ENPOR

Actions to Mitigate Energy Poverty
in the Private Rented Sector

DELIVERABLE 3.2
Working document on the implementation of the ENPOR policies

12/20/21

Version 1.0

Grant Agreement
N.889385

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 889385.

Versioning and Contribution History

Version	Date	Modified by	Modification reason
v. 0.1	21. 09. 21.	Altan Sahin	Text addition
v. 0.2	11. 10. 21.	Altan Sahin	revision
v. 1.0	28. 10. 21.	Altan Sahin	revision

Authors: Altan Sahin, Kerstin Schilcher (AEA)
Florin Vondung, Naomi Gericke (Wuppertal Institute)
Christos Tourkolias (CRES)
Anamari Majdandzic (DOOR)
Nanda Vrielink, Martijn Rietbergen (HU)
Marek Muiste, Annika Urbas (TREA)
Edoardo Pandolfi, Anna Amato (ENEA)

Newsletter: https://www.enpor.eu/newsletters/
Website: https://www.enpor.eu/
Twitter: @EnporProject | https://twitter.com/EnporProject
Facebook: https://www.facebook.com/ENPOR-Project-107020977860481
Linkedin: https://www.linkedin.com/company/enporproject

#ENPOR
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 889385. The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the CINEA nor the European Commission are responsible for any use that may be made of the information contained therein.

SUGGESTED CITATION
Sahin A. et al. (2021): Deliverable 3.2 Working document on the implementation of the ENPOR policies. Austrian Energy Agency, Austria: ENPOR Project. Retrieved from https://www.enpor.eu/

TABLE OF CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

The aim of this deliverable is to describe the planned implementation of the ten measures or policies that will be implemented within the ENPOR project at the current stage. The design of these measures builds on the work with the REACT groups in the seven target regions of ENPOR (AT, DE, GR, EE, HR, NL, IT).

The deliverable dedicates a separate chapter to each target region and the measures implemented there. In these, the conditions of the political framework in each country, in connection with energy poverty, especially in the private rented sector (PRS), are described in more detail while changes that have occurred in this area since the start of the project are also described. This is followed by a description detailing originally planned implementation strategies for the policies or measures during the start of the project. ENPOR initially involved a comprehensive co-creation process with the respective national REACT groups in each target region, the measures of which were adapted or new ones were developed over the course of the project to better support energy poor households in the private rented sector. A detailed description of the work done through close cooperation in the REACT groups to dateis described in Deliverable 3.1 of the project.

The adjustments to the originally planned measures resulting from the REACT groups are also briefly summarised for each measure in the respective chapters. This is followed by a description of the currently planned implementation processes planned for the individual measures which will tak place during the remainder of the project as well as the steps that have already been implemented through co-creation in the REACT groups, provided that implementation had already begun at the time of writing this deliverable. Finally, the specific risks and challenges in the implementation of the various measures in the target regions are elaborated.

The work carried out so far in the seven EU Member States concerned has shown that the situations in the individual countries differ with regard to the political framework conditions. In some countries, measures have already been or are currently being developed that specifically support energy poor households, while in others no targeted support offers have yet been created at the political level. An example of why this has occured is that existing benefits from the social welfare system have so far been perceived as sufficient in aiding those experiencing energy poverty. In general, however, there is a trend that energy poverty is receiving more attention in the public discourse. Despite this, the particular challenges within the private rental sector are not specifically addressed. Throughout the ENPOR project, it has been observed that the related challenges are often similar in many countries (e.g. no definition of energy poverty, difficult to identify affected households in the PRS even though this is potentially the most affected residential sector).

As such, the planned interventions will implement targeted support measures that can target and contribute to closing these gaps within the countries.

1 INTRODUCTION

Energy poverty is increasing in the private rented sector (PRS) in many countries, which presents quite specific issues:

a) The difficulty to identify and quantify energy poor households in the PRS

b) Structural problems, like information deficits, split incentives and others, making the delivery of energy efficiency measures to these households difficult.

The ENPOR project aims to overcome both challenges – making energy poverty in the PRS visible and as far as possible, quantifiable, while also testing energy efficiency support schemes to address issue. This can increase the effectiveness of policies at local or regional levels, and aid in the alignment of structural measures. Dedicated actions are therefore needed that actively contribute to alleviating energy poverty in the PRS by identifying energy poor tenants (and respective homeowners) as well as understanding and addressing their needs. To this end, ENPOR will support the adaption and implementation of ten policies/measures in seven EU Member States tailored to the specific needs of the PRS and will integrate them into broader policy objectives.

ENPOR will support the design and implementation of national policies and measures tailored to the specific characteristics of the PRS, considering the needs of tenants and property owners. The main objectives of the project are the following:

1. Deepen the understanding on energy poverty policies for the private rented sector.
2. Monitor dimensions of energy poverty in the private rented sector.
3. Support the set-up and implementation of energy efficiency policies and measures to alleviate energy poverty in the private rented sector.

Table 1: Overview of the ENPOR policies and measures

Country	Name of Scheme
Austria (AT)	Low-threshold, target group-specific consulting (training and information)
Austria (AT)	Thermal renovation measures for energy poverty
Germany (DE)	Heating related energy advice (training and information)
Germany (DE)	Pre-paid metering EnergieRevolte (training and information)
Estonia (EE)	National reconstruction grant
Greece (GR)	Energy Efficiency Obligation Scheme (EEOs)
Greece (GR)	Energy upgrade of buildings (grant for renovation)
Croatia (HR)	National Programme for Renovation of Buildings (grant for renovation)
Italy (IT)	Training and Information Campaign
Nederland (NL)	Energy Box (programme support)

The aim of this deliverable is to provide a clear overview of the contents of the individual measures, their changes within the framework of the project and the planned implementation steps for the individual measures at the time of writing. As such, the following chapters describe in more detail the planned implementation of each ENPOR policy/measure, the framework conditions in each country, and the associated risks and challenges.

2 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN AUSTRIA

2.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

In the energy law packages of 2003 and 2009, EU legislation considered consumer protection as an integral part of liberalisation while corresponding measures in favour of vulnerable customers were believed to be indispensable for the deepening of the internal market for electricity and natural gas. The 2018 energy package made a clearer distinction between low-income customers in need of protection and households affected by energy poverty.

With the implementation of the EU requirements, Austria implemented a wide range of consumer protection measures that also benefited vulnerable customers and contributed to the reduction of energy poverty. These measures largely corresponded to those of other EU countries: acute assistance such as basic supply and partial disconnection protection, cost caps, measures with a preventive effect such as prepayment meters, and information and advice.

All EU Member States had to submit their national energy and climate plans for the period 2021 to 2030 to the European Commission by the end of 2019. The European Commission assessed the Austrian draft submitted in December 2018 as insufficiently meaningful with regard to measures to reduce energy poverty and protect groups of the population at risk of poverty from sliding into energy poverty. It recommended that Austria - beyond the issue of energy poverty - also take into account equity and fairness aspects of the energy transition as well as more precise information on its impact on social relations, employment and skills.Despite this, in Austria, there is still no official definition of energy poverty at the political level. Although various definitions have been elaborated by different bodies, none has yet been included in the official political discourse. In the elaborated definitions of energy poverty, a very low household income and disproportionately high energy costs are the two most important factors. Energy efficiency of buildings and dwellings as a third factor has also become increasingly important . This is particularly relevant as people with low household incomes can often only afford housing that is in need of refurbishment.

Relevant measures envisaged in the government programmes since 2013 were implemented, especially in regards to the contact and counselling centres of the energy providers as well as a bundle of institutionally coordinated assistance and support measures, and in particular for cases of hardship and emergency. However, the planned development of a master plan to combat energy poverty did not take place.

When implementing energy efficiency measures in the private rented sector, Austria also faces major challenges for energy poor households. Split incentives pose a major problem due to the legal situation in which tenants cannot influence the heating technology used within their households, although flat owners do not have full control over this decision either.[1] The lack of financing can also be a major hurdle; in many houses there are too few reserves or disposable income. Rents in many old buildings (or all buildings that fall under the full scope of the Tenancy

[1] Ashby et al. (2020), “Who are Hard-to-Reach energy users? Segments, barriers and approaches to engage them”, https://userstcp.org/wp-content/uploads/2020/10/Ashby-et-al-2020_ACEEE-summer-study.pdf

Act) are also subject to an indicative rent which reduces the incentive for landlords to invest here, although surcharges and deductions on the rent are also possible (usually, however, there are mostly surcharges by landlords). For this reason, , an amendment to the Condominium Act is currently in the works, which in the future will prescribe a minimum reserve of about 90 cents per square metre of floor space per month and will also make it easier to pass resolutions in the owners' association. The amendment should come into force on 1 January 2022. Tenants cannot, however, de facto enforce a heating system exchange or similar themselves.

This is particularly relevant because a CO_2 tax is now to be introduced in Austria, but it is precisely those who cannot switch to renewable energy sources who will have to pay it. It thus carries the risk of imposing a heavier burden on energy poor households in housing in need of renovation. Section 4 of the Tenancy Act does provide that a majority of the tenants of a building can demand that the landlord carry out "useful improvements" to the building (e.g. a district heating connection is explicitly mentioned in the law). However, this only applies if the investment can be covered from the rent reserve or if the tenant and landlord agree on how to share the additional costs. It is usually difficult to get such a majority - which is partly due to the high number of fixed-term tenancy agreements. Such a greening of tenancy law has been discussed for years and can also be found in various earlier government programmes. Even now, a broad discussion process on this topic is planned at the political level, but it has not yet begun. The government also plans to adopt a phase-out plan for fossil fuels, with mandatory replacement of oil and gas boilers. However, the Renewable Heat Act, in which this is to be enshrined, has not yet been finalised.

Since the start of the project in September 2020, the development of a roadmap for energy poverty was planned in Austria. In addition to a possible definition a plan and recommendations for measures to be implemented to alleviate energy poverty should also have been made. The roadmap is currently still in preparation.With the help of the European Union's Recovery and Resilience Facility, which was launched in the course of the corona pandemic, a total of an additional 50 million euros will be used to support energy poor households. A large part of these funds is earmarked for additional investment support for energy poor households for thermal renovation measures or boiler replacements. Even though there are already existing support offers for this, they are often not sufficient to enable low-income households to switch to renewable technologies. The additional financial support is therefore intended to enable subsidy rates of up to 100 % for affected households.

2.2 Low-threshold, target group-specific consulting (training, soft measure) – AT

2.2.1 Description of the measure prior to the ENPOR co-creation process

In Austria, various support services are in place to help low-income households to reduce their energy consumption and related costs and to make it more sustainable. These services range from on-site consultations to various information materials. However, the existing information and support formats are often not prepared in a suitable form, as this target group(s) often do not have the time, resources and educational background to deal with sophisticated tools and detailed materials and usually energy poor households are not specifically targeted either. Therefore, co-designing and implementing measures that benefit energy-poor tenants in the private rented sector in Austria is the core of ENPOR and this behaviour change intervention.

The energy consumption of households in the private rented sector is largely dependent on factors that are outside the tenants' direct sphere of influence (e.g. thermal condition of the building). Nevertheless, the tenants themselves have the opportunity to improve their own living situation, at least to a certain extent. Therefore, the need for solutions for energy poor households to be easy to implement and to be cheap, is an important basis for the elaboration and implementation of this measure to reduce their energy consumption or energy costs. Many energy poor people already save energy, but often try to do so by sacrificing living comfort. This can also be counteracted by selecting suitable measures.

Within the framework of the project, new formats will therefore be created through which energy poor households in Austria can be supported in a more targeted manner. The aim is not to create duplications, but rather to complement the existing offer of support by further developing what is already available. For this purpose, a cooperation with DIE UMWELTBERATUNG, which has been offering energy counselling for energy poor households in the target region of Vienna for many years, was entered into. Together, within the framework of the co-creation process in the REACT group, the concrete measure that would bring the greatest added value to advisory services for affected households will be worked out.

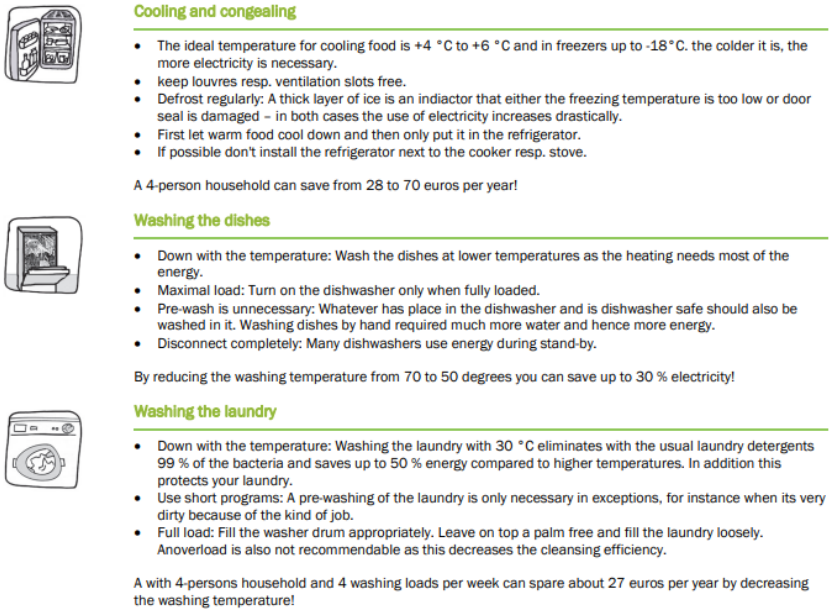
2.2.2 Changes to the measure resulting from the co-creation with the national REACT group

The work in the REACT group, with a close exchange with DIE UMWELTBERATUNG, has led to the decision to revise already existing information materials on various topics of energy saving in the household and to create new versions within the framework of ENPOR. However, these materials are intended to stand out from previous offers at this level by placing a clear focus on figurative language, thus offering a clear advantage for this hard-to-reach target group by conveying information with as few words as possible and a clear focus on illustrations and pictograms. This serves the purpose of making it easier to overcome linguistic hurdles or hurdles resulting from a lack of background knowledge. Although this measure brings benefits for energy poor households in general, it plays a particularly relevant role for those in the private rental sector, as those affected there can often only bring about energy savings or energy cost reductions through behavioural changes, as they lack the funds for investments and also the decision-making authority for more comprehensive measures as non-owners. This is also relevant insofar as the building stock in the private sector is on average less energy-efficient than in the social housing sector.

