



# Energy Performance Contract in Social Housing

*European Handbook*



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For further information on the project or on products of the project see: [www.fresh-project.eu](http://www.fresh-project.eu)

### **FRESH Project Partners**

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# TABLE OF CONTENTS

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<b>1. FOREWORD.....</b>	<b>5</b>
<b>2. ENERGY RETROFITTING CHALLENGES IN SOCIAL HOUSING .....</b>	<b>6</b>
2.1. CURRENT TRENDS IN THE HOUSING SECTOR.....	6
2.2. THE SOCIAL HOUSING SECTOR.....	8
2.2.1. <i>Definition of Social Housing in Europe</i> .....	8
2.2.2. <i>High potential for massive energy retrofiting</i> .....	8
2.2.3. <i>Massive financial needs</i> .....	9
2.2.4. <i>Lack of adapted financing mechanisms</i> .....	10
2.3. ENERGY PERFORMANCE CONTRACTING.....	10
2.3.1. <i>EPC: structuring the business model</i> .....	10
2.3.2. <i>Performance guarantee: a key to secure investments</i> .....	11
2.3.3. <i>Third-party financing: mobilize external capital</i> .....	11
2.4. COMPREHENSIVE ENERGY RETROFITTING .....	13
2.5. CURRENT OBSTACLES FOR EPC IMPLEMENTATION IN THE SOCIAL HOUSING SECTOR.....	15
2.5.1. <i>Asset management in Social Housing</i> .....	15
2.5.2. <i>Recoupment of energy savings from tenants</i> .....	16
2.5.3. <i>Equal access to public incentives</i> .....	17
<b>3. METHODOLOGY FOR IMPLEMENTING AN EPC .....</b>	<b>18</b>
3.1. PHASE 1: PROJECT(S) PREPARATION.....	18
3.1.1. <i>Identify relevant sites</i> .....	19
3.1.2. <i>Decide to launch an EPC</i> .....	20
3.1.3. <i>Organize project management</i> .....	22
3.1.4. <i>Audit the buildings to be refurbished</i> .....	23
3.1.5. <i>Define the EPC's goals</i> .....	25
3.2. PHASE 2: SELECTION OF THE CONTRACTOR .....	25
3.2.1. <i>Prepare and issue the call for Expression Of Interest</i> .....	25
3.2.2. <i>Select qualifying respondents for the competitive dialogue</i> .....	26
3.2.3. <i>Prepare and issue the Request for Proposal (RFP)</i> .....	26
3.2.4. <i>Competitive dialogue</i> .....	27
3.2.5. <i>Select the contractor</i> .....	29
3.3. PHASE 3: IMPLEMENTATION OF THE CONTRACT.....	29
3.3.1. <i>Implement Energy Conservation Measures</i> .....	29
3.3.2. <i>Measure and Verify the energy savings</i> .....	30
<b>4. CONCLUDING REMARKS .....</b>	<b>32</b>

## GLOSSARY OF TERMS

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AMP	Asset Management Plan
CECODHAS	Comité Européen de Coordination de l'Habitat Social (European Federation of social, cooperative and public housing)
CER	Certified Emission Reduction
CHP	Combined Heat and Power
EBRD	European Bank for Reconstruction and Development
ECM	Energy Conservation Measure
EOI	Expression of Interest
EPC	Energy Performance Contract
ESCO	Energy Services Company
EU	European Union
FRESH	Financing Energy Refurbishment for Social Housing
GHG	Green House Gases
HVAC	Heating, ventilation, and air conditioning
ICE	International Conseil Energie
IDDR	Institute for Sustainable Development and International Relations
kWh <sub>pe</sub>	kiloWatt hours of primary energy
M&V	Measurement and Verification
MVP	Measurement and Verification Plans
PPP	Public Private Partnership
RFP	Request for Proposals
SHO	Social Housing Operator
TPF	Third-party financing
VAT	Value Added Tax
UNECE	United Nations Economic Commission for Europe

# 1. Foreword

Lack of adapted funding is a major barrier to the energy retrofitting of Social Housing in Europe. The Energy Performance Contracts (EPC), under which an Energy Services Company (ESCO) invests in a comprehensive refurbishment (building insulation and renovation of the heating systems) and repays itself through the generated savings, could be seen as a possible financial solution. EPCs have not been used until now in Social Housing because of the absence of visibility on the business model, although the market is well identified.

FRESH - Financing energy REfurbishment for Social Housing - is a European co-operation project that aims to pave the way and demonstrate to Social Housing Operators (SHOs) that EPC can be used for highly energy efficient refurbishment on a large scale. Within the project, SHOs and ESCOs from France, United Kingdom, Italy and Bulgaria proposed to address energy performance contracting in Social Housing aiming at comprehensive refurbishment. This Handbook encompasses lessons learned and best practices of EPC introduction in these countries and highlights a general framework and practical insights for the successful EPC implementation in Social Housing in Europe.

Although, in practical terms, this handbook addresses concrete issues for SHOs (by drawing attention on the key developments of energy efficiency in Social Housing sector in Europe, containing a set of technical guidance, proposing practical solutions and template documents, etc.), it may concern any potential stakeholders or party interested in Social Housing energy improvement (ESCOs, government departments, tenants or tenant groups, utilities...).

This Handbook aims at illustrating how EPC schemes can be used for comprehensive refurbishment of Social Housing, as well as pointing out barriers for their large and rapid uptake.

The Handbook is divided into two parts:

- Overview of the energy issues in the Social Housing sector
- Methodological framework for implementing an EPC

The Annex encompasses useful tools and template documents for EPC implementation.

## 2. Energy retrofitting challenges in Social Housing

### 2.1. Current trends in the housing sector

Buildings account for 40 % of Europe's energy use and a third of its greenhouse gases (GHG) emissions. Given the context of rising energy prices, fuel poverty affecting millions of households across Europe and the need to mitigate climate change, it is crucial to massively refurbish the existing housing stock at strict energy consumption standards.

Since 1997, the “Factor 4”<sup>1</sup> has been officially included as a target in several national policies (e.g. France, UK, etc.) to refer to a 75% reduction in GHG emissions by 2050 compared to 1990. Recent works show that, even in countries with low carbon electricity production and large biomass potential like France, a Factor 4 target on GHG emissions cannot be reached in the residential sector without dividing beforehand useful energy needs by at least a Factor 2<sup>2</sup>.

With an overall stock of over 200 million homes in the EU-27<sup>3</sup>, and considering the current dynamics in the residential sector (approximately 2.3 million of new homes built per year<sup>3</sup> and 0.15% of the stock destroyed per year<sup>4</sup>), we can estimate that nearly 70% of the residential buildings stock in 2050 is already built in 2005. In addition, if we consider that only 0.3% of the stock is actually subject to a comprehensive energy refurbishment per year<sup>5</sup>, we can estimate that, on average and following current trends, most of this existing stock (over 90%) will remain as it was in 2005, without having been energetically refurbished by 2050 (see Figure 1).

That means that even if we make the strong assumption that all new homes are built at 0 kWh<sub>pe</sub>/m<sup>2</sup> (meaning they produce all the energy they consume) and all refurbishments are very ambitious and lead to strict energy consumption of 80 kWh<sub>pe</sub>/m<sup>2</sup>, considering an initial average consumption for the actual stock of 250 kWh<sub>pe</sub>/m<sup>2</sup>, the overall stock in 2050 would still consume on average 149 kWh<sub>pe</sub>/m<sup>2</sup> (see Figure 2).

Considering the inertia of the residential sector, a Factor 4 (or at least a Factor 2) on its average energy consumption will hardly be met without accelerating sharply (at least multiply by 10) the rhythm of refurbishment at strict energy consumption standards.

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<sup>1</sup> The concept originally refers to improving by a "factor 4" the productivity of resources. FACTOR 4. "Factor 4: Doubling wealth - halving resource use: a report to the Club of Rome", Earthscan Publications Ltd., London, 1997.

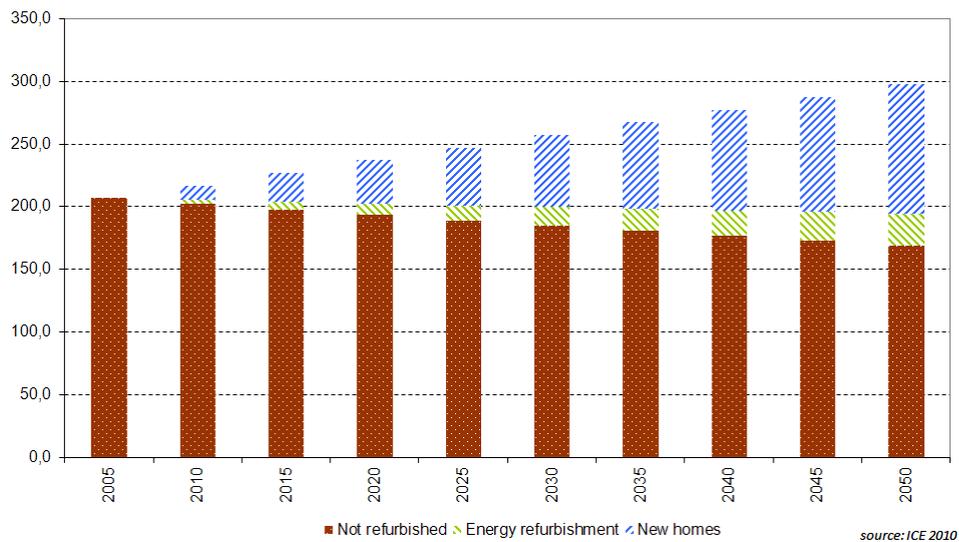
<sup>2</sup> IDDRI 2010. "Habitat Facteur 4. Étude d'une réduction des émissions de CO2 liées au confort thermique dans l'habitat à l'horizon 2050", Institut du Développement Durable et des Relations Internationales (IDDRI), Les cahiers du CLIP n°20, November 2010

<sup>3</sup> FEDERCASA 2006. "Housing statistics in the European Union 2005/2006", Federcasa, 2006.

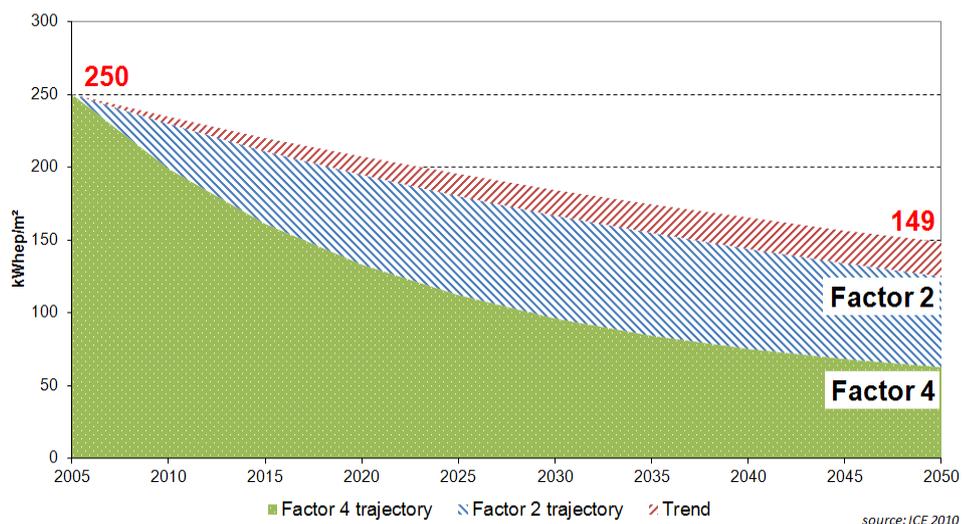
<sup>4</sup> ICE based on UNECE 2001. "Housing statistics", United Nations Economic Commission for Europe (UNECE), 2001.

