


Active Building Energy Performance Contracts: an overview of policies and measures in place in Belgium, Spain, Italy and Portugal

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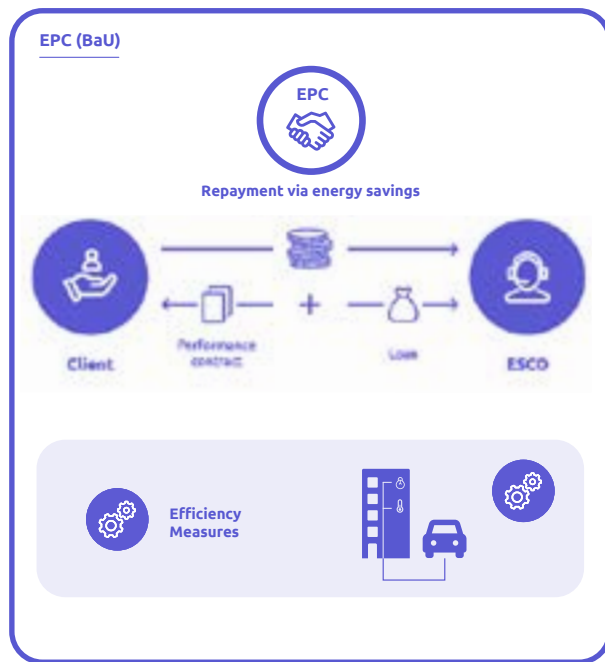


Aiming to provide new concepts and business models for Active Building Energy Performance Contracting (EPC), the AmBIENCE project conducted an **assessment of enhanced Energy Performance Contracts and building demand response services in Europe**, with the main goal to analyse the directives, policies and measures in place, as well as those under consideration, at EU level and across EU Member States.



The analysis carried out at an EU level shows that Europe is making good progress towards empowering the end user to participate in the energy transition, by putting them at the centre of the energy system. **According to the ETIP SNET Vision 2050, European citizens will be the main actors in the transition from existing fossil fuel-based energy systems to an integrated, low-carbon, safe, reliable, resilient, affordable and cost-effective energy system.** By 2050, demand flexibility will play a key role in products and services in energy markets, and the active role of consumers and prosumers will be fully implemented in the mechanisms of demand response (DR), through which the user is made an active participant in the management of network contingencies, as well as in reducing energy consumption through applications such as zero energy buildings or energy communities. The stakeholders participating in the project [webinar series](#) agreed that it will be possible to implement this vision through the establishment of EU policies that are due to be integrated at national level through National Energy and Climate Plans.

Another key finding of the analysis is that **DR and consumer empowerment are integral parts of the Energy Union and the Clean energy for all Europeans package** because they help to create a competitive, secure and sustainable economy. In detail, the [Recast of Electricity Market Directive \(EMD II\)](#) aims to construct a true internal market governed by common rules that can guarantee a wide range of electricity accessible to all. In relation to consumers, this directive provides an important paradigm shift, aimed at qualifying consumers as “active” and able to operate directly or in an aggregate manner, sell self-produced electricity (including through agreements for the purchase of electricity), and participate in flexibility and energy efficiency mechanisms. In this context, the directive states that all consumers should be able to take advantage of direct participation in the market, in particular by adjusting consumption based on market signals while benefiting from lower electricity prices or other incentives.



An important innovation envisaged by the directive is the concept of **"citizen energy communities" (CEC)**, which must be allowed to operate in the market on equal terms with other actors, and able to freely assume the roles of final consumer, producer, supplier or manager of distribution systems. The [revised Renewable Energy Directive \(RED II\)](#) also pays particular attention to allowing actors to become consumers of renewable energy and also to be able to produce, store and sell surplus electricity, both individually and through aggregators, while guaranteeing the consumers' rights. RED II in fact introduces the concept of **"renewable energy communities" (REC)**, which must have the right to produce, consume, store and sell renewable energy. They must also be allowed to exchange, within the same community, the renewable energy they produce, and have non-discriminatory access to all the appropriate electricity markets, directly or through aggregation.

The [new Energy Efficiency Directive](#) also extends consumer rights and improves access to smart metering tools, smart billing and consumption information; while the [new Energy Performance of Buildings Directive](#) contains provisions concerning, among other things, energy efficiency targets for buildings, energy certification, verification methods, monitoring and control of energy use, and the establishment of obligations relating to the installation of electricity recharging points. This directive also includes the definition of the **smart readiness indicator (SRI)** and a methodology for its calculation, in order to assess the capabilities of a building to adapt its operation to the needs of the occupant and of the grid, and to improve its energy efficiency and overall performance. According to the stakeholders participating in the webinar, although the regulatory framework is clear at European level, at national level regulations are not yet ready to foster and promote the active role of consumers in energy efficiency measures and demand flexibility.