When developing such services, it is crucial to include the target group of the concerned households. However, this is usually a big challenge, because on the one hand there is of course the problem of identifying energy poor households and in a next step, to gain access to these households. In the REACT group, it was therefore also worked out that the involvement of the households should take place via the energy advisors of DIE UMWELTBERATUNG as intermediaries. The developed materials will be used by them in a pilot phase in their ongoing counselling practice in order to obtain direct feedback from energy poor people and to involve them in the development process. A comprehensive description of the entire working process with the REACT group can be found in ENPOR's Deliverable 3.1.

2.2.3 Description of the planned implementation process

The central element for the implementation of the measure is the development process for the new information and counselling materials. This process is conceived as an ongoing co-design process between the Austrian Energy Agency and DIE UMWELTBERATUNG. The content of the new information and counselling materials is based on existing information sheets from DIE UMWELTBERATUNG, which already uses them for its counselling services. The following graphic shows an exemplary excerpt from a paper on the subject of ventilation.



Cooling and congealing

- The ideal temperature for cooling food is +4 °C to +6 °C and in freezers up to -18°C. the colder it is, the more electricity is necessary.
- keep louvres resp. ventilation slots free.
- Defrost regularly: A thick layer of ice is an indiactor that either the freezing temperature is too low or door seal is damaged – in both cases the use of electricity increases drastically.
- First let warm food cool down and then only put it in the refrigerator.
- If possible don't install the refrigerator next to the cooker resp. stove.

A 4-person household can save from 28 to 70 euros per year!

Washing the dishes

- Down with the temperature: Wash the dishes at lower temperatures as the heating needs most of the energy.
- Maximal load: Turn on the dishwasher only when fully loaded.
- Pre-wash is unnecessary: Whatever has place in the dishwasher and is dishwasher safe should also be washed in it. Washing dishes by hand required much more water and hence more energy.
- Disconnect completely: Many dishwashers use energy during stand-by.

By reducing the washing temperature from 70 to 50 degrees you can save up to 30 % electricity!

Washing the laundry

- Down with the temperature: Washing the laundry with 30 °C eliminates with the usual laundry detergents 99 % of the bacteria and saves up to 50 % energy compared to higher temperatures. In addition this protects your laundry.
- Use short programs: A pre-washing of the laundry is only necessary in exceptions, for instance when its very dirty because of the kind of job.
- Full load: Fill the washer drum appropriately. Leave on top a palm free and fill the laundry loosely. Anoverload is also not recommendable as this decreases the cleansing efficiency.

A with 4-persons household and 4 washing loads per week can spare about 27 euros per year by decreasing the washing temperature!

Figure 1: Exemplary excerpt from one of the current information sheets for energy poor households on ventilation

These materials are available online in several languages in different editions on various topics of energy consumption in the household (electricity, heating, ventilation, etc.) and are used for consultations for socially disadvantaged and energy poor households.[2] The content of the materials is comprehensive and highly relevant to households, as they are relatively easy-to-implement actions that are usually free to relatively cheap to implement. However, they are quite text-intensive and therefore not always suitable for our target group(s).

It should be noted that many affected people are not digital natives (such as elderly people, of whom many women in particular are affected by old-age poverty). It is therefore important that the results can also be used well in physical form. Through the work in the REACT group, insight was gained that counsellors working with energy poor households have also seen the need for a revised range of materials for some time now. Unfortunately, there are often not enough resources to implement this.

For the cooperative design process for this measure, in principle, a separate small strand of the REACT group was formed, which was mainly concerned with bilateral coordination between the

[2] https://www.umweltberatung.at/spartipps-mehrsprachig

Austrian Energy Agency and DIE UMWELTBERATUNG. This involves ongoing coordination meetings and communication between the partners so that both sides can contribute their expertise. AEA contributes its expertise in awareness raising and behaviour change, especially in the context of energy efficiency, while DIE UMWELTBERATUNG contributes its practical experience and the actual realities, challenges and attitudes of the groups of people who suffer most from energy poverty.

The first step in this cooperative design process was to evaluate the existing materials and check the contents for their relevance and suitability for the target group. Technical details that are too in-depth and comprehensive can overwhelm or scare people who are not well versed in this field. Therefore, when developing the new materials, the main focus is on actions and behaviours that are easy to implement by households and do not require major investments.

After working out the contents for the new information materials, a first structuring and a rough design for the structure of the sheets for the later elaboration of the illustrations is made. Special emphasis is placed on conveying the selected messages with as few words as possible.

The next step is the concrete graphic elaboration of the defined content in the form of illustrations and pictograms. This is implemented by a professional graphic designer, whereby the entire elaboration process is closely monitored by AEA to ensure that the final product is suitable for the target group(s). Coordination takes place through regular meetings and continuous evaluation of the produced illustrations by the AEA in support of DIE UMWELTBERATUNG. The design is therefore always done step by step to allow for the most comprehensive quality assurance possible.

However, as already described, energy poor households are also to be directly involved in the development. This involvement is crucial to ensure the development of targeted interventions that meet their needs and challenges. The developed materials will be tested in a pilot phase directly in the counselling work of DIE UMWELTBERATUNG in the course of about 50 counselling sessions for energy-poor households in Vienna, as the province in Austria with the highest proportion of people at risk of poverty. As part of the evaluation process, care is also taken to ensure that households from the private rented sector make up as large a proportion as possible of those energy poor households involved in the testing of the new materials. This will enable an evaluation process that ensures that the contents developed are clear, comprehensible and also of a relevant nature for affected households. This step will take place as soon as the first complete draft of the three new infosheets has been completed. They will then be used by the energy advisors in active advisory services. There the households will also be asked for their feedback on the materials themselves. This will enable us to find out directly from those affected by energy poverty how they rate the comprehensibility and relevance of the new information sheets. The feedback is collected in the form of a conversation and not through a standardised survey, so that it can be better integrated into the counselling. The energy advisors document the feedback and send it to the Austrian Energy Agency after completion of the 50 consultations. The agency evaluates the feedback and, if necessary, revises the materials in cooperation with the graphic designer. The REACT group itself is also consulted as a further feedback loop. Stakeholders from the social and energy sector in Vienna will be invited to present the results of the elaboration process and to ask for their feedback and expertise on this topic.

After their finalisation, the newly developed information sheets will be communicated and made

freely available to various multipliers in Austria, both from the energy and social sectors. Another advantage of the redesign is also a lower language barrier, which reduces translation work. This way, they can be more readily used internationally by other organisations. The aim is also to ensure, through partner organisations, that the intervention is replicated nationwide.

2.2.4 Role of the REACT group in the implementation

For the implementation of this measure, the REACT group will have two main functions: (1) providing feedback from the participants' respective fields of expertise and (2) assisting in the dissemination of the results. The feedback will be collected primarily in the form of a workshop for this purpose, where the finalised drafts of the new information and counselling materials will be presented again within the REACT group. In particular, important stakeholders from the target region of Vienna, both from the social and the energy sector, are to be included. Together with the group, AEA will also explore further possible applications and other interested parties who could use the materials to support energy poor households. The materials will be publicly available online free of charge after completion. The REACT group is encouraged to use its communication channels to disseminate and share the materials directly with relevant stakeholders. Furthermore, the REACT group will also elaborate the learnings from the development process as well as recommendations for the political level for the implementation of further measures to alleviate energy poverty in Austria.

2.2.5 Implementation steps already carried out so far

The evaluation of the existing information materials and the selection of topics in consultation with DIE UMWELTBERATUNG has already taken place. The revised materials were divided into the following topics:

- Save electricity
- Save water
- Hot water
- Correct heating
- Healthy living
- Cool through the summer

For the development, we have reduced the already available information material into easy-to-implement energy-saving tips which are broken down into only three thematic info sheets. This took place within the framework of several small workshops. The process is described in more detail in D3.1 of the project. The overarching theme and the respective topics dealt with are shown in the following table. Each of the topics in turn contains several easy-to-implement energy-saving tips.

Table 2: Thematic structure of the newly developed information and advisory materials

Factsheet	Topics covered
Saving electricity - it's that simple	Saving electricity in the kitchen
	Saving electricity in the bathroom
	Saving electricity in the living room
Saving water - every drop counts	Saving water through my own behaviour
	Save water through small purchases
The right energy-saving tips for every season	Cool through the summer
	Saving energy in winter

At the moment, the AEA is in the graphic development process, in which the selected energy-saving tips are now being "translated" into illustrations in cooperation with a graphic designer. This process is to be completed in 2021 so that the first version of the new materials can then be tested in the pilot phase in energy consultations for energy poor households. The following graphic shows a first rough draft and should exemplarily show in which direction the revision will go, compared to the example of the old Infosheets from the previous illustration.

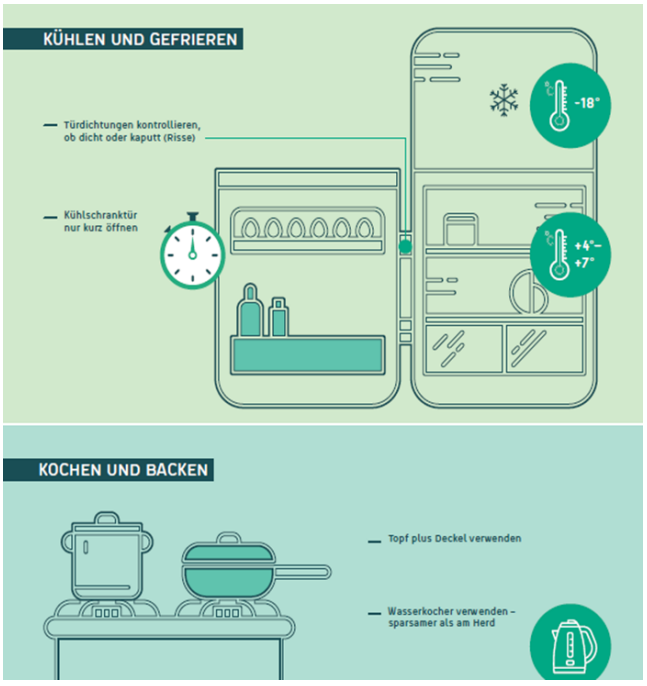


Figure 2: Example of the design direction of the new information and advisory materials for energy poor households

2.2.6 Risks and challenges in the implementation of the policy/measure

One of the key challenges in preparing the new materials is to ensure that they are suitable for the

different demographic target groups that are particularly affected by energy poverty. There is a risk that the new materials may not be comprehensible or may contain information that is not particularly relevant to households, and therefore may not be well received.

To counteract this risk, the implementation is being carried out in close cooperation with DIE UMWELTBERATUNG. Through their many years of work with energy poor households, they have gained comprehensive insight into the living conditions, problems and also wishes of the households concerned. Their continuous coordination and active involvement in the quality assurance of the measures will ensure that the new materials are relevant to practice from the very first draft. To minimise the risk of lack of acceptance by the target group, the direct involvement of energy poor households in the pilot phase for testing the materials is also relevant. Active use in the consultation and feedback from the households themselves ensures that the underlying objectives are met, the new materials have the desired effect on energy poor people and represent real added value for them. In this context, it is also important to consider that the willingness to accept support services is also based on trust. Many people fear stigmatisation when taking advantage of support services and therefore sometimes even refuse direct financial support. It is therefore very important for the implementation to have a local partner on board in the form DIE UMWELTBERATUNG, which enjoys a great deal of trust at this level due to its decades of work. In this way, we want to ensure that we meet the challenge of energy poverty as a multidimensional problem and do not see the whole challenge from a pure energy perspective, but can also take into account the social dimension and underlying problems.

Another challenge in connection with this measure is the acceptance of the materials by suitable multipliers, as direct transmission to households is not possible because of the difficulty of identifying them and then actually having access to the people. There is usually always a need for someone in the intermediary role (e.g. energy advisors, but also social aid organisations, etc.) to use and pass on these materials for assistance. It is therefore necessary to get them on board as well and ensure that there is also a use beyond the project. This can also include landlords, who play a relevant role especially for ENPOR. This involvement will be ensured by the REACT group, where the materials themselves will also be presented at a later stage. The partners of the Austrian Energy Agency will also be asked to share the new freely available content with related stakeholders.

