



Developing, piloting and standardizing on-tax financing for residential energy efficiency retrofits in European cities and regions



## Special Interests Target Group Report

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### D 3.9. Report on Target Group

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Author: Tomas Kidd, Laia Oto & Jorge Rovira /

UpSocial

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## Introduction

During the last decades the European Union (EU) has positioned itself as a world leader in fighting climate change, promoting the energy transition to renewable energy and creating new employment opportunities for Europeans through the circular economy. In doing so, the European Commission (EC) has developed Horizon 2020 to be the biggest EU Research and Innovation programme as a mean to drive economic growth, create jobs, foster innovation, social change, and most importantly, “generate breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market”<sup>1</sup>. Within that mission statement, EuroPACE aims to answer the call as it intends to implement an innovative financing mechanism to boost energy efficiency (EE) retrofitting in European buildings.

Directly in line with the EC’s goals<sup>2</sup>, EuroPACE is an on-tax financing scheme, aimed to foster energy efficiency improvements in buildings, which is repaid through a special levy collected with property taxes over a period of up to 20 years. As a result, EuroPACE’s value proposition<sup>3</sup> overcomes major barriers to investment in energy efficiency projects by facilitating long-term financing for residential homes and buildings at low interest rates. As part of the EuroPACE consortium, UpSocial has been commissioned a dual task<sup>4</sup>.

First, to assess the potential of EuroPACE as a tool for tackling two social challenges and identifying a "Special Interests" Target Group (hereafter SITG) for each challenge. These challenges are:

1. Reducing energy poverty by providing low-income households with a financial instrument to improve the energy efficiency of their house, thus decreasing their energy bills whilst improving comfort.
2. Reduce unemployment within vulnerable groups (e.g. unemployed construction workers).

Second, to design a special action plan that involves the rolling-out of the EuroPACE program to seize this double-bottom-line opportunity. The action plan will be specifically catered to the first residential EuroPACE pilot which will be implemented in the city of Olot (Catalonia, Spain) in early 2019. The pilot experience should provide invaluable know-how and market feedback to help build an universal/generic action plan useful to scale-up and scale-out EuroPACE around Europe.

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<sup>1</sup> <https://ec.europa.eu/programmes/horizon2020/what-horizon-2020> - date of access: 01/08/2018

<sup>2</sup> of (1) putting energy efficiency first, (2) contributing to the EU's global leadership and (3) empowering consumers to enable Member States to reach their energy and climate targets for 2030.

<sup>3</sup> PACE provides 100% up-front financing for energy efficiency, renewable energy and water conservation improvements. Property owners voluntarily participate in a PACE programme and repay the financing with an *assessment or charge* attached to the property, as an addition to the owners' property tax bills. Late payment or non-payment generally results in the same set of repercussions as the failure to pay any other portion of a property tax bill, but varies by state and county, depending on the local tax code.

<sup>4</sup> Work package N°3 - T3.7 – *Identifying Target Groups (Early Adopters & Special Interests)*.

The report is organized as follows:

1. First, the methodological approach and limitations of the report are presented.
2. Second, a literature review regarding energy poverty and re-employment policies associated with energy efficiency retrofitting, best practices and measurement methods will be presented in order to build a framework useful for the dual task of the report.
3. Third, the assessment section is presented, which involves identifying and characterizing candidate SITGs, reviewing current policies in place in the Catalan/Spanish landscape related to each social challenge, and identifying key stakeholders.
4. Fourth, an action plan is presented for each SITG, which is comprised of a targeting/advocacy strategy proposal, plan outline, monitoring and evaluation framework (M&E) and risk management.
5. Finally, concluding remarks are drawn.

## Methodological approach

Although the methodology used in each section of the report has varied depending on the nature of the information presented and the availability of data, in general terms this report has used the following methods of data collection:

For section 1 (Literature review): In order to present the state of the art concerning energy poverty alleviation and employment strategies through EE retrofitting, identification of risk factors and current measurement frameworks for each social challenge, documentary research was conducted. Data was collected from relevant literature, relevant government reports (national, province and municipal) and case studies, published by European and US academic journals since 2010.

For section 2 (Assessment and SITG identification): Data was collected from several sources. First, in order to characterize the energy-poor and vulnerable groups of Olot, we analyzed primary data from a 2017 living conditions survey commissioned by the Consorci d'Acció Social de la Garrotxa<sup>5</sup> (hereafter CASG). The survey's sample is representative of Olot's citizens (details regarding the design of sample and the survey can be found in CASG 2017, Annex 1). Second, desk review of the most relevant Spanish/Catalan reports and studies (2010-2018) was conducted or as well as those reports/papers authored by relevant stakeholders (public, private or third sector) that are in some way related to the target population. Finally, in order to identify current policies/programs in place in Spain, Catalonia and Garrotxa/Olot, that are targeted to each social challenge, desk review of Spanish and Catalan reports, literature, case studies (2010-2018), relevant laws was conducted. Finally, stakeholder mapping and identification of opportunities and barriers was done carrying out interviews with each stakeholder identified.

For section 3 (Action plan): The action plan design was co-created with each of the stakeholders identified and involved (see stakeholder mapping section). This was carried out by exchanging and validating ideas through meetings (face-to-face and/or video conference), e-mail exchanges, and most importantly, building/leveraging on the current offer available in the city of Olot to address both social challenges.

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<sup>5</sup> 'Garrotxa's Social Action Consortium' (translation in English).

## Methodological limitations

Like all research of this kind, it is important to identify the limits of the current report. Three important limitations stand out.

On the one hand, primary data from both target populations within the Olot/Garrotxa region is limited, which makes it necessary to work with some specific assumptions. In essence, this concerns primary data sources specific to Olot's energy-poor households and Garrotxa's unemployed (with experience in construction). To cope with this limitation, we analyzed data from a 2017 CASG living conditions survey, screening the data by each of the two subgroups. However, by probability quantitative sampling standards, subgroups within a representative sample are not necessarily representative of their particular group. For example, the energy-poor subgroup within the 'Olot's citizen' sample are not necessarily representative of all Olot's energy-poor, although they reveal a close approximation. Thus the data analysis in this report should be understood as an approximation to reality and should be further validated.

On the other hand, policies/programs in place in Spain, Catalonia and Garrotxa/Olot targeted to each social challenge renew/change on an annual basis, thus the stakeholder mapping in the report will be obsolete by 2020 and will require updating during the EuroPACE pilot.

Due to unavailability of data (quantitative and qualitative), the action plan was co-created on a series of hypothesis drawn from the interview process with each stakeholder involved and the literature and documentary review. As a result, the action plan should be understood as an initial/non-fixed plan that should be reassessed after 1 year of implementation in order to draw lessons, modify initial hypothesis and re-design a 2.0 action plan based on what has worked and what has not.

## Section 1: literature review

The goal of this section is to present an up-to-date review of the literature concerning energy poverty alleviation and employment ties with energy efficiency retrofitting. This review presents risk factors and drivers associated with each social challenge, best practices for each field and latest measurement methods. As a result, this literature review should be instrumental to both the assessment and action plan proposal to tackle the two social challenges through the rolling-out of EuroPACE. This section is divided into two sub-subsections, one for each social challenge.

### (A) Tackling energy poverty with energy efficiency policies

#### Defining the concept

Over the past decade the problem of energy poverty, commonly understood as the “the inability of a household to secure socially and materially-necessitated levels of energy in the home” (EU SILC 2017, p.20), has captured the attention of policy makers and scholars across Europe. As a result, European legislation<sup>6</sup> has increasingly recognized the phenomenon calling for Member States to take immediate action to address the problem (Pye et al. 2015; Bouzarovski et al. 2012). Especially today, due to recent economic turmoil and austerity policy’s impact on employment and income; increases in energy prices and extreme weather patterns due to climate change, energy poverty has become a great social challenge across Europe (Thomson et al. 2017; Bouzarovski 2018). Currently, in Europe between 50-160 million European citizens suffer from energy poverty on a yearly basis (EU SILC 2017<sup>7</sup>).

Although vastly studied in the last decades, there is still no consensus around a clear definition of energy poverty, which brings numerous problems in measuring and addressing the problem<sup>8</sup> (Thomson et al. 2016, European Union 2016). Numerous concepts have been used interchangeably to explain the phenomenon, such as ‘fuel poverty’, ‘energy vulnerability’, ‘energy deprivation’, amongst others. Since Boardman’s (1991) seminal paper which conceptualized fuel poverty as the inability of a household to afford domestic heating and other energy services<sup>9</sup>, the concept of energy poverty has evolved considerably (Phimister et al. 2015). For the purpose of this paper, we use Bouzarovski & Petrova (2015) holistic and dynamic understanding of the phenomenon as “a set of

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<sup>6</sup> e.g. Third Energy Package or Energy Union Framework

<sup>7</sup> [http://www.europarl.europa.eu/RegData/etudes/STUD/2017/607350/IPOL\\_STU\(2017\)607350\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2017/607350/IPOL_STU(2017)607350_EN.pdf)

<sup>8</sup> (i) recognition (better political visibility); (ii) clarification (resolving terminological confusion) and policy synergy (achieving links with other domains).

<sup>9</sup> “In her original work, Boardman (1991) defined energy poverty in terms of an energy expenditure threshold with households who were spending 10% of their income on energy within the home classified as energy poor. Ten percent was selected as the threshold on the basis that this was approximately twice the median level of energy expenditure” (Phimister et al. 2015, p.154).

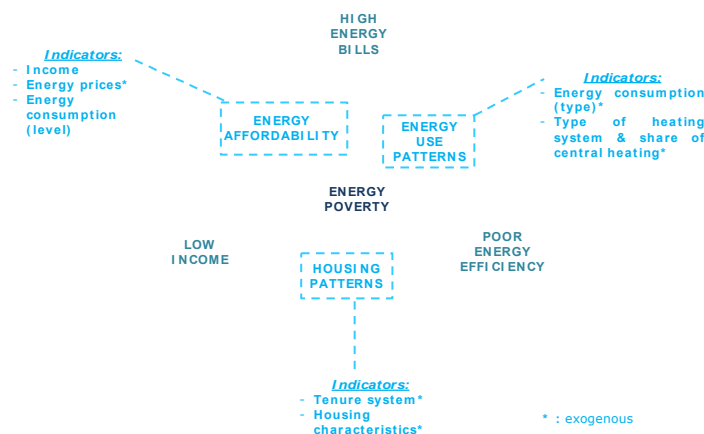


domestic energy circumstances<sup>10</sup> that do not allow for participating in the lifestyles, customs and activities that define membership of society” (p.33).

### Risk factors

Much of the effort in the literature has been put in understanding what are the driving forces and risk factors associated with energy poverty (Bouzarovski 2014). Although findings vary, there is a general consensus in the literature that the risk factors associated with energy poverty are primarily three (Pye et al. 2015; Thomson et al. 2017): low income, high energy bills, and poor energy efficiency. As seen in Figure 1, within each risk factor there are multiple variables that influence the risk of energy poverty, which relate to three mitigating areas for alleviating the problem: energy affordability, housing patterns and energy use patterns.

**Figure 1**  
*Risk factors of energy poverty and key indicators*



Source: Pye et al. (2015)

To Pye et al.’s (2015) framework we add Bouzarovski & Petrova’s (2015) risk-factor framework which enables “a more nuanced examination of the complex issues contributing to and reinforcing energy poverty” (Thomson et al. 2017, p. 880), by departing from “locally specific social, political, and environmental circumstances” and offering a “spatial and temporal understanding of energy poverty<sup>11</sup>”.

<sup>10</sup> “Mainly inadequate heating in the home; importance of other services (particularly space cooling, lighting, appliances, IT)” (p.32).

<sup>11</sup> “Which recognizes that households described as energy poor may exit the condition in the future by a change in some of their circumstances, and vice versa” (Thomson et al. 2017, p. 880).

**Table 1**  
*Energy poverty driving forces*

<b>Factor</b>	<b>Driving force</b>
<i>Access</i>	Poor availability of energy carriers appropriate to meet household needs.
<i>Affordability</i>	High ratio between cost of fuels and household incomes, including role of tax systems or assistance schemes. Inability to invest in the construction of new energy infrastructures.
<i>Flexibility</i>	Inability to move to a form of energy service provision that is appropriate to household needs.
<i>Energy efficiency</i>	Disproportionately high loss of useful energy during energy conversions in the home.
<i>Needs</i>	Mismatch between household energy requirements and available energy services; for social, cultural, economic or health reasons.
<i>Practices</i>	Lack of political recognition or knowledge about support programmes, and ways of using energy efficiently in the home.