At Member State level, a detailed country analysis has been performed for Italy, Belgium, Portugal, and Spain, by analysing the following key areas:

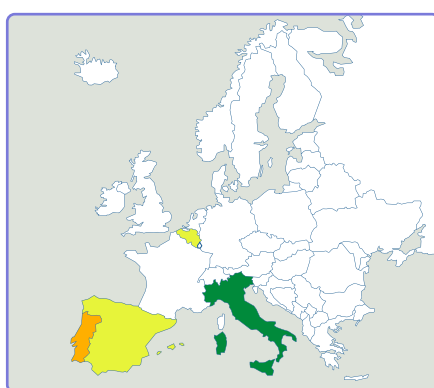
1. **Current status of EPCs and Energy Service Companies (ESCOs)**, through an analysis of the main regulations, directives and policies on EPC, main types of EPCs implemented, main actors involved in current EPC, and the ESCO market.
2. **Current status of DR services**, through the analysis of the implicit DR and the main types of schemes implemented, the explicit DR¹ and demand access to the market to understand to what extent demand is allowed as a resource within the different national electricity markets, independent aggregators, regulations/policies supporting aggregation of distributed energy resources, etc.

The analysis has been also extended to cover the other EU Member States plus the UK, to reveal the countries that offer the strongest opportunities for AmBIENCe concepts and business models to succeed, the current gaps in legislation and market awareness that might have a significant impact in the successful deployment of the new concepts and business models, and the legislation and practices that foster the deployment of the proposed concepts and business models.

The **status of the European ESCO/EPC market** is shown by country in the figure below. **Italy** is the most advanced country in the consortium, with one of the biggest and most developed ESCO markets in Europe: this is mainly due to its strong legislative background and the national standards established for energy efficiency in buildings. Italy is followed by **Belgium**, where the energy service market is stable and moderately-sized, and by **Spain**, where the energy service market has long been expected to boom, driven by a complex set of governmental support measures. **Portugal** is behind the other countries represented in the consortium, with the lowest scores for the key areas investigated: its ESCO sector is currently still underdeveloped and small.

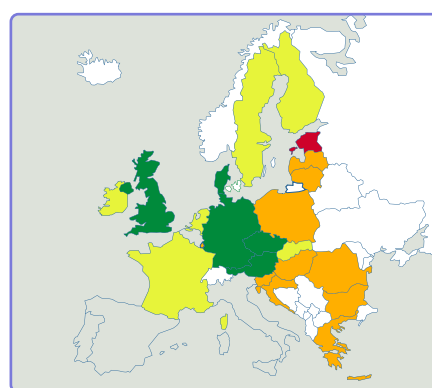
As for other European countries, the **most advanced are Austria, the Czech Republic, Denmark, Germany and the UK**, which are characterised by more mature markets fostered by well-developed legal frameworks addressing EPC and a wide variety of related offerings and project facilitators. The list of countries with an ESCO/EPC market still in its initiation phase is much longer: in general these countries are in Eastern Europe, and lack a legal framework for EPCs and EPC models mainly because of policy instability and divergent political priorities. Webinar stakeholders agreed that this snapshot is realistic for the countries they represent.

Map of ESCO/EPC development status for the countries represented in the consortium



- Well-developed/excellent
- Moderate
- Initiation/Preliminary

Map of ESCO/EPC development status for the other EU Member States plus the UK



- Well-developed/excellent
- Moderate
- Initiation/Preliminary
- Non-existent

¹ **Implicit DR** implies that end-users adjust their consumption behavior to **time-varying electricity prices**. These electricity prices reflect the value and the cost of electricity in different time periods.

Explicit DR implies that end-users respond to a **specific request to change their consumption pattern** after that they have indicated in advance how much flexibility they have available at which moment.

Source: Analysis of directives, policies, measures and regulation relevant for the Active Building EPC concept and business models, AmBIENCe project, 2020

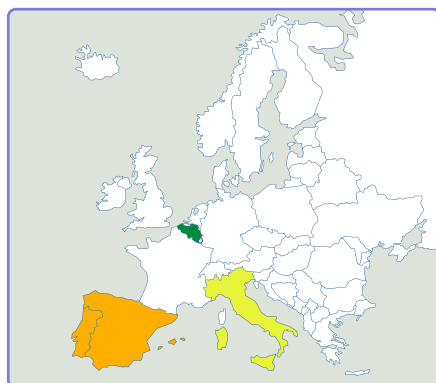
The **country status for DR services offered by buildings** is shown in the figures below. **Belgium** is the most advanced country in the consortium – in fact, over the last few years the Belgian transmission grid operator (TSO) has created a new framework to enable the participation of new energy sources and new types of market players (such as aggregators). While the implementation of this framework is still ongoing, the end goal is to “open up the different products and services to all technologies (demand-side management, storage, etc.), independently to the type of connection (transmission or distribution) and the type of provider.” This means that in the near future, all products will be adapted to become accessible to new participants in the market.