2.3 Thermal renovation measures for energy poverty (grant for renovation) – AT

A support volume of 100 million Euro in 2021 and 2022 as part of the comprehensive renovation offensive currently being implemented by the Austrian government is intended to enable low-income households to cope with additional burdens arising from the implementation of renovation investments in the building sector eligible for funding under support programmes, thus reducing investment barriers in this segment of the population. The European Union's Recovery and Resilience Facility will also make additional funds available, part of which will be used specifically to support energy poor households in Austria. The exact form of this is currently still being determined. However, one of the aims is to provide a 100% subsidy for the replacement of fossil boilers with renewable alternatives for energy poor households, as they often do not have sufficient funds to cover the remaining costs of such a measure, even with the support currently available.

In this context, the Austrian Energy Agency is currently in consultation with public authorities to determine how ENPOR contribute to new support offers and to possibly enable a targeted focus on the private rental sector through accompanying measures implemented in the project. This will then be designed and implemented as a further process with its own smaller REACT group, with the responsible authorities as the central contact.

3 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN GERMANY

3.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

The German Federal Government does not consider energy poverty as a problem of its own but rather treats it within its wider approach of poverty alleviation via welfare state measures[3]. Heating expenses of welfare recipients are fully covered by the state as long as considered reasonable (cf. §22(1) of Volume II of the Social Code and §35(4) of Volume XII of the Social Code). In contrast, allowances for electricity costs are included as a variable lump sum (depending on household size and composition) within the transfer payment, the so called "normal requirement" (cf. §20 (1) of Volume II of the Social Code and §27a (2) of Volume XII of the Social Code). An analysis by the Consumer Association[4] has however shown that dedicated budgets within the "normal requirement" are insufficient to cover basic power needs (particularly with electric water heating[5]). In addition, households above the eligibility threshold (i.e., the working poor) do not have access to these benefits. As a consequence, despite high hurdles for energy suppliers to do so, around 289,000 power cuts have been recorded in 2019. While there is no Federal programme to tackle energy poverty, the Government financially supports non-state actors such as the Consumer Association or Caritas to provide energy saving advice to low-income households.

3.2 Heating related energy advice (training and information) – DE

3.2.1 Description of the measure prior to the ENPOR co-creation process

The most prominent measure to tackle energy poverty is the "StromSparCheck" (Energy Saving Check) project administered by Caritas in cooperation with the Federal Association of Energy and Climate Protection Agencies in Germany, in which long-term unemployed are trained to provide energy saving advice and low-cost technical devices free of charge to welfare recipients and low-income households. While the German Government fully covers the heating expenditure of welfare recipients, these need to cover electricity costs from a capped budget for overall living expenditure. Accordingly, the project mostly focuses on electricity savings, but has started to extend its activities to heating related advice in some locations. Public relations and advertising of the services involve local Job Centres and various other municipal and civil society organisations to reach the relevant target groups.

In a first household visit, the energy advisors provide a thermohydrometer as an immediate aid to the customers to monitor their indoor climate conditions. In a standardized data entry form, they record possible problems, technical data regarding the energetic condition of the apartment and its heating system, energy and warm water use, but also information on the advised household. The heating bills deliver important information to identify saving potentials. The consulted households are asked to provide these bills, but often they are not available. The communication, especially in the beginning, focuses strongly on technical conditions and possible problems. The

[3] https://ec.europa.eu/energy/sites/default/files/documents/de_final_necp_main_en.pdf
[4] https://www.verbraucherzentrale.nrw/sites/default/files/2018-06/VZ-NRW_Strompauschale-HartzIV_FINAL.pdf
[5] Despite an increased lump sum for these households.

information is collected in a central data base and analysed by the energy advisors. The results are being presented to the households in a second household visit one week later and form the basis for individual consulting strategies that may include the further provision of immediate aids like sealing tape, draught excluder or water-saving shower heads. In some cases, a third household visit can be realized and offers the chance to monitor the advisory impact in terms of achieved heat energy savings. However, due to considerable efforts required and against the background of lacking coverage of these monitoring visits from the project funding they are only irregularly implemented.

3.2.2 Changes to the measure resulting from the co-creation with the national REACT group

The co-creation in the REACT Groups helped to identify novel approaches to improve the data base to better identify saving potentials and monitor impacts of the heating advice and to increase its effectiveness. As a result, the decision was made to put more emphasis on comfort and to some extent health benefits within the communication and to support and strengthen the consulting contents through visual aids, of which parts enable better understanding and self-experience of proper room ventilation on indoor climate and others act as reminders for adapted heating and ventilation practices. Furthermore, the provision of additional immediate low-tech aids to better monitor hot water consumption was decided. It is expected that by these measures, target groups who carry little interest, background knowledge for the heating topic or have difficulties to grasp the issue, can gain a better understanding and will be motivated by illustrations, pictograms, reminders and gamification to change and adapt their behaviour and establish energy-efficient routines. It may also serve the purpose of making it easier to overcome language related hurdles. More specifically, the following policy improvements will be implemented:

1. Integration of comfort query in data entry form

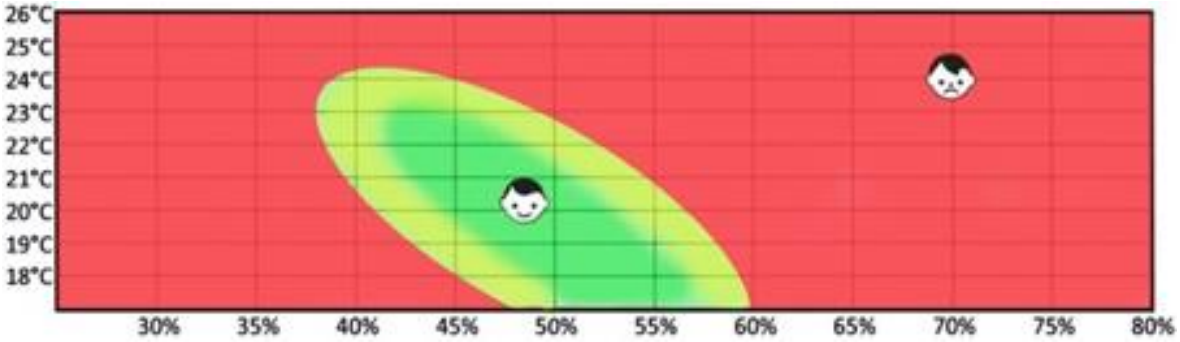
In order to link the dimension of comfort to the topic of energy efficient housing, the latter is framed not only as a technical issue but a matter of personal well-being. To this end, a query on the comfort perception of the household will be included at the beginning of the data record form. Due to a lack of financial incentives for efficient heating behaviour, this is meant to increase the intrinsic motivation of the advice recipient and thus secure sustained behavioural change.

2. Ventilation / heating media package, consisting of:

A) Ventilation graph: The ventilation graph schematically shows the air circulation of four different ways of ventilation: shock ventilation, cross ventilation, tilt ventilation with door open and closed. Using this illustration of four rooms, with blue and red arrows for fresh and stale air, and a related evaluation system with red stars where a maximum of five stars shows the most effective way of ventilation, the measure is meant to improve the information transfer on impacts of different ventilation methods using visual display, which could accommodate not only target groups that have difficulties with the native language. Originally, the graph has been used for the training of the programme´s energy advisors but is now planned to be handed-out to the visited energy-poor households.

B) Ventilation diary: Another element of the media package is a recording sheet with diagrams for room temperature and relative air humidity that will be handed out to the household.

The household is asked to document measured values from a thermohydrometer, before and 20 minutes after ventilation using and indicating differing ventilation methods. Different colours in the diagrams, supported by smiling and sad looking emojis signal to the user where optimal and non-optimal values lie in terms of avoidance of mould development and health risks due to dry air and airborne diseases. The aim is to strengthen the understanding for the issue of bad indoor climate and its interlinkage to personal well-being.



C) Visual reminders: As a last part of the media package, the policy improvement comprises transparent adhesive foils with ventilation instructions for windows and paper pendants for radiators with information on energy efficient use of heat controllers. Placing these reminders at proximity to the action they aim to inform, shall support the sustained implementation of advised heating and ventilation behaviour.

3. Shower alarm clock:

Lastly, an hour glass serving as a shower alarm clock will be part of the immediate aids for the consulted households. Using a non-electric device, with a strapping, is expected to ensure a long-lasting application and support energy-efficient behaviour.

4. Monitoring / Third household visit after one year

The improvement of the policy measures further includes a more systematic monitoring with an additional recording of data on the use of the media package and heating consumption, three months and one year after the first household visit.

3.2.3 Description of the planned implementation process

1. Integration of comfort query in data entry form

A query on the comfort perception of the target household will be included at the beginning of the data record form and lead to a different framing of the topic when the energy advisor speaks to the customer. The energy advisors then need to be informed and trained for the adapted communication process.

2. Ventilation / heating media package

The ventilation graph to be included in the advisory process has been used for the training of the programme´s energy advisors. It already exists and just needs to be reproduced and handed out to the visited energy-poor households by the advisors. This will happen in the first household visit. The ventilation diary will be implemented in two variants:

1) as a recording sheet with several of the described diagrams on it. Next to the diagrams will be small graphs from the ventilation graph showing the different ventilation techniques. Households will be asked to try out different techniques and then insert the results in the respective diagram, also adding information on the date, duration of ventilation and location of measurement.

2) In addition, a simplified design with only one diagram and the little graphs for the different ventilation techniques will be provided. Next to these graphs ticking boxes are inserted so that users can indicate what techniques they used. This second variant will be produced as a paper pad with 10 or 25 sheets. The recording sheet and pad will be explained, demonstrated, and then handed out to the customers in the first household visit for experimentation until the second visit (and beyond).

The transparent adhesive foils with ventilation instructions for windows and the paper pendants for radiators with information on energy efficient use of heat controllers both need to be newly designed and produced. The energy advisors will then distribute them to the advised households in the first household visit.

Regarding all three components, the energy advisors need to be trained how to best integrate them into their advice practice. Adequate amounts of time for additional explanations and

demonstration of the materials as well as additional data collection need to be included into the advisory process.

3. Shower alarm clock

The alarm clocks will be purchased. The energy advisors will provide them to their customers as an immediate aid.

4. Monitoring / Third household visit after one year

In order to monitor the adoption of the new advice elements by the advised households and their impact in terms of knowledge transfer, behavioural changes and improved wellbeing, a concept and corresponding data collection instruments need to be developed. There will be several data collection activities starting with the first household visit. Here, data on indoor climate, ventilation and heating behaviour, comfort levels, presence of mould and the provided material will be collected by the Caritas energy advisors. In the second household visit, a first collection to assess short-term impacts will be implemented, reviewing the use of and entries into the ventilation diary as well as the perception and use of the other provided materials. Three months after the first visit, the energy advisors will call the households by phone and ask about (sustained) changes in terms of in ventilation and heating behaviour, perceived comfort levels, their use of the provided material and the existence of a new heating bill. After one year, the energy advisors will make a third household visit to examine changes to the energy consumption and to record possible long-term impacts of the new approach. A further training for the energy advisors and finance for the additional outlay need to be secured.

5. Pilot phase

The described changes of the policy measures will be tested in a pilot phase with 50 households, starting from November 2021. Together with the energy advisors, the instruments will be discussed and evaluated. If necessary, adaptations will be realized in consultation with the advisors and the REACT group members.

3.2.4 Role of the REACT group in the implementation

Apart from the implementing partner Caritas, the REACT Group members themselves do not have an active role in the implementation of the policy. They will however be engaged to discuss the results and possible adaptation options after the pilot phase and/or after the first heating period.

3.2.5 Implementation steps already carried out so far

A preliminary design for the material has been developed by the project team in exchange with the implementing partner Caritas. The pilot material has been copied (ventilation graph), is currently being produced (ventilation diary, paper pendants, transparent adhesive foils), or has been purchased (shower alarm clock). A monitoring concept has been developed including adaptation of the general data collection form used in the first household visit and the design of a new survey for the following monitoring activities in the second visit and after three months / a year. The energy advisors have been informed and trained on the upcoming changes.

3.2.6 Risks and challenges in the implementation of the policy/measure

Currently, mainly the following risks are perceived in the implementation of the policy/measure:

1. The content, concept and use of the ventilation diary could be too complicated and overstrain the target group (inserting values into the diagrams, language problems).
    - Risk mitigation: The text is reduced, images are used to visualize the content, symbolic colours (green/red) are used to give an orientation.
2. The coloured paper pendants for the heating radiator and adhesive foils could disturb the customers aesthetic sensitivity in their living style (colour, size) and not be accepted by him/her.
    - Risk mitigation: Only little, light and calming colours are used.
3. Even, if implemented, households can ignore the visual reminders so that they remain without effect.
    - Risk mitigation: Emphasize the link on comfort and health to strengthen intrinsic motivation.
4. Lack of interest and motivation to change the own behaviour.
    - Risk mitigation: Emphasize the link on comfort and health to strengthen intrinsic motivation.
5. Alarm clock could be functionally impaired.
    - Risk mitigation: Use a non-electronic version that is robust and needs no change of batteries (“predetermined breaking point”).
6. Poor implementation by the energy advisors regarding the adapted communication, data recording or provision of the newly introduced material and aids.
    - Risk mitigation: Early involvement and repeating training and information Overall, the implementation of the adapted measures will be tested in a pilot phase. Possible changes in the implementation process will be discussed after the pilot phase evaluation.
7. Loss of people between the second and third household visit, due to the long-time window.
    - Risk mitigation: In the preceding contacts, emphasis is placed on building trust with the households and clearly communicating the added value of the measure for them.

