Social Green
Interreg Europe

GREENING SOCIAL HOUSING IN NORTE, PORTUGAL

REGIONAL ACTION PLAN

March 2019

European Union
European Regional
Development Fund

CCDRn
Comissão de Coordenação e Desenvolvimento Regional do Norte

CEiiA

Table of contents

Introduction

Improved energy efficiency in social housing is not only a matter of reducing the environmental impact of energy consumption in buildings. It is first and foremost a question of social sustainability and, in particular, of reducing fuel poverty and improving the general health and well-being conditions of social housing residents. Therefore, tackling the problem of energy efficiency in social housing means placing the health and economic needs of social housing residents at the forefront of green renovations projects.

The action plan for Norte, which has been carried out within the framework of the SOCIAL GREEN project – Regional Policies towards Greening the Social Housing Sector –, has been developed bearing this in mind. It aims at contributing to the improvement of energy efficiency in the social housing sector of the region by addressing the policy instrument *NORTE 2020 – Regional Operational Programme (ROP) of the Norte Region 2014-2020* (henceforth referred to as ROP NORTE 2020). In doing so, it has adopted a dual, but interrelated, approach: supporting the shift towards a low carbon economy (on the environmental side of energy efficiency) and tackling the problem of fuel poverty in social housing (on the social side of energy efficiency).

The development of the action plan for Norte has been based on a participatory approach. It has involved the main players of the region that deal, directly or indirectly, with the green retrofitting and rehabilitation of social housing, such as policy makers and programme managers (namely, the Managing Authority of ROP NORTE 2020 and the National Institute for Housing and Rehabilitation), the main owners and managers of the social housing stock (namely, local authorities and municipal enterprises for housing), and organisations from the technological and scientific ecosystem of the Norte region (namely the Association of Civil Construction and Public Works Industrialists and the University of Porto).

This document is structured in three parts. After this introduction section, Part I – Background – focuses on the social housing development dynamics in Norte. The presentation of such dynamics is made along four lines: (i) the policy instrument addressed in the SOCIAL GREEN project – the ROP NORTE 2020; (ii) the principles adopted in the development of the action plan; (iii) the key findings from the regional self-assessment on energy efficiency in social housing; and (iv) the related local strengths, weaknesses, opportunities and threats (SWOT) for greening social housing. Part II – Strategy – presents the strategic vision and the general objectives of the action plan for Norte. Finally, Part III – Actions –provides details on the specific actions that have been designed in order to influence the policy instrument ROP NORTE 2020.

Part I – Background

In order to reach Europe's greenhouse gas (GHG) emissions reduction goals, better energy performance is needed in the residential sector, which accounts roughly for about 27% of the total energy consumption in the European Union (EU). On the other hand, even though building refurbishment is considered to have the biggest available energy saving potential in Europe, there are numerous obstacles that need to be overcome. These obstacles are particularly challenging in the social housing sector, in which the incidence of the phenomenon of fuel poverty is more prevalent.

The SOCIAL GREEN project aims at tackling the issue of energy efficiency in the particular context of the social housing sector in Europe[1]. By focusing on the improvement of regional policy instruments, namely those that are part of the EU Cohesion Policy for 2014-2020 that target green building interventions in social housing, the project sets the stage for EU funding to be used to support improved energy efficiency in the social housing sector. This includes a focus not only on improving the energy performance of social housing buildings, but also on reducing fuel poverty and improving the general health and well-being conditions of social housing residents. In this context, the project's specific objectives are:

- To understand the role of green building intervention in the social housing sector and the link with fuel poverty;
- To identify green measures for the social housing sector, specifically including energy efficiency and renewable energy development;
- To identify, share and transfer experiences and good practices and to develop joint policy tools and instruments related to innovative solutions for greening the social housing sector in the areas of fuel poverty and energy efficiency;
- To develop strategic guidelines and policy recommendations as an integrated toolkit for regional and local authorities;
- To improve regional/local policies by introducing best practices into EU mainstream programmes in order to contribute towards fostering the competitiveness, sustainability and social cohesion of cities, regions and the EU as a whole.

SOCIAL GREEN is funded by the Interreg Europe programme. With a financial envelope of 1.01 million Euros from the European Regional Development Fund (ERDF), the project is scheduled to run between April 2016 and March 2021. As shown in the next figure, the partnership of the project includes eight organisations from six countries: one advisory partner, Nordregio – Nordic Centre for

[1] The SOCIAL GREEN project deploys a broad and inclusive concept of social housing. Irrespective of the ownership status, the concept includes any form of housing and associated policy to provide affordable housing to low-income, vulnerable or disadvantaged people. Therefore, even though social housing is often provided, owned and/or managed by the public sector, the concept encompasses different forms of housing cooperatives and privately-owned housing in which residents face a burdensome cost of housing, energy poverty, or any kind of limitations in maintaining housing conditions to an appropriate standard based on the local context.

Legend

- Capital cities of Europe
- SOCIAL GREEN partner regions
- EU Member States
- Non-EU Member States elegible to Interreg Europe
- NUTS II

Region	Partners
K. Hrvatska	
Extremadura	
Eesti	
Norte	CCDRN CEIIA
Centru	ALBA IULIA
Sud-Muntenia	SUD MUNTENIA
Stockholm	Nordregio

Figure 1. SOCIAL GREEN partnership (Source: Own elaboration)

Spatial Development (Sweden); one organisation from the science and technology system (CEiiA – Centre of Engineering and Product Development, in Portugal); and six other partners, namely municipalities (Alba Iulia, in Romania), energy agencies (TREA – Tartu Regional Energy Agency, in Estonia; REAN – Regional Energy Agency North, in Croatia; AGENEX – Extremadura Energy Agency, in Spain) and regional development agencies (South Muntenia Regional Development Agency, in Romania; CCDR-Norte – Norte Regional Coordination and Development Commission, in Portugal), which deal, directly or indirectly, with programmes of the EU Cohesion Policy that tackle the issue of energy efficiency in social housing.

The SOCIAL GREEN project works through two main phases: interregional learning (phase 1) and implementation (phase 2). This document presents the main results of phase 1, in which, over the course of almost six semesters, SOCIAL GREEN partners have worked together in identifying, sharing and transferring excellence in the policy and practice of energy efficiency in social housing. Based on the lessons that have been learnt from such cooperation, as well as on the outcomes of an active involvement and participation of multiple regional and local players, each partner has developed a regional action plan aimed at improving an existing instrument of regional policy. This document focuses on the presentation of the regional action plan that has been developed for Norte, in Portugal, in order to influence the policy instrument ROP NORTE 2020. It has been drafted by CCDR-Norte, with the support of CEiiA.

Policy instrument addressed

Within the EU Cohesion Policy, different operational programmes support projects in Norte, covering a wide range of regional development needs. The policy instrument addressed in the regional action plan is the ROP NORTE 2020 – the main EU structural funds programme available to support the development of the region in the period 2014-2020. The programme has a financial envelope of about 3.4 billion Euros (2.8 billion Euros from the ERDF and 0.6 billion Euros from the European Social Fund).

The specific measures of ROP NORTE 2020 tackled by the regional action plan are those related to the **increase of energy efficiency in the social housing sector by supporting the implementation of integrated measures to improve the energy performance of buildings and rationalising the energy consumption.** These measures have been set under the investment priority (IP) 4c/4.3 "Supporting energy efficiency, intelligent energy management and the use of renewable energy sources in public infrastructures".

So far, the financial envelope that has been allocated, within ROP NORTE 2020, to measures supporting the greening of social housing is of approximately 30 million Euros. The application of these funds is restricted to the complete rehabilitation of publicly-owned apartment blocks with 30 years of age or more. The eligible types of actions are, in turn: (i) the conducting of energy audits and the development of plans for rationalising energy consumption; (ii) the green refurbishment of

buildings; (iii) the creation of urban thermal energy networks; and (iv) the acquisition of equipment to improve the efficiency of public lighting.

On the other hand, the output indicator that has been set in ROP NORTE 2020 to monitor the implementation of these types of actions is the number of households with improved energy consumption classification. The result indicators are, in turn, the number of positions climbed in the scale of energy certification in social housing units that have been subject to green renovations and the share of social housing units with improved energy performance. The latter has been selected as the self-defined performance indicator of the regional action plan. The target set for this indicator is of at least 15% by 2023.

Regarding the improvements envisaged for the measures of ROP NORTE 2020 that are addressed by this regional action plan, these centre mainly on increasing the funding opportunities available to support the greening of the social housing sector in Norte, improving the effectiveness of the processes and procedures in the management of IP 4c/4.3, assessing and monitoring the impacts of green renovations in social housing, and assisting in the achievement of the goals established in the programme for indicators such as energy savings in buildings and GHG emission reductions.

Interregional learning and local stakeholder involvement

The development of the action plan for Norte has been based on the principles of (i) interregional cooperation between the SOCIAL GREEN partners and (ii) participation of the key players of the region that are, directly or indirectly, involved in the green retrofitting and rehabilitation of social housing.

The principle of interregional cooperation has allowed SOCIAL GREEN partners to identify, share and transfer innovative methodologies, processes and good practices in developing and implementing greener social housing sector policies, targeting new constructions or retrofitting existing buildings. It comprised the undertaking of the following activities:

(i) **Interregional learning events**, which have been held in Matosinhos (Portugal, October 2016), Mizil (Romania, April 2017), Varaždin (Croatia, September 2017), Tartu/Tallinn (Estonia, January 2018), Alba Iulia (Romania, June 2018) and Porto (Portugal, March 2019), and have comprised presentations of local social housing initiatives, study visits to renovated social housing buildings and good practices workshops.

