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Guidelines for national policy integration

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AUTHOR	Fabio Maria Aprà, Marco Calderoni, Luis Febres, Maryori Diaz, Raymond Sterling (R2M)
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0.4	15/05/2022	Inclusion of the results from the 2nd heating campaign
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0.6	30/06/2022	Review from SHE
1.0	26/07/2022	Final version

ABBREVIATIONS AND DEFINITIONS

ABBREVIATION	DESCRIPTION
AGENEX	Regional energy agency of Extremadura
BAFA	Federal Office for Economic Affairs and Export Control
BEG	Federal Promotion for Efficient Buildings
BMWI	Federal Ministry for Economic Affairs and Energy
CNA	Confederazione Nazionale dell'Artigianato
CNI	Consiglio Nazionale Ingegneri
DGEC	Directorate General of Energy and Climate
DHW	Domestic Hot Water
ELPRE	National Long Term Renovation Strategy
EPBD	Energy Performance Building Directive
EPC	Energy Performance Certificate
EPREL	European Product Registry for Energy Labelling
GSE	Gestore Servizi Energetici
iSFP	Individual refurbishment roadmap
NAPE	National Action Plan on Energy Efficiency
NECP	National Energy and Climate Plan
NEF	National Expert Forum



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1 PROJECT SUMMARY

The HARP project, Heating Appliances Retrofit Planning, aims at raising consumers awareness to the opportunities that underlay the planned replacement of their old and inefficient heating appliance. HARP partners prepared a detailed methodology to define the energy efficiency of installed space and water heaters and a subsequent step that provides suggestions on the saving opportunities that derive from its replacement with a more energy-efficient solution. Taking advantage of the energy label for space and water heating, HARP aims at providing end-users and professionals with a well-known support decision tool to communicate and motivate the consumer to replace their heating system with modern high-efficiency and renewable solutions. The mission is to accelerate the European replacement rate for heating systems, actively contributing to the reduction of energy demand in buildings, in line with the energy efficiency targets set by the EU. HARP is promoted by key knowledgeable partners in the fields of consumer behaviour, energy efficiency, heating solutions and business models, working directly with the consumer, or indirectly via professionals who are critical multiplying agents. Promoting dynamic efficient heating communities, where all the agents, from the supply to the demand side are committed to an efficient heating market, supporting the consumer to make smarter choices.

1.1 Relationship with other WPs

This report (Deliverable 6.2) on policy integration is strictly following the results of the market and legislative framework analysis (developed in HARP's Deliverable 6.1 *Best practices for introducing indicative labelling for existing heating solutions*). All the performed activities by National partners to enforce an endorsement in public policy measures and/or from private associations are reported in Deliverable 6.2. It is clear that these two parts of the project are broadly connected with other project activities: in Work Package 3, thanks to the iterative process promoted by the project timeline, some calculations in the methodology were modified after the feedback from National stakeholders in policy-related activities. The same happened during the National heating campaigns carried out in Work Package 4, which provided qualitative and quantitative feedback that was used to plan potential policy adoption at public/private level of the HARP methodology.

Policy integration activities started from the beginning of the project to closely follow National partners' actions and outcomes reached thanks to the performed meetings with relevant actors in the heating sector. The information provided by Deliverable 6.2 will be also used as the basis for the definition of the business models for the handover of the methodology in each of the HARP countries who are interested in continuing using them in the future.

1.2 Results from other tasks in the project (Lessons learnt and matrix of technical and non-technical factors)

As depicted in Section 1.1, Task 6.2 and Task 6.1 are very much related and Deliverable 6.2 is based on the analysis performed in Deliverable 6.1. In fact, the entire process for the development of final guidelines for the adoption of the HARP energy labelling methodology for installed heating appliances and online application at the national level is based on the experiences of partners during their heating campaigns (WP4) and the existing market and legislative framework in the countries (Deliverable 6.1). The final aim of the link between Task 6.1 and Task 6.2 is to provide the reader with national policies in which HARP methodology can be included and potential private interest stakeholders who can



industrially endorse it. In this sense, a brief recap on the main points of Deliverable 6.1 is presented below.

In **Germany**, an extensive and long-lasting subsidy scheme is available for the replacement of heating appliances by more efficient technologies. It is managed by BAFA, the Federal Office for Economic Affairs and Export Control. Regular inspections of chimneys are foreseen at least once per year. A labelling methodology of existing heating appliances is already in place. It is promoted by the government and is, unlike all other countries, mandatory. Chimney sweepers are supposed to issue the label, which addresses only space heaters. The methodology is conceived in a way that the professional issuing the label also provides the end-user with technical information on possible alternatives to the currently installed system. The relatively low reward for this service seems a hindering factor. Another relevant feedback is that the awareness about low efficiency of the heating device does not seem to be a major driver for consumer's action and what really seems to tackle replacement is the availability of incentives.