3.3 Pre-paid metering EnergieRevolte (training and information) – DE

3.3.1 Description of the measure prior to the ENPOR co-creation process

EnergieRevolte is a subsidiary of Stadtwerke Düren, a municipal utility in the West-German state of North Rhine Westphalia. Their customers are offered an innovative model of prepaid metering and free switch from existing electricity provider to a digital prepaid meter that can be monitored by customers and charged just-in-time via a smartphone app or online interface. This allows them to better control their electricity consumption and electricity bills. The app allows the tracking of customers' electricity consumption in 15-minute intervals. Currently, about 1,200 customers are using the app, not only in North Rhine Westphalia but also in other areas such as Berlin and Frankfurt, including a high proportion of low-income and energy poor households. Within the ENPOR project, the app will be further developed to provide additional utility to customers in terms of improving knowledge transfer about drivers and possible means to reduce unnecessary electricity consumption. In doing so, a close exchange with the target group (i.e., the app users) is envisioned, which will be achieved by implementing regular feedback loops within the co-design process.

3.3.2 Changes to the measure resulting from the co-creation with the national REACT group

The final proposal for the suggested improvements of the targeted pilot programme will be finalised after the completion of the co-design process, which still took place during the preparation of this report. An updated version of this report will be published before the end of the project and will include the results of the co-creation process as well as implementation details.

3.3.3 Description of the planned implementation process

The implementation process will be decided after finalization of the co-design. Roughly, it will consist of a refinement phase to clarify details of the identified app improvement, the involvement of customers as part of a rapid prototyping exercise to gather additional feedback on the developed improvements and the technical implementation of the final co-design results. As a next step, the newly developed functions of the app will be rolled out, possibly among only a part of the customers within an experimental setting. This way, using a control group, the impact in terms of achieved energy savings and knowledge transfer can be more reliably assessed.

3.3.4 Role of the REACT group in the implementation

The REACT Group members role in the implementation of the measure is still unclear. Possibly, there will be new cooperation to better connect different services for households to improve their financial situation. In any case, the REACT group members will be engaged to discuss the results and possible adaptation options after the pilot phase and/or after the first heating period.

3.3.5 Implementation steps already carried out so far

So far, a survey among current users has been designed and implemented by the project team and EnergieRevolte in order to gain insights regarding their user behaviour, current effects of the app regarding knowledge transfer, behavioural adjustments and (estimated) cost savings, general assessment of the app and its functions and feedback on possible options to further develop the app. The latter ideas had been developed in bilateral exchange between EnergieRevolte and WI

and amended with an additional proposal from a REACT group member. Of the 600 contacted users, 118 participated in the survey, of which 104 users completed it, providing a sound information base for a targeted further development of the app. In addition, the survey results will serve as a baseline to evaluate the impact of the further developed application regarding the formulated co-design targets.

3.3.6 Risks and challenges in the implementation of the policy/measure

The risks and challenges related to the implementation will be amended after finalisation of the co-design.

4 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN ESTONIA

4.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

The Estonian national renovation grant has been identified by the legislator as one of the suitable policies for reducing energy poverty. The national renovation grant was established in 2010 as a public initiative under the Estonian financial institution KredEx that became a grant holder. It was established as a temporary measure for supporting the market uptake of the liberal retrofitting economy of a fully privatised Estonian housing market. During the initial support period, the instrument was proven to be successful, and it was prolonged in 2014. In 2019 some adjustments for its focus and its function were made and it was prolonged for a second time. Within the first 10 years of its operation, the grant helped to renovate 1,114 buildings that will reduce the emissions by 140,000 tons of CO_2. It has been considered as a good example as a public initiative on EU level. At the same time, this grant has shortcomings (see 4.2.1) that should (and partially have been) addressed for being a well-balanced public policy.

4.2 National renovation grant – EE

4.2.1 Description of the measure prior to the ENPOR co-creation process

The Estonian national renovation grant[6][7][8] has probably been one of the most influential tools that has been used for mitigating the long-term effects of energy poverty in Estonia. Analysing, learning from and improving the energy poverty dimension of the national renovation grant is the focus of ENPOR in Estonia. Redesigning the retrofitting policy to better mitigate the risks of energy poverty will hopefully help to avoid or reduce these shortcomings in the future.

The shortcomings of the Estonian national renovation grant can be divided into three categories according to our observations:

1. Financial shortcomings, such as heavy reliance on the financial capacity of the building associations and by this, the owners,
2. Administrative shortcomings, such as the lack of stability, and
3. Technical shortcomings, such as the support of partial renovations with only a limited effect on the energy efficiency.

The fiscal challenge of deep retrofitting is maintaining the balance between the living costs before and after the retrofitting. With the help of cheap EU housing loans, the balance has been set just about right with compensating some increase on the total housing costs with a significant upgrade on the indoor quality and comfort level (not to mention the increased real-estate value). However, the grant relies on the financial capacity of the building owners (about 60-70 %) and this capacity is not always there. The initial design, based on the cheap house loans offered by several private

[6] https://kredex.ee/en/services/ku-ja-kov/renovation-support
[7] https://kredex.ee/en/services/ku-ja-kov/renovation-grant-2019
[8] https://kredex.ee/en/services/ku-ja-kov/renovation-grant-2020

banks, has had its own weaknesses. With criteria for the loan applications, the banks are superimposing their own set of conditions and thus creating a barrier for the buildings in the areas that do not witness the increase of real-estate value as an outcome of the retrofitting. With no way to meet the loan criteria, these areas are locked out of using the public grant and, because of this, are becoming the retrofitting dead-zones, further amplifying the regional inequity in living conditions and energy improvements. In 2020, the situation has been improved with providing a state financed loan service for the applications rejected by the private banks.

4.2.2 Changes to the measure resulting from the co-creation with the national REACT group

The following ideas and proposals were developed as an outcome of the co-creation process with the REACT group. These also go beyond the scope of the project and present general possibilities for improvement and possible measures for political decision-makers in Estonia.

1. Emphasizing the importance of renovation capacity in regulations and legislation, including:

   1.1 Emphasizing the renovation capacity and the opportunities for its development, which would open new opportunities to increase the renovation of apartment buildings. Renovation capacity itself should be a priority, instead of repairing one roof or façade, one should improve the whole building.

   1.2 Boosting the full renovation of historic buildings.

2. Increasing the capacity of the parties for participating in the renovation process, including:

   2.1 Increasing the role of tenants in the apartment building renovation process and including them into the decision-making process together with the owner of the rental apartment (or as its representative).

   2.2 Providing renovation information also for non-native speakers.

   2.3 Establishing a dedicated energy agency for supporting the renovation of the apartment buildings and other energy transition activities in the main non-native speaking region Ida-Virumaa. Tartu Regional Energy agency can be used as an example.

   2.4 Promoting wider use of digital tools in the housing association participation process to overcome the bottlenecks in these processes.

3. Increasing renovation capacity with the help of the national renovation grant, including:

   3.1 Financing for the state renovation grant for at least 10 years.

   3.2 Allowing the related salary of an appointed board member of building association to be covered by the national renovation grant.

   3.3 Increasing the inclusion of energy poverty target groups into the national renovation

grant and evaluate its impact to energy poverty.

3.4 Supporting only the full renovation of apartment buildings using the national renovation grant and creating additional measures for supporting the building associations lacking the renovation capacity in the process of full renovation.

3.5 Supporting the cluster renovation, with the necessary simplifications for joint procurement and measures to improve the capacity of associations.

3.6 Supporting the district-wide multi-building renovation, together with the simplifications needed for joint procurement, measures to improve the capacity of associations and support measures for improving the area between buildings.

3.7 Supporting the foundation-wide multi-building renovation, together with the simplifications needed for joint procurement, measures to improve the capacity of associations and support measures for improving the area between buildings.

4. Increasing renovation capacity in the City of Tartu

4.1. Development of a major district-based renovation project in Tartu that will create conditions for the development and implementation of a renovation plan covering the entire district (or other urban spatial unit).

4.2. Applying for European ELENA grant to support district-based renovation in the district of Annelinn.

4.3. Establishing full package renovation consulting services in Tartu (aka one-stop-shop).

4.4. Setting up community agreements with organizations and associations that contribute to increasing the volume of full renovations of apartment buildings. The Community Agreement is an exciting engagement initiative initiated by the City of Tartu, which calls on organizations operating in the city to support the city's sustainable goals.

4.5. Initiating a dialogue between tenants, real estate companies and universities in City of Tartu in order to map the problems of the rental market and prevent their negative impact.

4.2.3 Description of the planned implementation process

TREA will increase the capacity of the policy makers for understanding the negative effects of energy poverty and to address these in a more direct manner. On this basis, new elements will be added to the Estonian national renovation grant to enable improvements for this target group as well. As an outcome, the national refurbishment policy will be more usable for improving the conditions of energy poor households. Policy recommendations for the national legislation will emerge from the work of the REACT group and will touch upon social aspects, financial aspects (low real-estate value), demographics, geographical, infrastructure and others. The improvements will be discussed with the policy maker (Estonian Ministry of Economic Affairs and Communication) and will be tested in City of Tartu during the ENPOR project. TREA will support the associations of

tenants and landlords during and after the refurbishment by providing technical expertise, negotiating with service providers, monitoring consumption, educating tenants on everyday energy saving measures, etc.

4.2.4 Role of the REACT group in the implementation

During the co-creation meetings, the members of REACT groups helped to identify the shortcomings of retrofitting policy including problems related to the national renovation grant. Policy suggestions were also analysed and discussed among the group members.

4.2.5 Implementation steps already carried out so far

An expert group consisting of the representatives from the whole renovation service chain has been set up as a REACT group and it has started to analyse the situation. Open dialogue about energy poverty is the first step in the process of moving towards the measures mitigating the effects of energy poverty. The expert group has formed initial suggestions for policy development that are described as part of this report.

4.2.6 Risks and challenges in the implementation of the policy/measure

The concept of energy poverty is fairly new and has not been fully established in European and national legislation. There is no fixed definition for energy poverty, its impacts are unknown and so are the effects of mitigation measures. More importantly, there is a lack of research and analysis for this topic in EU countries that could be used for theoretical basis for the policy development. In the context of increasing energy prices and the increasingly vocal political opposition for energy transition it is difficult to convince the stakeholders to allocate time, money, and effort into the policy development. The unpredictability, novelty of topic and the lack of previous work are the main risks for the policy implementation.

One of the major challenges associated with energy poverty is its multidimensional nature. It is a problem area that includes both social aspects and technical aspects regarding energy efficiency and therefore requires an interdisciplinary approach. However, this often proves to be a challenge in implementation, as experts from both fields often lack practical access to the other. This is also due to a lack of common terminology and methods. In our experience, this also proves to be difficult in Estonia, where it is necessary for experts to familiarise themselves with new topics and problems whose solution turns out to be complex. Bridging the gap between these working fields therefore proves to be a challenge time and again and it could play a substantial role in the policy implementation process.

The second risk of unfamiliarity is related to the existing division of the labour and separation of the subjects in public administration. Poverty and energy are topics under very different administrations, having different formalities, institutional practices, and funding. Currently, there is no direct cooperation between these institutions, but synergy effects could be used and interdisciplinary approaches implemented. However, there are still no plans at the level of public administration to become active in this direction. Nevertheless, risks related with initiating cooperation and redefining the territories also have the potential to hinder the progress of

implementing energy poverty policies.

Addressing the core problems like financial, administrative, and technical shortcomings carries the risk of being eventually too ambitious and, in combination with other risk factors, may require more time and resources for the progress to emerge. Especially overcoming structural problems like the lack of financial capacity among the private owners and renters can be challenging.

5 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN GREECE

5.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

Targeted policies are implemented in Greece in order to address the energy poverty phenomenon. The draft National Energy and Climate Plan (NECP), which was prepared at the end of 2018, presents a brief presentation of the main implemented measures. Firstly, the Social Household Tariff, which was introduced to protect vulnerable consumer groups providing discounts for the consumed electricity, is one of the most important policy measures to tackle energy poverty. The Solidarity Services Tariff has a similar objective for the case of legal entities of public law of a privileged nature, religious-charitable institutions, and specially certified private non-profit bodies. At the same time a one-off special aid was provided in 2017 to support low-income consumers who have been disconnected from the electricity grid due to overdue debts, facilitating the fulfilment of their energy needs. The protection of vulnerable household customers from cutting-off the electricity supply was applied through the Universal Service regime, while the provision of a heating allowance to certain categories of consumers has been adopted in order to purchase heating oil, addressing the considerable increase of its final price. Moreover, energy efficiency improvement programmes have already been launched at national level for low-income households since 2011 such as the 'Energy Savings at Home' programme. Finally, special provisions for the confrontation of energy poverty were promoted within the framework of the Energy Efficiency Obligation (EEO) scheme by increasing the delivered energy-saving units by a factor of 1.4. Last but not least, incentives are foreseen for RES installations by energy communities in order to satisfy the energy needs of their members and vulnerable consumers or citizens through the application of a virtual net metering scheme.