(ii) **Share of good practices** related to public interventions in social housing that have taken place in the local, regional and national contexts of the different project members. These good practices, which have been submitted to, and published in, the Policy Learning Platform of the Interreg Europe's programme website, have focused mainly on green renovation projects (targeting, in some cases, specific segments of population), innovative funding schemes, and studies, education/training and pilot projects on social housing retrofitting.

(iii) **Bilateral exchanges of experiences** between Norte and other project partners, namely the municipality of Alba Iulia (Romania) and AGENEX (Spain), which have been used to gather further evidence on innovative solutions created in other regional contexts to overcome specific challenges faced by existing policy instruments that support the greening of social housing.

In order to meet the principle of participation of the most relevant stakeholders of Norte that play a role in the green retrofitting and rehabilitation of social housing, a **Local Stakeholder Group** (LSG) has been set up in the region once the SOCIAL GREEN project began. This group comprises chiefly the main owners and managers of the social housing stock in Norte (e.g. local authorities, municipal enterprises for housing), and thus the main beneficiaries of the funds allocated to green renovations in social housing under the ROP. According to the most recent data published by the National Statistics Institute (in the Social Housing Characterisation Survey that has been carried out in 2015), these entities manage, altogether, about 52% of the social housing buildings that are fully or partially owned by the 86 municipalities of the region. The table below presents details of the LSG of Norte.

Table 1. Members of the Local Stakeholder Group (LSG)

Type of organisation	Stakeholder	
Owners and managers of social housing	BRAGAHABIT	BragaHabit E.M. – Municipal Enterprise for Housing in Braga
	CASFIG	CASFIG E.M. – Municipal Enterprise for Social and Financial Coordination of Social Housing in Guimarães
	Porto. Domus Social	Domus Social E.M. – Municipal Enterprise for Social Housing in Porto
	ESPAÇO MUNICIPAL	Espaço Municipal E.M. – Municipal Enterprise for Urban Renewal and Heritage Management in Maia
	Gaiurb HABITAÇÃO	Gaiurb E.M. – Municipal Enterprise for Urban and Landscape Management in Gaia
	MATOSINHOS HABIT	MatosinhosHabit E.M. – Municipal Enterprise for Housing in Matosinhos
	GONDOMAR	Municipality of Gondomar
	MUNICÍPIO DE VALONGO · UM TERRITÓRIO A DESCOBRIR ·	Municipality of Valongo
	Vila Real Câmara Municipal	Municipality of Vila Real
Policy makers	IHRU	IHRU – National Institute for Housing and Rehabilitation
Professional associations	AICCOPN Associação dos Industriais da Construção Civil e Obras Públicas	AICCOPN – Association of Civil Construction and Public Works Industrialists

Once the LSG of Norte was established, LSG meetings have been held in the region on an almost biannual basis. One of these meeting has been co-organised with the LSG of FINERPOL (Financial Instruments for Energy Renovation Policies) – an Interreg Europe project that also tackles the challenge of green renovations in housing, but from the perspective of financial instrument schemes. This kind of schemes, which may take the form of loans, guarantees, equity and other risk-bearing mechanisms, possibly combined with grants, are an alternative way of deploying resources from the EU Cohesion Policy, as well as of mobilising additional public or private financial resources to address market failures. In the context of the SOCIAL GREEN project, financial instruments may be used, for example, to address the challenge of providing financial support to green renovations in privately owned social housing units.

LSG meetings have been critical to explore local stakeholders' views on some the existing stumbling blocks to the green retrofitting and rehabilitation of social housing and, based on that, to gather valuable inputs for actions to include in the regional action plan for Norte. By bringing together an array of local players who don't necessarily interact on a regular basis, LSG meetings haven also set the stage for promoting tacit knowledge exchange and improving the network of stakeholder collaboration.

Besides the organisation of LSG meetings, one-on-one meetings have been held with some of the members of the LSG of Norte. The main goal of these meetings has been to ensure the active involvement of local stakeholders in the phase 2 of the project, namely in the implementation of the regional action plan for Norte. The particular focus of these meetings has been, in turn, to determine if and how the implementation of certain tasks of the regional action plan could be internalised in local stakeholders' current activities and/or projects.

In addition to the contacts established with the members of the LSG of Norte, the project team from Norte has also approached other key players of the region, such has the MA of ROP NORTE 2020 and the University of Porto. The former (MA of ROP NORTE 2020), which plays the most relevant role in the design and implementation of the policy instrument addressed by the SOCIAL GREEN project, has been consulted on a regular basis throughout the development of the regional action plan. The end goal of such consultations has been to brainstorm about how the action plan for Norte could provide innovative solutions to the problems identified by the member of the LSG regarding the operationalisation of the measures of the ROP that deal with green renovations in social housing. The latter (University of Porto), in turn, has provided the needed technical and scientific expertise, in the areas of social housing and energy efficiency, to develop the current version of the regional action plan. Moreover, the expected involvement of the University of Porto in the implementation phase of the action plan for Norte creates the opportunity to internalise the undertaking of specific tasks within the context of projects in which this organisation is currently involved.

In general terms, the efforts made to ensure the participation of key local players in the activities of the SOCIAL GREEN project has not only allowed them to gain consensus and agreement on the actions proposed at the end of phase 1 to improve the specific measures of ROP NORTE 2020 that

deal with green renovations in social housing, but also, and foremost, to ensure their involvement in the implementation of some of these actions during phase 2.

Key findings from the self-assessment

The self-assessment of energy efficiency in social housing in Norte has been used to collect data and knowledge about the state of the social housing sector and green building renovations in the region. It has been drawn up in close cooperation with the members of the LSG of Norte, making it possible for the project team from Norte to access information through local stakeholders while simultaneously increasing their awareness of the state of social housing in the region. The development of the regional self-assessment has counted also with the support from the University of Porto, which has provided technical and scientific expertise in the fields of social housing and energy efficiency.

On the other hand, the contents of the regional self-assessment have been mainly framed by current debates on housing policy, namely: (i) the debate on energy efficiency, the use of renewable energies and the shift towards a low carbon economy; and (ii) the debate on the energy poverty and the related health and wellbeing conditions of residents. As shown in the figure below, the relevance of these debates to the social housing sector in Portugal is, in turn, shaped by the specificities of local contexts and the existing policy and legal framework on housing and energy efficiency.

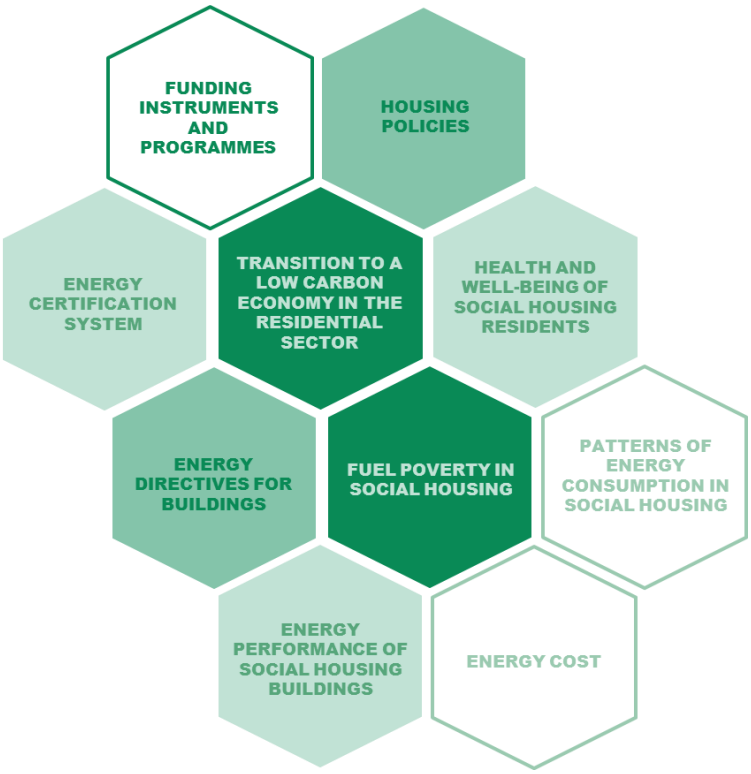

Figure 2. Theoretical framework for the development of the regional self-assessment (Source: Own elaboration)

The key findings from the regional self-assessment have been thus organised along four lines: (i) characteristics of the social housing stock; (ii) energy consumption in the residential sector; (iii) fuel poverty; and (iv) policy instruments supporting renovations in social housing.

1. **Characteristics of the social housing stock**

According to the most recent data published by the Statistic Portugal – National Statistics Institute, IP (in the Social Housing Characterization Survey that has been carried out in 2015), there are about 42,000 social housing dwellings in Norte, distributed over more than 6,000 buildings. Taking the 2001 Population and Housing Census data as reference, social housing dwellings represent approximately 3.2% of the total number of dwellings that are used as a primary residence in the region.