In **France** two main subsidy schemes are in force to help renovate French houses: the *MaPrimeRénov'* and the "Prime CEE". Yearly maintenance is mandatory for heating appliances, according to decree N°2009-649. This applies to gas, liquid and solid fuel boilers (therefore including biomass, fuel, gas wood chips...). A voluntary labelling mechanism is in place, developed and promoted by Coénove and Energies et Avenir. It is called *Mon Étiquette Chaudière*. The total number of issued labels is below expectations but shows that the approach is convincing. It is worth mentioning that several market players in France have introduced autonomously heating energy labelling services, the most relevant being Engie, Effy and Total.

Italy has a large variety of subsidy schemes, mainly managed by two different public entities. ENEA is in charge of fiscal deduction mechanisms targeting renovation and energy improvement of existing buildings, which cover also the replacement of heating systems. GSE is in charge of Conto Termico, which specifically addresses heating and cooling systems. Domestic boilers are subject to periodical inspections. A compulsory plant booklet must be also issued at the installation or during the first maintenance. Better standardization of the booklet is expected in the next years. A voluntary labelling system promoted by Assotermica is in place. It focuses on space heating. A past survey from Assotermica among professionals showed that a significant share of interviewees considers the labelling of installed appliances an improvement of the current legislation.

Similar to Italy, also **Spain** has several subsidy mechanisms in place (Real Decreto 691/2021, Real Decreto 853/2021 and Real Decreto 477/2021). IDAE, which depends on the Energy Ministry, is the entity in charge of these subsidies. Nevertheless, the management of these subsidies is delegated to each regional administration. That is a problem for users, mainly, and installers because the timings and the way to ask for the subsidies are different between regions. The "Código Técnico de la Edificación" and the "Reglamento de Instalaciones Térmicas de Edificios" defines the technical requirements for building energy efficiency retrofitting activities and also includes recommendations for heating systems replacement. A voluntary labelling methodology is in place, developed by FEGECA (the national association of heating appliances manufacturers). This labelling system is however not widespread in the country and is not known by most installers. It is intended to be issued by the technical service of the heating systems manufacturers during the maintenance activities. For the sake of easiness, only boiler age and boiler technology are taken into account in the calculation of the label.



In **Portugal**, one of the pillars of the national energy and climate plan is to address households' energy refurbishment. The two main incentive schemes in place are Fundo Ambiental - targets all households owners - and Vale Eficiência - exclusive for energy challenged households, thus targeting energy poverty. Applicants do not have to provide any information regarding the heating appliance to replace and expected savings are not estimated. ADENE aims to include the labelling of existing heating appliances in the incentive programmes, establishing the baseline below which the existing appliances shall be considered inefficient and prioritized for funding. No mandatory maintenance procedure for residential boilers is in place, but a legal obligation for building owners to ensure inspection of the gas network in the building exists and this should be done by a certified professional.

1.3 Methodology for the development of Deliverable 6.2.

Deliverable 6.2 is organized in a way in which the main information collected, and the activities performed by the National partners are available to the reader and provide a valuable summary of the potential endorsement of HARP in the project countries after the end of the project. It starts with Section 2, in which the lessons learnt by the National partners during the two heating campaigns are presented and the needed improvements for the methodology and/or the HARPa online application are listed. The detailed overview of each country is presented in D6.1. Thanks to the analysis of the best practices and cross-fertilization of information between the HARP countries, Section 3 represents the possibilities to extend and/or handover the use of the HARP methodology and HARPa. In here, after an initial analysis of which are the existing subsidies, the maintenance procedures and the policymakers involved (from Deliverable 6.1), the focus is on practically applying HARP into these mechanisms and policy measures. The interactions with policymakers are reported (while in Deliverable 6.1 the focus was on dissemination actions more than on policies). Therefore, the actions performed to endorse HARP at the national level are reported and from the outcomes of these actions a set of guidelines for the implementation of the concrete endorsement at the public level is provided. Section 4 depicts in detail which are the final results (in terms of public and private endorsement) of the HARP project and states the potential actions to be implemented by the National partners to enforce and push for the use of a methodology to determine the energy efficiency of existing heaters at National level.

2 Feedback on HARP methodology and HARPa from consortium partners during the two heating campaigns



In Germany, there is, since 2016, an existing labelling scheme for installed heating appliances (BMWl). Since January 2017, the district chimney sweepers in the territory of the Federal Republic of Germany have been obliged by the Energy Consumption Labelling Act to label the existing heating appliances in residential buildings. The measure was intended to increase the annual replacement rate for heating devices in private households from 3% to 3.7% and thus significantly shorten the expected duration for the complete replacement of the previously used and inefficient heating systems in Germany. The German methodology is synergic with a national database of space heating appliances, which already existed, created with basic parameters (such as the energy efficiency class calculator) offered by BDH (Federation of German Heating Industry).

