20%
- 19%

- Outdoor Lighting
- Indoor Lighting
- Heating and Cooling
- Compressed Air Production
- Energy Monitoring & Management

- 18%
- 17%
- 17%
- 16%
- 15%

- Building envelope
- Heat production
- Individualized energy demand
- Engines
- Cooling production
ESCOs market - Spain

**Type of contracts**

- **Energy Performance Contract (EPC)**
- **Engineering, Procurement, Construction Management (EPCM)**
- **Energy Supply Contracting (ESC)**
- **Integrated Energy Contracting (IEC) - 5P**
- **Power Purchase Agreement (PPA)**

<table>
<thead>
<tr>
<th>Type of Contract</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
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<tbody>
<tr>
<td>EPC</td>
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<td>IEC - 5P</td>
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<td>PPA</td>
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</table>

• The **Energy Performance contract (EPC)** are the dominant form of ESCOs contracts. Specifically those in which ESCO make the investment and guarantee savings.

• **Contract maturity period (months)**

- **Power Purchase Agreement (PPA)**
- **Integrated Energy Contracting (IEC) - 5P**
- **Energy Supply Contracting (ESC)**
- **Engineering, Procurement, Construction Management (EPCM)**
- **Energy Performance Contract (EPC)**

• **Duration of the energy services contract:** The total average is 8 years (7 years private sector/10 years public sector)
80% of ESCOs used their own funds and 58% used external financial mechanisms to finance projects.

80% of the projects are carried out without grants.
ESCOs market - Spain

- Madrid, Barcelona and Vizcaya concentrate the largest number of ESCOs (Headquarters)
- 79% of companies carry out projects in more than one Autonomous Community.
The ESCO market is dominated by SMEs in both Spain and Portugal.

- In Spain, 74% are ESCO divisions belonging to a company with more lines of business, while in Portugal it is 17%.
Comparative Spain/Portugal – Project budget

- The average Project Budget in Spain increases year by year.
- Portuguese ESCOs present an average project budget similar to Spain.
Comparative Spain/Portugal – Annual Savings

- Annual electricity savings:
  ✓ 225,000 kWh/project - España
  ✓ 250,010 kWh/project - Portugal

- Annual thermal energy savings
  ✓ 72,000 kWh/project - España
  ✓ 343,753 kWh/Project - Portugal
Comparative Spain/Portugal – ESCOs size

Download the Observatory!
About ANESE

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Spanish ESCO Market - Opportunities and barriers.

ESCOs Fields of interest.

ESCOs Types of contracts.
2020 – Opportunities and barriers

<table>
<thead>
<tr>
<th>Opportunities for ESCO</th>
<th>Opportunities for the client</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costumer portfolio loyalty</td>
<td>Energy savings</td>
<td>Lack of knowledge of the ESCO model – client side.</td>
</tr>
<tr>
<td>Economic stability with recurring income</td>
<td>The customer does not make the final investment</td>
<td>Lack of governmental support</td>
</tr>
<tr>
<td>Technological advances</td>
<td>Renovation of facilities</td>
<td>Lack of citizen awareness</td>
</tr>
<tr>
<td>Catalyst for new projects</td>
<td>Technology confidence</td>
<td>Low trend towards outsourcing energy management</td>
</tr>
<tr>
<td>Governmental support</td>
<td>Raising of social awareness of the environment</td>
<td>Duration and complexity of the energy services contracts (lack of knowledge)</td>
</tr>
<tr>
<td>Opportunities for ESCO</td>
<td>Opportunities for client</td>
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<tr>
<td><strong>1st</strong></td>
<td><strong>2nd</strong></td>
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<tr>
<td><strong>Costumer portfolio loyalty</strong></td>
<td><strong>Economic stability with recurring income</strong></td>
<td></td>
</tr>
<tr>
<td>✓ Long-term contracts.</td>
<td>✓ Income predictability.</td>
<td></td>
</tr>
<tr>
<td>✓ Technical and operational risk taken by the ESCO.</td>
<td>✓ Better stance vis-a-vis financial entities.</td>
<td></td>
</tr>
<tr>
<td>✓ Energy efficiency projects companion.</td>
<td>✓ Access to cost-effective capital and financing because of viable business cases.</td>
<td></td>
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<tr>
<td><strong>3rd</strong></td>
<td><strong>The customer does not make the final investment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Technological advances</strong></td>
<td><strong>Renovation of facilities</strong></td>
<td></td>
</tr>
<tr>
<td>✓ Cutting-Edge technology promote higher savings, translating into added revenue for ESCOs</td>
<td>✓ Financial risk is taken on by the ESCO (on some contracts)</td>
<td></td>
</tr>
<tr>
<td>✓ Focus on technology neutrality (best solution for each project.)</td>
<td>✓ Increased simplicity, by offering turn-key products with included financing.</td>
<td></td>
</tr>
</tbody>
</table>