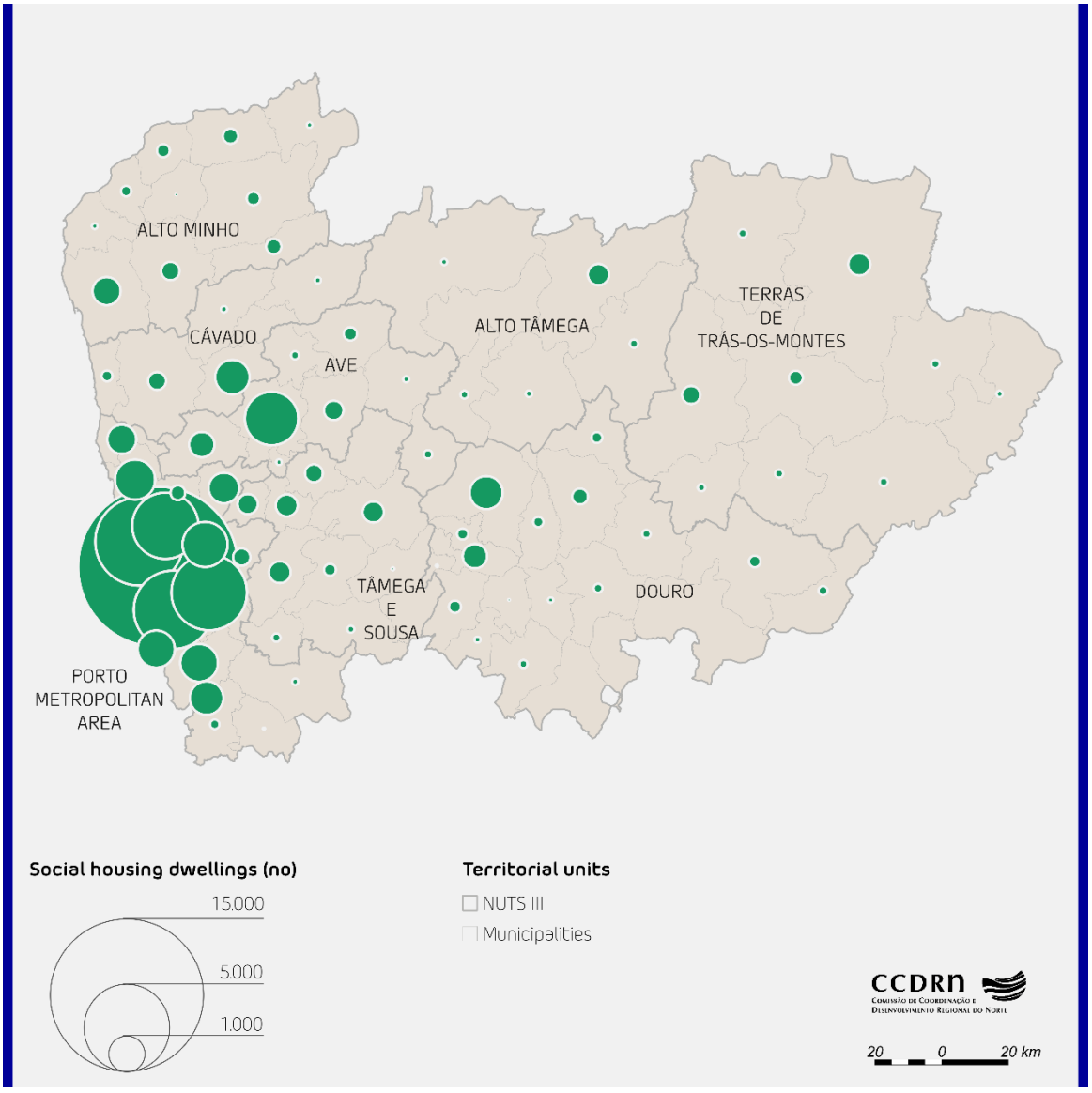

Figure 3. Regional distribution of social housing (Source: Own elaboration, based on data from Statistics Portugal – the National Statistical Institute, IP, 2015)

The distribution of social housing across the region is uneven (as shown in the figure above). Approximately 79% of the social housing dwellings are located in just one of the eight NUTS III regions of Norte – the Metropolitan Area of Porto, which covers approximately 11% of the total surface area of the region. Of the remaining 21%, approximately 6% can be found in the NUTS III of Ave.

Regarding ownership status, the municipalities of Norte are the owners and managers of the great majority of the social housing units of the region. These can be either entire apartment blocks or portions of apartment blocks that include privately-owned dwellings. The latter, in which public and private ownership structures coexist, creates a barrier to overcome in terms of access to public funding for green renovations in social housing, namely whenever the rehabilitation of entire apartment blocks is established as an eligibility criterion to support the implementation of green retrofit projects (such as in the case of ROP NORTE 2020).

On the other hand, most of the social housing buildings in Norte have been erected in three different periods: the 1960s, with the implementation of the Improvement Plan of the Municipality of Porto ("Plano de Melhoramentos"); the second half of the 1970s and in the first half of the 1980s, with the fall of the dictatorship regime in Portugal; and between 1996 and 2005, with the launch of Special Rehousing Program ("PER – Programa Especial de Alojamento"), which has then been followed by the Housing Access Financing Programme ("PROHABITA – Programa de Financiamento para Acesso à Habitação"). These different periods can be associated to different constructive technologies and, as a result, to different rehabilitation needs in social housing.

Regarding the renovation and refurbishment of existing social housing in Norte, the Social Housing Characterization Survey reveals that about 5.7% of the social housing dwellings of the region have been subject to some sort of rehabilitation works in 2012 and 9.0% in 2015. However, there is no data available on the total share of renovated social housing dwellings. Moreover, the extent to which green solutions have been used in these rehabilitation works is also not clear. In 2015, the survey indicates that rehabilitation costs in social housing were, on average, of approximately five thousand Euros per dwelling. Also in 2015, the share of social housing dwellings with energy performance certificates was of just 5% in the region.

Altogether these figures, coupled with the age of the social housing stock of the region, point to the existence of a potentially high share of social housing units in need of green retrofitting and/or rehabilitation in Norte.

2. **Energy consumption in the residential sector**

According to the survey on energy consumption of Portuguese households (ICESD), held in 2010 by the National Statistics Institute/Directorate General of Energy and Geology, energy consumption in the residential sector has represented around 18% of the total energy consumption in Portugal. Heating and cooling have been responsible for less than one quarter of energy consumption in the residential sector.

Moreover, according to data from Eurostat, the heating degree days (HDD) in Portugal (of approximately 1,165 HDD) are significantly lower than the European average (of approximately 3,076 HDD). In addition to that, it should be noted that this indicator varies significantly within the geographical boundaries of the region (as shown in the figure below) – from 2,015 HDD in its north-northeastern side (around the municipality of Bragança) to 1,025 HDD in its coastal western side (around the municipality of Porto).

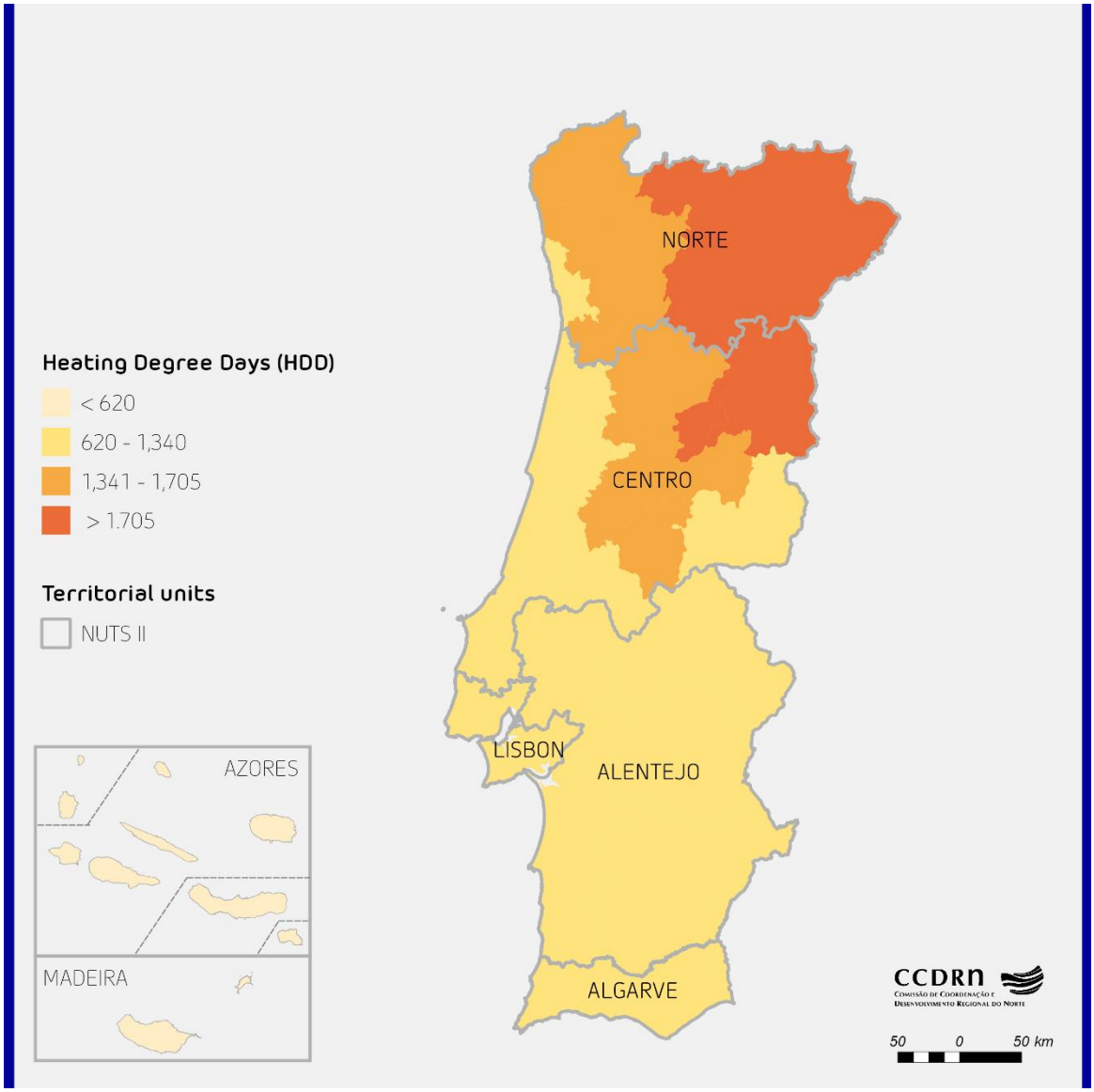

Figure 4. Heating degree days (HDD) in Portugal (Source: Own elaboration, based on data from Eurostat, 2013)

