

# “frESCO Pay per Performance”: the next generation of Energy Performance Contracting

A new H2020 project promoting innovative business models for novel energy service bundles for residential consumers

Energy Performance Contracting (EPC) is a form of ‘creative financing’ for capital improvement which allows funding energy upgrades from cost reductions. Under an EPC arrangement an external organization (ESCO) implements a project to improve the energy efficiency or renewable energy production, and uses the stream of incomes from the cost savings or the returns from the renewable energy produced, to repay the overall costs of the project, including the costs of the initial investment. Essentially the ESCO will not receive its payment unless the project allows energy savings as expected.

The approach is based on the transfer of technical risks from the client to the ESCO, based on performance guarantees given by the ESCO. In EPC, ESCO’s remuneration is based on the demonstrated performance; a measure of performance is for example the level of energy savings or the returns from an energy service. EPC is a means to guarantee infrastructure improvements to facilities that lack energy engineering skills, manpower or management time, capital funding, understanding of risk, or technology information. Cash-poor, yet creditworthy customers are therefore good potential clients for EPC.

Despite the large economic energy saving potential in the EU, nowadays very few ESCOs apply Energy Performance Contracting to the residential market due to the following main barriers which make a large-scale application of the ESCO EPC model for residential buildings particularly difficult:

- High transaction costs: payback periods in the frame of EPC contracts are not attractive;
- High fragmentation of market: there is a huge population of buildings that are characterized by the availability of a variety of installed technologies and devices, which either are not connected, or -it is the case of “smart “ devices- the diversity of communication protocols and the lack of clear standardization guidelines, significantly increase the complexity in data collection and management functions;
- The landlord/tenant dilemma: the landlord does not have economic motivation to reduce electricity costs, which are paid by tenants, thus making totally unattractive investments with considerably high payback periods;
- Variation of individual needs and behaviours that require customized and personalized treatment when energy management is involved to avoid disruptions in daily lives and degradation of living standards;
- Lack of information and expertise on the residential consumer side on EPC and Energy Management and reluctance to get involved in a constant interaction with household systems and service providers towards maximizing energy benefits;

- Fear of becoming dependent on specific contractors for a long period;
- Inability of household tenants/ owners to cope with upfront investments (if needed) and lack of public subsidies and financing capita, especially when considering the low attractiveness of typical EPC schemes and services.

Therefore, new EPCs need to disengage from current old-fashioned savings-based performance contracts and allow for **adaptation to evolving energy market trends with the introduction of novel hybrid schemes that do not only reduce costs, but also create new revenue streams for the end-consumers/ prosumers, by empowering them to participate in energy transactions and become active players to the overlay energy market actors**. Such an approach is expected to significantly reduce the **payback period of relevant investments in smart equipment, distributed energy resources and assets** (e.g. storage, EVs) thus, **increasing the attractiveness of modern EPCs both for the investor (ESCO/ Aggregator) side, but also on the consumer side** (enabling also the removal of the tenant/ landlord dilemma).

In this context, **frESCO project** has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No893857 on 1 June 2020 to deliver the **next generation of EPC** on the basis of synergetic business models between aggregators and ESCOs, hybrid innovative energy services properly combining energy efficiency and demand response, clear and well-specified legal/ contractual provisions and objective measurement and verification schemes to ensure objective verification of savings and fair & transparent remuneration of flexibility under the principles of Pay-for-Performance schemes.

To this aim, frESCO Project Consortium (under the coordination of FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS) will introduce a variety of multiservices bundles to be provided by ESCOs/ Aggregators towards residential consumers in the frame of extended EPC offerings under the principle of **Pay for Performance**.

These packages will combine:

- **Building retrofitting and investments for the installation of smart equipment** (metering, sensing, actuating), together with extended offerings for the installation of distributed generation (PV) and storage (batteries) units;
- **Energy efficiency measures**, spanning behavioural transformation, targeted guidance towards energy savings, along with more advanced concepts for net metering/ self-consumption maximization through smart automation at both building and local energy community level;
- **Flexibility services** (with the introduction of storage and, if available, electric vehicles as means for enhancing flexibility);
- **Non-energy services** (Comfort preservation, Indoor Air-quality, Security, Well-being, Emergency notification services, etc.).

frESCO's new business models will be demonstrated in 4 different pilots (Spain, France, Croatian and Greece) with complementary characteristics in terms of building typology (single-/multi-family), climate, regulation, energy consumption, energy assets, consumer groups, etc., thus facilitating the replicability of frESCO's solutions across Europe. Overall, frESCO aims to directly achieve a primary savings of 464 MWh/yr and a reduction of 108 tCO<sub>2</sub>/yr and trigger 28.3M€ investment during the replication.

frESCO Project Consortium is made up of 16 international partners (<https://cordis.europa.eu/project/id/893857>).

The consortium is composed by the following 14 partners:

- 1 FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS
- 2 SUITE5 DATA INTELLIGENCE SOLUTIONS LIMITED
- 3 ENERGIEINSTITUT AN DER JOHANNES KEPLER UNIVERSITAT LINZ VEREIN
- 4 FUNDACION CARTIF
- 5 GIOUMPITEK MELETI SCHEDIASMOS YLOPOIISI KAI POLISI ERGON PLIROFORIKIS ETAIREIA PERIORISMENIS EFTHYNIS
- 6 UBITECH ENERGY
- 7 KONCAR - INZENJERING ZA ENERGETIKUI TRANSPORT DD
- 8 PONIKVE EKO OTOK KRK DOO ZA KOMUNALNE DJELATNOSTI
- 9 COMSA INSTALACIONES Y SISTEMAS INDUSTRIALES SA
- 10 LA CORRIENTE SOCIEDAD COOPERATIVA
- 11 VOLTALIS SA
- 12 ELIN VERD ANONYMI ETAIRIA AEIFORONPROIONTON KAI YPIRESION
- 13 IOANNIS SARANTIS-TOURISTIKAIXENODOCHEIAKAI- KTIMATIKAITECHNIKAI KAI GENIKAI EPICHEIRISEIS ANONYMOS ETAIRIA
- 14 RINA CONSULTING SPA



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