<sup>5</sup> ICE based on DG-TREN 2007. "European energy and transport - Trends to 2030, update 2007", Directorate-General for Transport and Energy (DG-TREN), 2007.

**Figure 1: Trends of stock evolution in the residential sector (million homes)**



**Figure 2: Average evolution of energy consumption in the residential sector.**



Under those strong hypotheses, 70 to 180 million of homes need to be refurbished at strict energy consumption standards before 2050 in order to reach the Factor 4. Assuming an average cost of 23,000 Euros per comprehensive refurbishment per dwelling<sup>6</sup>, we can anticipate a need of approximately 1,500 - 4,000 billion Euros to be invested in energy

<sup>6</sup> Based on a survey of prices from construction companies and feedbacks from building sites, the Institute for Sustainable Development and International Relations (IDDRI, 2010) estimated a cost of refurbishment ranging from 13,000 up to 25,000 Euros per dwelling in France only for building measures. If we add 2,000 to 6,000 Euros for HVAC, an average cost for comprehensive refurbishment could amount 23,000 Euros. Obviously, the very diverse conditions of intervention (access to the building site, areas, type of housing, etc.) imply a large variability of costs and this average figure can only be indicative.

refurbishment of the EU residential sector before 2050. Annualized over the next 40 years, this means between 40 and 100 billion Euros per year on average to be dedicated to the sole residential sector refurbishment at European level.

## 2.2. The Social Housing sector

### 2.2.1. Definition of Social Housing in Europe<sup>7</sup>

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Social Housing has been developed in various times and forms across Europe and is characterized by such diversity of national housing context, conceptions and policies that it is difficult to address “Social Housing in Europe” as a homogenous concept.

Social Housing can be described by some common elements that enable to outline a common definition<sup>8</sup>, according to which the sector:

- is assigned specific missions of general interest (providing decent housing for low-income households, housing vulnerable groups like refugees or victims of natural disaster,...);
- intends to increase the offer of affordable housing by constructing, managing, purchasing, selling and/or renting Social Housing;
- addresses target groups (either in socio-economic terms, or in terms of vulnerabilities of various types).

Embodying these features, Social housing represents nearly 35 million homes across Europe (17% of the overall stock), mostly built before 1975 and housing 120 million people<sup>9</sup>. Most of the rental Social Housing is managed by specific entities we refer to as “Social Housing Operators” (SHOs).

The link between Social Housing and public policies is embedded in the mission of Social Housing, thus creating interdependence between SHOs and public authorities. Although it has been for a large part created by the corporate sector and civil society, Social Housing has become for most European public authorities one of the major enforcement levers of the housing policy.

### 2.2.2. High potential for massive energy retrofitting

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SHOs are one of the key players to be mobilized in order to reduce energy consumptions and GHG emissions in the housing sector. They are the only institutional actors specialized in housing management, a sector where the level of professionalism is often low. All SHOs have very similar features, and they manage a considerable housing stock compared to a private landlord. They have a much better decision-making capacity than condominiums (even though they may be limited by financial resources and local governance problems).

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<sup>7</sup> Further information can be found in the FRESH document «Survey on Social Housing in Europe », available at the Fresh project website : [www.fresh-project.eu](http://www.fresh-project.eu)

<sup>8</sup> For further details see CECODHAS 2007. “Housing Europe 2007. Review of social, co-operative and public housing in the 27 EU member states”. [www.cecodhas.org](http://www.cecodhas.org)

<sup>9</sup> TACKOBST 2007. “Newsletter #1”, TACKOBST project, Spring 2007.

SHOs manage in the long term (30-50 years) the housing they build, which is an incentive to reduce future operational and maintenance costs. Their technical expertise, including in terms of energy performance, is also much better compared to private housing companies or individual landlords.

Addressing a limited number of SHOs, it is possible to reach quickly a very large number of dwellings. The replication potential for energy retrofitting is therefore quite high.

SHOs have several incentives for energy retrofitting of their housing stock:

- Considering SHOs' social mission and dependency on public funding, the sector is usually targeted as a priority and assigned the strongest regulations in terms of energy performance.
- Reducing tenants' energy bills is a way for SHOs to secure the solvability of the formers, thus limiting the amount of unpaid rents and vacancy.
- As long-term managers of their housing stock, SHOs have to anticipate upcoming regulations on (existing) buildings in order to avoid any extra costs of future refurbishments.
- The "green value" generated by the energy performance of buildings is progressively integrated in financial approaches, as a result of rising regulations and energy prices, all the more as SHOs have a long-term perspective.

### **2.2.3. Massive financial needs**

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The main obstacles for SHOs to reach Factor 4 are technical, organizational and financial. While technical and organizational problems are progressively being solved through technical innovations and training programs, there is no clear answer to the financial difficulties.

Applying the above analysis to the sole Social Housing sector, we can estimate that 11 - 27 million of social houses need to be retrofitted at strict energy consumption standards before 2050 in order to reach the Factor 4 in the sector. That means roughly 270 up to 670 billion Euros to be invested in the EU Social Housing sector before 2050, an annual average of 11 up to 27 billion Euros for the upcoming 40 years.

Energy retrofitting in Social Housing is currently financed through equity, grants and subsidized loans. None of these resources will be available in sufficient quantities to reach the Factor 4. The number of dwellings to be refurbished at strict energy consumption standard and the associated financial needs for reaching the Factor 4 target exceed largely the direct investment capacity of even the wealthiest SHOs. This constraint is even more challenging considering that most SHOs are required by public authorities to invest in new affordable housing.

In addition to direct financial constraints (access to appropriate funding), SHOs face specific barriers that are slowing down the rhythm of energy retrofitting and/or lowering the energy saving targets:

- SHOs generally cannot, under the constraint commonly linked to their institutional mission, raise rents to balance their investments for energy savings; nor they can, in most cases, charge an additional service for energy efficiency, even if the overall bill has been lowered after refurbishment;

- When SHOs invest in energy efficiency measures, they do not get return on investment in the short run, whereas the tenants benefit from reduced energy bills ("split incentive" barrier);
- Debt capacity of SHOs may limit generalization of low energy refurbishment. Indeed, once the debt to income ratio will reach the maximum acceptable level, and this will rapidly happen since energy retrofitting requires large investments, banks will stop crediting the SHO, even for its current/core business.

#### 2.2.4. Lack of adapted financing mechanisms

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Simulations show that, though current market trends do not enable to reach the collective target of Factor 4, it is hardly possible to imagine that the required amount of investment could be mobilized each year at the European level with traditional public incentive mechanisms (such as subsidies, tax rebates or subsidized loans). Indeed, public resources to support investment are scarce, not sustainable by nature and may not have sufficient gearing effect to address the issue of Factor 4 with the appropriate volume and rhythm.

Energy savings seem to be the only resource adequate with the amounts to be mobilized. In France for example, an inhabitant spends on average 590 Euros for domestic energy<sup>10</sup>. Dividing this bill by 2 or 4 could generate the required long term resources to make energy refurbishment investments viable.

### 2.3. Energy Performance Contracting

#### 2.3.1. EPC: structuring the business model

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Energy retrofitting differs from other investments (e.g. construction of new dwellings) because it does not produce a direct income but rather an avoided cost. Energy savings are usually not considered tangible by financial institutions, in particular because of the uncertainty on the actual savings, which may sometimes not be achieved due to an inappropriate design, implementation and/or operation of the building.

An Energy Performance Contract (EPC)<sup>11</sup> is a contractual arrangement under which an energy service company (ESCO)<sup>12</sup> designs and implements an energy retrofit with a guaranteed level

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<sup>10</sup> Data for 2006, of which 71% heating, 13% light and appliances, 10% hot water and 6% cooking. INSEE 2008. D. BESSON, "Consommation d'énergie: autant de dépenses en carburants qu'en énergie domestique", INSEE Première n°1176, February 2008.

<sup>11</sup> EPCs have been implemented in the industry for many years, and to a lesser extent in buildings. The definition used here is adapted to the specific perspective of comprehensive energy retrofitting of buildings. Further information can be found in the FRESH report « State of the art – EPC survey », available at [www.fresh-project.eu](http://www.fresh-project.eu).

<sup>12</sup> According to JRC 2007, an ESCO is "a natural or legal person that delivers energy services and/or other energy efficiency improvement measures in a user's facility or premises, and accepts some degree of financial risk in so doing. The payment for the services delivered is based (either wholly or in part) on the achievement of energy efficiency improvements and on the meeting of the other agreed performance criteria."

of energy performance. The payment for the services delivered is based (either wholly or in part) on the achievement of energy efficiency improvements and on meeting the other agreed performance criteria. In an EPC, the achievement of actual improvement of the energy performance is one of the conditions for the ESCO to be paid.

### **2.3.2. Performance guarantee: a key to secure investments**

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Considering the uncertainty on the actual energy savings that can be achieved in the building sector, banks and financial institutions usually require traditional guarantees to cover all the debt. This quickly limits the amount of investments a building owner can make, and hence prevents any strategy to reach Factor 4.

EPCs quantify and guarantee long-term energy savings. EPCs can serve as a basis for a business model where intangible energy savings are transposed into a secured cash-flow (guaranteed energy performance), so that they can be presented as counterpart to investment in energy performance and secure debt repayment.

With a performance guarantee, investment in energy efficiency may be required a lower risk premium as “income” is guaranteed for the time of the contract, thus lowering financial costs. Energy saving measures should therefore become more attractive to the financial sector, opening the way for massive investments.

In some cases, EPC may allow the SHO to externalize its debt, with limited risk (contractual guarantee), and thus provide a solution to overcome the reluctance of building owners to dedicate their investment capacity to energy retrofitting.

### **2.3.3. Third-party financing: mobilize external capital**

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Any EPC requires investment, tangible or intangible, to change the energy characteristics of the building and to make possible an improvement of its energy performance.

Different financing solutions can be considered for financing the same guarantee scheme. In an EPC, investments can be financed by the building owner<sup>13</sup>, by an ESCO or by a financial institution (Third-Party Financing - TPF), either directly or, more generally, through a combination of financial products (equity, loan, grants, incentives schemes, etc.). Legal and fiscal consequences should be analyzed in each case. Besides technical and organizational issues, one major challenge with EPC is thus defining the optimal financing mechanism and finding the appropriate financial products, in order to render the project acceptable for all parties involved (i.e. building owner, tenants, ESCO, third-party financier, if any).