The alleviation of energy poverty has been specified as an essential objective within the framework of the final NECP[9], which was submitted in the end of 2019. A quantitative target has been set for reducing the energy poverty at least by 50 % and 75 % in 2025 and 2030 respectively in comparison to 2016, while the foreseen level in 2030 should be below the EU average in 2030. Moreover, targeted policy measures will be designed and implemented so as to tackle effectively the phenomenon of energy poverty, while emphasis will be given on the improvement of comfort conditions and the avoidance of the triggered health problems. Finally, the compilation of the Action Plan for the Confrontation of Energy Poverty is foreseen also. Lastly, additional measures will be initiated according to the provision of the NECP for protecting consumers along with the planned measures for tackling energy poverty.

The Action Plan for the Confrontation of Energy Poverty was prepared in September 2021 specializing the policy measures so as to ensure the fulfilment of the specified targets within the NECP. Moreover, the definition of energy poor households was determined. Specifically, a household is characterized as energy poor in the case that both of the following conditions are simultaneously fulfilled:

[9] Source: https://ec.europa.eu/energy/sites/default/files/el_final_necp_main_en.pdf

- Condition I: The total final energy consumption of the household is lower than the 80 % of the minimum final energy consumption, which is required theoretically for covering the thermal needs.

- Condition II: The total normalized income of the household, based on the number of the household's persons according to the equivalence scale of OECD is lower than 60 % of the mean income of all the households in Greece.

Totally, nine policy measures have been integrated into the Action Plan for the Confrontation of Energy Poverty to fulfil the specified targets. The proposed policy measures have been classified into the following three categories:

I. Measures for the short-term protection of energy poor households

- M1: Improvement of the Social Tariff

- M2: Provision of energy card to energy poor households

- M3: Regulatory measures for the protection of energy poor households

II. Measures for the energy upgrade of the energy poor households' buildings and the promotion of RES

- M4: Energy upgrade of the energy poor households' building including the installation of RES systems

- M5: Provision of incentives to energy poor households within the framework of the Just Transition Plan

- M6: Provision of incentives to energy poor households within the framework of the EEOs

- M7: Provision of incentives to energy poor households within the framework of Energy Communities

III. Information and awareness-raising measures

- M8: Conduction of information and awareness-raising measures within the framework of the EEOs

- M9: Conduction of information and awareness-raising measures implemented centrally at national level

Finally, a holistic monitoring mechanism has been developed based on the combination of a bottom-up and a top-down procedures. The bottom-up approach will be performed through the statistical model, which has been developed to identify the energy poor households taking into consideration various parameters, while the top-down monitoring will be applied through the

Greek Observatory of Energy Poverty. The central role for carrying out the foreseen monitoring procedures is assigned to the Working Group, which has been established for monitoring and assessing the progress of the NECP with the following duties:

- Management, evaluation, and improvement of monitoring mechanism.
- Evaluation of the implemented policy measures in the period 2021-2030.
- Formulation of proposals either for improving existing policy measures or designing and implementing new more efficient ones.
- Preparation of the annual progress report.

Article 19 of the Directive 2012/27/EE was harmonised into the national legislation with Law 4243/2015 as amended by Law 4843/2021 according to the provision of Directive 2018/2002/EE. No specialized policies and measures were introduced for the confrontation of split incentives problems. It should be noted that the financing of landlords for the energy upgrade for their rented houses was eligible under the prerequisite that it is utilised as a permanent residence with the framework of the "Exoikonomo-Autonomo" programme.

5.2 Energy efficiency obligation scheme (EEOS) and energy upgrade of buildings (grant for renovation) – GR

5.2.1 Description of the measure prior to the ENPOR co-creation process

The first pilot policy in Greece is the national programme for the energy upgrade of residential buildings. The main objective of the "Energy upgrade of buildings" programme is to provide financial aid to energy poor households for improving the energy efficiency of their buildings. The respective programme has been integrated both in the National Energy and Climate Plan (2019) and the National Action Plan for the Confrontation of the Energy Poverty in Greece (2021). It is the continuation of the 'Energy Savings at Home' programme focused on energy poor households. The 'Energy Savings at Home' programme started in 2011 providing financial incentives to households, including low-income households, so as to replace the window frames and install shading systems, to install thermal insulation in the building envelope, including the flat roof/roof and 'pilotis' and to upgrade the heating and hot water system. The financial aid consists of capital subsidy and low interest loans including the subsidy of the interest rate and the coverage of the energy inspections' cost. The measure has continued until 2021 via the "Exoikonomo-Autonomo" programme after continuous improvements enabling the implementation of the most cost-effective interventions to improve the energy efficiency of the residential buildings.

The EEOs constitutes the second pilot policy in Greece. The EEOs started in 2017 imposing an obligation to achieve a specific target through energy efficiency interventions. The conduction of energy efficiency interventions to energy poor households is also foreseen. The EEOs will undertake also an essential role not only for promoting energy efficiency generally, but for contributing to the alleviation of energy poverty as outlined both within the National Energy and Climate Plan (2019) and the National Action Plan for the Confrontation of the Energy Poverty in Greece (2021).

The most important challenges and barriers, which were addressed during the re-design of the pilot policies, include:

- Design policies and measures focused exclusively on energy poor households and not to low-income households.
- Facilitate the identification and engagement of energy poor households into the planned policies and measures.
- Provide targeted incentives to tenants within the framework of existing policies and measures.
- Integrate the problem of energy poverty in the private-rented houses during the national definition of energy poverty.
- Provide specific incentives for tenants/landlords within the framework of the national programme for the energy upgrade of residential buildings.
- Foster the conduction of technical measures within the framework of the EEOs additionally to the existing information and awareness-raising measures.
- Establish a specialized mechanism for monitoring the triggered impacts on the alleviation of energy poverty from the implemented policies and measures.

5.2.2 Changes to the measure resulting from the co-creation with the national REACT group

The proposal for the case of the "Energy upgrade of buildings" programme, as resulted by the application of the co-creation process within REACT group meetings, foresees the inclusion of the tenants as a distinct social criterion, while the provided public aid must be calculated taking into account the shared benefits among landlords and tenants.

According to the proposed design of the recently announced "Energy upgrade of buildings" programme, a specialised benchmarking system will be developed taking into account specific energy and social criteria for the evaluation and ranking of the submitted applications. The energy criteria consist of the expected energy savings, the heating degree-days, the energy class of the building before the energy renovation, the construction age and the households' income. The social criteria comprise the existence of long-term unemployed members, disabled members, children and single-parent families. It should be noted that a specific weight will be assigned to each criterion in order to calculate the final score of each submitted application separately. Moreover, a special provision for the rented buildings has been introduced foreseeing the provision of 40 % subsidy to the landlords. Finally, a dedicated portion of the foreseen public budget will be allocated to the energy poor households within the framework of the new programme fostering the implementation of targeted policies for tackling energy poverty in compliance with the targets of the Action Plan for the Confrontation of the Energy Poverty in Greece.

Another contribution of the co-creation process was the insertion of a targeted reference regarding the split incentive problem into the Action Plan for the Confrontation of the Energy Poverty within the measure M4, which refers to the energy upgrade of the energy poor households' buildings in the period 2021-2030.

Correspondingly, the proposal for the case of the EEO scheme foresees the conduction of targeted information and awareness-raising activities by the energy suppliers providing useful and effective guidance to energy poor households, which dwell in rented- buildings, so as to confront the phenomenon of energy poverty. Specialised information material and interactive tools can be utilised providing recommendations for the effective alleviation of energy poverty, while dedicated training programmes can also be organised for enhancing the current knowledge of the energy poor households. Finally, the conduction of simplified energy audits can foster the identification of the most cost-effective energy efficiency interventions facilitating the achievement of minimum level of comfort. It should be noted that the energy suppliers can also promote the materialization of low-cost energy efficiency interventions, such as the promotion of energy efficient lighting systems and lamps, the installation of heat pumps and solar thermal systems for the production of hot water etc.

5.2.3 Description of the planned implementation process

The “Energy upgrade of buildings” programme will be launched until the middle of November 2021 with the publication of the finalized guidance note, while the procedure for receiving the applications of the eligible households will be initiated until the end of November 2021. A predefined period for submitting the applications will be given to the interested energy poor households, while after its completion the evaluation phase will be carried out. The completion of the evaluation phase is foreseen in the middle of 2022, giving the opportunity to estimate the actual number of the energy poor households, who dwell in rented residences and manage to be supported by the pilot policy.

The EEO scheme the Ministerial Decision, which will specify the operational framework in the period 2021-2030, will be adopted until the end of November 2021. According to the pre-notified version of the operational framework within the framework of the consultation procedure with the obligated parties, the energy-saving units delivered by technical measures will be increased by a factor of 1.4, while the respective increase for targeted information and awareness-raising measures will be equal to 1.1. The design of targeted information and awareness-raising measures by the obligated parties is expected to be finalised within the first semester of 2022, while their implementation will be completed until the end of 2022. Finally, the procedures for measuring, monitoring, controlling and verifying the delivered energy savings will be accomplished by the respective administrator until the end of the first trimester of 2023.

5.2.4 Role of the REACT group in the implementation

The contribution of the REACT group consists of the following activities within the framework of “Energy upgrade of buildings”:

- Provide guidance to the interested households about the critical steps during the application process maximizing the possibility for an energy poor household to be supported by the programme.
- Develop a methodology for quantifying the delivered benefits both to landlords and tenants according to the provisions of the programme.

- Monitor the progress of the programme in relation to the alleviation of energy poverty in the PRS.
- Assess the effectiveness of the programme in relation to the alleviation of energy poverty in the PRS.
- Formulate recommendations for the re-design of the programme in relation to the alleviation of energy poverty in the PRS.
- Assist the dissemination of the triggered results by the implemented programme.

Similarly, the REACT group within the framework of the EEO scheme can contribute to the materialization of the following activities:

- Provide guidance to the development of targeted information and awareness raising material according to the needs and priorities of the energy poor households.
- Monitor the progress of the scheme in relation to the alleviation of energy poverty in the PRS.
- Assess the effectiveness of the scheme in relation to the alleviation of energy poverty in the PRS.
- Formulate recommendations for the re-design of the scheme in relation to the alleviation of energy poverty in the PRS.
- Assist the dissemination of the triggered results by the implemented scheme.

Generally, it is planned to organise at least three REACT group meetings in order to ensure the accomplishment of the before-mentioned activities and facilitate the effective implementation of the pilot policies in Greece.

5.2.5 Implementation steps already carried out so far

The implementation of the targeted pilot policies has not started yet.

5.2.6 Risks and challenges in the implementation of the policy/measure

The difficulty to identify and support finally the energy poor households that dwell in rented residences constitutes the main challenge during the implementation of the “Energy upgrade of buildings” programme. Obviously, the provision of 40 % subsidy to the landlords is indisputably towards the right direction without guaranteeing in any case that it will contribute to the radical alleviation of the energy poverty problem. In this case the inclusion of the tenants as a distinct social criterion should be applied during the re-design of the programme facilitating the radical eradication of the problem.

Moreover, the development of a methodology for quantifying the delivered benefits both to landlords and tenants according to the provisions of the “Energy upgrade of buildings” programme is rather challenging due to the fact that the required information about the delivered energy savings and the costs of the planned energy efficiency interventions is not available. Obviously, the participation of representatives from the authority, which is responsible for the coordination of

"Energy upgrade of buildings" programme will ensure the provision of the required data. It should be noted that the calculation procedure can be complex, while it is essential to ensure that all the calculations will be implemented through a transparent and simplified approach.

Last but not least, it is critical that the implementation of the "Energy upgrade of buildings" programme does not to lead to the appearance of the "renoviction" phenomenon (the eviction of all of a building's tenants on the grounds that a large-scale renovation is planned) in Greece. The continuous monitoring of the programme is imperative, while precautionary measures should be carried out in order to avoid both the appearance and the gradual magnification of the phenomenon.

For the case of the EEO scheme, the difficulty to design targeted information and awareness-raising material and tools is considered as the most important risk due to the limited knowledge about the energy poverty phenomenon and difficulty to approach energy poor households. Therefore, it should be ensured that the developed material and tools will be suitable according to the needs and priorities of the energy poor households in the PRS. The involvement of both energy and communication experts will facilitate the development of understandable material and use-friendly tools and the effective conduction of the planned measures.

The development of a methodology for the effective monitoring of the pilot policies' progress and the evaluation of their effectiveness in regards to the alleviation of energy poverty in the PRS should be facilitated with the provision of the required data from the involved authorities. The delivered multiple benefits should be quantified, while the participation of the energy poor households into the pilot policies will be facilitated in the case that trust will be created among all the affected parties and the acceptance of the planned policies and measures will be unanimous by all the involved stakeholders. The alleviation of energy poverty should constitute a mutual target of all citizens and only the initiation of targeted polices and measures will ensure the confrontation of the energy poverty problem not only generally but more focused on the PRS.