On the other hand, data from the Eurostat reveals that, in 2016, the average income of Portuguese households (of approximately 9,916 Euros) has been 39% lower than the European average (of approximately 16,351 Euros), while energy prices have been considerably higher. More specifically, in 2016, the price of electricity in Portugal has been 9% higher than the EU28 average (0.24 and 0.20

€/kWh, respectively) and the price of gas 39% higher (0.09 and 0.06 €/kWh, respectively). When expressed in PPS (purchasing power standard), energy prices in Portugal were the highest amongst the EU-28.

Therefore, the low levels of energy consumption for heating and cooling in Portugal when compared to the European average can be mainly explained by the influence of the climatic and socioeconomic conditions of the country on the behaviour of the Portuguese households regarding the usage of mechanical systems for heating and cooling the indoor environment. Such conditions appear to make Portuguese households more prone to adapt to the thermal discomfort of indoor environment (either by increasing the clothing level during the wintertime or by forcing the indoor natural ventilation during the summertime).

The response of Portuguese households to the thermal discomfort of indoor environment appears to explain, in turn, the meagre impact of heating and cooling expenditures in households' overall energy bill. According to the ICESD 2010, such expenditures have not exceeded an average annual figure of 70 Euros in the residential sector as a whole. In the social housing sector, the socioeconomic profile of households may lead us to anticipate that the level of heating and cooling expenditures is much lower.

In general terms, the evidence gathered on the energy consumption patterns of households in Portugal brings to the forefront the need to adapt energy retrofitting standards to local realities. More specifically, the mild climate of the country, coupled with the energy-related behaviour of Portuguese households (namely regarding the usage of mechanical systems for heating and cooling the indoor environment), entails that the incorporation of active energy efficiency equipment in social housing might not have the desired impact on the levels energy consumption. Some studies carried out in the national context show that these might even increase in less sunny seasons. In these situations, social housing residents might not achieve any monetary savings as a result of green renovations. Therefore, passive-energy solutions emerge, in the national context, as more efficient solutions to achieve acceptable conditions of thermal comfort in social housing.

3. **Fuel poverty**

The concept of fuel poverty might be defined as the inability of an individual or household to maintain an acceptable level of indoor temperature at affordable prices. For almost all the indicators that are commonly used to measure fuel poverty, the Portuguese population stands in a less favourable position than the EU-28 as a whole. More specifically, according to data from the EU Energy Poverty Observatory (EPOV), approximately 23.6% of the Portuguese population has reported, in 2016, to be unable to keep their homes properly heated (when compared to the European average of 11.2%). In 2012, about 66% of the Portuguese population has managed to keep their homes comfortably cool during the summer (when compared to the European average of 79.1%), whereas 54% has been able to keep the house comfortably warm during the winter (when compared to the European average of 85.8%).

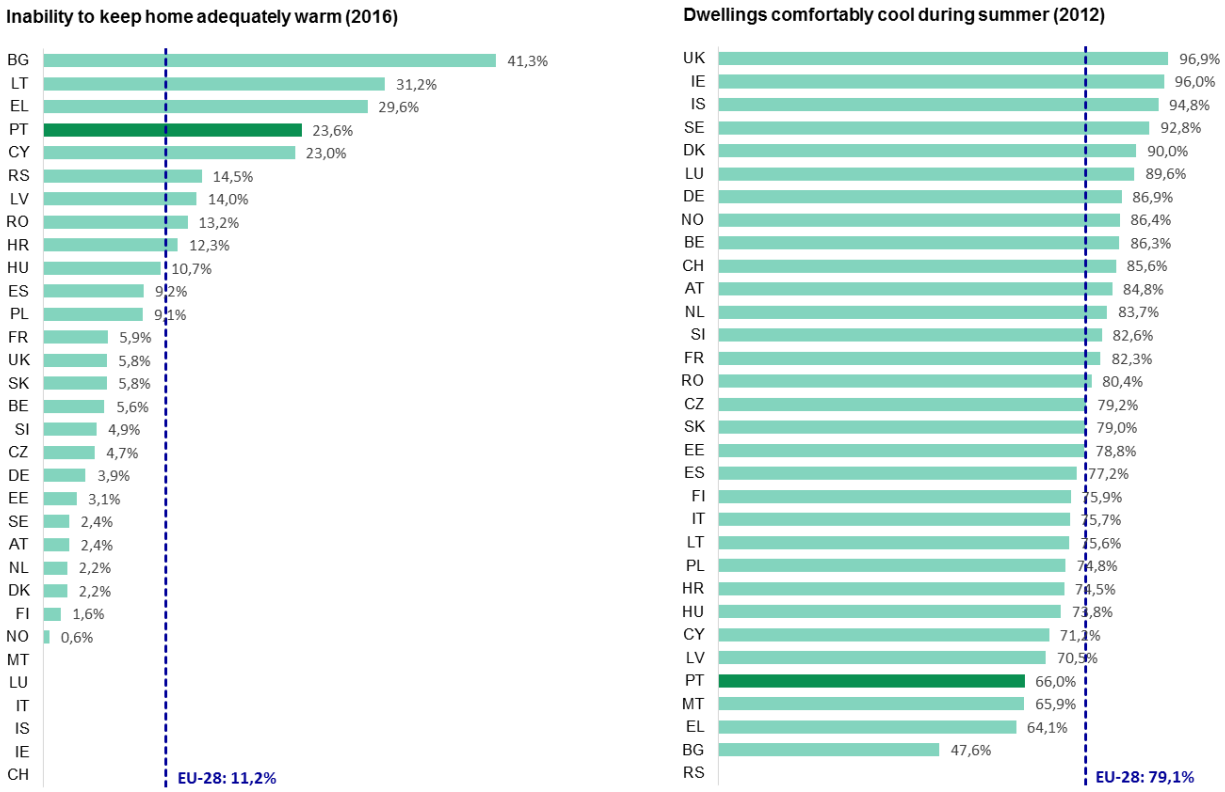

Figure 5. Thermal housing conditions in EU-28 countries (Source: Own elaboration, based on data from EU Energy Poverty Observatory)

By disaggregating the EPOV indicators on fuel poverty by population's income deciles and dwelling's occupation status, the data reveals that the problem of energy poverty is particularly noticeable amongst people with lower incomes and who live in rented dwellings (especially where rents are below the market rate, such as in the case of social housing). More specifically, the latter segment of population stands in a less favourable position than the one who lives in dwellings rented at the market rate for indicators such as the late payment of utility bills (10.5% and 9.9%, respectively) and the inability to keep home adequately warm (34.1% and 29.2%, respectively).

On the other hand, it is possible to establish a relationship between energy poverty and housing conditions. For instance, data from the Eurostat showed that, in 2016, approximately 31% of the Portuguese population lives in dwellings with leaking roofs, damp walls and/or porous window frames or floors (when compared to the European average of 15%). The prevalence of this problem appears to be higher amongst people with lower incomes who lives in dwellings rented at prices below the market rate.

4. **Policy instruments**

Two types of policy instruments are considered in this section: on one hand, the legal framework that governs energy performance standards in buildings in Portugal, and, on the other hand, the funding opportunities available at the national and regional levels to support the greening of social housing in Norte.

Regarding the former, minimum energy performance requirements for both new residential buildings and major residential renovation projects are set in the Residential Buildings Energy Performance Regulation, approved by the Decree-Law no. 118/2013 of August 13th and amended by Decree-Law no. 251/2015 of November 25th. Under this regulation, green renovations in social housing are addressed along the same lines as other renovation projects in the residential sector as a whole. This implies the existence of a policy deficit in the national context, in the sense that the specificities of the social housing sector are not effectively considered.

On the other hand, the Residential Buildings Energy Performance Regulation reflects the direct transposing of the European Commission's Energy Performance of Building Directive (EPBD) into the national context. The EPBD is the most important directive supporting green buildings and contains an overarching framework for structuring investments and strategies (namely, those related to the development of long-term national renovation strategies).

The direct transposition of EPBD to the national context has not come without some challenges. In particular, there appears to be a lack of alignment between the model of rehabilitation set out in the Energy Performance of Buildings Directive (EPBD), which is based on the definition of energy classes in accordance to the nominal energy performance of buildings, and the sociocultural and climatic reality of the country, which brings to the forefront the problems related to the low levels of energy used in the residential sector to heat and cool the indoor environment and the resulting problems of thermal discomfort faced by the residents (as previously explained).