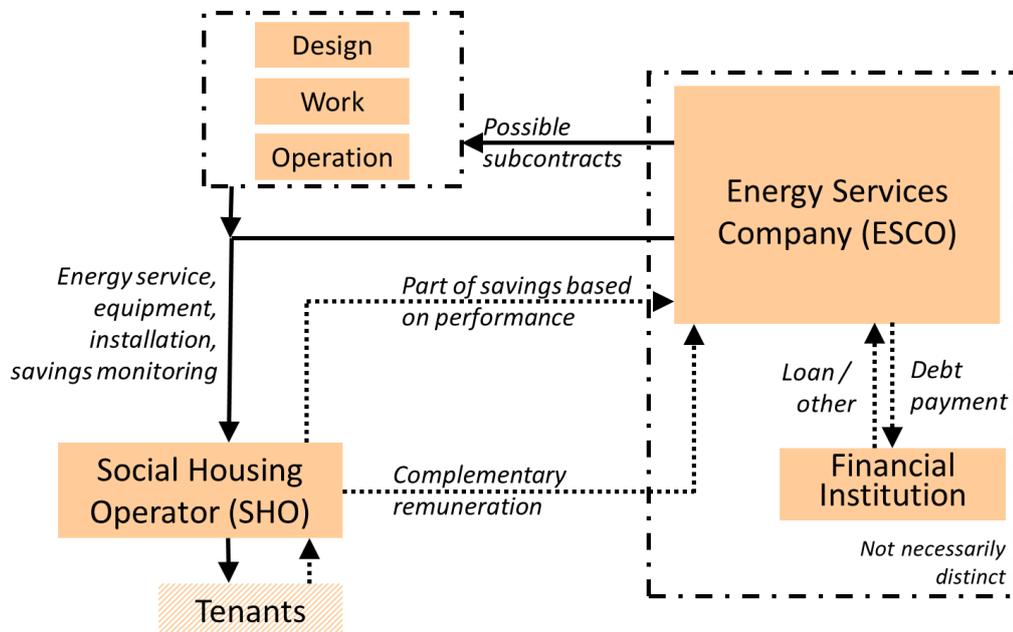
In the FRESH project, we focus on EPCs involving not only utility services (“Chauffage” in France or “Anlagen-Contracting” in Germany), but more comprehensive services including investments on energy systems and building envelope. We are therefore targeting the TPF

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<sup>13</sup> Considering the transaction costs related to the signature of an EPC, the building owner will more likely be a professional managing a sufficiently large building stock. Implementing EPC in private households would require an intermediate body capable of gathering several small refurbishments under a common EPC

solution, which may allow externalizing the debt related to energy conservation measures. In particular, we analyze the scheme where investments are financed by the ESCO, eventually co-financed by the building owner (see Figure 3).

**Figure 3: Organization of an Energy Performance Contract**

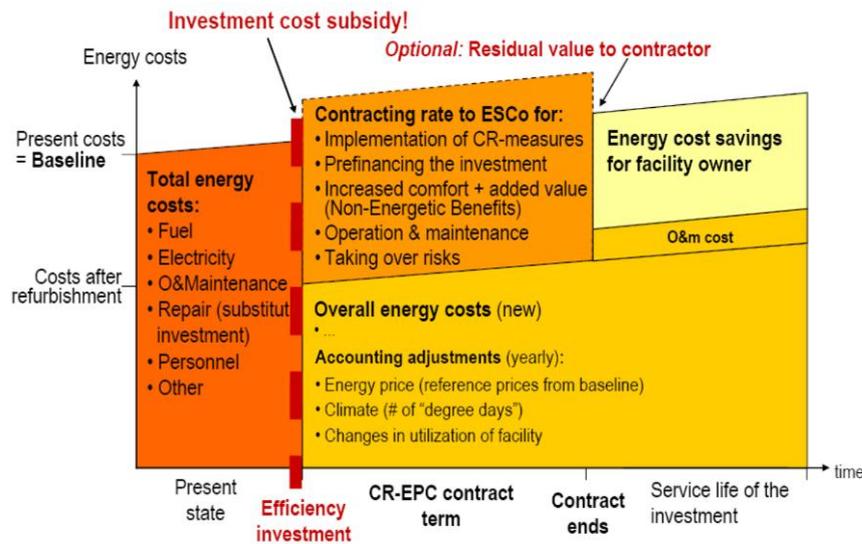


Source: ICE

In the case the investment is supported by the ESCO and charged to the building owner over the contract duration, it should be noted that, considering the current level of energy prices, still not sufficiently high to justify the substantial investments related to comprehensive refurbishments, energy savings will usually not be large enough to repay the investments within a usual contractual duration (5 to 15 years). In most cases, the building owner will have to support an additional charge to payback investment (see Figure 4).

This additional charge or fee (if paid to ESCO for financing service) can however be justified by the value added to the property, both because of its energy performance ("green value") and because the refurbished building offers more comfort and thus, is more attractive.

**Figure 4: EPC scheme for comprehensive energy retrofitting**



Source: BLEYL and SCHINNERL, 2008

The following results can be expected from a large-scale EPC implementation with TPF:

- Energy savings guarantee a positive cash-flow, so that they can become a counterpart to investments in energy efficiency and secure debt repayment;
- Building owners do not need to invest directly in energy efficiency: debt linked to energy retrofitting does not appear on their balance sheet, which maintains their capacity to invest;
- Building owners can thus allocate their equity and debt capacity to other investments, mainly to their core business, but also to other energy efficiency investments that would not be made through EPCs. Indeed, it cannot be expected that all investments would be realized through EPCs;
- Involving third-parties (of different size and statute) in financing energy efficiency, EPCs open the way for private capitals to be invested in energy savings, providing an alternative to the insufficiency of available public funds.

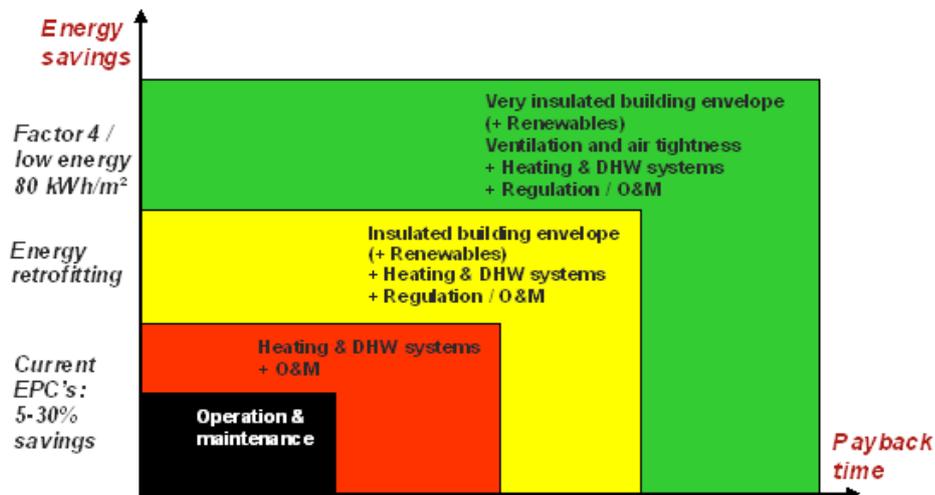
## 2.4. Comprehensive energy retrofitting

Energy savings measures can be achieved in housing through investment in improved energy management, regulation systems, heating and domestic hot water equipment, switching to renewable energy sources, and investment in the building envelope insulation (windows, ceilings, ground floors, and facades). These investments have different cost levels and impacts in terms of energy savings, which are illustrated in the Figure 5. It should be noted that, at the European level, this type of analysis is very general and has mostly a heuristic value. In particular:

- Energy savings depend largely on climate conditions and on the initial level of energy performance;
- Investment costs depend in particular on national and local labor costs;

- Payback period is highly conditioned by local energy costs and energy price evolution. Due to its unpredictability, the latter is usually not taken into account by financial experts.

Figure 5: Factor 4, long-term investments and EPCs



Source: ICF, 2011

The natural tendency of building owners and investors is to focus on the more profitable investments, which is in contradiction with the general interest of climate change mitigation.

Currently, EPCs are generally limited to the simplest operations and most mature technologies, well known by operators, with relatively short payback period (< 10 years). In particular, the majority of the EPCs signed to date focus on the refurbishment of energy production/distribution systems (e.g.: replacement of boilers, insulation of the distribution systems...), without any impact on the useful energy demand (e.g.: insulation of the frontages, replacement of the door frames...).

A large energy saving potential is therefore lost at least for a generation before the next refurbishment program is undertaken: considering an average lifetime for energy production systems of 15 to 20 years and the fact that most building owners prefer waiting for them to completely depreciate before engaging in new investments, refurbishment will not take place more than 2 times during the following 40 years. Therefore, having signed minimal (weak target) EPCs is likely to pose a serious problem for building owners in the medium to long term. In fact, they might have no more room to contract on a package of complementary, jointly efficient operations. Having mutualized costs and risks between investments with weak energy impact but short payback period (e.g. HVAC systems) and investments securing high energy savings but with longer payback period (e.g. building envelope), would have ensured a global profitability of the operation, acceptable from an investor point of view.

In a nutshell, if implemented in accordance with current market practices, EPC may focus only on the “low hanging fruits” and once those have been picked, building owners may never be able to finance the required interventions on the building envelope, which represent very high costs with long payback periods. Consequently, without a more ambitious energy retrofiting strategy and employment of appropriate business models (e.g. third-party financing EPC), the

building owners may lose the possibility of reaching a Factor 4 on their GHG emissions at an acceptable cost. It is therefore necessary to demonstrate to the market actors that it is possible and worthy to implement EPCs for comprehensive energy retrofitting, including investments on the building envelope.

## 2.5. Current obstacles for EPC implementation in the Social Housing sector

EPC scheme as presented above could be used to finance massive energy retrofitting of the Social Housing sector. Yet, a series of obstacles currently limit the use of ambitious EPC:

- On the one hand, the demand side is subject to regulations that need to be adapted;
- On the other hand, the supply side needs to be stimulated in order for the ESCO sector to develop a new offer meeting the needs of Factor 4.

This section presents the main difficulties one should be aware of before engaging in an EPC in the Social Housing sector. Further developments and recommendations can be found in the specific report « Recommendations to public authorities » available at [www.fresh-project.eu](http://www.fresh-project.eu). They are based on feedbacks from the FRESH project partners during their pilot site experiences and complemented, when relevant, with a state of the art review.

### 2.5.1. Asset management in Social Housing

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In most cases, energy refurbishment of Social Housing is integrated within a comprehensive management strategy of the SHOs assets. Indeed, SHOs manage housing assets in the long run. Houses are generally built or purchased with the view to be kept and not for the purpose of resale in the short or medium term, unlike in the private housing sector. SHOs implement a policy of maintenance and continuous rehabilitation of their assets, which leads to significant reinvestments in the buildings where technical conditions or commercial quality require so. It is generally estimated that buildings are rehabilitated every 25 years.

Most SHOs establish strategic plans that, based on a diagnosis of technical conditions, commercial appeal and profitability of each of their properties, provide operational orientations. Depending on their investment capacity, SHOs establish multiyear action plans, which define actions to be implemented, including estimations of the investments required for each building.