Source: Thomson et al. (2017)

Most importantly, energy poverty has been conceptualized as a dynamic continuum/non-permanent state, from which households come in and out of, that is modified by altering at least one of the driving forces and/or risk factors pointed out earlier. As a result, households are also conceptualized and categorized as ‘at-risk-of energy poverty’ or ‘vulnerable-to energy poverty’ (Sanchez-Guevara et al. 2015), as a previous stage to energy poverty. These stages are measured according to fuel and monetary poverty thresholds. During the action plan outline, these concepts will be recovered in order to broaden the target population spectrum and SITG identification.

## Strategies

Consistent with the identified risk factors, four type of interventions have been categorized that effectively tackle energy poverty (Pye et al. 2015):

- Financial interventions: These are mostly short-term interventions aimed at supporting payment of bills (utilities, rent, etc.) and assisting low-income or high-energy price scenarios.
- Consumer protection: These are interventions aimed at providing protection for consumers using the retail markets.

- Energy efficiency: As is the EuroPACE program, these interventions are aimed at improving energy use efficiency in buildings and households.
- Information provision/raising awareness: These are interventions aimed at uplifting consumers knowledge on market tariffs, energy saving measures, rights and responsibilities, amongst others.

Many interventions have been successfully applied in Europe using at least one of these four interventions (Bajomi & Shanini 2016; European Union 2016; European Commission 2015). Especially relevant to this report are energy efficiency interventions which are mostly comprised of building retrofit programmes (grants, loans or tax incentives), provision of grants/loans for efficient energy appliances, and energy efficiency advice. Particular to the Spanish case, Naturgy (2017) and Aranda et al. (2017) are two of the few documents from Spain that have studied EE retrofitting effects on energy poverty and prepare a generic EE measures package to reduce energy poverty.

In the case of Aranda et al. (2017), their case study makes a thorough cost-efficiency analysis of 100 possible EE measures which could be implemented in Spanish social housing buildings (64 of them have no investment at all or cost less than 100 € per dwelling). In this analysis, the authors organize these measures by energy/economic savings and level of investment, highlighting different prioritization methods for policymakers (e.g. lowest investment vs. payback<sup>12</sup>). Although incentives and willingness for energy-saving measures vary between homeowners, certain trends are universal in the literature:

- First, the housing tenure type most associated with energy-poverty is by far tenancy and not home-ownership, although home-owners who are paying mortgages are also affected by the problem (ECEEE 2011).
- Second, energy-poor families are extremely sensitive to large expenditures, which means that they would only undertake no or low investment measures.

These can be organized into three types of EE measures:

1. Behavioral change / no investment needed
2. Measures requiring investment (by tenant)
3. Measures requiring investment (by landlord)

According to the authors, to obtain the fastest results with no or low cost, the behavioral and no-investment measures should be prioritized since the return on these measures is immediate in time. Although most of these measures “contribute little to the overall energy consumption reduction [...]

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<sup>12</sup> i.e. Ratio of savings provided per economic unit invested.

they should be the first to be implemented to obtain fast savings to mitigate extreme energy poverty cases” (p.11). However, the authors point out that to achieve further savings, some investments should be made, either by the tenant or by the homeowners. Table 2 summarizes Aranda et al. (2017) findings, organized from lowest to highest payback<sup>13</sup>.

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<sup>13</sup> Ratio of investments versus annual savings in years of investment return.

**Table 2**  
List of low-investment EE retrofitting measures sorted by (a) lowest payback and (b) housing tenure type

Tenancy			Owner		
EE measure	Energy Saving (%)	Payback (years)	EE measure	Energy Saving (%)	Payback (years)
Installation of taps with flow reduction (faucet aerator)	11.8	0.4	Create reminders and promotional materials to raise awareness	15	0.3
Decalcify home appliances	1	1.5	Sensitizing of occupants through workshops	5	0.4
Replacement of incandescent lamps by Compact fluorescent lamps (CFLs)	10.2	2.1	Analysis of the combustion and maintenance of heating boilers	3.5	0.7
Installation of electronic ballast	3.5	2.4	Installation of Drain Water Heat Recovery (DWHR) systems	25.3	5.2
Use silicone, putty or draught excluder to reduce air infiltrations through windows and doors	3.1	6	Adding or repairing DHW distribution systems	8	5.7
Installation of low-flow showerheads	2.1	6.5	Installation of manual potentiometric switches	4.2	6.1
Use of multiple power strips with switch and/or programmable plugs	0.4	6.8	Installation of photovoltaic panels	25.9	10.5
<p>“The 500 € budget would give room for 7 EE measures obtaining a total saving of [193 €/year] per dwelling, no cross-effect considered” (p.12).</p>			Installation of solar thermal panels for DHW	23.3	12.9
			Installation of thermostatic radiator valves	3.4	14.4
			<p>“On the side of the property, there are 10 EE measures within a limited budget of 5000 €/dwelling. The total accumulated savings sum up [605 €/year per dwelling], no cross-effect considered” (p.12).</p>		

Source: elaborated with findings from Aranda et al. (2017)

Note: “In all cases, the payback in years is shorter than the expected measure lifespan. In this case, no measure’s estimated payback exceeds the expected lifespan” (p.12).

The results of the study show that low-investment EE retrofitting measures, shared by tenants and landlords, have a huge potential for generating energy savings (up to 55% of the initial energy consumption). Beyond the energy and economic savings findings for each measure (in absolute terms), the study shows that considerable amount of savings can be obtained and “even though the implementation of EE measures might not bring the desired economic benefit, a more intangible social benefit may be attained in the form of increased levels of comfort for the households” (p.20).

On a final note, the consequences of poor energy use patterns and housing conditions have been widely studied in the past years, not only as a driver of energy poverty, but as a root cause for poor health outcomes (e.g. Grey et al. 2017). The rationale behind it is simple: if living conditions are poor and households cannot maintain a minimum standard of warmth and wellbeing, these correlate into worsened health outcomes (both in the short and long term) as they are associated with “high levels of pollution due to inefficient combustion and poor ventilation in homes” (González-Eguino 2015, p. 382). As a result, there is a general consensus within the literature that EE home retrofitting is a champion tool to improve residents health (e.g. Breyse et al. 2011) as it hinders diseases exacerbated by ventilation problems, moisture, mold, pests, radon, amongst others. As a result, the social return of investment for governments associated with reduced health problems as a result of EE home-renovation (e.g. Ortiz & Salom 2016) stands out as another strong argument in favor of the call for EE home retrofitting.

## Measurement

On a final note, accurately measuring energy poverty is perceived in the literature as a difficult task due to the fact that there is no international consensus yet around its definition and main indicators (Nussbaumer et al. 2012; Maxim et al. 2016; Culver 2017). This has also been true for the EU. As a result, multiple evaluation and monitoring methods have been put forward in the past years (ACA 2018). Two approaches have shaped the debate: household expenditure/income approach vs. household perceptions approach (Aranda Moreno et al. 2017). The *household expenditure/income approach* conceptualizes energy poverty as the result of having above-than-average expenditure in energy (% relative to household income) or low-income/economic poverty. On the other hand, the *household-perception/declaration approach* understands energy poverty as the result of a self-diagnosed perception (e.g. inability to maintain the house with an adequate temperature during winter).

In response to this gap, according to ACA (2018), the EC will soon enforce an official measurement framework around the continent which will be based in the methodological proposal designed by the European Energy Poverty Observatory (EPOV). This framework consists of four primary

indicators: two based on the household expenditure and income approach, and two on the household perceptions and declarations approach (ACA 2018):

1. Self-declaration of incapability of keeping the house at adequate temperature.
2. Self-declaration of utility bill (water, electricity and gas) payment delays.
3. Level of expenditure on domestic energy (as a percentage of total household income) in comparison to the national median.
4. Hidden energy poverty: Total expenditure on domestic energy is comparison to half of the national median.

## **(B) Creating employment through energy efficiency retrofitting of buildings**

### Defining the concept

The economic and societal benefits from energy-efficiency retrofitting of buildings in Europe has been increasingly studied over the past decade (Cambridge 2015). Implemented usually on a localized basis by engineering, construction and installation companies, EE improvements can be implemented in any setting where energy is consumed, e.g. “major infrastructure, residential and commercial buildings, equipment used in residential and corporate buildings, and transport required for logistical purposes (Torregrossa 2015, p.130). In Europe, this sector represents a double opportunity:

1. First, it presents a huge potential for CO<sub>2</sub> emission reduction as buildings “alone account for 40 percent of the EU’s final energy consumption and have been identified by the European Commission (2009) as a very real and major opportunity to deliver greenhouse gas cuts” (p.116).
2. Second, and relevant to this report, it represents a huge employment-creation opportunity due to its labor-intensive nature (Cambridge 2015): 2.59 million jobs estimated could be created in the EU buildings sector by 2030 (Torregrossa 2015). Moreover, numerous studies specific to different European countries have accounted for net positive effects on employment from EE residential building retrofitting (e.g. Pikas et al. 2015 for Estonia, Ürge-Vorsatz et al. 2010 for Hungary, Arregui Portillo et al. 2011 for Spain, amongst others).

The effects of EE building retrofitting on job growth are numerous (UNECE 2015). According to Torregrossa (2015), the ‘local economic multiplier effect’, i.e. the creation of local employment opportunities and retainment of investment in the local and regional economy, is crucial as it “encompasses further economic activity (jobs, expenditure or income) associated with additional

local income, local supplier purchases and longer-term development effects<sup>14</sup>” (p.131). The literature accounts for three types of employment outcomes as a result of EE retrofitting in buildings: direct, indirect and induced (Bell 2014; Cambridge 2015). Annex N°1 graphically shows the interaction between each other.

- *Direct employment* entails all jobs created by the core activities of a specific EE project. In other words, its effects are a result of the increase in the demand of goods and services directly related to EE improvements (Bell 2014), e.g. the new hiring of a construction worker.
- *Indirect employment* entails all jobs generated in the supply chain and/or supporting industries impacted from the EE improvements (Bell 2014). In other words, its effect are a result of the increase in the demand of goods and services produced by the industries involved in supplying the EE intervention, e.g. new hiring from the window frame manufacturer due to increase in demand.
- Finally, *induced employment* entails the employment “generated by the re-spending of received income resulting from direct and indirect job creation” (Bell 2014, p.110). In other words, its effects are a result of an increase in the demand of goods and services, from the retrofitted households, produced by the increased available income generated by the energy savings. According to Bell (2014), “this is where the bulk of energy efficiency job creation resides” (p.110).

## Strategies

On a final note, unlike the energy poverty alleviation literature, currently the employment-creation-through-EE-retrofitting literature has not paid special attention to employing or re-employing ‘vulnerable groups’ (which will be defined in section 2), making EuroPACE a pioneer in addressing this challenge through EE retrofitting. However, several recommendations have been pointed out in the literature that we consider applicable to the EuroPACE’s pilot:

- *M&E early design*: Monitoring and evaluation should be integrated early on into project and programme design in order to effectively measure job creation (EUEI 2017).

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<sup>14</sup> “Therefore, to this direct effect on employment must be added the multiplier effects:

- A supply multiplier which comes about due to purchases made as a result of the project and further purchases associated with linked firms along the supply chain;
- An income multiplier which is associated with local expenditure as a result of those who derive incomes from the direct and supply linkage impacts of the project” (p.131).



- *Scale*: As pointed out by IEA (2014), “the effectiveness of an energy efficiency programme in creating jobs will depend on the size and structure of investment and the type of energy demand reduction interventions being supported” (p.54).
- *Leverage local talent*: In order to match the supply of EE retrofitting with job demand, developers should cooperate with “educational institutions [...] for harnessing the full local employment potential of renewable energy investments” (EUEI 2017, p.1). In other words, developers should leverage skillsets that are already abundant in a typical developed country labour market (Bell 2012). Arregui Portillo et al. (2011) refer to this as a ‘qualitative improvement’ of the labour force.
- *Re-training* (Ürge-Vorsatz et al. 2010): In order to help laid-off workers into the energy sector and create incentives for the inactive population, “a comprehensive strategy encompassing changes in the curricula of university and vocational schools and re-training programmes for skilled and unskilled workers would be advisable” (p. 140).
- *Promoting local development*: As stated Ürge-Vorsatz et al. (2010), “in order to maximize the indirect effects (i.e. supply chain-related) of the programme, the domestic production of construction materials and equipment could be promoted as long as national suppliers provide materials at the same or lower prices than the imported ones” (p.140).