No information about the correctness of the heating labels provided by the chimney sweepers is being collected in Germany. Therefore, the HARP methodology and application were promoted as an

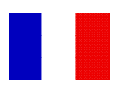


alternative instrument to check the heating systems label. The German methodology is based on the BDH database, which contains a set of defined parameters that help the authorized professionals to provide the label to the consumers.

The feedback from DENA, which is not directly involved in the German labelling system in place, was positive regarding the developed HARP methodology (since it adds valuable inputs not available in the current German procedure, e.g., water heaters are considered, useful as an informative tool for users) but the national stakeholders in the heating sector are sceptical regarding the usefulness of a labelling system for end-users in order to foster the change of their heating appliances.

Criticalities in HARPa and needed changes:

Criticalities encountered by DENA in the use of HARPa in Germany during the heating campaigns
There are specific characteristics working in a sub-optimal way (e.g., multi-family buildings usually use centralized heating, which is not included in the application).
The HARP methodology is designed for single-family houses. HARPa is not applicable for more than 3 million apartment buildings and thus more than 20 million residential units in Germany.
There is a lack of special alternatives for energy-efficient heating solutions. Not all existing heat generators are available in the app, e.g., combined heat and power plants and fuel cell heating systems.
Needed changes in the methodology and/or HARPa for correct and successful implementation in Germany
Adaptation for central heating and district heating
Expansion to other heating systems - fuel cell, etc.

 In France, a voluntary tool for labelling the installed heating appliances (Mon Etiquette Chaudière) was already in place when HARP was initiated. It is voluntary, hosted by Coénove (Association for energetic mix and gas) and Energies et Avenir (HARP partner) and promoted by some French professional associations. The existence of two different tools required the professionals to also use HARPa, adding some degree of complexity. The two tools are complementary, but there are significant differences (e.g., Mon Etiquette Chaudière is thought for professionals only, not also for end-users). Thanks to the effort of Uniclimate to promote the use of HARPa in fairs and conferences on the French territory, French professionals' associations (such as UMGCCP, COENOVE and Energies et Avenir) developed a document (Annex I) about the benefits of labelling the installed heating appliances, which indeed caused a huge increase in the use of HARPa by end-users. HARPa was also used during maintenance interventions, and the professionals using it provided positive feedback to Uniclimate (Annex I).

Currently, the tool is hard to be integrated into any national program for energy efficiency (because of various modifications ongoing in the national policy framework). In any case, the HARP methodology is sure of interest for installers' and manufacturers' associations, but its use mostly depends on the stakeholders' support and application. If supported by national incentives, similar to



the ones developed in Germany, the HARP methodology could have a strong impact on the French market for existing heating appliances.

All modifications will be implemented upon the project's end.

Criticalities in HARPa and requested changes:

Criticalities encountered by the French partners in the use of HARPa in France during the heating campaigns
<p>From the beginning, there was a conflict of interest for the installers associations given they were part of Energies et Avenir and, therefore, wanted to use the national tool, for which they had invested their own budget in “Mon Etiquette Chaudiere”. Upon Uniclimate and Energies et Avenir argument that the HARP tool had a wider reach, with DHW, was in line with the EU regulations and could integrate the changes requested by the French partners, the French industrial partners were satisfied with the proposal for replacing/upgrading the current system to “Mon Etiquette Chaudiere and Chauffage” using the HARP methodologies on the French territory.</p>
Needed changes in the methodology and/or HARPa for correct and successful implementation in France
<p>A technical suggestion for the tool in France, regarding the automatic selection of the option “YES” when the user should state if the maintenance was performed, would be a greater improvement for the use of HARPa by professionals (since the maintenance of heating system is mandatory and recommended every year).</p>
<p>Allow the end users to include their annual heating consumption to make better energy savings calculations.</p>
<p>Improve the pdf report with graphical appearances (stock images, graphics, etc.).</p>
<p>Change the age range of the technologies and the buildings (find the consumption elements of the buildings consumption).</p>
<p>Adapt the C age factor to the classification of the technologies and the calculating methodology.</p>
<p>Define the climate zones by region to make the tool more accurate regarding the climate conditions and therefore the temperature, the humidity, etc. Doing so, HARPa will also be in line with what requested by the RT2012 regulations.</p>
<p>Modify the Primary Energy Factor and correct the CO emissions data.</p>
<p>Delete the question: “do you have reliable energy sources?” since the professional in charge of the renovation, when going to the user house for the maintenance procedures, will directly evaluate this aspect, and since the consumers would or could not possibly know how to respond to this question.</p>
<p>Study the possibilities about existing supporting technology in the building.</p>
<p>Add in the recommendation section the mention “estimated costs and savings, without the public financial aid”.</p>

Cancel the recommendations with a combination of heat pump and solar thermal due to the lack of relevance compared to the actual average expenses on the French heating market, and recommend fossil boilers with solar thermal appliances.