Moreover, in some countries like France, SHOs are required to sign conventions of social utility with the State and/or the relevant local authorities of the territories where they own assets. It marks the willingness of governments and local authorities to monitor more closely the Social Housing activities. Energy refurbishments form a consistent part of contractual issues and enforcement mechanisms are progressively being implemented.

The SHOs' asset management is therefore strongly determined by a set of constraints:

- Technical constraints, related to the technical condition of their assets, and the level of maintenance (sometimes inadequate) that has been practiced.
- Social constraints related to the tenants and possible difficulties at a number of locations.
- Policy constraints, notably related to the urban renewal policies.

SHOs have to rationalize the allocation of their financial resources, due to the strong budget constraints they currently face:

- gradual decline of State support;
- high requirements for SHO's equity to finance new construction, especially in cities where housing markets are tight;
- stagnation of revenues from rents due, on the one hand, to the weakness of the rent indexation mechanism and, on the other hand, to the fact that many of the rents have already reached the regulatory ceiling and cannot be increased to face refurbishment costs;
- increase of the default rates (number of tenants that do not pay their rent and charges), as a consequence of the economic crisis since 2008.

SHOs do not therefore plan "pure energy" refurbishments, which are almost always included in global rehabilitation operations targeting primarily the comfort and quality of dwellings' usage. Indeed, doing so reduces the costs for energy renovation, considering fixed costs for engineering, conducting operations and for site installation.

Currently, it appears that most SHOs' asset management strategies do not address the Factor 4 target by 2050, and probably neither do they allow to reach the EU goals by 2020<sup>14</sup>. Considering the SHOs' poor asset management strategies and current financial constraints, there is an obvious risk that EU's GHG emissions goals may not be achieved.

## 2.5.2. Recoument of energy savings from tenants

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The major problem SHOs are facing in energy retrofitting is that they are not always allowed to recoup energy savings from tenants. This is known as the "split incentive" barrier, when those responsible for paying energy bills are different from those making capital investment decisions and paying for upgrades.

Rents in Social Housing are regulated by a statutory ceiling. In the case of a refurbishment, rents are generally increased to the ceiling, with the agreement of tenants. However, this increase is usually not sufficient to face investment engendered by comprehensive energy refurbishment, especially when rents are already close to the ceiling because of previous refurbishments and annual rent increase policies.

Except for a few countries, regulations prohibit any attempt to charge an energy efficiency service or raise rents in order to recoup energy savings. The exceptions introduced in the French and Italian regulations still present important weaknesses:

- In the Italian system, SHOs can recoup 100% of energy savings from tenants if all tenants give their agreement. As a result of the negotiation processes, SHOs tend to recoup less than 100% of energy savings;

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<sup>14</sup> In December 2008, the EU adopted an integrated energy and climate change policy including ambitious targets for 2020: (i) cutting greenhouse gases by 20% (30% if international agreement is reached) (ii) reducing energy consumption by 20% through increased energy efficiency (iii) meeting 20% of its energy needs from renewable sources.

- The French system enables to recoup energy savings, but limited to 50% of the conventional<sup>15</sup> savings for a maximum duration of 15 years, and without any energy price adjustment. These limitations reduce by far the financial feasibility of the operation. The agreement of tenants is not required, but a consultation has to be carried out.

Although recouping energy savings from tenants raises political issues, the economic point of view cannot be ignored. Using energy savings as a financial resource for Factor 4 is a critical issue, conditioning EPC models' viability in Social Housing. The following mechanisms should therefore be considered:

- "Warm rents", a system where tenants pay a global fee for their rent and energy charges, thus enabling the SHO to transfer energy costs to rents after an energy retrofitting;
- The possibility for SHOs to recoup up to 100% of energy savings from tenants, based on a performance guarantee;
- The possibility to index the recouped savings on energy prices;
- The possibility to recoup energy savings during the whole payback period of the investment, whether or not the energy price evolution is taken into account;
- The possibility to recoup energy savings without an official agreement of all tenants.

At this stage, it should be emphasized that:

- Although tenants benefit from lower energy costs, they will never invest in the energy retrofit;
- We do not propose to increase energy charges for the tenants, but rather not to award the entire reduction in energy charges, as this is the case now;
- The retrofit adds value to the building ("green value") and therefore it is legitimate to consider that the building owner should pay part of the investment.

### 2.5.3. Equal access to public incentives

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In several EU countries, SHOs benefit from various public incentives, linked to their general interest mission and their specific statute: tax exemptions, subsidies, subsidized loans... This induces a clear preference for financing by SHOs compared to third-party financing. At the same time, the reduced debt capacity of SHOs slows down the possible large scale replication, while the third-party financing would be a viable possibility to deal with large stock refurbishments.

Consequently, regulations should be adapted in order to enable ESCO and third-party financiers to have the same advantages than SHO when they finance energy retrofitting in Social Housing. Those advantages would not be linked to the statute of the actor but to the activity he is carrying out. It is justified by the fact that Social Housing tenants remain the final recipient of the energy savings, and that the ESCO would not be substituting the SHO but rather working on its behalf.

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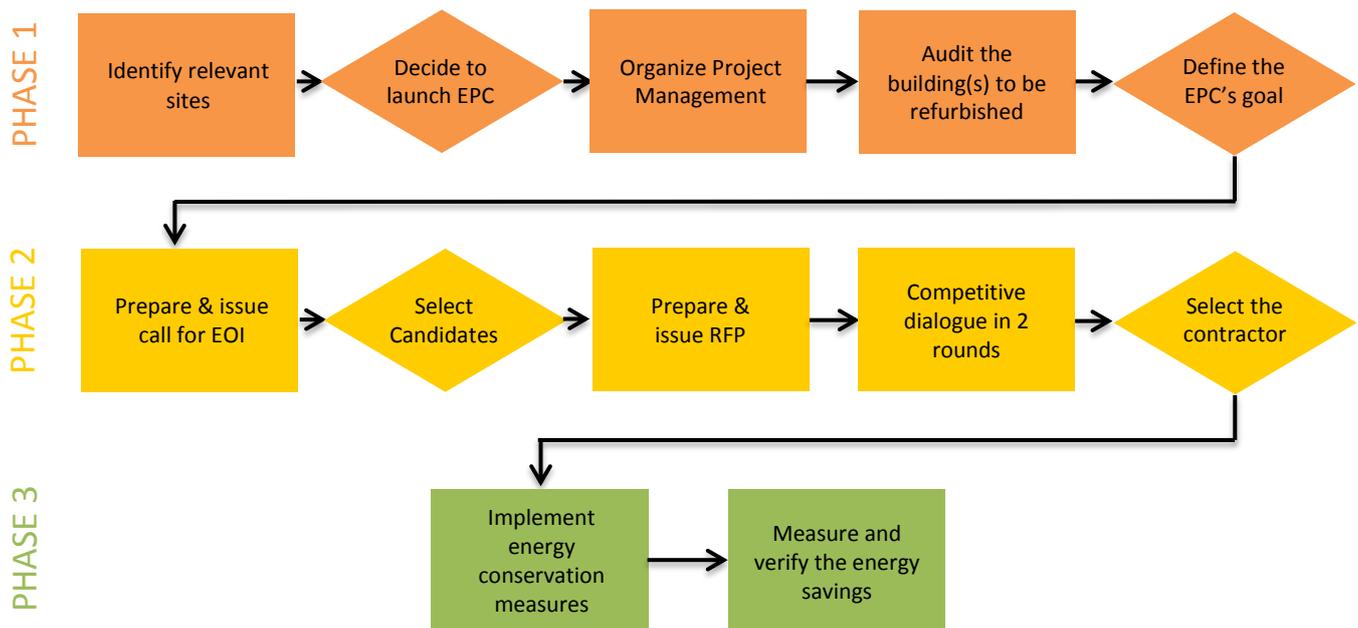
<sup>15</sup> Obtained through calculation and numerical simulations, referring for example to the methods used for allocating energy labels.

### 3. Methodology for implementing an EPC

An EPC implementation process can be divided into 3 main phases<sup>16</sup>:

- Phase 1: Project(s) preparation;
- Phase 2: Selection of the contractor;
- Phase 3: Implementation of the contract.

Figure 6: Implementation process for an EPC



#### 3.1. Phase 1: Project(s) preparation

The project preparation phase is crucial because it determines the success of the subsequent phases. The following aspects should be addressed during this first phase:

- Identify relevant sites for an EPC;
- Decide to launch an EPC;
- Organize project management;
- Perform a series of on-site diagnoses;
- Define the objectives of the EPC.

<sup>16</sup> This chapter is freely inspired by BULLIER et al. 2011 and AEPCA 2000.

### 3.1.1. Identify relevant sites

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The first step consists in identifying, through a series of preliminary diagnoses, the relevant sites where an EPC can be implemented.

One must consider several criteria for selecting relevant sites. In order to be considered relevant for an EPC, the site(s) should notably allow for:

- Significant energy savings;
- Centralized control on energy consumptions;
- Mutualization of investments for energy savings with other rehabilitation programs and sites' renovation, thus reducing marginal energy retrofitting costs.

#### a. Focus on energy intensive buildings

Considering its associated transactions costs, an EPC can be increasingly interesting as there is more room for energy savings. Indeed, this situation should reduce the investment payback period and the duration of the contract, thus making EPC more acceptable by average market actors.

In case they exist, it is relevant to make use of existing energy performance certificates<sup>17</sup> and focus on the buildings with the worst energy performances (classes G, F and E, and in some cases class D). However, as energy performance certificates usually present primary energy<sup>18</sup> consumption, one should pay attention to the possible misinterpretation of the conversion factor between primary and final energy in electrically heated buildings<sup>19</sup>. Furthermore, the gain should be considered not only in terms of kWh/m<sup>2</sup>/year saved but also in monetary savings, especially when a switch in the energy source is foreseen.

#### b. Target collective heating systems

The presence of a system allowing centralized control over the tenants' energy consumption for heating and hot water facilitates the optimization of energy management and helps the ESCO to guarantee energy performance at a sustainable cost. This normally excludes dwellings

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<sup>17</sup> In application of the EU Directive 2002/91/EC on the energy performance of buildings, member States have to ensure that when buildings are constructed, sold or rented out, an Energy Performance Certificate is made available to the owner or by the owner to the tenant or potential buyer. The certification concerns such elements as building envelope, windows, heating, electrical and ventilation installations, lighting, heat sources (incl. boilers, CHP units) cooling systems and others.

<sup>18</sup> The concept of primary energy is mainly used for energy statistics. Primary energy is the energy embodied in natural resources prior to undergoing any human-made conversions or transformations. Primary energy sources are for example coal, crude oil, sunlight or wind.

<sup>19</sup> Final energy consumption covers energy supplied to the final consumer for all energy uses (that are not fuel conversion or transformation activities). In France, considering the electricity production and distribution processes, a convention establishes that 1 kWh of final electricity consumption should correspond to 2.58 kWh of primary energy consumption. Such conversion factor may distort the evaluation of potential energy savings achievable in an electrically heated building.

with individual production of heat and hot water. However, dwellings with individual heating systems may be treated under an EPC if the SHO is disposed to switch to a collective heating system, or at least if a possibility of centralized control over individual heating systems exists.