## Measurement

Measuring employment-creation with EE is not an easy task and multiple methods have been put forward amidst a general lack of consensus in the literature (Tirado Herrero et al. 2011). For starters, evaluating the level of job creation requires differentiating between gross and net job creation (Rutovitz & Atherton 2009). *Gross job creation* is the total number of jobs supported by an industry and its supply chain whilst net job creation is the “number of jobs supported by an industry and its supply chain beyond a ‘business as usual’ reference case” (Bell 2014, p.110). Two ratios have been used to analyze the job creation potential of a project (Cambridge 2015):

- Employment-factor approach (EUEI): The number of jobs generated for a given level of output, e.g. jobs generated per unit of energy production, or per unit of energy saved
- The number of jobs generated for a given level of spending on a particular technology

Metrics typically used are total full-time equivalent (FTE) jobs, total number of people employed, job-years, or the number of roles/contracts created. In order to gather this information, surveys are usually the method of choice (EUEI 2017). Nevertheless, these metrics do not take into account effects on indirect and induced employment, even more when “time-lags between a project or

programme and further job development are taken into consideration” (p.3). However, methods for quantification of indirect and induced employment impacts are still pending in the specialized literature (EUEI 2017).

Another important consideration in measurement is the temporal durability of employment effects (Ürge-Vorsatz et al. 2010): short-term (only while the EE project is active) and long-term (remains after the programme). According to IEA (2014), “many of the jobs (but by no means all) associated with energy efficiency are temporary in nature; thus job years (i.e. the number of jobs multiplied by the number of years they last), rather than the number of jobs, is a preferable unit of measurement for estimating employment impacts” (p.54).

## SECTION 2: ASSESMENT & SITG IDENTIFICATON

The goal of this section is to assess the potential of the EuroPACE program to tackle energy poverty and reduce unemployment in vulnerable groups. The assessment will be specific to the upcoming EuroPACE pilot in the city of Olot (Catalonia, Spain), although initial conclusions will be drawn to build a generic ‘assessment framework’ useful for future EuroPACE experiences in Europe that also want to address these two social opportunities. The section is divided into two sub-subsections, one for each social challenge. Each include an identification of candidate SITGs, revision of current policies in the Catalan & Spanish landscape specific to addressing each social challenge, and a stakeholder map. Before doing so, a brief summary of Olot’s social landscape.

The city of Olot is the capital to the La Garrotxa county, home to more than 34.000 people which represent 61% of the whole county<sup>15</sup> (CASG 2018). In the past years the region’s population has slightly increased, which is largely explained by an increase in the amount of immigrants in the region. Olot is in fact one of the municipalities with the largest share of immigrants (18% vs. 13% in Catalonia<sup>16</sup>). Moreover, although its over-65-years-old population share is practically identical to the county’s average (20%), a 36% of that cohort live in single-person households (47% in the case of +85). This is particularly relevant as age and family-type are two risk factors related to energy poverty. Regarding unemployment, luckily Olot has a lower unemployment rate than the Catalan average (8,5% vs. 13%) which is partly due to a decrease in unemployment in the past years. Today, unemployment in the region affects mostly immigrants (15%), the +50 population (50%) and the long-term unemployed (27%). For more information about unemployment in the region see subsection 2(B). As summarized by the Consorci d’Acció Social de La Garrotxa (hereafter CASG) 2017 annual report, the main social challenges in the region addressed by the local social services office (Servei Bàsic d’Atenció Social, hereafter SBAS) in the past year “[...] in this order, are those related to old age, low-income-related challenges and labour-related challenges” (p.10<sup>17</sup>). In the case of Olot, in the past year 4.466 people have been beneficiaries of at least one of SBAS services (13% of the population)<sup>18</sup>.

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<sup>15</sup> Population in Garrotxa: 56.184 (CASG 2018)

<sup>16</sup> <https://www.idescat.cat/poblacioestrangera/?b=0&lang=es> – date of access: 03/01/2019

<sup>17</sup> Original phrase in Catalan

<sup>18</sup> Detail in <http://www.casg.cat/atencio-social-basica/> - date of access: 15/08/2018

## (A) Can EuroPACE be a tool for energy poverty alleviation?

### Identifying potential target groups

In 2017 the total number of households with documented energy poverty in La Garrotxa were 379<sup>19</sup>, of which 87% of them are located in Olot (n=329<sup>20</sup>). Most cases are first identified by local energy suppliers when households are not able to pay their utility bills, which are then brought to SBAS's attention for documentation. Although the number of people affected by energy poverty in 2018 are not final, local authorities from the CASG office believe that the total number will be higher in 2018 than 2017, with an increasing trend during the EuroPACE pilot year-span.

Characterizing the energy-poor population in Olot is not easy as the primary data available is not abundant. Moreover, most individual case information gathered by the energy suppliers and SBAS, relative to each household, does not identify key variables needed to characterize the target population, identify risk factors and/or homogenous cohorts. In response, the *Diputació de Girona* (Girona Deputation), which oversees Olot and 220 other municipalities in the area, is commissioning an audit of 50 energy-poor households in the city by the end of 2018 to gather relevant information<sup>21</sup>. This survey will gather valuable information that will allow the Diputació and Olot to better understand the characteristics and diversity within the energy-poor households. In collaboration with the Diputació due to the potential synergy and common social agenda with EuroPACE, UpSocial has recommended to include in the audit's survey certain variables/questions which would be most relevant to pin-point specific cohorts to involve later on in the pilot (see Annex N°2 for more details).

Although currently primary data is not abundant, some key findings can be drawn from the 2017 living conditions survey commissioned by CASG, which is representative of Olot's citizens, by analyzing the data specific to the households that have declared not being able to "maintain their homes at an adequate temperature during winter" (proxy for energy poverty in the perception/declaration approach).

- For starters, as Table 3 shows, energy poverty in Olot mostly hits households comprised of couples with children (49%) and single-person households (19%), both overrepresented in comparison to the average household type distribution of the city.
- Second, and very relevant for EuroPACE's value proposition to energy-poor households, as seen in Table 4 tenancy is by far the most common housing tenure type related to energy-poor households (77% vs. 29% city average).

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<sup>19</sup> CASG (2017), p.33

<sup>20</sup> In terms of percentage of households with energy poverty, Garrotxa's energy poverty rate is much lower than the mean energy poverty from Spain and Europe (8.7% and 10.1% respectively in 2016 according to Thomson & Bouzarovski 2018). This may be due to the fact that documented energy poverty in La Garrotxa is measured with a different indicator than does the EU-SILC (more information see Thomson & Bouzarovski 2018).

<sup>21</sup> Procurement call still pending.

**Table 3**

*Energy-poor distribution by household type*

<i>Household type</i>	Energy-poor households		Average households
	<i>nº</i>	%	%
Single-person	9	19	11
Couple without children	4	9	33
Couple with children	23	49	33
Single-parent	4	9	7
Multi-family	7	15	16
Total	47	100	100

**Table 4**

*Energy-poor distribution by housing tenure*

<i>Housing tenure</i>	Energy-poor households		Average households
	<i>nº</i>	%	%
Owner (paying mortgage)	7	15	20
Owner (payed mortgage)	3	6	44
Owner (heritage)	1	2	7
Tenancy	36	77	29
Total	47	100	100

Source: Own elaboration with data from CASG (2017)

- Third, as seen in Table 5, young ages (<50 years) represent 85% of the energy-poor households of Olot. These households are not only overrepresented in comparison to Olot’s population average (54%), but also is unexpected as energy poverty is usually associated with old age (only 6% for +65 in the case of Olot).
- On a final note, energy poverty affect equally Spanish and foreign households. However, as seen in Table 6, foreigners are clearly overrepresented in comparison to Olot’s population average (51% vs. 18%).

**Table 5**

*Energy-poor distribution by age range*

Age	Energy-poor households		Average households
	nº	%	%
16-34	17	36	27
35-49	23	49	27
50-64	4	9	24
65-74	1	2	11
>74	2	4	12
Total	47	100	100

**Table 6**

*Energy-poor distribution by nationality*

Nationality	Energy-poor households		Average households
	nº	%	%
Spain	23	49	82
Foreign	24	51	18
Total	47	100	100

Source: Own elaboration with data from CASG (2017)

These findings are consistent with some of the risk factors identified from other energy poverty studies in Spain (ACA 2018; ECODES 2017; ACA 2016). The last national study is ACA<sup>22</sup>'s (2018) measurement of energy poverty in Spain with the application of the EPOV new suggested measurement framework. The study identifies numerous sociodemographic variables correlated with energy poverty in Spain:

- *Age-related:* Two age-groups stand-out. First, the presence of minors in the household increases the possibility of energy poverty, especially correlated with delay in payment of utilities, i.e. lack of supply of services in the past 12 years. Second, surprisingly the presence of people over 64 years of age in the household does not increase the probability of suffering energy poverty (only 3% of households with elderly people do not pay their bills on time).
- *Work-related:* As expected, unemployment and dependency on unemployment benefits/subsidies is highly correlated with energy poverty.
- *Marital status-related:* Single, widowed, separated and divorced people are more likely to experience energy poverty. Particularly critical is the situation of single-parents (mostly women), where the incidence of utility payment delay and lack of energy supply is especially high (doubling the average of Spain). This is also the case for elder widowers, mostly women, living in single-person households.

<sup>22</sup> Asociación de Ciencias Ambientales (ACA) is a Spanish organization that participates in the EU Energy Poverty Observatory (EPOV), created in 2018.

- *Housing tenure-related*: There is a greater incidence (more than double) of energy poverty (for all indicators) in families that are renting (especially social housing), and in second place homeowners who are currently paying mortgages.

### Policies in place to reduce energy poverty

The goal of this sub-section is to present all the policies/programs currently put in place by the Spanish, Catalan and local governments, that are targeted specifically to alleviate energy poverty, from which Olot's citizens can benefit. These include policies targeted to subsidize energy prices, economic transfers, energy efficiency retrofitting, amongst others (Sanchez Guevara 2015). To circumscribe this mapping exercise to the social challenge, those policies that are directed to improve EE (which would indirectly reduce energy poverty) but do not focus on energy-poor groups are not included.

Although they are not abundant, mapping out these policies is especially relevant for EuroPACE as they can be used as either (a) a selection criteria for SITGs and/or (b) programs to leverage on and make EuroPACE more accessible. In order to organize the information, we will present policies and/or programs per jurisdiction: national, province and municipality, i.e. Spain, Catalonia and Girona/Olot.

- **Spain**

- *Bono social eléctrico* (ACA 2018): The 'electric social bond' is the main policy in the Spanish landscape targeted to reduce energy prices and alleviate energy poverty. Framed within the 2009/72/CE and 2009/73/EC EU directives, the Spanish government passed in December 2013 the 24/2013 law that defined, for the first time, the concept of "vulnerable consumer". Since 2014, and based on certain requirements/characteristics<sup>23</sup>, these consumers have the right to a 25% discount of the PVPC (*Precio Voluntario para el Pequeño Consumidor*<sup>24</sup>) and are allowed to pay their utility bills with delay. Since 2017, the requirements to access the electric social bond changed to these three:
  - Families below a specific low-economic threshold (which varies according to the amount of minors in the family<sup>25</sup>).

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<sup>23</sup> (1) Have a contracted power of less than 3 kW; (2) Be a pensioner (over 60 years) of the national social security and receive the minimum retirement pension; (3) Be over 60 years and receive the non-contributory retirement pension; (4) Belong to a numerous family (i.e. having 3 or more economically dependent children)

<sup>24</sup> Fixed tariff regulated by the Spanish government.

<sup>25</sup> <http://www.bonosocial.gob.es/#requisitos/vulnerable>

- Have the title of ‘numerous family’
- All members from the family that perceive income must be pensioners of the social security system and/or only receive the minimum retirement pension.

In addition, “severe vulnerable consumers” any of the above who also have a family income level below an even lower economic threshold can receive a 40% discount in the PVPC.