6 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN CROATIA

6.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

Baseline of energy poverty in the private rented sector in Croatia

According to Eurostat 2019, 89.7 % of the Croation population lived in a household owning their home while the remaining 10.3 % lived in rented housing.

Table 3: Croatia's tenure type

	Owner [%]	Tenant [%]
Croatia	89,7	10,3
EU 27	69,8	30,2

Observing the indicator by tenure type (owners, private tenants, and social housing) from Eurostat's EU-Statistics on Income and Living Conditions (EU-SILC) in 2017, problems with arrears on utility bills were significant in social housing, followed by householdes inhabited by owners, then private tenants. The inability to keep their house warm was significant for private tenants and in the social housing sector, followed by owners.

Table 4: Croatia's energy poverty indicators by tenure type

		EU 27 [%]	Croatia [%]
Average	arrears on utility bills	7	21
	inability to keep their house warm in social housing	7,8	7,4
Owners	arrears on utility bills	5,6	20
	inability to keep their house warm in social housing	6,4	6,7
Private rents	**arrears on utility bills**	**9**	**15,2**
	inability to keep their house warm in social housing	**10**	**17,1**
Social housing	arrears on utility bills	13	33,6
	inability to keep their house warm in social housing	13,2	13,4

Generally, apartments or houses for rent were mainly out of policy focus due to lack of national data and so-called free-based tenancy, which always includes two separate families/households in the same dwelling. Those groups have not been targeted yet and thus there are no statistics on extended families living in a joint household.

An unregulated market and unresolved property legal relations contribute to the problem of lack of national data and the lack of transparency of the market. Additionally, in Croatia, where the tourism sector is one of the most important branches of the economy, private rent as a short-term rent brings large profits to landlords and creates severe problems for tenants, primarily in the Adriatic region of Croatia due to many leases being cancelled during the summer. This problem mostly affects students studying at colleges located on the Adriatic coast.

Policy framework for energy poverty in Croatia

In Croatia, energy poverty is not clearly defined, nor general criteria or methodologies for determining energy poverty have been established so far. Nevertheless, energy poverty exists as a term in the Energy Efficiency Act.

The definition of an energy-vulnerable household in the Regulation on criteria for acquiring the status of vulnerable energy customers from networked systems does not take into account all aspects of vulnerability, and the status of vulnerable energy customer only applies to electricity but would be more beneficial if it included other forms of energy (e.g. heat) as well. In addition, Croatia does not currently have an established system for monitoring energy poverty, which is why there is no clear insight into the real situation of energy-vulnerable households.

Table 5: Croatia's policy framework for energy poverty

Key national policies	Name of policy affecting energy poverty	Coordinating authority	Short description
Energy Act (Official Gazette, No. 120/12, 14/14, 102/15, 68/18)	Regulation on the monthly allowances for vulnerable energy customers, the manner of participation in reimbursement of the energy costs of the beneficiary and the actions of the competent social welfare centres (Official Gazette, number: 102/2015)	Ministry of Labor, Pension System, Family and Social Policy	• Co-financing of electricity costs to a maximum of 200 HRK per month (26.39 Euro per month) • Solidarity fee paid by electricity customers from the household category in the amount of 0.03 HRK for each kWh of electricity consumed
Energy Act (Official Gazette, No. 120/12, 14/14, 102/15, 68/18)	Regulation on the criteria for acquiring the status of vulnerable energy customers from networked systems (Official Gazette, number: 120/12, 14/14, 95/15, 102/15, 68/18)	Ministry of Economy and Sustainable Development	• Definition of the status of "vulnerable customer"
Energy Act (Official Gazette, No. 120/12, 14/14, 102/15, 68/18)	Regulation on the criteria for acquiring the status of a protected customer in conditions of crisis in gas supply (Official Gazette, number: 65/2015)	Ministry of Economy and Sustainable Development	• Definition of "protected customer" • Regulation to protect certain categories of end users of gas in crisis in gas supply → required quantities of gas for all protected customers and allocates them to suppliers
Energy Act (Official Gazette, No. 120/12, 14/14, 102/15, 68/18	2015 Agreement of Cooperation in Combating Energy Poverty Measures	Ministry of Economy and Sustainable Development	The agreement on cooperation in measures to combat energy poverty by which HEP took over the costs of solidarity compensation, was established by

			agreement between the Government of the Republic of Croatia and suppliers and may expire at any time
Electricity Market Act (Official Gazette, Nos. 22/13, 102/15, 68/18, 52/19)	Decision on the amount of the fee for the use of space used by production plants for the production of electricity (Official Gazette, No. 84/2013, 101/2013, 72/2015)	Ministry of Economy and Sustainable Development	Owners of production plants for electricity production are obliged to pay compensation to the premises where power plants are built to local self-government units →municipalities and cities, which should be used for social welfare programs
Energy Efficiency Act (Official Gazette, No. 127/14, 116/18, 25/20)	Regulation on the obligation system of energy efficiency (Official Gazette, No. 41/2019)	Ministry of Economy and Sustainable Development	The fee for vulnerable energy customers (in accordance with the regulation on social welfare) is increased by 20 % for an energy-saving customer or 10 % for residential energy-saving customers
Social Welfare Act care (OG 157/13, 152/14, 99/15, 52/16, 16/17, 130/17, 98/19)	The Guaranteed Minimal Support programme (Social Welfare Act (Official Gazette, number: 157/13, 152/14, 99/15, 52/16, 16/17, 130/17, 98/19, 64/20, 138/20)	Ministry of Labour, Pension System, Family and Social Policy	The right to financial assistance for a single person or a household to meet their basic living needs
Social Welfare Act care (OG 157/13, 152/14, 99/15, 52/16, 16/17, 130/17, 98/19)	Decision on the basis for calculating the amount of the minimum fee (Official Gazette, No. 157/2013)	Ministry of Labor, Pension System, Family and Social Policy	guaranteed minimum financial assistance → 800.00 HRK (107 EUR) single parent → 100 % (800.00 HRK) for an adult member of the household → 60 % (480.00 HRK = 64 EUR) for a child → 40 % (320.00 HRK = 43 EUR) and for a child of a single parent → 55 % (440.00 HRK = 59 EUR) single person or household - using wood for heating (3 m^3 of wood or approved monetary amount to cover that cost)
Act on Write-Off of Debts to Natural Persons (Official Gazette, No. 62/2018)	Public Call for debt write-offs	Croatian Electricity Company (HEP)	writes off debts to persons up to the maximum amount of debt of HRK 5,000 (660 Euro)

Long-term strategy for the renovation of the national building stock until 2050	Programme of energy renovation of family houses 2014 – 2020 - programme is planned to continue according to the Energy Renovation Programme for Single-family Houses 2021-2027	Environmental Protection and Energy Efficiency Fund	Public Call in 2020: Public call for citizens at risk of energy poverty. There will be a new Program for the energy renovation of family houses from vulnerable groups of citizens from 2021-2027
Long-term strategy for the renovation of the national building stock until 2050	Programme of energy renovation of multi-apartment buildings for the period 2014 – 2020 – programme is planned to continue according to the Energy renovation programme for multi-apartment buildings 2021-2027	Environmental Protection and Energy Efficiency Fund	The Program lacks concrete measures to meet the needs of energy-poor citizens in the energy renovation of apartment buildings.
Climate Change and Ozone Protection Act (Official Gazette, No. 127/19)	Act establishes a new plan for the use of funds obtained from the sale of emission allowances.	Ministry of Economy and Sustainable Development	Measures to combat energy poverty will be co-financed with funds obtained from the sale of emission allowances through auctions.
Energy development strategy of the Republic of Croatia until 2030 with a view to 2050 (Official Gazette, No. 25/2020)	Energy Poverty Reduction Program until 2026	Ministry of Economy and Sustainable Development	It is planned to implement energy efficiency measures in 50,000 households.
Integrated National Energy and Climate Plan for the Republic of Croatia for the period from 2021 to 2030 (NECP)	Program to combat energy poverty, which includes the use of renewable energy sources in residential buildings in assisted areas and areas of special state concern for the period 2019-2021	Ministry of Economy and Sustainable Development	Currently there is no public information available on the stage of development of this program.

Policy framework for private rented sector in Croatia

Table 6: Croatia's policy framework for the private rented sector

Key national policies	Coordinating authority	Short description
Lease of Apartments Act (Official Gazette, No. 91/96, 48/98, 66/98, 22/06, 68/18, 105/20)	Ministry of Physical Planning, Construction and State Assets	The law includes articles that define: general provisions, rent, obligations of the landlord, obligations of the tenant, rights of the tenant, termination of the lease agreement, death or termination of the contracting parties, list of lease agreements or deeds of the apartment, enforcement provision and so on.
Law on Obligations (Official Gazette, 35/05, 41/08, 125/11, 78/15, 29/18)	Ministry of Physical Planning, Construction and State Assets	The law includes articles that define: the lessor is obliged to make the necessary repairs in a timely manner at his own expense, and the lessee is obliged to allow this.
Law on Catering Activity (Official Gazette, 85/15, 121/16, 99/18, 25/19, 98/19, 32/20, 42/20)	Ministry of Tourism and Sport	Among other activities related to the tourism sector it regulates private tourist rent.

Link between policy framework for energy poverty in Croatia and policy framework for private rented sector in Croatia

There is no direct link between policies related to energy poverty and policies related to the private rental sector, but the form of housing (own real estate, private rent, or social housing) is not a key factor in obtaining rights such as:

- co-financing of electricity costs to a maximum of 200 HRK per month (26.39 euro per month)
- guaranteed minimum financial assistance,
- single person or household - using wood for heating (3 m^3 of wood or approved monetary amount to cover that cost)
- writes off debts to persons up to the maximum amount of debt of HRK 5,000 (660 Euro)

One of the articles in the Lease of Apartments Act (Official Gazette, No. 91/96, 48/98, 66/98, 22/06, 68/18, 105/20) contains a sub-clause that defines that: the landlord hands over the apartment to the tenant in a condition suitable for living but it is not defined which conditions are suitable for living, so the energy efficiency of the rented space is not mentioned.

As part of the Long-term strategy for the renovation of the national building stock[10] until 2050 under the Programme of energy renovation of family houses 2014 – 2020, there was Public Call in 2020: *Public call for citizens to finance the energy renovation of family houses for vulnerable groups of citizens at risk of energy poverty*. One of the criteria outlines was the state of ownership of real estate (i.e. the applicant had to live at the address of the building which would apply for the tender) resulting in the exclusion of other categories of vulnerable groups and citizens at risk of energy poverty or energy poor citizens. Furthermore, this call was only meant for single-family houses and excluded multi-apartment buildings. This is problematic as citizens living in apartment buildings, including vulnerable groups, are left out in this financial scheme. This issue was addressed at the first meeting of the REACT group seeing as the private rented sector makes up the largest share in multi-apartment buildings.

Changes since the start of the ENPOR project

As part of the Long-term strategy for the renovation of the national building stock until 2050, there will be a continuation of the National Programme for Renovation of Buildings in the total amount of HRK 400 million (~52,630,000 EUR) that are in the Financial Plan of the Environmental Protection and Energy Efficiency Fund for 2021 and projections for 2022 and 2023. According to the Plan, funds are ensured for the 2021 and 2022 period but not for 2023. The Fund predicts that HRK 121 million (~15,921,000 EUR) will be secured by the distribution of surplus revenue in 2021 and will probably be allocated to 2023 and thus the total amount of HRK 400 million (~52,630,000 EUR) for the period 2021-2023 will be achieved as it is shown in **Table 7**.

It should also be emphasized that the criteria of damage of the house in an earthquake in 2020 will also be taken into account when allocating the funds of HRK 400 million (~52,630,000 EUR):

- HRK 300 million (~39,474,000 EUR) are intended for co-financing the energy renovation of family houses that were not damaged in the earthquake in 2020, on the entire territory of the Republic of Croatia, and
- HRK 100 million (~13,158,000 EUR) is intended for co-financing the energy renovation of family houses damaged in the earthquake in 2020, after the implementation of structural reconstruction and / or after repairs of non-structural elements, i.e. in parallel with each other.