In practice, this means that the current system of energy certification might translate into limited benefits to residents after green renovations, in the sense that energy savings and energy bills reductions will most likely not be achieved. In these cases, retrofitting does not necessarily lead to a decrease in fuel poverty. This situation is particularly threatening in social housing contexts. It raises the question of whether the current legal framework should focus on minimising the thermal discomfort of residents (and thus improving their living conditions) instead of increasing the energy efficiency of buildings.

In the particular case of ROP NORTE 2020, in which the monitoring of the performance of green renovations in social housing relies also in the current system of energy certification, an additional question that might be raised is the extent to which the output and result indicators that have been set in the ROP for IP 4c/4.3 are tuned to territorial specificities of the region.

Regarding the funding opportunities available to support the greening of social housing – the subject matter of the SOCIAL GREEN project –, in Portugal these are gathered through a variety of

mechanisms. These can include financing from the EU and multiple levels of government, through various policy-funding schemes.

The EU provides funding either through Cohesion Policy programmes or financial instruments. From the Cohesion Policy programmes currently active in Portugal, only ROP NORTE 2020 can be leveraged by local players to improve the greenness of social housing in the region. In particular, the ROP supports energy efficiency, intelligent energy management and the use of renewable energy sources in public infrastructures, namely in social housing (under IP 4c/4.3), as well as the physical, economic and social revitalisation of disadvantaged communities in urban and rural areas (under IP 9b/9.8). Even though both measures are directed towards the improvement of the social housing sector, each of them funds distinct, although complementary, types of actions. These actions have, however, different eligibility criteria, which make difficult the combination and blending of funding sources from the respective investment priorities in order to develop more comprehensive, economical and sustainable redevelopment projects.

In order to leverage the EU funds allocated within the framework of the different ROP currently active in Portugal to urban rehabilitation and energy efficiency, the Portuguese Government has launched, in October 2017, the *IFRRU 2020 – Instrumento Financeiro para a Reabilitação e Revitalização Urbanas* ("Financial Instrument for Urban Rehabilitation and Revitalisation). This financial instrument brings together several sources of financing, whether EU funds from the ROP of the different Portuguese regions, whether funds from other entities such as the European Investment Bank (EIB), the Development Bank of the Council of Europe (ECB) and the commercial banking, with the goal of creating more favourable conditions to support the investment in urban renewal and energy efficiency. With a financial envelope of 1.4 billion Euros, IFRRU 2020 supports not only the complete rehabilitation of buildings aged 30 years or more, abandoned spaces and industrial units, but also the rehabilitation of private dwellings within social housing buildings. IFRRU 2020 targets, therefore, privately-owned social housing dwellings, which are excluded from ROP-funding in the current programming period.

On the other hand, the Portuguese Council of Ministers approved, on May 2018, a Resolution that establishes the strategic vision, objectives and instruments of action for a "New Generation of Housing Policies". Altogether, the changes in livelihoods and socioeconomic conditions of the population, the existence of structural housing needs, the increasing difficulties in getting access to the housing market and the side effects of previous housing policies, have pointed to the need for a paradigm shift on the design and implementation of housing policies in Portugal.

Among main changes introduced by the "New Generation of Housing Policies" is the creation of the needed conditions to make urban regeneration the rule, instead of the exception, in urban development, as prescribed in the project *Reabilitar como Regra*[2] ("Rehabilitate as a Rule"). Moreover, under the "New Generation of Housing Policies", a number of policy instruments have had already

[2] The main goal of this project is to put forward technical standards for building rehabilitation that are aligned with the specificities of the local contexts.

been put forward in order to support housing rehabilitation in Portugal and/or to promote the greening of the residential sector (including social housing). Some examples of such policy instruments include:

- *1º Direito – Programa de Apoio de Acesso à Habitação* ("Housing Access Support Programme), which aims at providing suitable housing to people in poor living conditions or unable to get access to housing;
- *Reabilitar para Arrendar* ("Rental Housing Rehabilitation"), which focuses mainly on the rehabilitation of dwellings rented at prices below the market rate and integrated in buildings with 30 years or more in age;
- *Programa de Reabilitação de Bairros Sociais* ("Programme for the Rehabilitation of Social Housing Neighborhoods"), which draws on European funds from the ROP of the different Portuguese regions with the aim of supporting green renovations in social housing (along the same lines as those presented earlier in the context of ROP NORTE 2020).

The comparative analysis of the different policy instruments has shown the existence of considerable differences in the regulatory framework of each programme, as reflected in aspects such as spatial coverage, funding sources, eligibility criteria (e.g. ownership status, age of buildings) or types of solutions supported (e.g. green renovation, rehabilitation, new construction). These differences are indicative of the existence of challenges in blending and aggregating funding sources from different policy instruments, and, as a result, of the difficulties faced by local players in getting access to financial support for retrofit projects in social housing (that often require substantial upfront capital commitments). These, in turn, may be revealing of challenges for the effectiveness of public investments on the retrofitting and/or rehabilitation of social housing.

In the particular case of ROP NORTE 2020, these challenges are exacerbated not only by the fragmentation of EU support to refurbishments in social housing into two distinctive investment priorities (as explained earlier), but also by procedural-related constraints that often result in missing opportunities regarding the greening of the social housing stock of the region (such as those related to project-selection processes within the ROP).

Other common challenges identified in the comparative analysis of existing policy instruments at national and regional levels include:

- Lack of programmes dealing exclusively with the social housing sector, despite the existence of regional, national and European funds available for retrofitting the housing sector in general. This implies that a sort of a policy deficit can be found in the national context and underlines the importance of promoting a more comprehensive national strategy on social housing (both public and private).
- Limited adaptability of the conditions for using public funds to retrofit social housing, especially in the case of EU funds drawn from the ROP. For instance, the use of standardised types of energy efficiency technologies in social housing do not always represent the reality of the interventions that are needed. On the other hand, local players face significant difficulties in getting access to

financial support for specific projects (e.g. the green rehabilitation of buildings aged less than 30 years, but showing signs of severe deterioration; the preventive maintenance of social housing units that have already been subject to rehabilitation works). Therefore, there is a need to adjust the conditions for receiving EU and national funding to better suit the needs of local realities.

- Limited knowledge on the impacts of green renovations in social housing supported by existing policy instruments. This underlines the importance of monitoring the energy performance of social housing units prior and after green renovations. Better monitoring and evaluation could provide evidence on the results of retrofitting to decision-makers. By demonstrating the success of current initiatives, monitoring could also contribute to secure political support and access to future funding opportunities.
- Lack of focus on the promotion of local/regional capacity building activities related to energy and resource efficiency in social housing (e.g. education and awareness-raising projects for energy efficiency). In the national context, the energy-related behaviour of social housing residents entails that green renovations do not necessarily result in increased energy performance of social housing units or even in gains in the quality of life of users. Therefore, technical energy efficient solutions cannot be implemented without comprehensive resident engagement.

Policy Instruments: Local Strengths, weaknesses, opportunities & threats

Table 2. SWOT Analysis

Strengths	Weaknesses
• Current paradigm in housing policy in Portugal favours the refurbishment of existing stock instead of new housing construction. • Availability of different policy instruments, at both national and regional levels, that support the rehabilitation and/or the improvement of energy efficiency in the residential sector (including social housing). • Existing financial instruments for urban rehabilitation in Portugal provide support to actions that are generally not targeted by other policy instruments (e.g. green renovations in privately-owned social housing units).	• National regulations and existing policy instruments rarely address the retrofitting of social housing in its own terms. • Existing system of energy certification, which is used to assess the performance of housing rehabilitations and green renovations, appears to be not tuned with existing territorial specificities. • Lack of coordination between different policy instruments (or even within the same instrument) makes difficult the access to the already limited financial opportunities. • Procedural-related constraints found in the management of some instruments (such as the ROP) hampers the effectiveness of public investments on the greening of social housing. • Limited adaptability of the conditions for using public funds to retrofit social housing (regarding factors such as spatial coverage, ownership status, age of buildings or types of solutions supported). • Lack of evidence on the impacts of green renovations in social housing supported by existing policy instruments. • Public policies often overlook the importance of strengthening local/regional capacity building on energy and resource efficiency in social housing.
Opportunities	**Threats**
• Recent dynamics in social housing rehabilitation point to the existence on an ongoing effort to improve the living conditions of social housing residents. • Energy-passive solutions are more suited to local/regional realities (as revealed by the mild climate of the country and the energy-related behaviour of social housing residents regarding the usage of active-energy solutions).	• Potentially high share of social housing units in need of green renovations. • Diversity of constructive technologies used in social housing and, as a result, of rehabilitation needs. • Retrofit projects in social housing require substantial upfront capital commitments. • Fuel poverty is particularly prevalent amongst households with lower incomes who live in dwellings rented at prices below the market rate.

Part II – Strategy

Vision

The self-assessment of energy efficiency in social housing in Norte has pointed to the existence of a number of policy-related challenges that need to be overcome in order to promote more targeted and effective interventions in the social housing sector of the region. These challenges are mainly framed by a context of low incomes, low energy consumption and high energy cost in social housing, which translate in the distressing problem of fuel poverty amongst social housing residents.