- *PAREER II* Program: This is an aid program for EE building retrofitting measures which is primarily targeted to building owners (not individual household owners)<sup>26</sup>. In short, the program co-finances specific EE retrofits for buildings<sup>27</sup>. The program has a ‘social criteria’ which implies a larger financing share for buildings classified in the “regimen de protección pública”.
- *ECODES* is a Spanish organization participating in the European Observatory of Energy Poverty. In collaboration with Ecoserveis, they designed and implemented the *Ni Un Hogar Sin Energía* project which is an energy consumption monitoring service destined to energy-poor households. The goal of the service is to detect possible changes that households can make to lower their energy costs (ECODES 2017).
- *Fundación Naturgy*: This is the foundation of the Gas Natural Fenosa company. Within their corporate social responsibility programs, many of them are targeted to tackle energy poverty in Spain<sup>28</sup>. Moreover, recently the foundation has commissioned a study that outputted a generic “best EE measures to reduce energy poverty” (Naturgy 2017) which will be useful for the EuroPACE pilot.

- **Catalonia**

In 2015, the Catalan government passed the 24/2015 law which shapes since then the legal framework for public alleviation of energy poverty. In short, the law established a series of measures designed to guarantee the family rights “at risk of residential exclusion”<sup>29</sup> to access water, electricity

<sup>26</sup> <http://www.idae.es/ayudas-y-financiacion/para-rehabilitacion-de-edificios-programa-pareer/segunda-convocatoria-del>

<sup>27</sup> Typology of actions subject to the aids: those that achieve a reduction of CO2 emissions and final energy consumption through one or more of the following types:

- Improving the energy efficiency of the thermal envelope
- Improvement of the energy efficiency of thermal and lighting installations
- Substitution of conventional energy by solar thermal energy
- Replacing conventional energy with geothermal energy

<sup>28</sup> <http://www.fundacionnaturgy.org/accion-social/> - accessed 14/11/2018

<sup>29</sup> This represents households who’s income level is less than a specific economic threshold: 2 IRSC (*indicador de renda de suficiència*). The IRSC ratio varies depending on the characteristics of the household (e.g. family member with disabilities).



and gas, and protects them from utilities cuts in the case of non-payment. Although this is not a program per se, the main measure launched is the *principi de precaució* ('precautionary principle').

This principle obliges all utility companies to communicate with the local Social Services offices in cases of non-payment. In essence, before cutting the energy supply, the company has to request a report from the municipality's Social Services to determine whether the person or family unit is at risk of 'residential exclusion'. If so, Social Services are obliged to grant economic cash transfers to each household to help pay the bills. Moreover, the Catalan government has also pushed some indirect policies which are particularly relevant to energy poverty alleviation as they tackle income-related risk factors associated with it:

- *Ajuts d'urgència social*: These are non-conditional cash transfers given to vulnerable groups for specific urgencies, e.g. food, clothing, rent. These are also used to pay energy bills.
- *Renda garantida de ciutadania* (RGC): The RGC is a monthly non-conditional economic transfer provided to people who are below a specific income threshold. Additional aid is provided, although in a conditional manner, to those who follow a specific re-employment plan. However, the RGC is not available since July 2017 due to budgetary cuts.

On a final note, several initiatives and organizations in the Catalan third sector are currently addressing the energy poverty issue:

- *Aprenem*: The Aprenem Project is an European project led by Ecoserveis<sup>30</sup> in collaboration with *l'Agència de l'Habitatge de Catalunya* (housing agency of Catalonia) that promotes residential home retrofitting for vulnerable families. The project has two objectives: (a) offer technical advice to vulnerable families interested in EE retrofitting and (b) deliver workshops to vulnerable families concerning better use of energy at home.
- *Energía Justa*: The Fuel Poverty Group is a volunteer network that promotes empowerment in energy-poor households. Its main activities are workshops to help people understand their utility bills and provide practical advice for daily life and rational and efficient use of energy. They personally guide vulnerable groups to understand and deal with gas, electricity and water bills; in addition to detecting possible situations of severe energy poverty.

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<sup>30</sup> Ecoserveis: Promote renewable technologies, to implement measures that allow the efficient use of energy and to ensure a fair access to energy. They train social agents, we seek solutions for professionals and public administrators and we develop social interventions in house of vulnerable beneficiaries to ensure a conscious and transformative energy use. And provide rigor as experts in energy and social commitment through our long-lasting bond with the third sector. We promote individual and collective empowerment in energy through innovation and social transformation.

- **La Garrotxa/Olot**

In the case of the La Garrotxa region and Olot, very few services are targeted exclusively to energy-poor households/individuals. The *Programa d'Estalvi Energètic i Pobresa Energètica de la Demarcació de Girona*<sup>31</sup> (Diputació de Girona 2017) is the main program in the region aimed at alleviating energy poverty. In collaboration with the *Servei d'Habitatge* (social services housing service), the *Diputació of Girona* launched this program to address energy poverty in a holistic manner. The program has five goals (Diputació de Girona 2017):

1. Sensitize the population on household energy expenditure
2. Improve the household energy efficiency
3. Improve comfort and health conditions
4. Reduce the utility prices
5. Empower energy-poor households/individuals

The program will be implemented during 2019-2020 through a series of measures which include (a) audits in energy-poor households, (b) training sessions and assistance regarding energy rates/prices and, (c) minor changes in the households (not structural).

On another hand, housing *support* offered by the local housing office of Olot, in collaboration with the *Taula d'habitatge*, is another mayor help for energy-poor households (CASG 2017). This support takes two forms. On the one hand, the CASG pays the utility bills (mostly gas/butane and electricity) of those energy-poor households who are unable to do so<sup>32</sup>. On the other hand, CASG also provides economic transfers and pensions to energy-poor households to assist in mitigating problems that arise in the house<sup>33</sup> (e.g. non-payment of bills, non-payment of rent, moving to another house, etc.). On a final note, besides offering the RGC and the *ajuts d'urgència social*, SGAS offers other services that are targeted to low-income groups who (by default) are at risk of energy-poverty:

1. *Menjador social*: This is a soup-kitchen service that offers daily meals to extremely vulnerable people inhabitants of the Garrotxa area.
2. *Centre de distribució d'aliments*: This is a service that gives out food to vulnerable families who cannot afford food.

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<sup>31</sup> "Energy Saving and Energy Poverty Program of the Girona Demarcation (translation in English).

<sup>32</sup> Over the last year, 379 energy-poverty reports were made in the Garrotxa area (87% correspond to Olot), and 84.000€ (approx.) were spent.

<sup>33</sup> Over the last year, 105,566€ was destined to these transfers.

### Stakeholder map

The goal of this sub-section is to map out all the local stakeholders (Olot/La Garrotxa) that address and/or are in contact with the energy-poor population of the city in order to identify how is each one relevant to addressing the social challenge with the rolling out of EuroPACE.

Table 7

*Stakeholder analysis for energy poverty alleviation in Olot with EuroPACE*

Stakeholder name	Type	Impact on the project	Why is the stakeholder important?		
			How can he contribute?	How can he block the project?	Needs
Oficina d'Habitatge d'Olot	Public	High	Olot's housing office is in charge of expanding the public housing stock. The stakeholder can facilitate communication channels to property owners with energy poor tenants	May refuse to collaborate, hindering the possibility to target the SITGs. However, this is unlikely because the stakeholder depends on the Ajuntament d'Olot mandate	Action plan provided in advance to make the necessary actions to activate the targeting & advocacy strategy
Consorti d'Acció Social de la Garrotxa	Public	High	In charge of SGAS. The stakeholder can facilitate communication channels, access and data regarding their energy-poor beneficiaries		
Càritas Garrotxa	NGO	Medium	The stakeholder can facilitate communication channels and access to their beneficiaries (most of them are energy poor)	Cannot because they represent just one of many communication channels.	Information in advance to schedule advocacy seminars
Creu Roja Garrotxa	NGO	Medium			

Mans per l'acció solidària	NGO	Medium			
Institut Municipal d'educació i Joventud d'Olot	Public	Low	The stakeholder could give us access to schools in vulnerable areas of Olot so as to target potential energy-poor households	Cannot because they represent one of many communication channels. Showed no interest in collaborating with EuroPACE.	
ASPCAT - Servei salut pública Girona Nord	Public	Low	Local Health agency. Can provide nexus with local sympathetic doctors/clinics/hospitals with contact to energy poor patients		-
Diputació de Girona	Public	Low	In charge of the regional energy poverty alleviation program. The stakeholder will launch a regional audit of the social problem. Particularly to Olot, the Diputació will audit 50 homes during 2019 which could be useful information for the EuroPACE pilot.	Cannot block the project because their input in the EuroPACE program is minimal	
Naturgy (ex Gas Natural Fenosa Foundation)	Private	Low	The stakeholder can provide, through their Escuela de Energía program, free know-how and man-power for the awareness/behavior change seminars	Cannot block the project because their input in the EuroPACE program is minimal	Time/information in advance to schedule the seminars in Olot

Source: own elaboration

### Proposal: candidate energy-poor SITGs

Having revised the characteristics and risk factors of the energy-poor households of Olot/La Garrotxa; identified all the main policies/programs put in place by the Spanish, Catalan, and local governments to reduce energy poverty; and mapped out all the local stakeholders that address and/or are in contact with the energy-poor population, Table 8 presents our candidate energy-poor SITGs in a 4x2 matrix built on the two most influential risk factors identified: housing tenure and household type.

**Table 8**  
*Candidate energy-poor SITGs for EuroPACE*

Risk Factors		Housing Tenure		Total
		Owner (23%)	Tenancy (77%)	100%
Household type	<i>Single-person</i> (19%)	SITG 1a (4%)	SITG 2a (15%)	
	<i>Couple with children</i> (49%)	SITG 1b (11%)	SITG 2b (38%)	
	<i>Couple without children</i> (9%)	SITG 1c (2%)	SITG 2c (7%)	
	<i>Single-parent</i> (9%)	SITG 1d (2%)	SITG 2d (7%)	
	<i>Multi-family</i> (15%)	SITG 1e (3%)	SITG 2e (12%)	
Total	100%			

Source: own elaboration

Note: The distribution (%) calculation within each quadrant is supposing that housing tenure distributes equally within each household type.

As seen in Table 8, housing-tenure has been used as the main variable to distinguish between the two SITGs. The reason for doing this is due to EuroPACE’s value proposition, i.e. upfront financing for energy efficiency retrofitting targeted to homeowners (not tenants). However, as seen both in the local data and in the literature review, energy poverty is mostly a tenancy problem. Therefore, if EuroPACE is committed to alleviate poverty energy, tenancy households must be considered as a separate SITG, not only because of its bigger social impact, but also because the advocacy/engagement strategy and selling-point would be different, i.e. targeting the owners of flats housed by an energy-poor family. Household type comprises the other variable of the matrix being one of the most influential risk factors identified. Single-person, couple with children and single-parent are the three household types overrepresented within the energy poor. Age-related

variables and nationality are not considered as identification variables because they are irrelevant to explain energy poverty or are not a distinguishing variable within the energy poverty alleviation program portfolio.

**Note:** Households with undocumented energy poverty (invisible/hidden energy poverty or are at-risk-of energy poverty) are also included within the SITGs. However, they will be identified using different proxies (for more detail, see the ‘targeting & advocacy strategy’ subsection) due to the undocumented aspect of their situation.

### **(B) Can EuroPACE reduce unemployment in vulnerable groups?**

The goal of this subsection is to assess the potential of the EuroPACE program to reduce unemployment in vulnerable groups and identify candidate SITGs. However, before doing so, it is necessary to first define and delimit the ‘vulnerable group’ concept to specific sociodemographic characteristics that are associated with unemployment in Olot. Most importantly, the delimitation process has to also take into account, what we consider, the EuroPACE pilot *delimiting variables*:

1. Pilot implementation calendar: According to the Grant Agreement (785057/EuroPACE), training and verification of selected contractors (Task 4.1) starts January 2019 and finishes January 2020. Although the know-how acquired is permanent, contractors should employ the SITGs preferably within this time period. In other words, the pilot implementation calendar requires that potential SITGs be trained/ready-to-work in the short-term. However, if this is not possible, pipeline-build up & technical assistance (task 4.3) and pilot execution (4.5) are from January 2019 to January 2021, giving contractors an extra year to hire candidate SITGs.
2. Pilot size: Due to the projected size of the pilot, there is little incentive from both public and private stakeholders (e.g. foundations) to prepare a training seminar catered to the skill set required by EuroPACE contractors.