**Energy savings**
- ✓ Energy consumption reduction.
- ✓ Improvement of competitiveness.
- ✓ Cost reduction.
- ✓ Lower volatility of energy related costs.

**The customer does not make the final investment**
- ✓ Financial risk is taken on by the ESCO (on some contracts)
- ✓ Increased simplicity, by offering turn-key products with included financing.

**Renovation of facilities**
- ✓ ESCO intervention often implies renovation of clients facilities. At project maturity the client has the extra benefit of owning a renovated asset.
2020 – Opportunities and barriers

Barriers

1st
Lack of knowledge of the ESCO model – client side.

- Uncertainty of whether investment will generate sufficient revenues to payback the financing

Mitigation
- Standardized Measurement and Verification Protocols.
- Need for further ESCO model dissemination

2nd
Lack of governmental support

- Many help and subsidy programs do not include ESCOs as direct beneficiary.

Mitigation
- ANESE is lobbying to reverse this situation.
- The ANESE seal is a tool in helping establish the difference between ESCOs and energy services providers

3rd
Lack of citizen awareness

Citizens are not aware of the ESCO model and its advantages. There is a fragmented market where ESCOs present their models and contracts as ownership instead of focusing on the ESCO model itself.

Mitigation
- Workshops and dissemination actions on the ESCO model applied to individual clients.
## 2020 – Opportunities and barriers

### Opportunities for ESCO

**4th Catalyst for new projects**

- Emerging technologies in energy efficiency give ESCOs the opportunity to act as catalysts in their early adoption.

### Opportunities for the client

**Technology confidence**

- Having an ESCO share the risk of a project greatly simplifies the decision to take on new and emerging technologies for the client.
- Avoided risks related to technology performance over the lifetime of the project.

### Barriers

**Low trend towards outsourcing energy management**

Many companies are not open to outsourcing their energy management preferring the status quo.

- ESCOs need to demonstrate solid experience and knowledge to overcome the doubts about the terciarization of energy management, becoming effective partners and taking on their share of the risks.
2020 – Opportunities and barriers

Opportunities for ESCO

Governmental support

- Opportunity for the state to clarify the legal definition of ESCOs and incorporate them in the regulatory framework (as demand aggregators, within energy communities, within the CAE system)

Opportunities for the client

Raising of social awareness on the environment

- Taking an active part on the energy transition.
- Establish and execute decarbonization projects.

Barriers

Duration and complexity of the energy services contracts (lack of knowledge)

- Client’s risk perception is heightened by lack of knowledge and duration of commitment.

Mitigation

- Dissemination of information on contract models.
- Contract simplification (standardized clauses). EU EPC standard.
- New simpler contract models (servitization).
Proposals for action - ANESE

ANESE’s evaluation of ESCOs survey participants

- Dissemination of information to potential customers
- Financial and tax assistance
- Sectorial campaigns in rural media
- Dissemination events
- Disclosure of success business cases.

Main fields of ESCOs interest:

- ✓ 81% → Renewable energy Communities
- ✓ 46% → Energy Savings Certificates
- ✓ 46% → Demand-independent aggregators
- ✓ 35% → Energy as a service contract
Main Fields of ESCOs interest – Energy Communities

Only the legal form of **Renewable Energy Communities has been partially transposed** (only its definition, not the whole aspects of the figure). The transposition of the Citizens' Energy Communities remains to be done.