By looking at the territorial specificities of Norte, it has become clear that achieving an improved energy performance in social housing is not only a matter of using energy efficient technologies (and, thus, of promoting a shift towards a low carbon economy), but also, and foremost, of tackling the problem of fuel poverty, and the related health and economic needs of social housing residents. With this in mind, the vision of the action plan for Norte is:

Towards an energy efficient social housing sector that contributes to the alleviation of the phenomenon of fuel poverty in Norte

Strategic Objectives and Actions

To achieve the vision of the action plan, the following strategic objectives have been set out:

O1. Enhance the energy performance of social housing units, by optimising the conditions of both energy efficiency and thermal comfort in social housing. In particular, the existence of a potentially high share of social housing units in need of improved conditions of energy efficiency and thermal comfort, in addition to the commitment of the Portuguese Government to increase the provision of social housing in the national context (as reflected in the "New Generation of Housing Policies"), underscores the need to increase the funds available to support the greening of social housing in Norte.

O2. Alleviate the problem of fuel poverty in social housing. The regional self-assessment has shown, on one hand, that the problem of fuel poverty is particularly pressing amongst social housing residents. On the other hand, it has revealed that the application of the existing legal and policy framework often translates into limited benefits to this segment of population. Therefore, policy improvements should be introduced at both national and regional levels in order to better address the problem of fuel poverty in Norte.

O3. Improve the knowledge base for the design of social housing policies. In particular, the limited evidence on the impacts of green renovations in social housing supported by existing policy instruments underlines the importance of promoting a better assessment and monitoring of the energy performance of buildings, as well as of the well-being conditions of residents (prior and after the undertaking of green renovations).

O4. Adapt existing policy instruments to the territorial specificities of Norte, such as the climatic conditions of the region and the energy-related behaviour of social housing residents. As shown by the regional self-assessment, these territorial specificities have a number of implications for the regulatory framework of existing policy instruments, namely regarding the eligibility criteria and the indicators used to monitor the performance of green renovations in social housing.

O5. Promote networking and partnerships working. Green renovations in social housing bring together actors from different sectors and levels of governance – such as decision-makers, programme managers, beneficiaries and end-users of social housing. Therefore, the effectiveness of public investments in social housing is not only dependent on the promotion of a more structured networking and collaboration between these actors, but also on the on the increase of capacity building on energy and resource efficiency in social housing.

Part III – Actions

This section presents the actions included in the regional action plan in order to influence the policy instrument ROP NORTE 2020. The drafting of each action has met following criteria:

- **Stakeholder input.** The actions aim at tackling specific regional challenges and needs identified during the LSG meetings organised during phase 1 of SOCIAL GREEN.
- **Interregional learning**. The actions aim at drawing on the lessons learnt from the different interregional exchange activities carried out thanks to SOCIAL GREEN.
- **Policy instrument improvement**. The actions focus on achieving improvements in one specific policy instrument selected for Norte within SOCIAL GREEN.
- **Feasibility**. A limited number of actions was defined and their scope was controlled, in order to increase the likelihood of their implementation, without compromising the purpose of the regional action Plan and of the SOCIAL GREEN mission.

The action plan for Norte includes four actions:

A1. Increase the EU funds available to support the green retrofitting of social housing in Norte

A2. Enhance the efficiency of project selection procedures for delivering EU support to the green retrofitting of social housing in Norte

A3. Improve monitoring and evaluation tools of public policies focused on the green retrofitting of social housing in Norte

A4. Improve the energy-related behaviour of the social housing residents in Norte Region, particularly after EU supported green renovations

The table below shows how each of these actions meets the objectives set out in the action plan.

Table 3. Link between actions and objectives

Objectives	Actions			
	A1	A2	A3	A4
O1. Enhance the energy performance of social housing units	x	x		
O2. Alleviate the problem of fuel poverty in social housing	x			x
O3. Improve the knowledge base for the design of social housing policies			x	x
O4. Adapt existing policy instruments to the territorial specificities of Norte			x	
O5. Promote networking and partnerships working		x		x

A1. Increase the EU funds available to support the green retrofitting of social housing in Norte

A. 1.1. **Background**

Stakeholder input

In the context of the LSG meetings that have been held in Norte, two inter-related problems regarding the greening of the social housing stock of the region have been identified: (i) the existence of a considerable number of social housing units in need of green retrofitting and rehabilitation; and (ii) the difficulties in getting access to funding opportunities, at both national and regional levels, for the green retrofitting and rehabilitation of social housing.

In connection with the latter, members of the LSG of Norte have argued, in particular, that despite the existence of a number of policy instruments, in the Portuguese context, that can be used to support the green retrofitting and/or rehabilitation of social housing in Norte, the lack of coordination between these instruments in aspects such spatial coverage, funding sources, eligibility criteria (e.g. ownership status, age of buildings) or types of interventions supported (e.g. green renovation, rehabilitation, new construction), hinders the ability of local players to take advantage of existing funding opportunities. It also makes local players highly dependent upon European funding to carry out infrastructural projects, such as green renovations in the social housing stock.

The EU Cohesion Policy is, in fact, a key support instrument for green renovations projects in the national context. From the Cohesion Policy programmes currently active in Portugal, only the ROP NORTE 2020 supports the greening of social housing in Norte. However, according to the members of the LSG of Norte, the financial envelope allocated so far, within the framework of the programme, to green renovations in social housing (of approximately 30 million Euros) falls short in meeting the needs of the players of the region. This situation can be clearly illustrated by the ratio between the total amount of funding approved under this measure and the total investment of the projects submitted to receive support from the ROP. Up until the end of 2018, this ratio was estimated to be have been about 1:5. Therefore, the members of the LSG of Norte have underlined the existence of a limited regional capacity to tackle the challenge of a carbon neutral social housing sector.

Interregional learning

From the interregional exchange of experiences, it has become apparent that two of the most prevalent challenges among SOCIAL GREEN partners are: (i) the lack of funds/schemes available for the green retrofitting of the social housing sector (namely in Portugal, Spain and Croatia) or the provision of affordable housing to low-income, vulnerable or disadvantaged people (especially in Estonia and Romania); and (ii) the need for substantial upfront financial effort for retrofit projects in social housing.

In connection with these issues, the SOCIAL GREEN partners have highlighted the key role played by EU funds drawn from the ROP of the different regions in helping to overcome, at least to some extent, the aforementioned challenges. The partners argued, in particular, about the importance of increasing the access to European funding opportunities, namely through the ROP of the different regions, in order to make possible the continued implementation of refurbishment projects in the coming years and/or to facilitate the provision of new housing opportunities.

Bearing this in mind, the following lessons learnt from SOCIAL GREEN interregional activities were particularly relevant to draft this action:

- The experience of the Estonian Government with the KredEx support scheme – a combined grant and loan scheme that is being administered using funds from the Estonian ROP to support green renovations in housing. The scheme is open to homeowner associations in multi-apartment blocks, in addition to local authorities provided that they own more than half of the dwellings in the building. In 2016, about 1.35 M€ of grants have been allocated to KredEX. Under the Estonian state budget strategy for 2017 to 2020, a supplementary funding of around 6.91 M€ has been provided to fund grants for increasing the energy efficiency of small residential buildings through KredEx. Interactions with SOCIAL GREEN partner TREA, particularly during the interregional learning event held in Tartu in January 2018, were especially important to learn about this best practice, and its potential transferability to Norte.

- The experience of the Spanish region of Extremadura in increasing the financial allocation within the ROP to the green retrofitting of social housing. Even though such increase was not initially planned within the framework of the ROP, the Regional Government has applied for additional funds under the national Housing Law (namely, the "Plan Estatal Vivienda"). As a result, the regional budget allocated to green renovations in public social housing has increased by 13 M€ for the period 2019-2021 (of which 40% comes from national funds and 60% from the ROP). Interactions with SOCIAL GREEN partner AGENEX, particularly in the context of several bilateral meetings held throughout phase 1 of the project, were especially important to learn about this best practice, and its potential transferability to Norte.

A. 1.2. **Action details**

Policy Improvement

The action aims mainly at tackling the problem of the lack of funding opportunities, namely at the regional level, for promoting the green retrofitting and rehabilitation of the social housing stock of Norte. It encompasses, in particular, the increase of the financial envelope allocated under ROP NORTE 2020 to green renovations in social housing. Its drafting has been inspired by the interregional learning obtained through SOCIAL GREEN, especially regarding the experience of the

region of Extremadura in increasing their budget allocation for the green retrofitting of social housing.

The implementation of this action introduces a direct change at the management level of the policy instrument addressed by the SOCIAL GREEN project in Norte. By proposing an increase in the European financial support, administered through ROP NORTE 2020, to green renovations in social housing, the action allows the retrofit of a higher number of social housing units in the region, which otherwise would not be retrofitted. This will, in turn, hopefully lead to a more energy-efficient social housing sector in Norte and, in particular, to a decrease in the levels of fuel poverty amongst social housing residents.

Activities

The activities involved in implementing this action are:

(i) Carry out a mapping of social housing in Norte, including, among other elements, existing retrofitting needs;
(ii) Disseminate the mapping results to key local players, especially decision-makers and relevant technical units from the MA of the ROP;
(iii) Support the launch of a new call for proposals to support green renovations in social housing units in Norte, after a formal increase of the financial allocation of the ROP for this purpose;
(iv) Monitor the results of the call, and decide on further activities within this action, including additional calls.

A. 1.3. **Players involved**

Player	Role
CCDR-Norte	• Coordination and overall implementation of activities that do not overlap specific competences of ERDF management bodies.
MA of ROP NORTE 2020	• Preparation and launch of calls and approval of funding for proposals.
University of Porto	• Technical support to carry out the mapping of existing retrofitting needs in the social housing sector.
Municipalities from the LSG of Norte	• Collaboration in primary data collection to develop the mapping of existing retrofitting needs in the social housing sector.