In sum, taking into account that within the EuroPACE consortium no partner is intended to train the unemployed SITG, that the pilot implementation calendar requires ‘immediate’ availability of vulnerable/unemployed yet skilled workers, and that the pilot size does not incentivize local stakeholders (public and private) to prepare catered training seminars to unskilled unemployed people, our targeting process will focus solely in vulnerable SITGs which would require minimum training and adaptation for local contractors.

## Identifying potential target groups

According to OECD (2013), targeting unemployed groups can be undertaken spatially or socio-demographically, i.e. based on specific risk factors often found to be overrepresented in the local unemployed population (e.g. homelessness, minorities, migrants, people with disability, gender, amongst others). Considering the fact that the pilot already targets spatially (i.e. Olot's unemployed), the following analysis will be based on risk-factors.

In 2017 the total number of unemployed people in La Garrotxa were 2.118, of which 65% are from Olot<sup>34</sup> (n=1392). Regarding Olot, the unemployment rate is 8,5% which is slightly above the region's rate (7,8%), although maintaining a decreasing unemployment trend in the region since 2012 (Dinàmig 2017). Moreover, within the unemployed population of La Garrotxa, certain sociodemographic trends can be found (CASG 2017). First, women are slightly affected more from unemployment than men (54% vs. 46%). Second, long-term unemployment (+2 years unemployed) affects 27% of the unemployed population, 48% if considering job hunts over 1 year (Dinàmig 2017). Third, immigrants are overrepresented within the unemployed in comparison to the mean distribution in the region (24% vs. 13,6%<sup>35</sup>). Finally, and very relevant for EuroPACE's value proposition, 84% of the unemployed previously worked in the industrial or service sector, whilst only 7,4% of the unemployed previously worked in the construction sector (Observatori Garrotxa 2016).

Specifically to the labour market in Olot, certain additional trends can be found when analyzing the data from the 2017 CASG's living conditions survey. First, as seen in Table 9, 80% of Olot's unemployed use the *Servicio Público de Empleo Estatal* (SEPE) and *Servei Català d'Ocupació* (SOC) as their main job-hunting mechanism. Second, surprisingly only 17% of Olot's unemployed have used the city's social services. Both of these findings are especially useful when considering what would be the best notification/targeting methods to attract candidates to local contractors (Table 10). Third, as seen in La Garrotxa region, unemployment hits hard on young adults, which are overrepresented in comparison to Olot's average age distribution (47% vs. 26%). Finally, as seen in Table 12, unemployment is negatively correlated with education level, hitting mostly unemployed with only secondary education completed (10% difference with Olot's average education level distribution).

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<sup>34</sup> Memòria CASG (2017)

<sup>35</sup> CASG (2017)

**Table 9**

*Job-hunting mechanisms used by the unemployed in Olot*

Mechanisms	Olot's unemployed	
	<i>nº</i>	<i>Frequency use (%)</i>
SEPE or SOC	24	80
Empreses de Treball Temporal (ETT)	11	36,7
Friends & family	9	30
Directly with companies	4	13,3
Municipal Job pool	3	10

Source: CASG (2017)

Note: Most unemployed used more than one mechanism

**Table 10**

*Use of social services in the last year*

		Use of social services (%)		
		Yes	No	Total
<b>Employment status</b>	Unemployed	17	83	100
	Employed	9	90	100

Source: own elaboration with data from the 2017 CASG's living conditions survey

**Table 11**

*Unemployment by age-group*

Age group	Olot's unemployed*	Olot's population distribution**
	%	
16-34	24	35
35-49	33	35
50-64	43	30
Total	100	78***

Source: \*data from Garrotxa 2016 - Dinàmig (2017)

\*\* CASG (2017), p.38 & p.42

**Table 12**

*Unemployment by education level*

Education level	Olot's unemployed*	Olot's population distribution**
	%	
Primary incomplete (or less)	18	2
Primary education	19	35
Secondary education	50	40
Tertiary education	11	23
Total	100	100



## Policies in place to reduce unemployment in vulnerable groups

The goal of this subsection is to present all the policies/programs currently put in place by the Spanish, Catalan and local governments, that are targeted specifically to reduce unemployment and incentivize private companies to employ 'vulnerable groups'. Again, although they are not abundant, mapping out these policies and programs is especially relevant for EuroPACE as they are crucial to leverage on in order to incentive local contractors to employ unemployed SITGs. This is even more relevant considering the fact that there is no training agency within the EuroPACE consortium who's role is to train the unemployed SITG. As in the previous section, in order to organize the information, we will present these policies/programs per jurisdiction: national, province and municipality, i.e. Spain, Catalonia and Garrotxa/Olot.

- **Spain**

The *Servicio Público de Empleo Estatal* (SEPE) is the national institution in charge of regulating and implementing all the active labour markets policies of the central government. Within that portfolio of policies, one of them particularly relevant to EuroPACE is the policy of bonuses for contracting special vulnerable groups (e.g. unemployed). SPEE (2018) summarizes all available bonuses for contracting in the Spanish landscape that could be used by local contractors. Bonuses differ depending on the nature of the contract (temporal or open-ended). Due to the temporal nature of the EuroPACE pilot, we present next a selection of those bonuses for temporary contracts, which are relevant to the target population delimitation process previously mentioned (for details regarding the specific requirements and characteristics of each bonus see SPEE 2018):

1. *Unemployed middle-aged* (Law 3/2012): This is targeted to people over 52 of age that are currently receiving unemployment benefits. Contractors are entitled to deduct from their 'employer cost of salary' the equivalent sum of the 50% of the unemployed benefit previously received by the new employee.
2. *Young adults (Programa Garantía Juvenil)*: Two bonuses are available. The first is a bonus for employing unemployed young adults (<30 years) that have no work experience (Law 11/2013). The second is a bonus for unemployed young adults for apprenticeship contracts (CFyA – Spanish acronym). Contractors from both bonuses are entitled to a reduction of their social security contribution rates.
3. *Socially excluded* (Law 43/2006): This includes people who receive the RGC, ex-convicts, people in drug rehabilitation, amongst others. Contractors are entitled with this bonus to receive 41,67€ per month / per employee (500€ per year) during the contract's length. In case the contract is upgraded to 'open-ended', the bonus is of 50€ per month (600€ per

year). According to the 44/2007 law, if the contractor is an insertion company, the bonus is 70,83€ per month (850€ per year).

Several organizations in the third sector have joined the cause of labour integration in the country. Two of them stand out due to their size and tie's with the energy sector:

1. *Fundación "La Caixa"* (Incorpora 2016): Since 2005 the foundation implements the *Incorpora* Program (hereafter *Incorpora*), which targets its effort to help employ/re-employ vulnerable groups (handicapped, long-term unemployment, ex-children in care, victims of domestic violence). Spread all throughout the country, the *Incorpora Program* portfolio of services offers multiple options for vulnerable groups who are currently unemployed. Three offers particularly stand-out that are relevant to the EuroPACE pilot. First, *Incorpora's* 'information points' offer specialized training courses that are targeted to improve hard-skills of vulnerable groups. Second, *Incorpora* offers labour intermediation between job openings and pre-selection of candidates for companies. Finally, *Incorpora* helps companies shape their corporate social responsibility program.
2. *Fundación ENDESA*: Targeted particularly to unemployed young adults, *Fundación Endesa* develops across the country multiple electricity training seminars to improve their employability/hard skills. These seminars are done in collaboration with public institutions and/or third sector, usually implemented in ENDESA facilities or directly with local contractors.

- **Catalonia**

The *Servei Català d'Ocupació (SOC)* is Catalonia's institution in charge of implementing all the active labour market policies promoted by the *Generalitat de Catalunya* (government of Catalonia). As in the case of SEPE, SOC also offers different bonuses for companies that are willing to contract vulnerable groups. These bonuses renew/change on a yearly basis. We present next a selection of those few bonuses that are available in the Convocatòries 2018 (*2018 calls*):

1. Middle-aged (SOC 2018a): The *Foment de la incorporació de persones en situació d'atur més grans de 45 anys* program is targeted to people over 45 of age who are registered as unemployed. In this program, SOC subsidizes to the company between 50% and 100% of the employee cost (subsidy varies depending on the duration of the contract). Sadly, the deadline was 15<sup>th</sup> November 2018, although hopefully will re-new next year.
2. Young adults (SOC 2018b): *Fem Ocupació per a Joves* is a policy targeted to re-employ and/or re-train unemployed young adults (16-29). Within this program, the target population receives a temporary employment contract, training and guidance/accompaniment during

the recruitment and training process. As a result, companies who participate benefit as they have young adults specifically trained in their field. Sadly, the deadline was 7<sup>th</sup> November 2018, although hopefully will re-new next year.

3. On the other hand, in co-finance with the European Social Fund, SOC launched the *Contratació en pràctiques de beneficiaries de la Garantía Juvenil*, program which finances 6-month internships for young adults in local governments or NGO's. Sadly, the deadline was 7<sup>th</sup> September 2018, although hopefully will re-new next year.

- **La Garrotxa/Olot**

In direct contact with each municipality, *Dinàmig* is La Garrotxa's regional service organization in charge of enhancing economic activity and generation of opportunities for people and companies in the region. Within its portfolio of services, three of them stand out that are particularly relevant for the EuroPACE pilot:

1. *Service for companies*: First, *Dinàmig* assist companies with preparing training services and courses for personnel. Second, the organization offers job intermediation and assistance in recruiting suitable candidates for their openings. Finally, *Dinàmig* offers assistance and information to companies who are willing to apply to public financial aid and/or contracting bonuses of vulnerable groups.
2. *Service for the unemployed*: *Àrea d'Ocupació Mas Les Mates* (hereafter *Mas Les Mates*) is the agency within *Dinàmig* in charge of helping the unemployed to find a job by improving their skills, with both regulated and non-regulated training courses and seminars. Moreover, *Mas Les Mates* has an online job pool that centralizes current openings in the area.
3. *CASG*: In collaboration with *Dinàmig*, *CASG* offers the *Reincorporació al treball* which is a small program that offers training to immigrants who are currently unemployed.

### Stakeholder map

The goal of this subsection is to map out all the local stakeholders (Olot/La Garrotxa) that address and/or are in contact with local EE contractors or unemployed vulnerable groups of the city in order to identify how relevant is each one to address the social challenge with the rolling out of EuroPACE.

Table 13  
*Stakeholder analysis for vulnerable group employment in Olot with EuroPACE*

Stakeholder	Type	Impact on the project	Why is the stakeholder important?		Needs
			How can he contribute?	How can he block the project?	
DinàmiG	Public	High	Olot's employment office. The stakeholder provides the nexus between contractors and the unemployed SITGs	May refuse to collaborate, hindering the possibility to target the SITGs. However, this is unlikely because the stakeholder depends on the Ajuntament d'Olot mandate	Action plan provided in advance to make the necessary actions to activate the targeting & advocacy strategy and plan outline
Local contractors	Private	High	The success in reducing unemployment in vulnerable groups depends exclusively of their intent to hire SITGs	They can decide not to hire the unemployed SITGs	Incentives to hire the unemployed SITGs

CASG	Public	Medium	The stakeholder can provide access to social services beneficiaries who are currently unemployed	Cannot block the project because their input in this social opportunity is minimal	-
SOC/SEPE	Public	High	Both stakeholders provide, on an annual basis, contracting bonuses of vulnerable groups for companies. These bonuses are key to providing demand-side incentives to contractors	Although very unlikely, national and/or Catalan governments can decide not to renew contracting bonuses	-
Fundación la Caixa	Private	Low	Both stakeholders can provide training to unskilled unemployed SITGs. However, this should be explored during year 1 for year 2 or 3 of the pilot and see if they are interested	Cannot block the project because their input is minimal	EuroPACE pilot working and enough 'workforce demand' from SITGs to cater a training course for them
Fundación ENDESA	Private	Low			

Source: own elaboration

Proposal: candidate unemployed vulnerable group SITGs

Having revised the characteristics and risk factors of unemployed vulnerable groups in Olot/La Garrotxa; identified all the main policies/programs put in place by the Spanish, Catalan, and local governments to incentive local contractors in employing these groups; and mapped out all the local stakeholders that address and/or are in contact with the target population, Table 14 presents our candidate vulnerable SITGs in a 4x2 matrix built on the two most influential risk factors: time unemployed and age.