**c. Constitute a pool of buildings**

It may be worth to combine sites presenting significant energy savings potentials with sites where energy refurbishments present much longer payback periods. “Pooling” sites of different size and/or with different energy savings potentials may allow reaching the right financial equilibrium between, for example, the renewal of boilers (short payback period but limited energy savings) and the comprehensive interventions on the building envelope (longer payback period but larger energy savings).

**d. Integrate EPC in the rehabilitation programs**

EPC should be considered in relation to the “classic” rehabilitation operations (upgrade of comfort, security, common areas, etc.) foreseen in the SHO’s asset management strategy. In this case, an EPC should include two components: energy retrofitting and “classic” building refurbishment. Indeed, as stated in chapter 2.5.1, though some sites would require only energy renovation, in most cases the implementation process will have to integrate classic rehabilitation.

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**3.1.2. Decide to launch an EPC**

**a. Current legal framework**

Although Social Housing has been created for a large part by the corporate sector and civil society, a large share of SHOs conforms to public procurement rules.

To date, EPC is not a specific contract under public procurement code, and it is not governed by specific laws and regulations (as it is the case for example for public service delegation). Public procurement code offers two possibilities to conclude an EPC: public private partnership (PPP) or public contract<sup>20</sup>.

Though PPP offers vast possibilities and seems well adapted to the specificities of EPC, it requires a complex procedure and generates high transaction costs, which can be justified only for the largest refurbishment projects. The use of public contracts is more appropriate for the simpler and/or smaller projects. However, public contracts are impaired by application of the rules that require a distinction between design, construction and operation, and also prohibit differed payment. Jurisprudence in some countries, France notably, allows the signature of a “global” energy performance contract, by derogation. But payment is still to be made through advance, interim and balance payments, in accordance with the work progress and the completion of services. The public purchaser (in our case, the SHO) is therefore required to ask

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<sup>20</sup> See Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts.

the contractor to provide a “guarantee of the energy performance guarantee”, while a deduction from the payments would have been much simpler and lighter.

It is important to assess and be fully aware of potential legal or institutional hurdles before proceeding further.

## **b. Competitive dialogue procedure**

In this handbook, we choose to present the approach based on a competitive dialogue procedure.

Institutions may sometimes be unable to define precisely the objective means for satisfying their needs or assess what the market can offer in terms of technical solutions, products or services. In particular, it may happen in the case of some innovative projects where:

- The market is not well established and the consumers do not have sufficient visibility,
- A variety of technical solutions are available,
- The legal or financial complexities of SHO’s requirements cannot be defined in advance and they need to be discussed with the potential bidders.

Developed quite recently in the European Union (introduced for public sector contracts in April 2004 by the EU Directive 2004/18/EC), the Competitive Dialogue is a procedure whereby an Institution is able to conduct dialogue with bidders directly with the aim of developing one or more suitable alternative solutions to meet its requirements. Individual bidders may develop more than one solution. The dialogue may be conducted in successive stages, with the option of reducing the number of solutions (and therefore bidders) at each stage. Solutions must be eliminated by applying the transparently defined award criteria.

The competitive dialogue therefore offers possibilities for public purchasers to improve the quality and innovativeness of the proposals made to them. It is a flexible procedure designed to allow the public authority to discuss with each candidate all aspects of a project, while preserving the competition between economic operators. In addition to allow support in the definition of the SHO’s needs, the competitive dialogue has, in relation to a tender, the advantage of allowing a more complete and comparative overview of the technical, financial and/or legal solutions that the market can offer, as bidders are not constrained in the formulation of their proposals by any predefined, too precise technical specification.

However, it should be noted that the competitive dialogue is a procedure which can only be used in the specific circumstances expressly provided for in the EU Directive 2004/18/EC. In order to resort to a competitive dialogue procedure, the SHO must demonstrate the complexity and/or the urgency of the project that justify the use of such procedure.

A competitive dialogue is a special procedure that requires compliance with a set of rules. The first rule is the confidentiality of the bids that are transmitted, which requires special attention for respecting the anonymity of the competitors as well as not transmitting any information from a candidate to its competitors.

We suggest a dialogue in two rounds, but SHOs are free to set the number of rounds of dialogue they consider essential depending on their project complexity. It is useful to reserve

in the competitive dialogue regulation the possibility to add an extra round of auditions, if estimated to be necessary during the project phase.

### **3.1.3. Organize project management**

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The structuring of project management is crucial to the success of the project. Indeed, an EPC is a complex, furthermore new, instrument that requires specific skills and organization. The project team shall comprise a core group dedicated to the management of the project, as well as experts with solid managerial, technical, financial and legal skills.

#### **a. Organize internal team**

Obtaining approval from key decision-makers within the company can be a long and slow process. It is therefore necessary to secure the support of key decision-makers before any effort is made to progress beyond the initial exploratory stage. Concretely, it is important to secure buy-in at all levels:

- Top managers (at the level required to approve the necessary investment) must fully support the initiative, understand the economics and impacts of the project on the company's activities, and provide leadership;
- Operational managers must be involved in the technical and economic development and provide endorsement to whoever will sign the final approval, ensuring that all technical and operational risks are appropriately managed;
- Financial managers must assess the financial outcomes of the project and provide the required support to obtain final approvals from top managers, ensuring that: the economic benefits outweigh costs, all financial risks are managed, and the financial priority of the project can be assessed against other business opportunities.

An ESCO may be working with SHO's different management levels simultaneously. This means that it is important to assign a "Project Team" for the overall coordination of the project. The Project Team will assume the responsibility to ensure that all internal procedures for project approval are followed and that all the right people at the appropriate levels are involved as required.

#### **b. Select external expertise**

An independent facilitator experienced in EPCs can provide guidance through the procedure. Independent consultants with experience in EPC negotiation can identify the issues one should be aware of before the EPC is signed. They can facilitate the negotiation process by providing an expert review of the proposals prepared by ESCOs, allowing thus the parties to arrive at a mutually advantageous final agreement.

External expertise may be used either for global assistance throughout the process or for specific tasks, for example:

- Define the general scope of works;
- Perform preliminary audits, identify energy savings potentials and estimate related investment costs;

- Prepare documents for procurement (such as the call for Expression of Interest and the Request for Proposals);
- Assist in the selection of candidates and the evaluation of their proposals;
- Review the proposed works' specification including the proposed energy conservation measures;
- Review the proposed Measurement and Verification plans (M&V plans);
- Review the final EPC to be signed between the SHO and the selected ESCO;
- Provide guidance for disputes' resolution, etc.

As the future ESCO contractor will propose both project design and implementation, this external expertise has to be fully independent and has to provide advises in the exclusive interest of the SHO.

The exact missions of this external expertise should be adapted depending on the project's needs and the skills already available within the SHO Project Team. Consequently, we do not necessarily distinguish the external expertise later in the document and include it under the SHO's Project Team.

#### **3.1.4. Audit the buildings to be refurbished**

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Once the relevant building(s) are identified (see 3.1.1), it is necessary for the SHO's Project Team to perform an initial diagnosis that should be as comprehensive as possible.

In a "classic" refurbishment operation, the diagnosis is often performed by the prime contractor and iteratively refined as the project progresses. This is not possible in a competitive dialogue insofar as candidates must present a firm and definitive proposal in terms of costs and performance.

Technical analyses (e.g. urban studies, diagnosis of asbestos and lead, etc.) that are not conducted in advance by the SHO would have to be realized during the competitive dialogue, considering they may result necessary for the good elaboration of the ESCOs' proposals. This may seriously delay the project, increase costs and, in case these studies are to be conducted by each ESCO individually (instead of being provided by the SHO to all candidates), it may reduce the resources allocated by candidates for energy and financial studies, which are the real challenges of the competitive dialogue.

In addition to the general technical analysis, detailed energy audits will be necessary. Indeed, the EPC will be based on an energy consumption baseline (average normal energy consumption before refurbishment) to determine the energy performance guarantee. This baseline needs to be agreed on by all parties in the EPC and has to be included in the M&V plan. This energy consumption baseline should not be disputable as it would undermine the energy performance guarantee.

##### **a. Documentation review**

The SHO's Project Team should first collect all available documents related to the targeted building(s):

- Original plans and, if any, technical advices on the construction process;
- History of original works executed;
- History of subsequent interventions on the structure;
- History of past interventions on the building(s);
- Reports on the balance of building(s)' charges over the last three years;
- Any other document that may provide information on the building(s).

#### **b. Technical diagnosis**

A technical diagnosis should constitute a comprehensive inventory of the building(s)' characteristics and identify any malfunctions. The diagnosis must be precise enough to allow candidates in the competitive dialogue to have a good knowledge of the building(s), although it will be supplemented by site visits. In this regard, photographs are important as they could provide a quick understanding of the technical issues on the site.

#### **c. Energy audit and refurbishment scenarios**

This task aims at establishing a precise description of the current state of the targeted building(s) and evaluating their present and future energy performance.

The energy audit is a crucial step in preparing the EPC. It should be sufficiently clear and comprehensive in order to be accepted by the candidates and included in the contract. A dynamic thermal simulation can be relevant as it gives a reliable theoretical consumption of the building(s).

Several energy refurbishment scenarios should be studied and quantified in terms of energy savings and related costs. Those energy refurbishment scenarios will have no contractual value, since the candidates will be mostly free of the energy conservations measures to be implemented in order to achieve the energy performance commitment. However, the scenarios will help the SHO's Project Team evaluate the quality of the offers made and the commitment of the candidates.

#### **d. Urban Studies and administrative authorizations**

It is important to consider the local urban regulations as they may limit the possibilities of interventions (facades, outdoor ...). Therefore, the SHO's Project Team should get from the local authority a certificate summarizing all the urbanism constraints applicable to the building(s).

#### **e. Other studies**

Depending on the building(s), a number of additional studies could be performed in order to have sufficient knowledge of the site(s). They may include:

- Diagnoses of asbestos and lead before work;
- Study of soil;
- Identification of underground networks;

- Air tightness of existing buildings;
- Other...

### 3.1.5. Define the EPC's goals

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On the basis of the diagnoses made, SHO's Project Team must define the objectives of the EPC. They should be validated internally by the technical and financial specialists beforehand, since it could be complicated to change them once the competitive dialogue has been launched.

#### a. Nature of the EPC

It is essential at this stage to define the nature of the EPC, which can vary from one site to another:

- Inclusion or not of non-energy "conventional" refurbishment elements (e.g. compliance to sanitary norms, decoration, outdoors works, etc.);
- Fuel supply to be included or not in the contract: this choice changes the economic equilibrium of the contract for the ESCO and may reduce the scope of potential candidates to the few operators who are able to supply energy;
- Third-party financing or direct financing by SHO?

#### b. Energy goals

Regarding energy results, the competitive dialogue is a design-build contract, which means that the SHO fixes the level of energy performance to be achieved, while the means used to achieve such level of performance fall under the responsibility of candidates.