A. 1.4. **Timeframe**

Task	Timeframe
(i) – (ii)	April 2019 – September 2019
(iii) – (iv)	October 2019 – June 2020

A. 1.5. **Costs and funding**

Due to the nature of the action, which focuses on adapting an existing policy instrument (ROP NORTE 2020) to facilitate the green retrofitting of social housing, the costs to be incurred with the implementation of the action will be internalised in the current activities of the different players involved. The call mentioned in activity (iii) will be funded by the ERDF, through ROP NORTE 2020.

A2. Enhance the efficiency of project selection procedures for delivering EU support to the green retrofitting of social housing in Norte

A. 2.1. **Background**

Stakeholder input

Social housing owners and managers from Norte wishing to obtain EU support to develop their green retrofitting projects have to apply to calls for proposals launched by the MA of ROP NORTE 2020. A project-selection process is then undertaken, involving several phases and public bodies, before a funding decision is formally communicated.

Over the course of the LSG meetings that have been promoted in Norte, some of the members of the group, which are also the potential beneficiaries of EU funding from ROP NORTE 2020, have shown concern over the considerable delays in the assessment of project proposals submitted to calls launched to support green renovations in social housing and, as a consequence, in the communication of the respective funding decisions. These delays seem to be the result of a number of administrative constraints that are considerably limiting the performance of the project-selection process within ROP NORTE 2020. Apparently, these constraints are related, in turn, to the governance structure that oversees and assesses applications to calls for proposals, which includes the MA of ROP NORTE 2020 and other organisations with jurisdiction over energy-related issues and to whom the MA has delegated certain functions (namely the DGEG – Directorate General of Energy and Geology).

For beneficiaries applying for EU financial support under ROP NORTE 2020, the existing delays in the assessment of project proposals might translate into extended uncertainty and specific challenges, which can potentially result in inefficiencies and missed opportunities regarding the greening of their social housing stock.

Interregional learning

Knowledge-exchange activities with SOCIAL GREEN partners have been important to share common administrative challenges to the delivery of EU funds. In this context, 'gold plating' has been a recurring topic. This is a widely used term in the context of the implementation of European Structural and Investment Funds (ESIF) to describe Member States' additional rules and regulatory obligations that go beyond the ESIF requirements set out at EU level, and that make the implementation of ESIF more costly and burdensome for programme bodies and beneficiaries.

Among the main lessons learned on this particular matter, it should be highlighted the experience of the Spanish region of Extremadura, which has been particularly relevant to draft this action. Even though the region faces a number of administrative challenges in the delivery of EU funds (namely regarding the call submission system and, in particular, the requirements potential beneficiaries must fulfil to be eligible for EU funding), delays in the assessment of project proposals submitted to calls launched to support energy efficiency interventions in buildings have not been observed. Contrary to what happens in Norte, all stages of the process of selecting and implementing projects supported by EU funds in Extremadura are

conducted by a single organisation (the MA of the ROP). Whenever technical expertise in specific fields is required, the MA opens a call for subcontracting external experts.

Interactions with SOCIAL GREEN partner AGENEX, particularly in the context of several bilateral meetings held throughout phase 1 of the project, were especially important to learn about this best practice, and its potential transferability to Norte.

A. 2.2. **Action details**

Policy Improvement

The action addresses the administrative constraints that have been hampering the performance of the project-selection process within ROP NORTE 2020, especially in calls supporting green renovations in social housing. It encompasses, in particular, the design and implementation of a proposal to streamline the procedures related to this process. Its drafting has been inspired by the interregional learning obtained through SOCIAL GREEN, especially regarding the experience of the region of Extremadura in rationalising the process of selecting projects supported by EU funds.

The implementation of this action introduces a direct change at the management level of the policy instrument addressed by the SOCIAL GREEN project in Norte. By tackling the abovementioned constraints in the operationalisation of ROP NORTE 2020, a more efficient delivery of EU support to greening the social housing sector could be achieved in the region.

Activities

The activities involved in implementing this action are:

(i) Carry out an assessment of the administrative constraints limiting the project-selection processes in the ROP;
(ii) Develop and disseminate a proposal to streamline the project-selection processes in the ROP, focused on the identified constraints;
(iii) Test the implementation of the proposals produced in the previous activity on the current procedures of the MA of the ROP and other public bodies involved in project-selection;
(iv) Monitor the impact of the improvements on the administrative constraints, and decide on further activities within this action, including a refinement and/or formalisation of the tested improvements.

A. 2.3. **Players involved**

Player	Role
CCDR-Norte	• Coordination and overall implementation of activities that do not overlap specific competences of ERDF management bodies.
MA of ROP NORTE 2020	• Active involvement in all activities, especially in the development and implementation of a proposal to streamline the project-selection process.
DGEG	• Support to the implementation of a proposal to streamline the project-selection process.
Municipalities from the LSG of Norte	• Support the impact assessment of the action.

A. 2.4. **Timeframe**

Task	Timeframe
(i) – (ii)	April 2019 – September 2019
(iii) – (iv)	October 2019 – June 2020

A. 2.5. **Costs and funding**

Due to the nature of the action, which focuses on adapting an existing policy instrument (ROP NORTE 2020) to facilitate the green retrofitting of social housing, the costs to be incurred with the implementation of the action will be internalised in the current activities of the different players involved.

Whenever external support is required for the implementation of some of the activities, funds will be drawn from the ROP NORTE 2020.

A3. Improve monitoring and evaluation tools of public policies focused on the green retrofitting of social housing in Norte

A. 3.1. **Background**

Stakeholder input

In most European regions, including those that are part of the consortium of the SOCIAL GREEN project, there appears to be a lack of data, at both regional and local levels, on the energy performance of social housing (as evidenced, for example, by the contents of the Eurostat public database). Even where such data are available, a related challenge refers to need to upscale tools and frameworks for monitoring the energy performance in social housing across both regional and national contexts.

Both these concerns have been raised in the context of the LSG meetings organised in Norte. However, the discussions that have taken place during these meetings have gone beyond the need to collect data on energy performance in social housing to include other monitoring dimensions. More specifically, the members of the LSG of Norte have highlighted, on one hand, the need to monitor and assess the real impacts of green renovations of social housing units in the region. In general, no real data is available on the gains obtained from such intervention in terms of the energy savings in social housing. In addition to that, very limited information is available on improvements in the quality of life of residents generated by green renovations in social housing.

On the other hand, in order to monitor the performance of interventions, existing support schemes in Portugal focus mainly on energy certification levels, which have a very limited scope, and can hardly accommodate the territorial specificities of the country. In this particular matter, the members of the LSG of Norte have raised the question of whether the focus should be placed on the increase of energy efficiency or on the minimisation of thermal discomfort in social housing.

In general terms, the existing lack of evidence on the impacts of green renovations in social housing makes difficult to establish a causal relationship between the public support given to this type of projects in Norte and the added-value in terms of increased energy performance of social housing units and upgrades in the quality of life of residents.

Interregional learning

From the interregional exchange of experiences between SOCIAL GREEN partners, it has been made clear that some of the partner regions are already taking some steps in order to overcome the challenge of lack of data on the energy performance of social housing. In particular, two initiatives have been identified as good practices from which lessons have been drawn in order to draft this action:

- The experience of the Romanian municipality of Alba Iulia with establishment and operation of the energy observatory ANERGO, which is an internal structure of the Alba Iulia Local Energy Agency in charge for energy data processing. More specifically, this energy observatory is an online tool in which monthly energy consumption data for the residential sector is manually introduced and aggregated

at city level. In order to provide data access to local authorities and service providers (of energy, transport and other sectors), and thus to support decision and policy-making processes, partnership agreements have been signed between this kind of organisations and ANERGO. Interactions with the municipality of Alba Iulia, particularly during the interregional learning event held in Alba Iulia in June 2018, were especially important to learn about this best practice, and its potential transferability to Norte.

- The experience of the Spanish region of Extremadura in developing and implementing the pilot project EDEA-Renov, which has been co-financed by the LIFE+09 programme. Under the framework of this project, a number of energy-related monitoring actions have been undertaken, namely: (i) the design of a software tool that allows the easy modelling and simulation of the energy efficiency potential of social housing units; (ii) the design of a wireless system to monitor the energy performance in social housing, and its instalment in number of uninhabited demonstrator social housing units located in Caceres in order to assess the energy improvements achieved with the implementation of different energy efficient solutions; and (iii) the monitoring of the energy performance of eight inhabited social housing units located in San Lazaro and Santa Engracia in order to assess the real improvements achieved after green retrofits, along with the impact of the energy consumption behaviour of their users on the performance of these housing units. Regarding the latter, different monitoring systems have been used with the aim of selecting the most suitable indicators to monitor the impact of green retrofits in social housing.

  In general terms, the results of the EDEA RENOV project have allowed the Regional Government of Extremadura to identify solutions that are best suited to the regional context. Interactions with SOCIAL GREEN partner AGENEX, particularly in the context of several bilateral meetings held throughout phase 1 of the project, were especially important to learn about this best practice, and its potential transferability to Norte.