**Table 14**  
Candidate unemployed SITGs for EuroPACE

Risk Factors		Work experience/formation in construction (hard skills)		Without experience (93%)	Total
		With experience (7%)			
		Time unemployed			
		Less than a year 58%	Long-term (+ 1 year) 48%		
Age group	Young adults (16-34) 24%	SITG 3a	SITG 3b	Not considered due to the pilot's limiting variables	100%
	Adults (35-49) 33%	SITG 4a	SITG 4b		
	Middle-aged (50-64) 43%	SITG 5a	SITG 5b		

Source: own elaboration based on data from Observatori Garrotxa (2016)

Note:

1. Limitation: Data regarding "experience in construction" represents "last work experience". In other words, unemployed with experience in construction, but have not worked in the construction in their last job, would appear in the "without experience" column.
2. The distribution (%) calculation within each quadrant is supposing that 'time unemployed' distributes equally within age group.

As seen in Table 14, 'age group' has been used as a main variable to distinguish between SITGs. The reason for doing this is because the criteria in the vast majority of bonuses for contracting special

vulnerable groups are age-based. Adults and, most importantly, middle-aged people are the two age groups that are overrepresented within the unemployed group. 'Time unemployed' comprises the other variable of the matrix being one of the most influential risk factors identified. As seen both in the local data and in the literature review, 'time unemployed' is a big determinant of vulnerability. Therefore, if EuroPACE is committed to reduce unemployment in vulnerable groups, long-term unemployment must be considered as a subgroup within each SITG. Education level and nationality are not considered as identification variables because they are not distinguishing variables within the bonuses incentives portfolio.

## SECTION 3: ACTION PLAN

The goal of this section is to layout a *special action plan* that was co-created with local stakeholders to effectively tackle energy poverty and reduce unemployment in vulnerable groups through the rolling out of the EuroPACE program. As in the previous section, this action plan will be specific to the upcoming EuroPACE pilot in the city of Olot and will be divided into two separate plans, one for each social opportunity. Each action plan is comprised of four parts:

1. Targeting & advocacy strategy, i.e. who and how to engage with the SITGs
2. Plan outline, i.e. actions and protocol that should be carried out
3. Monitoring and evaluation (M&E) framework
4. Risk management

Most importantly, the action plan should be understood as an initial plan that should be reassessed after 1 year of implementation in order to draw lessons, modify initial hypothesis and re-design an 2.0 action plan based on what has worked and what has not. In doing so, this will allow the EuroPACE to revise the action plan laid out in this report with the data currently available and adjust its value proposition to the SITGs.

### (A) Social opportunity nº1: Energy poverty alleviation

As seen in the ‘assessment and SITG proposal’ section, energy poverty (either documented, at-risk-of, or invisible) is primarily a tenancy problem. As a result, the key to success in alleviating energy poverty through EuroPACE is incentivizing property owners (with energy-poor tenants), i.e. the *indirect target group*, to adopt the EuroPACE program (whilst simultaneously creating strategies to avoid gentrification). In order for that to occur, our action plan includes ad-hoc incentives and measures, solely for this indirect target group, to adopt the EuroPACE program (besides the incentives already existent for ‘regular’ customers). The incentives proposed are both from the demand-side (i.e. that should be offered by the Ajuntament d’ Olot) and from the offer-side (i.e. that should be offered by the EuroPACE program).

In short, the theory of change behind this action plan is the following: by incentivizing property owners (with energy poor tenants) to adopt EuroPACE and retrofit their properties to improve the energy efficiency, their energy-poor tenants will benefit directly from that and thus their energy poverty situation will alleviate. The main advantage of this is that in theory, unlike energy-poor homeowners who by definition have low incomes and thus are extremely sensitive to large expenditures, property owners (with energy-poor tenants) have more financial capacity to



undertake EE retrofitting investments and have a similar consumer behavior to EuroPACE's typical consumer. However, just to clarify, although we do not have market research data to back this claim, we do not assume that these property owners will retrofit their properties in order to benefit their energy-poor tenants, thus specific ad-hoc measures should be provided to incentivize them to adopt the EuroPACE program.

This does not mean that efforts will not be made to engage with energy-poor homeowners. However, due to their low-income status, vulnerable situation (characterized in the previous section), and due to the much greater share of tenants over home-ownership in the energy-poor population, the key to having a significant impact in alleviating energy poverty is incentivizing property owners (with energy-poor tenants), to retrofit their properties.

However, this theory of change entails a risk of gentrification: as properties are retrofitted, their value will increase and thus owners can increase their rent price, thus making it less affordable to their energy-poor tenants who are either (i) forced to leave their homes or (ii) will not get their rent contract renewed because their property owners will prefer securing a tenant with less vulnerability factors. To mitigate this risk, special actions were drawn in the action plan.

### Targeting & advocacy strategy

The goal of this subsection is to answer three important questions:

1. *Selection*: how will the SITGs be identified?
2. *Targeting*: how will EuroPACE's value proposition reach the SITGs?
3. *Engagement*: how will EuroPACE engage with each SITG?

#### 1.1. Selection

Based on the earlier section, we propose segmenting energy-poor SITGs using different criteria. First, they are divided into two groups based on their housing tenure type: home-owners and tenants. For those who are tenants, the indirect target group is their landlords. Second, they are divided depending on the 'status of their energy poverty situation': documented or undocumented (invisible or at-risk). Finally, they are divided depending if there are beneficiaries of Olot's social services (Servei Bàsic d'Atenció Social – SBAS) or not. Table 15 illustrates this segmentation.

**Table 15**  
*Selection strategy – energy poor SITGs*

<b>Segmenting Variable 1</b>	SBAS beneficiary				or	Not a SBAS beneficiary	
<b>Segmenting Variable 2</b>	With documented EP		‘Invisible’ EP or at risk of EP		or	‘Invisible’ EP or at risk of EP	
<b>Segmenting Variable 3</b>	Tenant with EP (indirect target group: landlord)	or Owner with EP	Tenant with EP (indirect target group: landlord)	or Owner with EP	Tenant with EP (indirect target group: landlord)	or Owner with EP	
<b>Identification code</b>	1.A	1.B	2.A	2.B	3.A	3.B	

Source: own elaboration

As seen in Table 15, there are 6 different SITGs and each one is identifiable with different proxy variables:

- 1.A. and 1.B, i.e. Olot’s SBAS beneficiaries *with documented energy poverty*, are those beneficiaries who comply with at least one of the following criteria:
  - Has an open energy poverty report (referred to as “informe de pobresa energètica”).
  - Receives, or has recently received from SBAS, unconditional cash transfers to pay utility bills (referred to as “ajut d’urgència per atendre despeses de subministraments”).
  - Receives or has recently received from SBAS, unconditional cash transfers to help paying the rent or other house-related expenses (referred to as “ajuts per a l’habitatge”).
- 2.A and 2.B, i.e. Olot’s SBAS beneficiaries *without documented energy poverty*, are those beneficiaries who comply with at least one of the following criteria:

- Are beneficiaries of any of the services targeted to alleviate poverty or social exclusion (referred to as “Serveis de Pobresa i exclusió social”).
- Are beneficiaries of any of the services targeted to assist in the caring of dependents (referred to as “Persones amb dependència”).
- Are beneficiaries of the family support services (referred to as “Servei de suport a les famílies”).
- 3.A & 3.B, i.e. Olot’s citizens without documented energy poverty or at-risk of it that are *not SBAS beneficiaries*, will be identified using at least one of the following proxy indicators:
  - Are beneficiaries of any of the following NGO’s: Càritas Catalunya, Creu Roja Catalunya (Red Cross) and/or Mans per l’acció solidària.
  - Receives cash transfers from the local housing office (Oficina d’Habitatge) to assist in paying the rent (referred to as “Ajuts al pagament del lloguer”).
  - Live in deprived neighbourhoods.
  - Registered in the housing pool from the local housing office (Oficina d’Habitatge) to access/rent social housing (referred to as “Registre de Sol·licitants d’Habitatge de Protecció Oficial”).

## 1.2. Targeting

In order to reach each group, we suggest leveraging on the communication strategies and channels that are currently in place by each of the stakeholders involved:

- For 1.B & 2.B, i.e. energy-poor landowners who are SGAS beneficiaries, EuroPACE’s value proposition will reach them using:
  - SBAS/CASG database and communication channels
  - Local estate administrators communication channels
- For 1.A. & 2.A, i.e. the landlords of the documented or undocumented energy poor tenants who are SGAS beneficiaries, EuroPACE’s value proposition will reach them using:
  - EuroPACE’s communication/marketing campaign
  - *Oficina d’Habitatge* communication channels

- Their own tenants (who will receive the information through Social Services communication channels)
- Local estate administrators communication channels
- For 3.A, i.e. the landlords with undocumented energy poor tenants who are not SGAS beneficiaries, EuroPACE's value proposition will reach them with using:
  - EuroPACE's communication/marketing campaign
  - *Oficina d'Habitatge* global communication channels
  - Their own tenants (who will receive the information through *Oficina d'Habitatge* or the NGO's communication channels)
  - Local estate administrators communication channels
- For 3.B, i.e. undocumented energy-poor landowners who are not SGAS beneficiaries, EuroPACE's value proposition will reach them using:
  - NGO's communication channels
  - *Oficina d'Habitatge* catered communication channels
  - Local estate administrators communication channels

### 1.3. Engagement

In order to actively engage with each of the SITGs, we believe it is key to first instruct the target population about the benefits of EE retrofitting in reducing energy expenditures and provide information/raise awareness about the overall EuroPACE value proposition. To that end, our engagement strategy proposal is to schedule seminars on a sequential basis (e.g. one every 2 months<sup>36</sup>), co-hosted with each local stakeholder involved, and summon the different SITGs to these seminars. The goal of these seminars is three-fold:

1. *Creating awareness*: Explain the relationship between energy efficiency, energy costs and energy poverty.
2. *Providing information*: Explain the EuroPACE value proposition and a summary of the contracting process.

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<sup>36</sup> To be determined.

3. Q&A. This will be very useful as market research strategy to gather feedback from the SITGs, grasp their point of view, and make necessary adjustments.

Most importantly, the end goal of all of these seminars is to get the SITGs to go to the EuroPACE office to start the contracting process. We consider this consumer engagement strategy crucial to getting a high level of convening power to the EuroPACE office because, as shown in the data, the energy-poor population has (on average) low education levels and/or are ill-informed, and thus require further information to grasp the benefits of EuroPACE.

In order to maximize convening power, we suggest offering seminars catered to different audiences dependant on the segmenting variables. These are:

1. *Seminars exclusively to social service beneficiaries*: this is done not only because, as revealed in our stakeholder interview process, there is a stigma related to being a SGAS beneficiary which would deter non-SGAS beneficiaries to attend, but also because SGAS has a high turnover rate. These seminars should be hosted in a SGAS conference room.
2. *Seminars exclusively to NGO beneficiaries*: This is done because, as revealed in our stakeholder interview process, this target group is not prone to mobilizing to new venues. As a result, these seminars would be hosted in the offices of each NGO. Moreover, as the turnover rate is not so high, these seminars will be held in a less frequent basis (e.g. 1 every 4 months).
3. *Seminars to non-social service beneficiaries/general public*: These would co-hosted with the Ajuntament d'Olot and the Oficina d'Habitatge to cast a 'wider net'.

On a final note, we do not suggest segmenting these seminars by housing tenure because the goals of the seminars are the same: create awareness, provide information, Q&A, and getting the SITGs to go to the EuroPACE office to start the contracting process. The difference in housing tenure type is addressed in the action protocol, described in the following section.

## Plan outline

The goal of this subsection is to outline the action protocol that EuroPACE should follow once a SITG customer arrives to the EuroPACE office. It must be noted that the action protocol does not vary based on two of the segmenting variables: social services status (beneficiary or non-beneficiary) or energy poverty status (documented or undocumented).