Table 7: Croatia's plan of the implementation of policies during the ENPOR project (2020-2023)

Year	Type of programme	Type of Call	Number of households	Grant
2021	Programme of energy renovation of **family houses**	Public Call for all citizens	TBD	185,000,000 HRK (~24,345,000 EUR)

[10] https://ec.europa.eu/energy/sites/default/files/documents/hr_ltrs_2020.pdf

2022	Programme of energy renovation of **family houses**	TBA	TBD	50,000,000 HRK (~6,580,000 EUR)
2023	TBA	TBA	TBD	121,000,000 HRK (~15,921,000 EUR)
	Total	-	TBD	400,000,000 HRK (~52,630,000 EUR)

6.2 National Programme for Renovation of Buildings (grant for renovation) – HR

6.2.1 Description of the measure prior to the ENPOR co-creation process

The **National Programme for Renovation of Buildings for the period 2014-2020** aims to undertake renovation activities, ensuring that part of benefited households are those in energy poverty. The programme is implemented through four programmes, but our focus is on the following two main programmes:

1. **"Programme of energy renovation of family houses 2014 – 2020"**[11] - in 2020 there was an amendment to the programme - *Public call for citizens to finance the energy renovation of family houses for vulnerable groups of citizens at risk of energy poverty* - with 20 % of the total funds (28.4 million HRK = 3.79 million EUR) that was set aside for such vulnerable group of citizens

2. **"Programme of energy renovation of multi-apartment buildings for the period 2014 – 2020"**[12]

The Programme is planned to continue according to the **National Programme for Renovation of Buildings for the period 2021-2027**[13]. The program is implemented through several programmes, but our focus is on these two main programmes:

1. Energy renovation programme for multi-apartment buildings

2. Energy renovation programme for single family houses – as part of this programme there will be a Programme for energy renovation of family houses for vulnerable groups of citizens from 2021-2027

The National Programme for Renovation of Buildings for the period 2014-2020 envisioned four public calls for energy renovation; of these three were public calls for energy renovation in the sector of family houses and only one public call for the sector of multi-apartment buildings. Of the three public calls for energy renovation in the sector of family houses only one was for energy poverty and it was

[11] https://narodne-novine.nn.hr/clanci/sluzbeni/2020_05_57_1146.html
[12] https://mpgi.gov.hr/o-ministarstvu/djelokrug/energetska-ucinkovitost-u-zgradarstvu/energetska-obnova-zgrada-8321/energetska-obnova-visestambenih-zgrada-8323/8323
[13] https://ec.europa.eu/energy/sites/default/files/documents/hr_ltrs_2020.pdf

published in 2020.

6.2.2 Changes to the measure resulting from the co-creation with the national REACT group

The first round of the REACT and target group meetings was completed and a small-scale survey with households in general on the topic of property ownership was agreed upon. DOOR currently has three projects in which it conducts surveys and the survey for the Buševec area has just been completed and is currently being analysed and contains relevant data for the ENPOR project.

It was also decided that DOOR will develop a national survey of households as part of data collection for ENPOR in which data on energy poverty in the rental sector as well as a broader set of national data on energy poverty shall also be collected.

6.2.3 Description of the planned implementation process

When organising the 1st REACT group meeting, the idea was to stimulate different institutions to create the criteria on energy poverty and to begin to monitor the progress of the energy poverty measures. It was suggested to start using an ICT tool like Energy Management Information System (EMIS) that is under jurisdiction of the Agency for legal transactions and real estate brokerage (APN - member of REACT group). As one of the measures to improve the Programme, it was proposed that households which will be funded through the Public Call enrol in the ICT tool so that monitoring on progress of the energy poverty measures could be done.

By organizing the 1st target group meeting, the 2nd REACT group and 3nd REACT group meeting it was agreed that the survey/analysis that will be conducted through the other three projects (BušEko ?! for the area of Buševec, POWERPOOR for the area of the city of Križevci and EmpowerMed for the city of Zadar and Zadar County) will include the question of property ownership, i.e. whether the households live in their own property or in a rented one that is specific to the ENPOR project.

Consensual-based indicator (ability to keep home adequately warm/cold); arrears on utility bills; condition of the building; expenditure-based indicator; energy prices will be collected as a set of indicators using the national survey developed by DOOR, which will include data on energy poverty in the rental sector as well as a broader set of national data on energy poverty.

6.2.4 Role of the REACT group in the implementation

The REACT group and target group will be organised through various forms of events such as meetings, info days, workshops, round tables and so on. By involving all stakeholders, we hope that the period of implementation of the Programme 2021-2023 will be more successful than the period of the Programme 2014-2020:

- in the number and dynamics of opening public calls
- in the number of types of programmes,
- in the number of type of calls,
- amount of funds,

- number of households covered by the call,
- primary energy savings (GWh/year) reduction of greenhouse gases emissions (in tCO_2-eq/year).

6.2.5 Implementation steps already carried out so far

The BušEko?! survey was conducted, and DOOR is currently working on the analysis and conclusion of the survey.

6.2.6 Risks and challenges in the implementation of the policy/measure

- Non-existent cooperation between institutions: There is no data on impact of energy programmes on vulnerable group of citizens; no data on citizens at risk of energy poverty and participation of energy poor households in energy renovation; no statistics on extended families living in a joint household.

- Non-existent clearly elaborated definitions for citizens at risk of energy poverty or energy poor households.

- Existing programmes for energy renovation of energy poor households opened in 2020 included only citizens already targeted by the welfare system and excluded other categories of vulnerable groups of citizens and citizens at risk of energy poverty or energy poor citizens.

- Criteria and measures should be created taking into account the household/citizen income and expenses but also taking into account the energy consumption of the building.

- The Administration for applying for an energy renovation is too complicated and centres/local offices/energy agencies should be established or existing state/local officials should be trained to help apply for support for energy poor citizens/households - and the administrative paperwork and application itself should be simplified.

- The programme of energy renovation of multi-apartment buildings for the period 2014 – 2020 in extension of programme through new “Energy renovation programme for multi-apartment buildings 2021-2027” should include clear criteria for energy poor citizens. The programme should also include concrete measures to meet the needs of energy-poor citizens in the energy renovation of apartment buildings. In the period of 2014-2020 energy poor citizens/households were only mentioned in the energy renovation programme for single family houses; programmes which targeted exclusively energy poor households aim at single-family houses and excluded multi-apartment buildings.

- Targeting the so-called free-based tenancy, which always includes two separate families/households in the same dwelling, is difficult. This subgroup has not been targeted yet and apartments for rent were mainly out of policy focus due to lack of national data.

7 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN ITALY

7.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

Energy poverty is a complex issue that affects millions of people in Italy, with negative effects on the quality of life and on the health of individuals. An adequate level of heating, cooling, lighting and energy for household appliances is considered essential to ensure a decent standard of living and safeguard the health of citizens. The Annual Report on Energy Efficiency 2021[14], published by ENEA, estimates that in 2019, 2.2 million households (equal to 8.3% of the total), live in energy poverty. Taking into consideration the cooling needs of the home, the estimate on 2018 data rises to 3.3 million families, or 13% of the total (RSE data). The trend of the phenomenon is expected to increase further due to the emergency resulting from the Covid-19 pandemic and the consequent economic crisis.

The main instrument to specifically combat energy poverty in Italy is currently the "social bonus", represented by a discount on the electricity and gas bills. The electricity and gas social bonuses provide, in the form of a bill discount, an amount that varies as a function of the number of family members and, with respect only to the gas social bonus, also as a function of the climatic zone and the type of use. Families wishing to access those social bonuses must have an income of less than €8,107.50 (as per their equivalent economic status indicator), increased to €20,000 for large families (with more than three dependent children). As well as these social bonuses, there is also an electricity bill discount available to people reliant on life-saving medical equipment (known as the 'physical ailment social bonus'), which is granted irrespective of income. Those social bonuses collectively totalled €166 million in 2017. In 2018 the total amount granted for the electricity bonus was around €120 million, for the gas bonus around €64 million; between the launch of the mechanism and 31st December 2018, around 2.9 million families benefited at least once from the electricity bonus and around 1.8 million families benefitted from the gas bonus. In both cases, these values have ample room for growth: the ratio of families effectively subsidised to those who might still benefit from the bonuses is between 30% and 35%, according to ARERA. In order to broaden access to the measure, in the last 12 months, measures to coordinate the mechanism with other social policy measures have been introduced. Specifically, within the meaning of Article 5(7) of Decree-Law No 4 of 20th January 2019 (transposed in amended form by Law No 26 of 28th March 2019), those who benefit from the 'citizenship income' (or citizenship pension) established by the same decree have automatic access to the social bonuses for electricity and gas.

Aside from the social bonuses, there are also two tax deductions, which respectively reducethe excise due for the first 150 kWh of electricity consumed per month by Italian families and the price of fuel used for heating in Sardinia and in mountainous areas/small islands.

Looking at more structured measures aimed at improving the energy efficiency of households, with positive impacts in the medium and long term, both in economic and environmental terms, there is a tax deduction for the energy refurbishment of buildings, known as "Ecobonus". This instrument

[14] https://www.efficienzaenergetica.enea.it/pubblicazioni/raee-rapporto-annuale-sull-efficienza-energetica/rapporto-annuale-sull-efficienza-energetica-2022.html

has been extended thanks to the Budget Law for 2018 also to independent social housing institutes.

Furthermore, in May 2020 the so called “Decreto Rilancio” (Decree-Law No 34/2020), introduced the “Superbonus”, a new provision which raises the deduction rate for expenses incurred for specific interventions in the field of energy efficiency, anti-seismic interventions, installation of photovoltaic systems or infrastructures for charging electric vehicles in buildings to 110 %. Instead of using the deduction due in the tax return relating to the reference year of the expenses, the legislation provides for the possibility of alternatively using a discount on the amount due or the transfer of a tax credit, corresponding to the deduction due, to other subjects, including credit institutions and other financial intermediaries, with the option of subsequent transfers. The Superbonus is a temporary measure, and it is foreseen to end in 2022 for the condominium and in 2023 for the IACP or Istituto Autonomo Case Popolari (a social housing association). A specific revision of length and structure of the Superbonus is one of the points under discussion within the 2022 Budget Law 2022, finalization process, which is currently ongoing.

7.2 Training and Information Campaign (training and information) – IT

7.2.1 Description of the measure prior to the ENPOR co-creation process

A national programme for information and training was funded by the Italian Ministry of Economic Development that assigned a specific role to information and training as fundamental driver to create, reinforce and develop the attention towards energy saving and energy efficiency. Article 13 of Legislative Decree 102/2014, indeed, envisaged a specific three-year training and information programme, the elaboration of which was realised by ENEA involving different actors as regions, consumer associations, and associations of ESCOs and energy services companies.

The first year of activity was characterized by information and training activities focused on public at large, by means of the national campaign “Italia in classe A”. The radio and television information campaign was organized from 2016 on the three main RAI television broadcast channels, identifying with ENEA’s support, several TV programmes well known by the public, covering the main television genres (news, soap opera, infotainment, quiz show, etc.) and the most of broadcasted time slots. The second phase was characterized by tailored targets and the phase 3 dedicated to monitoring and consolidation (third year): consolidating the initiatives; dissemination of results and analysis of the communication impacts, with evaluation and control of achieved results.

Targets of the campaign include enterprises, operators promoting energy efficiency such as energy managers, ESCOs and energy experts, PA personnel, students, families, multifamily buildings, consumers, financial institutions and “multiplier effect subjects” (i.e. non-technical individuals that transfer energy efficiency info and behaviours to close environments).

Currently, a new national energy efficiency programme for information and training actions is foreseen with Legislative Decree 73/2020 art. 12. It is intended to end in 2030 and it has a 9 million EUR budget every three years. ENEA, in cooperation with GSE, plans a targeted information and training program and, after taking into account stakeholders’ inputs, submits to the Ministry the plan for approval. On the 3rd September 2021 the online public consultation closed.

It is a multimodal programme including measures relating to education, training, information and awareness raising as well as behaviour change. The program also funds research activity on communication instruments and multidisciplinary approach in individual attitude to behaviour change. The new program is included in the National Recovery and Resilience Plan (Piano Nazionale di Ripresa e Resilienza, NRRP), part of the Next Generation EU (NGEU), under 1.1 Mission 2, Component 3.

7.2.2 Changes to the measure resulting from the co-creation with the national REACT group

Foreseen contribution include identifing the most effective communication and training modalities to reach the energy poor households in the PRS in order to help develop a targeted information campaign towards energy poor households, with the aim of improving the access to tax deductions for energy renovation, or alternatively a change in behaviour and allow them to make more informed decision on energy use.

7.2.3 Description of the planned implementation process

The identification of the most effective communication and training modalities to reach the energy poor households in the PRS is planned. The pilot project will be used to assess the validity of the modalities identified and will be fine-tuned through the cooperation of the REACT group. The results will be used to help the development of a targeted information campaign towards energy poor households.

7.2.4 Role of the REACT group in the implementation

The REACT group will collaborate to disseminate the training material and help fine tune the modalities used to reach energy poor households in the PRS.

7.2.5 Implementation steps already carried out so far

At the moment, the REACT group has discussed the fiscal incentives currently available to identify the elements of the measure that are more appropriate for helping energy poor households. ENEA is going to begin analysing the training and informative needs of the energy poor households both from the tenants and the landlords viewpoint, in order to define the best modalities to communicate with them and actively engage them.

7.2.6 Risks and challenges in the implementation of the policy/measure

The main difficulties are to reach energy poor households in the PRS and make them willing to actively participate in the initiative aimed at giving them information and training on how to improve their energy consumption, and if suitable a better understanding on how to access to fiscal incentives.

8 IMPLEMENTATION OF ENPOR POLICIES AND MEASURES IN THE NETHERLANDS

8.1 National policy framework in relation to energy poverty, especially with regard to the private rental sector, and changes since the start of the project

In the Energy Agreement formulated by the Dutch parliament in 2013[15], ambitious goals have been set for energy saving in the built environment (e.g., all homes, offices, schools and other buildings). A key focal point of the Dutch energy transition is the switch from natural gas to sustainable sources of energy. Furthermore, the aim of the Energy Agreement is for the built environment to become more sustainable over the next 30 years, through improving energy efficiency and increasing the use of renewable energy. The sustainable energy transition focuses on the built environment, because sustainable modifications within the built environment such as improved isolation can contribute substantially to the reduction of national CO_2-emissions. Therefore, the national energy efficiency policy is mainly aimed at improving the energy situation of buildings, installations, and appliances. Energy saving by influencing behaviour receives little policy attention, even though energy consumption partly depends on the living habits and preferences of residents[16]. This makes the energy transition also a social transition since it affects the homes and living environment.