A. 3.2. **Action details**

Policy Improvement

The action aims mainly at developing capacity building mechanisms, especially from the perspective of decision-makers and public officers dealing with the policy instrument addressed by the SOCIAL GREEN project in Norte. It encompasses, in particular, the design, testing and dissemination of new tools and frameworks to address the challenges posed by the lack of evidence on the impacts produced by public support to green renovations in social housing. These challenges are mainly the product of two interrelated factors: (i) the absence of data, at the regional and local levels, on energy performance in social housing (prior and after the implementation of green renovations supported by public funds); and (ii) the fact that the indicators that are typically used to monitor the performance of interventions in social housing supported by public funds are not tuned to existing territorial specificities. The drafting of this action has been inspired by the interregional learning obtained through SOCIAL GREEN, especially

regarding the experience of the region of Extremadura in establishing an experimental, but comprehensive, monitoring system in selected social housing units.

By creating evidence on the impacts produced by public support to green renovations in social housing, the action introduces a direct change at the management level of the policy instrument addressed by the SOCIAL GREEN project in Norte. Such evidence might be particularly useful to support the activity of public bodies responsible for policies in this sector, including the MA of the policy instrument addressed by the SOCIAL GREEN project. More specifically, knowledge about the impacts produced by public support to green renovations in social housing can to lead to an increased capacity of this body to manage its policy instrument, in the sense that it could be used to develop tools and frameworks to enhance its monitoring system and to support its decision-making process. Hopefully, this is expected to result, in turn, in an improved adjustment between the policy instrument and the territorial specificities of Norte.

Activities

The activities involved in implementing this action are:

(i) Carry out a comprehensive territorial analysis delivering evidence on the dynamics of the ROP support to greening the social housing sector in Norte, using secondary sources;
(ii) Design and test measurements of the real energy savings in a selection of social housing units supported by the ROP;
(iii) Develop and disseminate a technical reference on assessing the real impacts of energy-efficiency measures in the social housing sector in Norte, and a policy paper on increasing the cost-effectiveness of public investment in greening social housing;
(iv) Support the implementation of alternative indicators in the project-selection and monitoring system of the ROP, in line with the recommendations produced in the previous activity.

A. 3.3. **Players involved**

Player	Role
CCDR-Norte	• Coordination and overall implementation of activities that do not overlap specific competences of ERDF management bodies
MA of ROP NORTE 2020	• Implementation of policy measures stemming from this action, in particular, regarding the adoption of alternative indicators for the ROP.
University of Porto	• Technical support to the collection of data on real energy consumption, the production of a technical reference on assessing real impacts of energy-efficiency measures, and the development of proposals for alternative indicators
Municipalities from the LSG of Norte	• Support data collection on real energy consumption

A. 3.4. **Timeframe**

Task	Timeframe
(i)	April 2019 – June 2020
(ii) – (iii)	January 2020 – December 2020
(iv)	October 2020 – March 2021

A. 3.5. **Costs and funding**

Due to the nature of the action, which focuses on adapting an existing policy instrument (ROP NORTE 2020) to facilitate the green retrofitting of social housing, the costs to be incurred with the implementation of the action will be internalised in the current activities of the different players involved.

Whenever external support is required for the implementation of some of the activities, funds will be drawn from ROP NORTE 2020.

A4. Improve the energy-related behaviour of the social housing residents in Norte Region, particularly after EU supported green renovations

A. 4.1. **Background**

Stakeholder input

The implementation of energy efficient technologies in social housing does not translate, in most cases, into an improved energy performance of social housing units. This is because in social housing contexts, which are characterised by situations of social deprivation and fuel poverty, the energy consumption patterns of residents are quite specific, when compared to those of residents from other housing contexts. The behavioural dimension of energy efficiency is key in explaining the energy consumption patterns in social housing. It establishes a straightforward relationship between the energy-related behaviour of social housing residents and the ways in which energy efficient technologies are used by them.

The behavioural dimension of energy efficiency has been widely debated in the LSG meetings that have been held in Norte. This dimension has been often referred to as one of the main factors explaining the meagre impact of green renovations on the patterns of energy consumption of social housing residents. In particular, the members of the LSG of Norte have argued that the implementation of energy efficient technologies in social housing units does not usually translates into an improved energy performance in social housing units and, as a result, into an upgrade in the living conditions of social housing residents. This situation represents a serious challenge for the efficiency and effectiveness of public policies in this field.

Nonetheless, as shown by one of the Portuguese good practices that have been identified in the context of SOCIAL GREEN – the Coopetir initiative –, it is possible to effectively tackle the undesired impacts of the energy-related behaviour of residents on the energy performance of social housing units. Under the framework of this initiative, which was part of the green renovation project of the social housing neighbourhood of Boavista (in Lisbon, Portugal), a game-based learning system for energy education has been implemented. This has allowed the decrease in the levels of energy consumption in this social housing neighbourhood.

Interregional learning

Public policies aiming at increasing the energy efficiency of the social housing sector often seem to overlook the behavioural dimension of energy efficiency, at the expense of its technological counterpart. In fact, as discussed in the interregional learning events that took place within the context of the SOCIAL GREEN project, existing policy instruments appear to favour the physical retrofit of social housing units over the promotion of initiatives for informing, educating and involving the social housing community in green renovation processes.

Nonetheless, some of the members of the SOCIAL GREEN consortium have underlined that capacity-building mechanisms to support and empower social housing residents to make the best use of energy efficient technologies are already in place in their respective regional contexts. In particular, an initiative

has been identified as a good practice from which lessons have been drawn in order to draft this action: the experience of the Spanish region of Extremadura in developing and implementing the pilot project EDEA-Renov, which has been co-financed by the LIFE+09 programme.

Under the framework of the EDEA-Renov project, a number of actions tackling the behavioural-dimension of energy efficiency have been undertaken, namely: (i) the monitoring of the energy performance of eight inhabited social housing units located in San Lazaro and Santa Engracia in order to assess the impact of the energy consumption behaviour of their users on the performance of these housing units; (ii) the creation of two Technical Offices of Energy Management – one in the social housing neighbourhood of San Lazaro and the other one in Santa Engracia – composed of personnel specialised in energy efficiency and green renovations in social housing; and (iii) the promotion of 16 capacity-building activities (including seminars, workshops and technical courses) targeting different target groups of people (e.g. social housing users, technicians and building professionals) and aimed at allowing each of these groups to put into practice the results of the project and integrate them into their daily routines.

Interactions with SOCIAL GREEN partner AGENEX, particularly in the context of several bilateral meetings held throughout phase 1 of the project, were especially important to learn about this best practice, and its potential transferability to Norte.

A. 4.2. **Action details**

Policy Improvement

The action addresses mainly the behavioural dimension of energy efficiency. By considering the lessons learned from the SOCIAL GREEN interregional activities, namely those related to the promotion of initiatives on energy efficiency education and training in the regions of Lisbon (Portugal) and Extremadura (Spain), the action focuses, in particular, on developing capacity building mechanisms, especially from the perspective of the final recipients of the policy instrument addressed by SOCIAL GREEN in Norte. Its main goal is to promote changes in the energy-related behaviour of social housing residents in a targeted manner – from deepening knowledge about energy efficient practices and heightening awareness about energy efficient technologies, to acting on the knowledge to be energy efficient, changing attitudes, and mobilising a social movement towards energy efficiency. The privileged target group of the action includes users of social housing units in which energy efficient technologies have been implemented with the support of ROP NORTE 2020. The drafting of this action has been inspired by the interregional learning obtained through SOCIAL GREEN, especially regarding the experience of the region of Extremadura in promoting initiatives on energy efficiency education and training in selected social housing units.

By influencing the energy-related behaviour of social housing residents, the action offers the potential for energy savings and GHG emission reductions in the residential sector of the region, contributing,

therefore, to achieve the targets established on this matter within the ROP. This will, in turn, enhance the effectiveness and efficiency of public policies focused on greening the social housing sector in Norte.

Activities

The activities involved in implementing the action are:

(i) Design and administer a survey on the energy-related behaviour of social housing residents, targeting a selection of units retrofitted with the support of the ROP;
(ii) Issue a policy paper on improving the energy-related behaviour of the users of retrofitted social housing, supported by the survey results;
(iii) Design and test initiatives to promote changes in the energy-related behaviour of social housing residents (namely training, game-based learning activities and targeted workshops), in a number of social housing units retrofitted with the support of the ROP;
(iv) Evaluate the results of the tested initiatives and decide on further activities within this action, including upscaling it to all ROP-supported dwellings.

A. 4.3. **Players involved**

Player	Role
CCDR-Norte	• Coordination and overall implementation.
University of Porto	• Technical support to design the survey on energy-related behaviour of social housing residents.
Municipalities from the LSG of Norte	• Survey administration, support to data analysis, and implementation of initiatives envisaging the improvement of energy-related behaviour of social housing residents.

A. 4.4. **Timeframe**

Task	Timeframe
(i) - (ii)	October 2019 – June 2020
(iii) – (iv)	July2020 – March 2021

A. 4.5. **Costs and funding**

Due to the nature of the action, which focuses on adapting an existing policy instrument (ROP NORTE 2020) to facilitate the green retrofitting of social housing, the costs to be incurred with the implementation of the action will be internalised in the current activities of the different players involved.

Whenever external support is required for the implementation of some of the activities, funds will be drawn from the ROP NORTE 2020.

Part IV – Approval of the Action Plan

This action plan will be implemented and monitored by CCDR-Norte.

Date: 26th of April of 2019

A VICE-PRESIDENTE DA CCDR-N

(Ester Gomes da Silva)

(Ester Silva, Presidency of CCDR-Norte)