## 2.1 Actions

- *Validation*: The first action is to validate that the SITG customer has documented energy poverty or undocumented energy poverty using the proxy indicators described in the previous section. If the SITG customer is a landlord (with an energy-poor tenant), the validation process applies to his tenant and rent contract. For obvious reasons, in case that the SITG customer is a tenant (and not a property owner), he/she will be encouraged to come back to the office with his/her landlord and/or will be provided with EuroPACE information to be shared with their landlord. In other words, conceptually only two types of customers can contract EuroPACE:
  - Energy-poor (documented or undocumented) property owners or;
  - Landlords with energy-poor (documented or undocumented) tenants
- *Presentation*: Once the validation process is finished and the customer is an identified SITG, the office shall explain to him/her the EuroPACE value proposition and the details regarding the contracting process. Most importantly, the office shall explain the ad-hoc incentives and obligations (see 2.2 Deliverables) attached to the EuroPACE product that are unique to the SITGs.
- *Diagnosis/audit (+Baseline evaluation)*: If the customer decides to move forward with the contracting of EuroPACE and does not know what to retrofit in their properties, the office shall offer as a first step an audit of their property. The goal of the audit are:
  - To identify and rank the EE measures with the best energy saving-payback ratio and provide a low-investment EE measures package catered to that property in particular (see 2.2 Deliverables for more information).
  - To provide assistance/counsel on behavioral changes that would improve the energy use of the person/family living in the property.
  - To gather baseline information from the customer situation (regarding self-perceived comfort & health in the property) with a short interview/survey (see 3. M&E Framework).
- *Intervention & assistance/counsel*: Once the customer agrees with EuroPACE on a specific EE package and budget, the retrofitting measures shall be carried out. On the last day of retrofitting, further assistance/counsel should be provided on behavioral changes that would improve the energy use in the new retrofitted property.

- *Evaluation*: One year after the property has been retrofitted, a final interview/survey shall be carried out to the same person living in the property to gather information in order to later evaluate the level of energy poverty alleviation (for more detail, see M&E Framework).

## 2.2 Deliverables

In relation to the action protocol, four deliverables have to be put in place:

- *Ad-hoc measures and obligations attached to the EuroPACE product*: These are measures attached to the EuroPACE product, exclusive to the SITGs, that should be put in place to incentivize the adoption to the EuroPACE program. These incentives should come from both the offer-side (i.e. offered by EuroPACE) and from the demand-side (i.e. offered by the Ajuntament d'Olot). We recommend the following:
  - *From the offer-side*:
    - Lower interest rate and repayment period
    - Offering a grace period
    - Free audit and tutoring during 2.1.3 and 2.1.4
  - *From the demand-side*:
    - Fiscal deductions (tax credits)
    - Partial or total waiver of taxes related to home renovation
    - Fast-approval track for home renovation permits
    - For property owners (with energy poor tenants) only: include, if desired, their property in the social public housing pool (referred to as the “Borsa d’habitatge”), run by the local housing office (referred to as the “Xarxa de Mediació del Lloguer Social de l’Agència de l’Habitatge de la Generalitat de Catalunya”). Multiple benefits<sup>37</sup> are attached with it, including free management, 6000€ grant and 50% financing of the property tax payment.
  - *Obligations* (for property owners with energy poor tenants): In order to avoid gentrification, the customers are required to comply with one of following two obligations to adopt the EuroPACE program:

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<sup>37</sup> More information: <https://habitatge.olot.cat/index.php/propietari/> - accessed on 28/11/2018

- Provide proof to the EuroPACE office that the leasing contract with his/her energy-poor tenant is of, at least, 5 years or;
  - Concede their property to the “Borsa d’habitatge”
- *Generic low-investment EE measures package:* Based on the findings and recommendations of Aranda et al. (2017) and Sánchez Guevara et al. (2015) concerning best EE retrofitting measures in Spain to reduce energy poverty, the EuroPACE office shall offer a generic low investment EE measure package to the customer during 2.1.2 in order to generate further interest in EuroPACE, guide the customer in choosing what EE measures to adopt, or incentivizing the customer in doing the audit.
  - *Training content during audit:* The auditor shall have a list of topics on which to advise the customer (e.g. adjusting contracts tariffs, applying for the *Bono social eléctrico*, behavioral changes, amongst others).
  - *Evaluation interview script/survey:* The interview shall have a semi-structured interview to conduct the initial/baseline evaluation and the final evaluation.

**Note:** All of these deliverables will be prepared by UpSocial and will be ready for the pilot once agreed with the stakeholders/decision makers involved.



### M&E Framework

The goal of this section is to layout the monitoring and evaluation framework that should be put in place to collect data during the pilot and measure the effectiveness of the EuroPACE program to alleviate energy poverty. Results will be reported internally to EuroPACE partners.

**Table 16**  
*Monitoring and evaluation framework – energy poverty alleviation with EuroPACE*

	<b>Indicator</b>	<b>Definition</b>	<b>Baseline</b>	<b>Data source</b>	<b>Frequency</b>	<b>Responsible</b>
<b>Goal</b>	Percentage of energy-poor households that have alleviated their situation	Number of retrofitted households that have reported improvement in at least one of the outcomes, multiplied by 100, divided by total number of retrofitted households.	0%		Annually	UpSocial
<b>Outcomes<sup>1</sup></b>	Improved comfort at home	Sum of retrofitted households that have self-declared an improvement in comfort at home as a result of adequate temperatures	Individual baseline data will be retrieved during the audits	Surveys	First survey during audit	Auditors (baseline survey) and UpSocial (final survey)
	Decrease in delay in energy bills payment	Sum of retrofitted households that have self-declared a decrease in delaying energy bill payments			Second survey 1 year after the household	



	Improvement in health	Sum of retrofitted households that have self-declared an improvement in health			has been retrofitted	
<b>Outputs</b>	Number of households with some form of energy poverty that adopted the EuroPACE program	Total number of SITGs that have adopted EuroPACE and made EE retrofitting	0	EuroPACE database	Annually	EuroPACE

Source: own elaboration

<sup>1</sup> Outcomes were selected using the EU Energy Poverty Observatory (EPOV) measurement framework recommendation, as described in ACA (2018)

## Risk Management

The goal of this section is to layout the risk management and mitigation strategies that should be put in place in case certain actions from the advocacy & engagement strategy and/or the plan outline/action protocol are ineffective.

Table 17

*Risk Management – energy poverty alleviation with EuroPACE*

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Mitigation strategies</b>	<b>Implementation responsibility</b>
Local communication strategies are not effective	Low	High	Periodic follow-up meetings with the stakeholder involved to adjust the marketing strategy	Stakeholder involved & UpSocial
Low convening power/engagement to the seminars	Low	High		
Financial incapacity from energy-poor homeowners to adopt EuroPACE	High	High	Explore the possibility with EuroPACE to offer a softer and/or lower loan	UpSocial
Disinterest from property owners (with energy poor tenants) to adopt EuroPACE	Medium	High	Explore with the Ajuntament and Olot to change the incentives package (using the input from the seminars)	UpSocial
Loss to follow-up	Medium	Medium	This is an innate limitation of longitudinal evaluations	-
Retrofitting done has not changed significantly the comfort/warmth in the household	Medium	Medium	Explore with the owner (a) an increase in the loan to finance more EE measures or (b) lease the property to the social housing pool	UpSocial / EuroPACE

Source: own elaboration

## (B) Social opportunity n°2: Reduce unemployment in vulnerable groups

As seen in the ‘assessment and SITG proposal’ section, two limiting variables delimit the vulnerable SITGs ‘available’ for the EuroPACE to foster employment:

1. Pilot implementation calendar requires that potential SITGs be trained/ready-to-work in the short-term;
2. Pilot size does not incentivize external stakeholders (e.g. foundations) or public offices to prepare a training seminar for SITGS that is catered to the skillset required by EuroPACE contractors.

As a result, offering training seminars to train unskilled unemployed groups is discarded from the action plan (at least in the first year of the pilot). Within this context, the key to success in reducing employment in vulnerable groups is to incentivize local contractors (indirect target group) that will participate in the EuroPACE program, to contract unemployed SITGs. In order for that to occur, our action plan includes ad-hoc incentives and measures, solely for this *indirect target group*, to contract unemployed SITGs for the rolling-out of the EuroPACE program. These incentives are both from the demand-side (i.e. should be offered by the public sector) and from the offer-side (i.e. should be offered by the EuroPACE program).

In short, the theory of change behind this action plan is the following: by offering enough incentives to local contractors to employ already *skilled* unemployed SITGs, contractors will seize this social opportunity in exchange of an economic/commercial gain. The main advantage of the delimiting variables pointed out is that skilled unemployed SITGs, unlike unskilled unemployed groups, will have a much quicker a steeper learning curve (which works as an extra incentive for local contractors to employ them for the EuroPACE program).

### Targeting & advocacy strategy

The goal of this subsection is to answer three important questions:

1. *Selection*: how will the local contractors and unemployed SITGs be identified?
2. *Targeting*: how will the local contractors reach the unemployed SITGs?
3. *Engagement*: how will EuroPACE engage with the local contractors to foster employment of SITGs?

### 1.1 Selection

Regarding the local contractor selection process, this task is not within UpSocial’s range of responsibilities, thus the targeting and engagement strategy will have to react/adapt to the availability of contractors and most importantly, their level of interest in contracting vulnerable groups.

As stated in earlier sections, targeting vulnerable unemployed SITGs can be undertaken spatially or socio-demographically. In other words, the concept of ‘vulnerability’ is relative to the local context. Considering the fact that the pilot already targets spatially (i.e. Olot’s unemployed), we segment vulnerable unemployed SITGs based on two risk factors often found to be over-represented in the this target population: *age* and *time unemployed*. In short, Table 18 illustrates the segmentation criteria used to select who is a vulnerable SITG:

**Table 18**  
*Selection strategy – vulnerable unemployed SITGs*

Segmenting Variable 1	With experience/training in the construction/retrofitting sector	
Segmenting Variable 2	Young adults (16-34)	Middle-aged (45-64)
Segmenting Variable 3	1-2 years unemployed	More than 2 years unemployed

Source: own elaboration

As seen in Table 18, there are multiple SITGs: young adults, middle-aged, unemployed (1-2 years), unemployed (+2 years), or a combination between the two risk factors (e.g. young adults who are also unemployed for more than 2 years). Although there are multiple SITGs, all of them are identifiable in the same way: DinàmiG’s employment department called *Àrea d’Ocupació Mas Les Mates* (hereafter Mas Les Mates). Within the Mas Les Mates services, the department assist’s Garrotxa’s unemployed with employment guidance and help to find a job (referred to as *Servei d’Orientació Laboral and Orientació per competencies*). As a result, the vulnerable unemployed SITGs pointed out in Table 18 will be identified by Mas Les Mates.

On a final note, both risk factors are easily verifiable by Mas Les Mates. On the one hand, 'age' is easy verifiable with an identification document, whilst 'time in unemployment' is verifiable with the persons registry in Mas Les Mates' employment pool.

### 1.2. Targeting

In order to match the local contractor's *demand* with the unemployed SITGs *offer*, we suggest leveraging on the nexus capabilities of DinàmiG's service portfolio to local companies and local unemployed people.

#### 1. *DinàmiG's services for local companies:*

- Assist companies with preparing training services and courses for personnel.
- Job intermediation and assistance in recruiting suitable candidates for their openings
- Assistance and information to companies who are willing to apply to public financial aid/contracting bonuses that are launched through national and/or regional calls

#### 2. *Mas Les Mates services for the unemployed:*

- Online job bank that centralizes current job openings in the area
- Helping the unemployed to find jobs by improving their soft skills with both regulated and non-regulated training courses and seminars

### 1.3. Engagement

In order to actively engage with each of EuroPACE's contractors, we believe it is key to first inform/instruct this indirect target group about the benefits/incentives available for them from both the demand-side (i.e. SOC and SEPE bonuses for contracting in the Spanish and Catalan landscape) and from the offer-side (i.e. EuroPACE). To that end, our engagement strategy proposal is to leverage on EuroPACE's training seminars to local contractors, delivered by Agenex during the initial stages of the pilot, and include in that seminar a short module about all the incentives available for local contractors to employ SITGs. The goals of this training module is three-fold:

1. *Creating awareness:* Explain what type of public contracting bonuses exist and what are the characteristics and advantages of each bonus available. Moreover, to explain what type of incentives EuroPACE provides for SITG contracting.

2. *Providing information*: Inform about the action protocol required to (a) apply and acquire any of the bonuses available (b) use DinàmiG's intermediation and assistance in recruiting suitable SITGs for their openings.
3. *Q&A*: This will also be very useful as market research strategy to gather feedback from the local contractors perspective and grasp their point of view.

In short, the end goal of these seminars is to incentivize the local contractors to employ the identified SITGs.