Furthermore, even though energy poverty has been put on the political agenda, the vulnerability of those experiencing energy poverty is often neglected by policy. “Energy poverty is only an emerging agenda in the Netherlands, principally driven by local authorities’ recognition of the value of addressing environmental, health, social welfare and poverty goals through measures to address the problem, and European Union (EU) requirements for reporting on energy poverty as part of the Energy Transition. There is, as yet, no national policy, and the national government has been reluctant to articulate energy poverty as distinct from poverty in general”[17] Thus, the lack of a national policy on energy poverty is due to the Dutch energy poor being mostly “recognized” through the work of municipalities, however, all major decision-making and resource allocation for decarbonization and the energy transition currently stems from national law and policy.

Even though no nationwide policy on energy poverty reduction is adopted, the Dutch government does make use of the word ‘energy poverty’ in its latest publications. And several policies are in place that focus on the reduction of energy consumption. Currently, policy in the Netherlands to combat energy poverty can be divided in two general trends. The first is policy to promote energy sustainability amongst all households, thereby reducing individuals’ energy bills. The second policy is aimed at combating energy poverty specifically, which is a somewhat more recent policy.

When it comes to promoting energy sustainability, again a distinction can be made between promoting energy sustainability in owner-occupied homes and promoting energy sustainability in the private rental sector. Regarding the latter, the general policy is that the government recommends individuals taking small-scale measures themselves. This is being done by national

[15] https://www.rijksoverheid.nl/documenten/convenanten/2013/09/06/energieakkoord-voor-duurzame-groei
[16] Straver et al., 2017, Rapportage Energiearmoede. https://publicaties.ecn.nl/PdfFetch.aspx?nr=ECN-E--17-002
[17] Feenstra et al., 2021. Humanizing the energy transition. https://eprints.whiterose.ac.uk/174822/

information campaigns as well as by the Energy Use Reduction Scheme (RREW)[18], which gives municipalities the opportunity to encourage homeowners and tenants to take small energy-saving measures in their homes. This measure is in place since 2020 and its budget has already been raised to 100 million Euros in 2021. This concerns, for example, the adjustment of the central heating system, the application of radiator foil and draft strips or the installation of LED lamps. These schemes are the ones being used to finance for example the Energy Box that is the focal point for ENPOR in the Netherlands.

When it comes to larger-scale measures such as isolation, this is considered to be a matter for landlords to address[19]. To promote landlords taking such measures, the government has since January 2021 linked the maximum monthly rent to a building's sustainability. Landlords who make their property more sustainable, can therefore ask their tenants for higher rents[20] .

Specifically in order to address energy poverty, the government has in October 2021 stated that they will make available a sum of €150 million to municipalities[21] . These measures also follow recent developments of gas prices rising rapidly, with a serious risk of the poor being hit hardest. Municipalities are requested to use these funds in order to provide energy-saving advice or measures to their constituency. Municipalities are allowed to choose the way to spend this money themselves. Next to this, the government has decided to reduce the tax rate on energy[22] and has made a sum of €124 million available for a country-wide isolation program[23] .

8.2 Energy Box (program support) – NL

8.2.1 Description of the measure prior to the ENPOR co-creation process

The Energy Box was established in 2014 by de Jonge Milieu Adviesbureau (JMA), the municipality of Utrecht and the social housing associations Mitros and Portaal. The goal of the Energy Box project is to reduce the energy consumption of residents. The Energy Box consists of a consultation with an energy coach, an advisory report, and a box with energy-saving products. During the consultation, an energy coach explains how to use the energy-saving products and discusses the residents' energy consumption. Based on the consultation, the energy coach provides the residents with energy-saving tips in a report tailored to the resident's situation. The tips can be implemented by the residents without high costs, making it possible for the residents to save money on their energy bill and increase their living comfort without renovations or investments. Residents receive a box with energy-saving products aimed at improving energy-conscious behaviour at home. The results of the Energy Box speak for itself: more than 19.000 residents have received energy advice since its establishment in 2014, and more than 2.2 million Euros are saved per year by households

[18] https://netherlandsnewslive.com/expansion-of-budget-due-to-popularity-of-insulation-measures/124819/

[19] https://www.rijksoverheid.nl/onderwerpen/energie-thuis/vraag-en-antwoord/hoe-kan-ik-energie-besparen-in-mijn-huurwoning

[20] https://www.rijksoverheid.nl/onderwerpen/energie-thuis/vraag-en-antwoord/heeft-de-energieprestatie-van-mijn-woning-invloed-op-de-huurprijs

[21] https://www.rijksoverheid.nl/actueel/nieuws/2021/10/15/150-miljoen-euro-voor-aanpak-energiearmoede-kwetsbare-huishoudens

[22] https://www.rijksoverheid.nl/actueel/nieuws/2021/10/15/kabinet-verlaagt-energiebelasting-en-stelt-extra-geld-voor-isolatie-beschikbaar

[23] https://www.rvo.nl/subsidie-en-financieringswijzer/isde

through use of the Energy Box.

8.2.2 Changes to the measure resulting from the co-creation with the national REACT group

From the outcome of the REACT groups we've decided to focus on increasing the response rate and the promotion trajectory of the Energy Box.

One of the conclusions from the REACT groups was that municipalities and organizations are experiencing difficulties in locating tenants experiencing energy poverty. In this regard we are developing a qualitative tool to help organizations to make a quick and easy analysis of a targeted neighbourhood in order to improve the promotion trajectory. This analysis consists of several relevant technical, social, and area-dependent indicators that help to provide insight in the expected level of energy poverty in the neighbourhood. The tool is meant to help organizations choose the neighbourhood which is most likely to accommodate private tenants experiencing energy poverty, for their campaigns (such as that of Energy Box). All the indicators used are all backed up by literature research and make use of open access data.

When the target group has been located, the next issue comes in, namely which means of communication to use to actually reach them. The second part of the tool focuses on indicating which means of communication would work most effectively to reach the target group. The practical experience of JMA and the REACT groups members are being combined with findings from literature research. Here we specifically focus on communication towards the private rental sector in comparison to other groups that have been targeted before (social housing corporations and private homeowners).

In order to be able to test the effectiveness of different communication strategies, we will run a pilot project. We will make use of existing materials but will also redesign and develop new communication strategies that can be used to promote the Energy Box trajectory. This includes looking at physical and digital means, communication channels as well as the content of the communication ‘message’ being used to convince people.

8.2.3 Description of the planned implementation process

A prototype of the tool will be validated in a pilot project with one private housing corporation in Utrecht. The tool will be used to analyse the neighbourhoods of the housing corporation and provide advice for the best communication strategies and tools to use in order to reach the private tenants in these neighbourhoods. The analysis and the resulting advice will be shared with the housing corporation and a few residents through their tenant associations for feedback.

Based on the feedback, the second prototype of the tool will be made. After validation the chosen communication measures and messages will be applied in the neighbourhoods. We will monitor the response rate as well as a few consultations of the Energy coaches with the tenants.

By means of conducting a survey among tenants and qualitative interviews with tenants we evaluate the approach and tool. Based on the outcomes a second iteration of the tool will be made to deliver the final product. This product can be shared and used by JMA in other projects, as well as with other organizations and municipalities. The tool that we are developing is also of great

interest to the housing corporation that we are working with in the pilot, which means it might also be of interest to others.

In addition, the communication strategies developed or redesigned will be evaluated and where necessary adjusted based on the feedback received.

8.2.4 Role of the REACT group in the implementation

The REACT groups will be used to monitor the implementation and to gain feedback. . In the react groups the results of the pilots will be shared and discussed. Stakeholders will be asked to reflect on the tool and the communication strategies used. Their feedback will be used in the further stages of development of the tool and implementation.

8.2.5 Implementation steps already carried out so far

Step one has been to analyse the different communication strategies that JMA has been using in the past for the Energy Box. This list has been supplemented with communication tools and ideas from REACT group members. This has resulted in an extensive overview of all different options for promotion.Literature research has been done to supplement the outcomes of the REACT groups and to validate indicators for the tool and ideas for the communication strategies.

The first prototype of the tool is almost finished (see Figure 3 below) and has already been used to analyse the different neighbourhoods as provided by the private housing corporation. Based on this analysis one neighbourhood with three identical flats, each containing 72 apartments, has been chosen for the pilot. In this pilot test three different communication strategies will be tested in order to reach the tenants with the offer of the Energy Box. This will serve as a A/B/C test, from which we can learn which communication tool works best for this specific target group of private tenants. Following this, the development of a few new communication tools and the redesigning the ones already available to fit these strategies will occur to be put in action in November 2021.

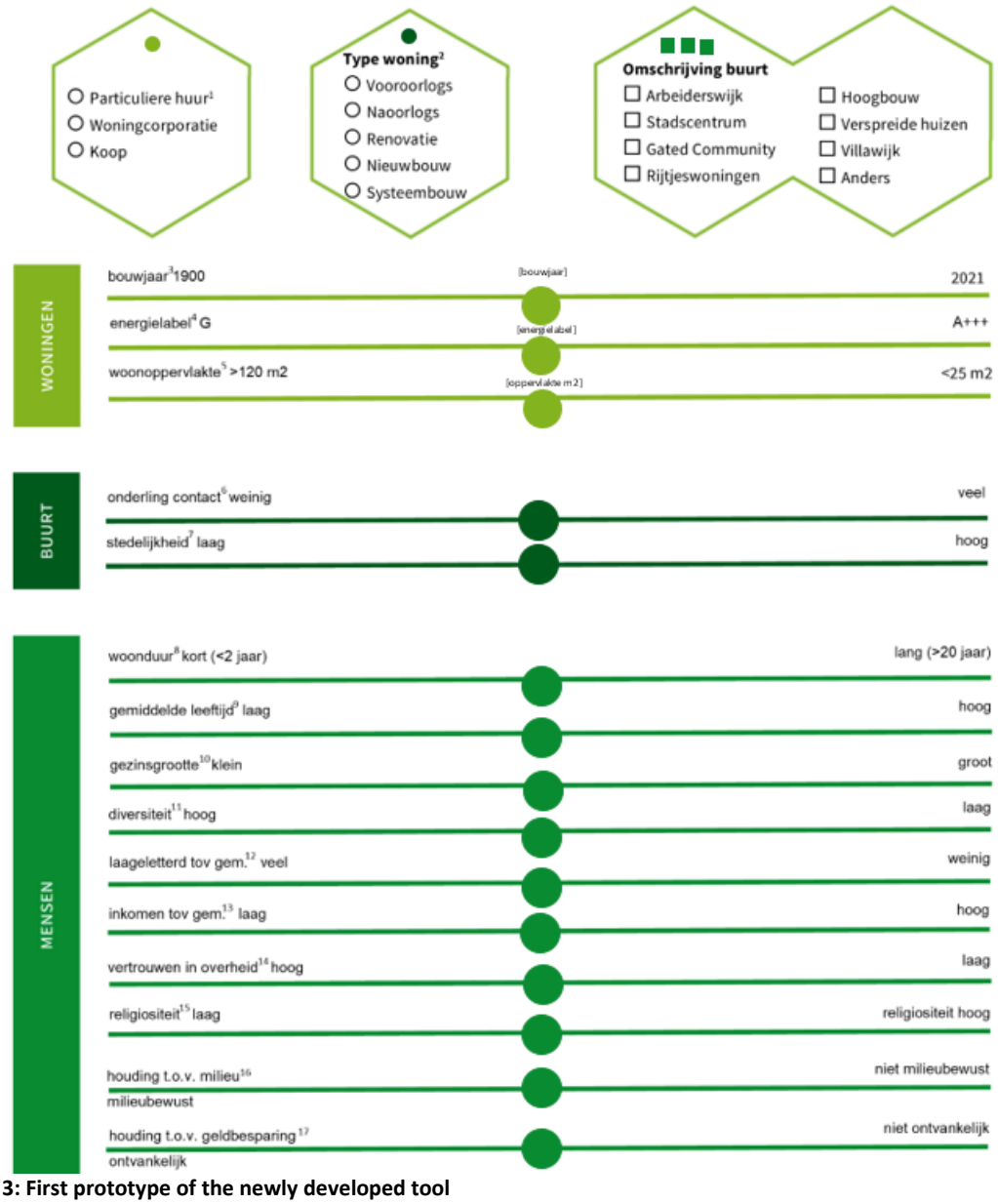


Figure 3: First prototype of the newly developed tool

8.2.6 Risks and challenges in the implementation of the policy/measure

One of the risks foreseen is that the different communication strategies will result in too few participants, in order to be able to analyse their effectiveness and to draw conclusions. To mitigate these risks, we will monitor a parallel initiative in Zeist, a municipality close to Utrecht. Here, we have not been able to implement the tool beforehand in order to influence the neighbourhoods chosen. However, we can still analyse the chosen neighbourhoods on the likeliness of energy poverty to occur. Additionally, we have used our insights to provide feedback on the communication strategy used in Zeist and we will have access to their data in order to be able to draw conclusions on the effectiveness of their strategies in relation to the private rental sector, which should provide us with useful information for our policy.