#### c. Program of works for conventional refurbishment elements

To limit the costs of study for candidates, it is recommended to precise and to specify the work program for the conventional refurbishment elements, as it would have been done in a "classic" refurbishment operation.

## 3.2. Phase 2: Selection of the contractor

### 3.2.1. Prepare and issue the call for Expression Of Interest

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The call for Expression Of Interest (EOI) sets out the type and format of any information required from respondents. It should request as much information as necessary in order to make candidates' evaluation as easy as possible.

The call for EOI documentation should state the SHO's interest in entering into an EPC, with general information about the project scope and a request for respondents to describe their work approach. It should provide a minimum of information on:

- the overall objective of the project, the scope of work required;
- the respondent's professional skills to perform the required work(s);
- the respondent's approach on EPC and especially on energy performance guarantee;

- the respondent's proposed financing solutions, with specific information on third-party financing.

For further guidance, a template Call for EOI is enclosed in Annex 1.

Depending on the project size and complexity, the call for EOI may be advertised in the local, national and/or European specialized press, with the aim of identifying the maximum potential contractors able and willing to engage in the competitive dialogue procedure.

### **3.2.2. Select qualifying respondents for the competitive dialogue**

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In order to be qualified for the competitive dialogue, the respondent should prove that:

- He understands what EPC is, he is likely to offer such service and he meets the pre-qualification criteria;
- His resources match the requirements (technical, financial, geographical, etc.) of the project;
- He has valuable experience in this field.

At this stage, the selection of candidates is quite simple, based on their technical, financial and human resources, as well as on the relevant references of the candidates in the field of EPC.

The weighted selection criteria must be defined and specified in the call for EOI. Each application will be rated on the basis of these criteria and the ranking will be established accordingly.

EPC implies a long-term financial relationship between the SHO and the contractor. The SHO may wish to receive comprehensive information on the candidate's financial situation and its ability to support the proposed energy performance guarantee. The financial stability of the candidate should therefore be a major criterion in the evaluation.

For an effective competitive dialogue, we suggest to limit the number of prequalified candidates to three, if possible, in order to ensure a good competition between proposals while limiting the costs and time required for their evaluation by the SHO's Project Team.

### **3.2.3. Prepare and issue the Request for Proposal (RFP)**

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While the ESCOs are preparing their EOI, the SHO may start preparing the Request for Proposal (RFP) that will be sent to all selected candidates.

The RFP documentation should include the following documents:

- The rules of the consultation during the competitive dialogue;
- The full description of the site(s) to be refurbished;
- A functional program of the building(s) with all its (their) annexes (dynamic models, plans, description of the site(s), etc.). The program shall describe the functional performance requirements with regards to energy, as well as other non-energy elements;
- A framework of answer to RFP for candidates;
- A draft EPC contract.

This RFP should be sent to all preselected candidates, accompanied by a letter of invitation to the competitive dialogue phase.

### **3.2.4. Competitive dialogue**

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#### **a. Sites' visit**

The ESCOs will almost certainly require access to the building(s) in order to conduct their own audits and ask operation managers for whatever information they deem necessary to facilitate accurate drafting of their proposals (this is one reason to limit the number of proponents to three).

There is no strong reason to restrict the access to the sites for candidates as long as the SHO's Project Team is informed. However, one must be careful to ensure that candidates do not meet and establish contacts during these visits, in order to avoid possible agreement between them.

#### **b. Questions from candidates**

Once the site visits have been conducted, sufficient time must be left to candidates to study the project and ask all the questions they have in mind. These questions can be submitted electronically (through an Internet dedicated website and/or by emails). Responses from the SHO should be sent to all candidates anonymously.

#### **c. Intermediate offers**

Sufficient time should be left to candidates to write a first proposal that will be discussed during the first round of auditions.

The proposals should describe how the ESCOs would carry out the outlined work(s), explain how they would structure fees for that work(s) and any provided service, and give estimates of the potential energy savings and the implied costs.

All documents have to be sent to the SHO in the specified format. Given technical requirements and the size of electronic files, they may be sent by regular mail on CD-ROM / USB drive.

#### **d. Analysis of intermediate offers**

Analyze of intermediate offers is fundamental for preparing the upcoming candidates' auditions.

This phase requires a good coordination of the evaluators, bringing all the necessary skills for this task (e.g. legal, financial, technical expertise...). The roles of evaluators should be clearly defined and the agenda established. A screening matrix should be defined in advance based on the elements required in the RFP, in order to easily and fairly compare proposals.

In addition, this phase allows to prepare questions for the candidates, as well as to define the agenda and organize the auditions.

#### **e. Questions to candidates and invitations to the auditions**

Candidates must be invited to the auditions by registered mail, in which the SHO's Project Team shall specify the place, date, time, agenda for the audition and the equipment available to the candidates (e.g. overhead projector, laptop ...).

The invitation to auditions is also an occasion for the SHO's Project Team to send to candidates the list of questions he formulated through the analysis of the preliminary proposals. The questions can serve as basis for the discussions during the auditions.

#### **f. Auditions of the candidates**

Each candidate shall be interviewed separately. The auditions aim at:

- on the one hand, specifying the SHO's needs, and
- on the other hand, getting answers from the ESCOs to the questions sent in advance by the SHO, allowing ESCOs to clarify their proposals.

The initial presentation of his project by each candidate is fundamental. During the auditions, the SHO must be very careful not to be influenced by one particular idea or technical solution, trying to impose it to other candidates.

Industrial property litigation can arise if the elements from a proposal do not remain strictly confidential and are forwarded to other competitors. The SHO must compartmentalize the auditions with the greatest rigor and ensure the confidentiality of the proposals submitted by the candidates.

If some issues were raised during the first round of auditions, modifications to the functional program (as defined in the RFP) can be introduced, but only at the margin and under specific conditions.

#### **g. Minutes of auditions and instructions for the following proposals**

Following each audition, the SHO should write the minutes resuming the decisions that have been taken. Corresponding minutes should be sent to each candidate individually, who should sign them in return, if approved.

It is also possible for the SHO to clarify by mail some issues that were not clearly settled during the auditions or items that were requested during these meetings. These elements should not be part of the minutes of individual meetings but should be communicated in a transparent manner to all candidates, unless they are really specific to a solution proposed by a particular candidate.

#### **h. Final proposals**

A second or a third round of auditions may be conducted if there is need to refine issues discussed around the first proposals. It should not be particularly different from the first round in terms of methodology.

Following the auditions, a request for final proposal should be sent to all candidates. It is important to allow sufficient time for candidates to develop high quality final proposals.

Indeed, the candidates' rating and the selection of the contractor can only be based on the final offers developed by candidates, and not on intermediate offers.

By carrying out an assessment against the evaluation criteria defined in the RFP, the SHO selects the candidate with the best proposal. In the case where final offers include options or alternatives (if allowed in the RFP), it is important to keep in mind that only the main part of the proposal, without options or alternatives, can be considered during proposals' evaluation and comparison. Options or alternatives proposed by a candidate can be considered only if his main offer is the most advantageous.

### **3.2.5. Select the contractor**

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Once the best proposal has been identified, a letter of notification should be sent to the candidates who were not selected, indicating the financial compensation, if any, to be paid in order to cover the costs of the studies carried out by the candidate.

For a better understanding of the final evaluation decision, all letters should indicate the clear and objective reasons for rejection and, in particular, the rating of the candidate against the criteria established in the RFP.

A maximum delay must be established, during which unsuccessful candidates may appeal the negative decision of the SHO. Once this delay has been elapsed, the EPC can be signed between the SHO and the winning ESCO.

In practice, there are little chances for the contract to be ratified immediately after the selection of the winning ESCO, as both parties most probably will have to introduce small adjustments<sup>21</sup>.

## **3.3. Phase 3: Implementation of the Contract**

Once both parties have signed the EPC, they can proceed with its implementation.

### **3.3.1. Implement Energy Conservation Measures**

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With the detailed works specification and schedule in place, the ESCO proceeds with hiring sub-contractors, if necessary, and organizing the site for works under the project. All the construction phase must be coordinated with the SHO, to ensure its special requirements or restrictions are taken into account (planned shutdowns, critical periods of operation, holidays, vacations etc.). Indeed, the SHO should have clarified to the ESCO its needs regarding the timing of installation (e.g. whether the improvements need to be installed during a maintenance shutdown). During the implementation, it is the SHO's responsibility to ensure that the ESCO respects the pre-established schedule and commitments, including the actual installation of equipment and the submission of documents and reports.

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<sup>21</sup> "Small adjustments" means modification of some details of the proposal at the margin, but it cannot mean modification of issues linked to the awarding criteria.

The SHO should ensure that any equipment delivered and installed does in fact match the specifications set out in the ESCO's proposal. Not respecting such specifications can be a matter of contention between the SHO and the ESCO, where one of the parties has entered into the contract under false assumptions.

Commissioning is typically performed by the ESCO, but the participation of the SHO is strongly recommended as a way to improve the SHO's understanding of the performance aspects of the project. Commissioning is not a static process but more likely a process of 'fine-tuning' until the Energy Conservation Measures (ECMs) deliver the expected energy savings, particularly when several ECMs are involved. As in the construction phase, the commissioning process should be well documented and scheduled according to the SHO's requirements.

The commissioning process is an ideal opportunity for training the SHO's operational staff on the details of each of the ECMs and SHO's participation is therefore recommended.

### **3.3.2. Measure and Verify the energy savings**

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Once the project has been fully implemented, the M&V period begins.

As laid out in the EPC, both the SHO and the ESCO will be required to fulfill maintenance obligations. In addition to carrying out the maintenance, both parties are normally required to report on the maintenance that has been undertaken. This is done to assure the other party that all maintenance requirements are being complied with; hence, the maintenance issues should not cause lower than expected savings. Both parties must ensure that the staff is adequately trained to enable the expected energy savings to be achieved and, to avoid alienation, is fully informed as the project progresses. The SHO should ensure that the agreed maintenance schedules are being fulfilled by the ESCO, both in terms of frequency and of work content.

M&V of the energy savings is typically performed by the ESCO according to the terms laid out in the contract. The SHO should occasionally check, directly or by subcontracting an independent expertise, the methods used by the ESCO in producing M&V reports and monitoring the actual energy saving, in order to ensure it complies with the terms of the contract.

The savings reconciliation in the reporting process should identify if any payment has to be made to the SHO (penalty for ESCO: i.e. savings have fallen below the minimum guaranteed amount) or to the ESCO (bonus for ESCO: i.e. there are excess savings in subsequent years). Such savings reconciliation and associated payments would typically be performed on an annual basis.

As the M&V and maintenance tasks are being performed, especially during the first year or two of the contract, the ESCO will be constantly fine-tuning the savings from the ECMs in order to maximize energy savings and thus to reduce its risks. This task may include identifying ECMs that are not performing as planned, and introducing new ECMs to compensate the loss in savings. This continuous improvement is likely to identify new savings opportunities in the SHO's premises and, from time-to-time, the ESCO might present these opportunities.

This last point is one of the main advantages of EPC compared to a traditional refurbishment operation. Indeed, an essential part of an EPC being the energy performance guarantee, the

ESCO should be left free to implement additional ECMs to those originally covered by the scope of works. These will normally be at the ESCO's cost, and should be discussed and agreed with the SHO in advance.