### Plan outline

Regarding the action protocol that EuroPACE should follow to incentivize local contractors to employ vulnerable SITGs, this has already been outlined in the targeting & advocacy strategy. Moreover, the action protocol that DinàmiG should follow once a local contractor arrives to their office to contract a vulnerable SITG is already defined within their processes and thus is excluded from this report.

#### 2.1. Deliverables

Two deliverables have to be put in place:

- *Training module for local contractors* (to be held during Agenex's training seminars): The module will be a 30-40 min long session prepared by DinàmiG, who will be assisted by UpSocial in preparing the material. According to Agenex, details regarding the characteristics of the training seminar are still pending definition<sup>38</sup> (e.g. face-to-face or online).
- Vulnerable SITG employment incentives portfolio:
  - *Demand-side incentives* (i.e. SOC and SEPE bonuses for contracting in the Spanish and Catalan landscape): These have been outlined in the "Policies in place to reduce unemployment in vulnerable groups" section. However, these renew on an annual basis, thus both DinàmiG and UpSocial will have to keep the portfolio updated.
  - *Offer-side incentives* (i.e. EuroPACE). We recommend the following:
    - *Ranking advantage within the EuroPACE webpage for local contractors who have employed vulnerable SITGs.*

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<sup>38</sup> Asked during October 2018

## M&E Framework

The goal of this section is to layout the monitoring and evaluation framework that should be put in place to collect data during the pilot and measure the effectiveness of the EuroPACE program to reduce unemployment in vulnerable SITGs. Results will be reported internally to the EuroPACE partners.

**Table 19**  
*Monitoring and evaluation framework – reduce unemployment of vulnerable groups with EuroPACE*

	<b>Indicator</b>	<b>Definition</b>	<b>Baseline</b>	<b>Data source</b>	<b>Frequency</b>	<b>Responsible</b>
<b>Goal</b>	Percentage of net unemployment reduced within the SITG population	Number of vulnerable SITGs employed (direct employment), multiplied by 100, divided by total number of unemployed vulnerable SITGs.	tbd	DinàmiG employment pool	Annually	DinàmiG
<b>Outcomes</b>	Employment created for vulnerable SITGs	Total number of indefinite job contracts and temporary job contracts signed between local contractors and unemployed vulnerable SITGs	-	Local contractors/ EuroPACE*/ /DinàmiG	Every 6 months	Local contractors/ EuroPACE*/ /DinàmiG
<b>Outputs</b>	Number of local contractors that have contacted DinàmiG's to contract a vulnerable SITG	Total number of local contractors that have approached DinàmiG's offices to apply for public contracting bonuses	0	DinàmiG database	Every 6 months	DinàmiG

*Source: own elaboration. \* The office should be notified by local contractors that they have employed a vulnerable SITG so as to seize the incentives offered by EuroPACE*



## Risk Management

The goal of this section is to layout the risk management and mitigation strategies that should be put in place in case some actions from the advocacy & engagement strategy and/or the plan outline/action protocol are ineffective.

Table 20

*Risk Management – reducing unemployment in vulnerable groups with EuroPACE*

<b>Risk</b>	<b>Likelihood</b>	<b>Impact</b>	<b>Mitigation strategies</b>	<b>Implementation responsibility</b>
Lack of contracting bonuses from SEPE or SOC during pilot	Low	High	Explore incentives that could be offered from the Ajuntament d'Olot	UpSocial / Ajuntament d'Olot
Low convening power/engagement from contractors to DinàmiG offices	Medium	High	Organize one-to-one meeting with local contractors	UpSocial
Vulnerable SITGs are employed informally	Low	Medium	-	-
Incentives to employ SITGs are considered insufficient for local contractors	Medium	High	Explore more incentives that could be offered from the demand-side and offer-side based on contractors feedback given at the seminars	UpSocial / Ajuntament / EuroPACE

*Source: own elaboration*

## NEXT STEPS & CONCLUDING REMARKS

As part of the EuroPACE consortium, UpSocial has been commissioned a dual task in this report<sup>39</sup>.

First, to assess the potential of EuroPACE as a tool for tackling two social challenges and identifying a "Special Interests" Target Group for each challenge. These challenges are:

3. Reducing energy poverty by providing low-income households with a financial instrument to improve the energy efficiency of their house, thus decreasing their energy bills whilst improving comfort.
4. Reduce unemployment within vulnerable groups (e.g. unemployed construction workers).

Second, to design a special action plan that involves the rolling-out of the EuroPACE program to seize this double-bottom-line opportunity.

As a result of this study, UpSocial has not only concluded that it is viable to reduce energy poverty and unemployment within vulnerable groups with EuroPACE, but is going to lead the implementation of the *Energy Poverty Pilot Project*, a joint effort agreed by EuroPACE and the *Ajuntament d'Olot*, recommended by UpSocial, to roll-out the EuroPACE program and evaluate the impact of energy efficiency retrofitting on different energy poverty indicators. Bellow, an executive summary of the proposed pilot:

### Context

In 2018 the number of documented energy-poor households in *La Garrotxa* was 466, of which 88% were in Olot (n=410). In order to mitigate the energy poverty problem, Olot's City Council spends annually a considerable amount of its budget in delivering cash transfers to those families in order for them to pay their energy bills. Moreover, Olot's Social Services confirms a negative trend in the recent years which invites EuroPACE and Olot's City Council to explore an innovative and cost-effective response to address the challenge of energy poverty.

### Key to success

Given that a large percentage of the energy-poor population are tenants (aprox. 80% in Olot) and that the landlords of those homes are not expected to adopt EuroPACE with the altruistic purpose of improving their tenant's situation, the key to success in alleviating energy poverty through

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<sup>39</sup> Work package N°3 - T3.7 – *Identifying Target Groups (Early Adopters & Special Interests)*.

EuroPACE is to offer incentives to the landlords (with energy-poor tenants) to adopt the EuroPACE program (whilst simultaneously employing strategies to avoid gentrification).

### Theory of change

By encouraging these landlords to adopt EuroPACE and improve the energy efficiency of their properties, their energy-poor tenants will benefit directly from it (i.e. energy expenditure reduction, increased comfort and improved health). The main advantage of this approach is that, in theory, unlike property owners with energy poverty (who by definition are low-income and are extremely sensitive to attaining debt), landlords with energy-poor tenants will have greater financial capacity to adopt EuroPACE. As a result, a win-win situation can occur for every stakeholder involved: landlords add value to their properties, tenants alleviate their energy poverty situation, and EuroPACE/Ajuntament achieve a triple bottom line goal whilst transferring the risk of default to the owner (and not the energy-poor tenants).

### Pilot

In order to test this theory of change, EuroPACE will conduct a pilot project aimed at evaluating the impact of an incentive package offered jointly by EuroPACE-Olot City Council to reduce energy poverty through energy efficiency retrofitting. This pilot will involve a small group of households with documented energy poverty (n=15 families). The goal of the project is to evaluate the impact of EE retrofitting in the following areas related to energy poverty:

- Social: comfort and health
- Economic: energy expenditure and use of social services cash transfers

In the end, the ultimate goal of the project to collect evidence and draw conclusions that will be very relevant to scale future programs aimed at reducing energy poverty with EE measures.

### Impact evaluation

The type of evaluation that will be carried out is an impact evaluation (i.e. isolate the impact of the intervention and quantify its magnitude). For this, proxy indicators of energy poverty will be used. For example:

- Level of energy consumption
- Socioeconomic, e.g. intensity of cash transfer use, amount of spending on supplies or delay in payment of electricity / water / gas bills
- Sanitary / comfort, e.g. self-perception of well-being at home.

### Actions

1. Incentives package nº1:
  - a. Eligible candidates: landlords with energy-poor tenants that currently receive cash transfers from the Consorci d'Acció Social (CASG).
  - b. Action: Landlord gives up his property to the *Borsa d'habitatge* (social housing stock) with the condition of rehabilitating it (50% financed through EuroPACE and 50% through a subsidy from the City Council).
  - c. Sum of the subsidy: max. 6000€ (which represents 50% of a typical EuroPACE rehabilitation investment).
  - d. Number of participants: 7
2. Incentives package nº2:
  - a. Eligible candidates: energy-poor home owners that currently receive cash transfers from the Consorci d'Acció Social (CASG).
  - b. Action: Owner conducts EE retrofitting in his home (25% financed through EuroPACE, 25% through donations from the EuroPACE Foundation and 50% financing through a subsidy from the City Council).
  - c. Sum of the subsidy: max. 6000€ (which represents 50% of a typical EuroPACE rehabilitation investment).
  - d. Number of participants: 8

### Calendar

EE retrofitting works would be carried out in the first quarter of 2020. However, the selection of the participating families and the monitoring and evaluation (M&E) framework should will designed between September and December 2019, to be executed at the beginning of 2020.

On a final note, the ultimate goal of this report was to stir an informed and evidence-based conversation and decision-making process amongst the EuroPACE partners about what are the most viable and effective ways to reduce energy poverty and unemployment in vulnerable groups with the rolling-out of the EuroPACE in the city of Olot. Thanks to the valuable input and constant feedback from the EuroPACE partners, we believe that this report has met its purpose and that it has laid down the groundwork for the upcoming deployment of the EuroPACE pilot project.

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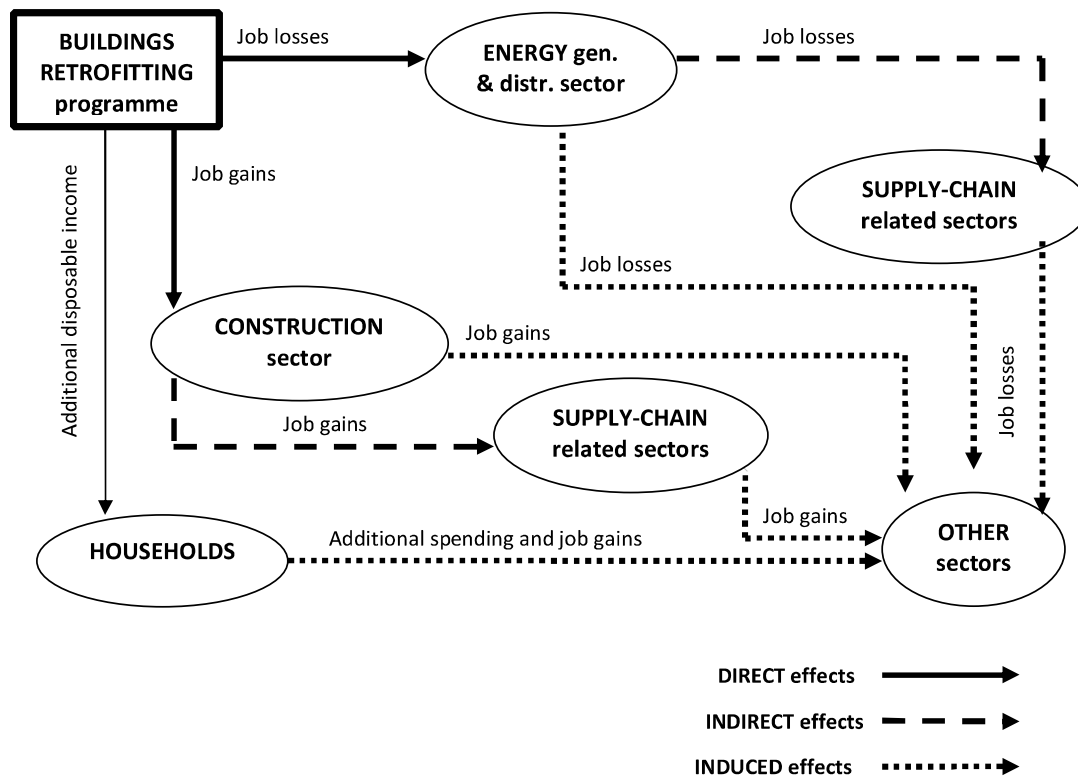
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## ANNEXES

### Annex N°1

#### EE retrofitting effects on employment



Source: Ürge-Vorsatz et al. (2010), p.8

### Annex N°2

#### Characterizing variables – energy poor population

- Household type: single-person, couple without children, couple with children, single-parent, multi-family, other
- Age
- Housing tenure: owner (paying mortgage), owner (without debts), tenant, other
- Employment status during the last year
- Nationality
- N° of dependents in charge
- Neighborhood
- Building typology
- Social services status: beneficiary or non-beneficiary
- Health status and/or problems