Belgium is followed by **Italy**, where the relevant regulatory framework has been subject to substantial changes since 2017. The Italian Regulatory Authority for Electricity, Gas and Water undertook a complete review of the ancillary service market, opening it up to new participants by introducing the figure of aggregator: the aim is to increase the supply of network services for the national electricity system, while integrating these new actors into it.

There is a different situation in **Spain and Portugal**, which have not made the same progress as the other countries: they have the poorest regulatory regimes for DR and asset aggregation, and significant barriers still exist. For the rest of Europe, outside of the consortium, the most advanced countries are **Finland and Ireland**, where DR participation is allowed in multiple electricity markets thanks to a well-established regulatory framework and positive cooperation between stakeholders (new market actors, regulators and retailers). There are more countries still in the early phases of development, mostly in Eastern Europe. These countries still face significant barriers such as the absence of regulation allowing the adoption of DR services, not enough market players, a lack of economic and contractual incentives, etc. Again, webinar stakeholders validated that this snapshot is realistic for the countries they represent.

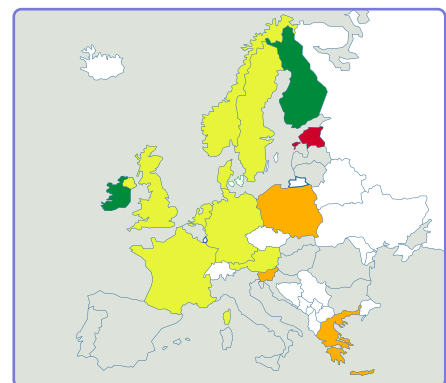


Map of the status of buildings' market access for DR services for the countries represented in the consortium



- Well-developed/Commercially active
- Partial opening
- Initiation/Preliminary development

Map of the status of buildings' market access for DR services for the other EU Member States plus the UK



- Well-developed/Commercially active
- Partial opening
- Initiation/Preliminary development
- Closed

Finally, the analysis established the identification of the main enablers and barriers for the implementation of Active Building EPC in EU Member States. These results were then validated with the dedicated webinar series, where feedback was collected from different stakeholders to create a priority list of enablers and barriers for both EPC/ESCO and DR services offered by buildings development.



Stakeholders identified the following key enabling factors for EPC/ESCO development²:

1. Existence of national ESCO associations,
2. Presence of public 'one-stop-shops' or facilitators,
3. High knowledge - and availability - of Eurostat-compatible ESCO financing solutions.
4. The availability of project databases

Stakeholders identified the following key barriers to overcome for EPC/ESCO development¹:

1. Uncertainty over the legal framework and incentives, and lack of knowledge and trust of EPC business models and providers,
2. Contractual complexity of EPC,
3. Financial barriers,
4. Absence of historical monitoring data,
5. Lack of standard and enforced measurement and verification (M&V) protocols,
6. Low energy prices, reducing the attractiveness of EPC.

Stakeholders also identified additional barriers, such as a lack of technical competence and legal difficulties in writing EPC contracts, especially with reference to the public sector (this is the case for Italy).



The priority list of enabling factors for the development of DR services offered by buildings identified by the stakeholders is as follows¹:

1. Presence of a regulatory framework for product requirements in line with the concept of 'technology-neutrality,' and the possibility of real-time consumer data availability,
2. Well-established regulatory framework for accepting independent aggregators,
3. Revisions of the minimum performance requirements; standardised and clear M&V procedures for all market players with a digital meter; and good cooperation between stakeholders (new market actors, regulators and retailers).

The priority list of barriers to overcome for the development of DR services offered by buildings identified by the stakeholders is below¹:

1. Social: lack of knowledge of how to change end-user behaviour in order to provide flexibility services,
2. Technical: reliability issues (lack of operational procedures),
3. Technical: interoperability of hardware (to allow future aggregation of distributed energy resources); and legal: regulations not flexible enough to enable innovation and demand participation in the market,
4. Market-type: high entrance costs for customers; and social: lack of confidence,
5. Market-type: no market entity responsible for aggregation ('independent aggregator'), high minimum bid sizes; and technical: privacy issues prevent access to data.

Stakeholders also pointed to the slow uptake of digital meters as an additional barrier to the development of DR services offered by buildings.

For more specific information, please read the factsheets on the status of Active Building EPC in Belgium, Italy, Spain and Portugal.

² In the priority list, the scale starts with 1 as the most important factor.

Read the full report for more detailed analysis and results:
www.ambience-project.eu



Contributing national partner: ENEA