## 4. Concluding remarks

Given the context of rising energy prices, fuel poverty affecting millions of households across Europe and the need to mitigate climate change, it is crucial to massively refurbish at very low energy standard the existing housing stock, and notably Social Housing stock.

Considering refurbishment trends, reaching the "Factor 4" objectives requires developing new adapted funding to generalize low energy refurbishment.

Funding could be found through Energy Performance Contracts with third-party financing: the business model is still largely to be defined in the social housing sector but the potential is huge.

FRESH project partners have worked out some of the legal, financial and technical framework for EPC in Social Housing and established pilot EPCs in their respective countries. Implementation handbooks including template contracts have been published and disseminated at national and EU levels.

The results of their work and further analysis can be found at the FRESH project website: [www.fresh-project.eu](http://www.fresh-project.eu)

## REFERENCES

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- AZAN, 2010. "Contrat de Performance Energétique – Etude de faisabilité juridique", Cabinet Azan avocats associés, Janvier 2010.
- BLEYL, 2009. Jan W. Bleyl-Androschin. "Integrated Energy Contracting (ICE). A new ESCO model to combine energy efficiency and (renewable) supply in large buildings and industry", Grazer Energieagentur GmbH, IEA's Demand Side Management Program Task XVI, October 2009.
- BLEYL and SCHINNERL, 2008. Jan W. Bleyl-Androschin and Daniel Schinnerl. "Comprehensive Refurbishment of Buildings through Energy Performance Contracting. A Guide for Building Owners and ESCOs", Grazer Energieagentur GmbH, IEA's Demand Side Management Program Task XVI, November 2008.
- BULLIER and LEFEVRE, 2011. Adrien Bullier and Christelle Lefevre. "Propositions pour le développement de contrats de performance énergétique en logement social", ICF for the FRESH project, June 2011.
- BULLIER et al., 2011. "Contrat de performance énergétique en logement social. Guide de Mise en Oeuvre", ICF for the FRESH project, 2011.
- CDC, 2010. "Utiliser le Tiers Investissement pour la rénovation thermique du patrimoine bâti français", Caisse Des Dépôts et Consignations, May 2010.
- CECODHAS, 2007. "Housing Europe 2007. Review of social, co-operative and public housing in the 27 EU member states". [www.cecodhas.org](http://www.cecodhas.org).
- DG-TREN, 2007. "European energy and transport - Trends to 2030, update 2007", Directorate-General for Transport and Energy (DG-TREN), 2007.
- Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts.
- EC, 2010. "General budget of the European Union for the financial year 2010 - The figures", European Commission, 2010.
- EIB, 2008. "JESSICA : A new way of using EU funding to promote sustainable investments and growth in urban areas", European Investment Bank, 2008.
- FACTOR 4. "Factor 4: Doubling wealth - halving resource use: a report to the Club of Rome", Earthscan Publications Ltd., London, 1997.
- FEDERCASA, 2006. "Housing statistics in the European Union 2005/2006", Federcasa, 2006.
- IDDRI 2010. "Habitat Facteur 4. Étude d'une réduction des émissions de CO2 liées au confort thermique dans l'habitat à l'horizon 2050", Institut du Développement Durable et des Relations Internationales (IDDRI), Les cahiers du CLIP n°20, November 2010.
- INSEE, 2008. D. BESSON, "Consommation d'énergie: autant de dépenses en carburants qu'en énergie domestique", INSEE Première sn°1176, February 2008.
- JRC, 2007. P. Bertoldi, B. Boga-Kiss and S. Rezessy "Latest development of ESCO's across Europe - a European update", Joint Research Center (JRC), 2007.
- JRC, 2010. A. Marino, P. Bertoldi and S. Rezessy. "Energy Service Companies Market in Europe – Status report 2010", Joint Research Center (JRC), 2010.

- MILIN and BULLIER, 2011. Christophe Milin and Adrien Bullier. “Energy refurbishment of Social Housing using Energy Performance Contract”. Paper 5-050, Proceedings for the European Council for an Energy Efficient Economy (ECEEE), June 2011, France.
- ORTEGA, 2011. Olivier Ortega. “Les contrats de performance énergétique - Rapport à Madame Nathalie Kosciusko-Morizet, Ministre de l’écologie, du développement durable, des transports et du logement”, Cabinet Lefèvre Pelletier & associés, Mars 2011.
- TACKOBST, 2007. “Newsletter #1”, TACKOBST project, Spring 2007.
- UNECE, 2001. “Housing statistics”, United Nations Economic Commission for Europe (UNECE), 2001.

## ANNEXES

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Annex 1: Template call for Expression of Interest (EOI) .....	36
Annex 2: Template EOI evaluation table.....	39
Annex 3: Competitive dialogue modalities .....	40
Annex 4: Template Calendar for EPC implementation .....	45

## ANNEX 1: TEMPLATE CALL FOR EXPRESSION OF INTEREST (EOI)<sup>22</sup>

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### PREAMBLE

As part of a commitment to saving energy, [SHO] is seeking Expressions Of Interest from parties to supply energy performance contract services. Interested organizations are invited to provide the information requested in this document.

Expressions of Interests must be lodged by 10 a.m. on the closing date of [date/month/year].

### BACKGROUND

[SHO] is planning to negotiate an Energy Performance Contract (EPC) to [aim of the contract]. The purpose of this EOI is to identify interested and capable candidates to carry out an EPC for this assignment. It is anticipated that a maximum of three registrants will be short-listed based on evaluation of received EOIs to develop a proposal for an EPC for [SHO].

Interested organizations have to be capable to supply the following as a 'turnkey' project across the facilities:

- carrying out detailed auditing;
- identifying energy saving opportunities;
- designing procuring and installing proposed changes;
- guaranteeing energy savings;
- monitoring and reporting results; and
- providing ongoing technical service and support, including staff training at all levels on energy efficient practices.

The work includes [details of work].

The major objective is to improve and maintain the existing functionality of the building while reducing energy and other operating costs.

### REQUEST FOR PROPOSAL (RFP)

Following the evaluation of EOIs, [SHO] intends to prepare a RFP document reflecting its requirements. Once the RFP is completed, [SHO] will invite proposals to be submitted in accordance with the RFP.

Short listed organizations will be invited to submit an offer under the RFP.

### ENQUIRIES

All enquiries in relation to this Expression of Interest must be directed to [name and contact details].

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<sup>22</sup> This annex is freely inspired by AEPKA 2000.

## ABSENCE OF LEGAL OBLIGATION AND CONFIDENTIALITY

In inviting or receiving EOIs, [SHO] makes no representations, neither it intends to create any legal relationship with potential parties that choose to respond to the invitation. No part of the EOI shall be deemed confidential unless [SHO] and the potential registrant agree in writing. [SHO] has no obligation of liability to selected registrants if it decides not to proceed with the proposal.

## EVALUATION CRITERIA

All EOIs will be evaluated in accordance with the criteria set out below. The criteria are not listed in any special order and may not be accorded equal weight. Some criteria may be regarded as mandatory for the purpose of registration (as suggested below). Non-compliance with a mandatory requirement may lead the corresponding registrant to not being further evaluated.

The criteria are:

- Essential prerequisites:
  - past experience with energy performance contracting;
  - performance contracting ability of the staff involved;
  - ability to identify running cost savings and efficiencies other than energy;
- Supporting factors:
  - method of monitoring energy savings;
  - approach to a performance guarantee; and
  - ability to provide ongoing support, service and training.
- Registrant's details.

Registrants should note that [SHO] may engage the services of external organizations/experts for assistance in the evaluation of responses.

## EXPERIENCE AND CAPABILITIES

### Previous projects

Registrants are invited to provide details of experience in similar projects within the past five (5) years.

Details should include:

- description and value of projects;
- name of client and contact person for enquiries, including telephone number;
- corporate occupational health and safety management system;
- quality management system;
- staffing details, including support services and training;
- ability to identify running costs, savings and efficiencies;

- proposed methodology for the monitoring of energy savings; and
- demonstrated ability to implement comprehensive energy saving opportunities across a range of services, if required.

**Other relevant experience**

Registrants are invited to provide details of any area in which they have particular experience and expertise that may be of special relevance to this EOI.

## ANNEX 2: TEMPLATE EOI EVALUATION TABLE

The purpose of this document is to set out an evaluation method to pre-select three (or more) energy performance contractors for entering the competitive dialogue procedure.

Criteria	Maximum points	Actual points
<b>Understanding of the project's requirements</b>	<b>10</b>	
Understanding of the issues related to energy refurbishment in Social Housing	5	
Presentation of the work approach	5	
<b>Ability to implement EPC</b>	<b>70</b>	
Ability to implement energy conservation measures on the building envelope	15	
Ability to implement energy conservation measures on the energy production and regulation systems	15	
Ability to operate the energy production and regulation systems, provide support and continuous services	10	
Ability to measure and verify energy savings	5	
Ability to provide Third-Party Financing solutions	15	
Financial stability and capacity to fulfill long-term commitments	10	
<b>Specific experience with EPC</b>	<b>20</b>	
Concrete previous EPC experience (projects)	15	
Members of the team have already implemented EPC	5	
<b>TOTAL</b>	<b>100</b>	

## ANNEX 3: COMPETITIVE DIALOGUE MODALITIES<sup>23</sup>

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### PUBLICATION MODALITIES

The Energy Performance Contract raises a first difficulty in its qualification as a work or services contract: this qualification depends largely on the very nature of the refurbishment carried out, and notably on whether it deals with the building envelope or it is limited to the heating systems. The answer to this question is not easy: it is a contract whose very essence is a service, unless the cost of work exceeds the cumulative cost for services invoiced over the contract duration. The only way to answer this question is to determine if the project involves a larger share of work or services in order to conclude on the nature of the contract.

### CONTENTS

Two possibilities are available:

- Only one tender regulation is established and it rules the expression of interest and the competitive dialogue; or
- Two tender regulations are established, the first one defining the rules for the Expression Of Interest and the second one dealing with the competitive dialogue.

The second method presents the advantage that the call for EOI can be emitted even before all subsequent documents have been finalized.

In all cases, the tender regulation shall indicate if a financial compensation will be given to unsuccessful candidates in the competitive dialogue. Such payment should be substantial considering the work that must be provided by candidates in order to prepare good quality offers. Indeed, companies may not take the risk to participate in the competitive dialogue if after several months of work they do not even receive a compensation for their studies.

### RULES OF THE COMPETITIVE DIALOGUE

The rules for a competitive dialogue should be established once all technical and legal diagnoses are made.

The essential point is the schedule of the competitive dialogue. Two positions must be reconciled: the SHO's position who wants a rapid procedure for assigning as soon as possible the project and the candidates' position, who requires a sufficient delay to prepare interesting offers without neglecting some of the issues.

Three particularly important points of discussion should be treated with the utmost attention:

- The contract awarding criteria;
- The definition of the tangible and intangible terms;
- The competitive dialogue procedure, especially during the auditions phase.

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<sup>23</sup> This annex is freely inspired by ICF, 2011.