Even without being transposed, the policy makers uses the figure to give access to grants, aids or exemptions from requirements.

**Paradigmatic example of government support**

**C7.R3 - PRTR. Energy Communities (100 M€):** the component is divided into 4 action plans. The lines will support all phases of the creation of an energy community.

- **CE- OFICINAS:** implementation and operation of Community Transformation Offices (CTOs) aims to promote and dynamically develop EECC.
- **CE- APRENDE (in the pipeline):** grants for individuals or organisations interested in creating an EECC.
- **CE- PLANIFICA (in the pipeline):** planning and constitution of the EECC. This programme covers the financing of studies and contracts model or specialised technical assistance and legal advice.
- **CE- IMPLEMENTA (finished):** grants for integral and cross-cutting projects in the field of renewable electrical and thermal energy, energy efficiency or electric mobility.

**Target T4 2023: implementation of at least 37 projects.**
Main Fields of ESCOs interest – CAEs

The Ministry for Ecologic Transition and Demographic Challenge is preparing a system for the attribution and redemption of energy efficiency certificates, that can be easily obtained through a catalog of standard measures. ANESE is participating in the definition of some of the standard measures for this catalog.
Main Fields of ESCOs interest – CAEs

Additionally to the standard mechanism, an auction mechanism is also foreseen, to ease the starting of the system.
Main Fields of ESCOs interest – Independent Aggregators

Different aspects to understand the figure of the aggregator were set out in the EU Directive 2019/944:

- **Aggregation**: a function performed by a natural or legal person who combines multiple customer loads or generated electricity for sale, purchase or auction in any electricity market.

- **Independent aggregator**: market participant engaged in aggregation who is not affiliated to the customer’s supplier.

Access to energy markets for market players providing flexibility services is not uniform across the EU.

Direct access to the Wholesale Market (WM), Balancing Market (BM) and Capacity Market (CM), is sometimes restricted to either some market participants (Balancing Responsible Parties and also aggregators) or is totally absent.

The participation of the figure needs to be regulated and extended to all energy markets. Some regulatory developments:

- **Transposition of the figure of the independent aggregator - RDL 23/20**: (only its definition, not the whole aspects of the figure)

- **D 18423 CNMC** – Tests for independent aggregators to participate as balancing service providers: Minimum offer capacity: 1 MW.
The servitisation is a model where energy is offered on a "pay-as-you-go" basis. According to previously agreed conditions, the customer pays only for the energy used.

- Pay per use model.
- The installation and maintenance of equipments is assumed by Technology providers.
- Periodic payment from the customer based on the agreed service (lighting hours, cooling tons, heat consume, etc.).
- No capital expenditure (end clients)
- Technology Risk minimisation.
- Motivated energy reduction
Depending on customer needs, different types of contracts can be established between ESCOs and clients.

<table>
<thead>
<tr>
<th>ESCO Type of contract (IEC)</th>
<th>Description</th>
</tr>
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</table>
| **Energy Performance Contract (EPC)** | Savings in kWh  
The investment is assumed entirely by the ESCO or the client (depends on savings model) |
| **Energy Supply Contracting (ESC)** | Savings in €/kWh  
ESCO is only remunerated for the useful energy output (electricity, heat, etc). The payment is not based on the energy efficiency achieved. |
| **Power Purchase Agreement (PPA)** | Often refers to a long-term electricity supply agreement (5-15 years) between two parties, usually between a power producer and a customer (an electricity consumer or trader). |
| **Engineering, Procurement, Construction Management (EPCM)** | A turnkey contract is an agreement in which the ESCO designs and implements an energy efficiency project, committing to quality levels in the commissioning of the installation, but in this case, the client-ESCO relationship ends once the installation ends. |
| **Integrated Energy Contracting (IEC) - 5P** | Business model developed by IDAE (public sector). Services including: Energy supply, Maintenance, Full warranty, Improvement works and Improving energy efficiency. |
| **Energy as a service** | Business model where end customers pay for the energy service they receive (cooling, lighting, etc) without having to make any upfront capital investment. |
Thank you for your attention

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