## Criteria for awarding the contract

It is difficult to propose awarding criteria that are valid for any possible EPC. Indeed, those criteria highly depend on the objectives of the SHO: does the EPC include work on the building envelope? Does it target only systems? Does it include third-party financing? Is integration of renewable energy a criteria for awarding the contract?

However, it seems normal that most of the criteria rely on the level of energy efficiency, the level of greenhouse gases emissions reduction or the cost for the SHO. For example, if the project involves elements of conventional refurbishment, it should not take precedence over the energy refurbishment.

Similarly, the EPC results in a guaranteed energy performance to be monitored over time: as a result, part of the awarding criteria should be based on the proposed operation and maintenance plan.

Indeed, one must keep in mind that if the EPC can present an important part of work, it is nonetheless a particularly rigorous maintenance contract as the energy performance is insured over a long period.

In all cases, it is necessary to establish weighted criteria, which are themselves divided into weighted sub-criteria. The table below shows an example of possible criteria:

**Table 1 : Example of criteria for awarding the contract**

1 Energy and technical performances			
1.1	Level of energy savings and monetary savings		-- (%)
1.2	Level of GHG emissions reductions		-- (%)
1.3	Compliance with the functional program		-- (%)
1.4	Quality of refurbishment services		-- (%)
TOTAL			-- (%)

2 Operation			
2.1	Maintenance and renewal plan		-- (%)
2.2	Compliance with the functional program		-- (%)
2.3	Guarantees and Insurances		-- (%)
2.4	Performance Guarantee		-- (%)
2.5	Part of savings shared with the SHO		-- (%)
TOTAL			-- (%)

3 Prices		
3.1	Cost of the energy refurbishment	-- (%)
3.2	Cost of the third-party financing	-- (%)
3.3	Cost of the non-energy refurbishment	-- (%)
3.4	Cost of operation and maintenance	-- (%)
TOTAL		-- (%)

4 Design / Implementation		
4.1	Project organization	-- (%)
4.2	Compliance with the functional program	-- (%)
4.3	Schedule	-- (%)
TOTAL		-- (%)

### Definition of the non-negotiable terms

The competitive dialogue is a process elaborated to determine the means to implement in order to achieve the desired objective. However, the competitive dialogue does not allow candidates to negotiate all elements of the proposed project, and the SHO must list the intangibles terms that will not be discussed.

It is therefore important to define beforehand the points that will not be negotiated but without defining too many of them, which could block the candidates in their proposals and even lower the interest for the competitive dialogue procedure.

### Dialogue process

The competitive dialogue regulation should stipulate that the competitive dialogue with the candidates will start with the sending of a registered letter to each preselected candidate, in order to invite them to negotiations.

#### Site visit

The competitive dialogue must comprise at least one site visit for each candidate, during which they can ask any question they deem necessary.

It is essential to ensure that candidates do not meet and establish contacts during these visits. Attendance to the visits should be registered by getting each candidate's representative to sign a presence letter. Additional visits may be organized if necessary.

### **Questions from the candidates**

The SHO shall foresee in the project planning two periods during which the candidates are free to ask questions. One series of questions could be sent following the site visit and before the first round of dialogue, and a second after the first round, for clarification of the remarks that could have been made during the first phase.

### **Organization of the dialogue phase**

The SHO should decide in advance the minimum number of rounds he intends to apply for the dialogue.

First proposals from candidates should be sent to the SHO under the same format that the one for a final offer. Once the proposal has been submitted, the candidate is invited to discuss by registered letter with acknowledgment of receipt.

Duration of one day for one candidate's audition seems appropriate. Indeed, the duration must be sufficient to be valuable, but not too long in order to remain constructive. Minutes of the audition should be sent for approval by the SHO to the candidate within the following day.

The whole process could be repeated as many times as necessary before the submission of a final and definite offer, but the number of rounds must be indicated in the competitive dialogue regulation. Therefore, if determination of the planning can be seen as a formality, the practice proves the contrary. It can be particularly difficult in case the SHO does not have a good knowledge of his project, allowing estimation of the time needed for companies to present interesting offers.

## **FROM INITIAL REQUEST FOR PROPOSALS TO FINALIZED CONTRACT**

This section outlines the key points of some of the documents to be produced to prepare an EPC. Between issuing the initial request for proposals and signing the EPC, the status and content of documents is evolving. The diagram below shows the content of the initial documents and the final contract. The column on the left shows the documents that should be issued in the RFP and made available to all candidates. Those basis documents will be discussed and reviewed to be converted in the final stage into the documents presented on the right column, as annexes to the finalized contract.

The competitive dialogue procedure differs from a classical tender procedure. In this type of procedure the means to achieve the needs of the SHO are not defined which results in modifications in the typical tender package.

Consequently, the RFP package consists of the following:

- Rules for the competitive dialogue
- Functional program and its annexes (description of the sites)
- A draft contract to be negotiated
- A preformatted framework for the answer (tables allowing energy analysis, financial analysis, etc...)

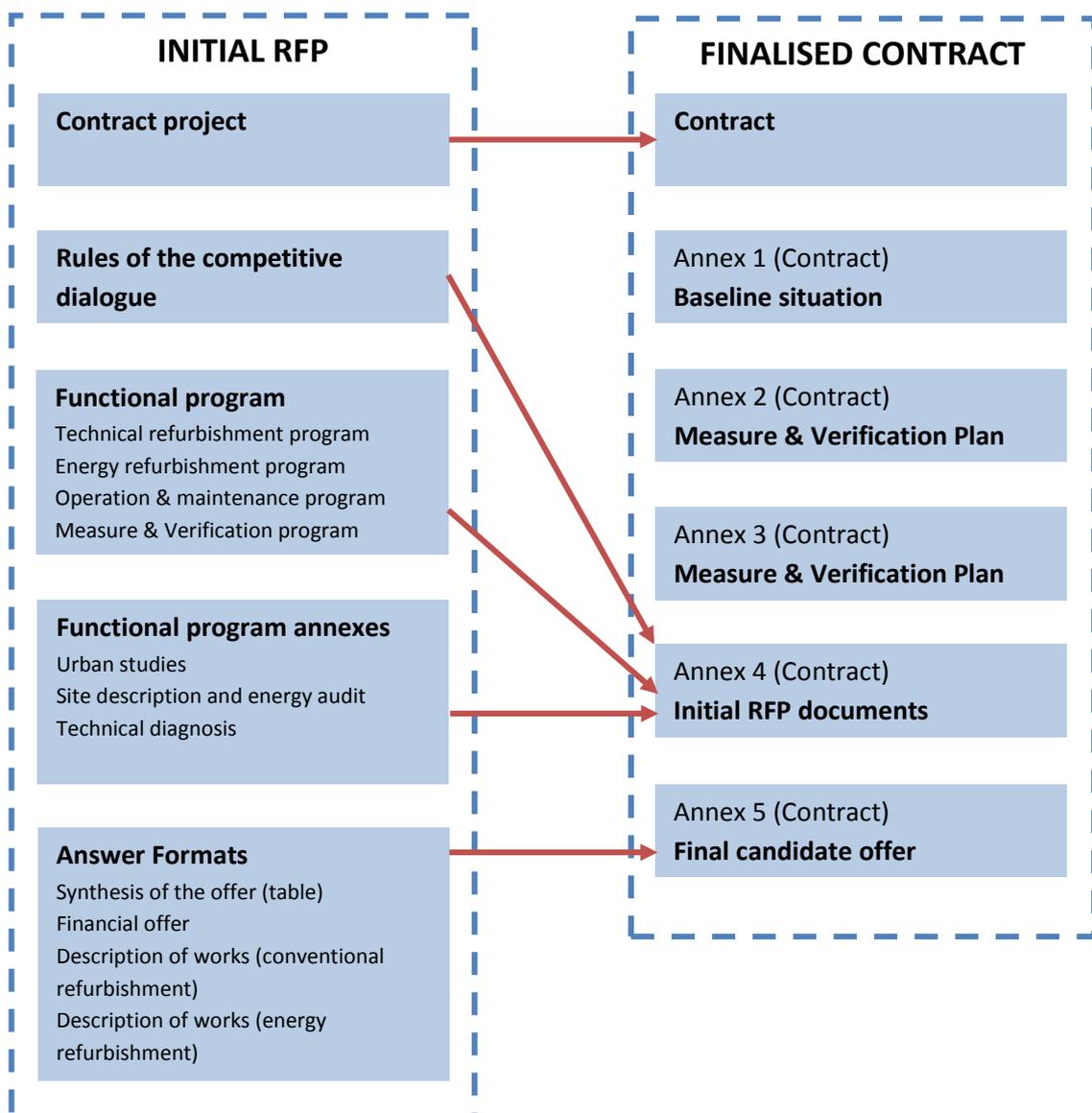
The draft contract and the functional program will be changed during the dialogue and negotiations. The preformatted offer framework is a table allowing the presentation of the final offer.

In formulating their offer, candidates must produce a document called "offer" that will incorporate the intangibles terms and their proposal. The offer will therefore be composed of:

- A technical offer (functional program whose intangible terms remain unchanged but containing the proposals of the candidate)
- A legal offer (draft contract whose intangibles terms remains unchanged but containing the proposals of the candidate)
- The offer framework completed

Candidates must therefore perform an exercise where they must be creative while respecting some mandatory constraints. All these documents will form the final offer presented by candidates to the SHO for assessment against the criteria set in the RFP package.

**Figure 7: Evolution of documents between the RFP and the finalized contract**



## ANNEX 4: TEMPLATE CALENDAR FOR EPC IMPLEMENTATION

N°	Step	Duration
1	Mobilization of internal expertise and constitution of the project team	Variable
2	Selection of required external expertise	Variable
3	Preliminary diagnoses	Variable
4	Redaction of the call for Expression Of Interest	1 week
5	Publication of the call for Expression Of Interest	Variable (possible legal delay)
6	Redaction of the rules and specifications for the competitive dialogue	2 weeks
7	Selection of the candidates	3 weeks
8	Issuance of the rules and specifications for the competitive dialogue	Along with the notification to selected candidates for the competitive dialogue
9	Site visits	To be defined
10	First period for questions by the candidates	To be defined
11	Submission of first proposals	Reserve at least 3 months after publication of the rules and specifications for the competitive dialogue
12	Analysis of the offers	2 to 4 weeks
13	Questions from SHO to the candidates in preparation for the auditions	2 weeks before auditions
14	First auditions of the candidates	To be defined
15	Submission of second proposals	To be defined
16	Analysis of the offers	2 to 4 weeks
17	Questions from SHO to the candidates in preparation for the auditions	2 weeks before auditions
18	Second auditions of the candidates	To be defined
19	Invitation to submit final offers	
20	Submission of final offers	To be defined (possible legal delay after

		sending the invitation to submit final offers)
21	Tender commission: opening of the proposals	1 day
22	Analysis of the final offers	1 month
23	Tender commission: selection of the contractor	1 day
24	Official rejection letter to unselected candidates	Consider delay for distribution of the letter
25	Delay for appeal	Consider legal delay after reception of the official rejection letter; this time can be used for contract adjustments
26	Final notification and signature of the contract	After all delay for appeal are past