In Italy, the “Etichetta Energetica” labelling procedure was already in place when HARP started. It is a voluntary scheme mainly thought for heating system manufacturers and installers. The main difference with HARPa is that the focus is exclusively on professionals (since it was thought to be applied during periodic maintenance of existing boilers). The tool does not include DHW.

Etichetta Energetica did not create any barrier to the adoption of HARP methodology and tools in Italy, as happened to some extent in France. The industrial partners of Assotermica, the professionals trained, and the ones involved in the use of HARPa in fairs and conferences identified HARPa as a tool that can definitively support the heating industry efforts in pushing the end-users to opt for more efficient and sustainable heating solutions. During the first heating campaign, the Italian HARP partners were able to engage the professional stakeholders in the field but had more difficulties in engaging end-users.

In the second heating campaign, the national partners observed an increased use of HARPa, which can be explained in two ways:

- Thanks to the added feature of combi-heaters and therefore the increased flexibility of the application.
- Thanks to the involvement of Altroconsumo, the most important consumer's Italian association (subcontracting). In this way a significant increase in consumers reached has been observed.

Given the success of the second heating campaign in Italy, the HARP methodology will replace the Assotermica one after the end of the project (see Section 3).

Criticalities in HARPa and requested changes:

Criticalities encountered by the Italian partners in the use of HARPa in Italy during the heating campaigns
In general, the HARP-a tool was perceived as too easy for professionals, but too difficult for consumers. In particular, the HARPa 2 nd part seems unattractive for professionals due to its simplifications. The 1 st part instead is technically strong for the methodology adopted and attractive because it shows the image of the label.
It is necessary to overcome the simplifications implemented in the passage from the initial Eurac calculation methodology into the HARPa tool, since the methodology was simplified in certain aspects for technical reasons. Ignore the energy label of the heat pumps since they don't represent the majority of the obsolete heating appliances in Italy.



Needed changes in the methodology and/or HARPa for correct and successful implementation in Italy
<p>A potential improvement could be made to adapt the textual parts of HARPa to the national situation (e.g., on climate, removing the difference between space and water heaters, etc.).</p>
<p>Improvement of climate zones (e.g., not providing exact data regarding the temperatures, but rather ranges of temperatures) and degree days information in HARPa.</p>
<p>Inclusion of an appropriate simplification by building type (residential and non-residential)</p>
<p>If the second part of the application would be used, including the payback time for the installation of a new system in addition to the bill savings in order to include installation, maintenance and related costs. This change is related to the second part of the tool (the one related to the suggestions for retrofitting) which will not be available in the Italian version after the end of the project (See Section 3).</p>
<p>If the second part of the application would be used, the attachment of a list of installers did not help in promoting the use of HARPa by installers themselves, because they prefer managing professional contacts on their own and through their professional associations.</p>
<p>Overcome technical simplifications on boiler type, installation year, and ageing coefficient. Default values should be changed for calculated values according to existing database and used efficiency ranges for space heating (from T2.2).</p>
<p>Improve the definition of Stand by consumption (PSB), Pilot light consumption (Pign), FL electrical consumption (elmax) and stand by consumption (PSB), since they are currently considered as constant values and this simplification can be accepted only in absence of specific appliance values.</p>
<p>Remove space and water heating as two different appliances and only present the combi systems in the application since they are the most used heating appliance in Italian houses. Removal of heat pumps as an existing heating appliance, because of the low number of systems currently installed in Italy.</p>



In Spain, the label developed by [FECECA](#) (Association of thermal equipment manufacturers) is intended to be issued by the technical service of the heating systems manufacturers when they carry out the revision or any kind of maintenance of installed boilers. This methodology is very simplified and therefore cannot be compared with a detailed methodology like the one developed within the HARP project. During the Spanish National Expert Forum (NEF) events, the participating stakeholders showed their acceptance of the HARP tool and the importance of a methodology for empowering the replacement of heating systems in the residential sector. For example, in the last NEF meeting, 74% of the participants validated the functionalities of HARPa, defining it as functional and useful to raise awareness in the heating sector. Furthermore, the collaboration with actors in the field (e.g. FENIE for training) provided valuable feedback on the interest of professionals in using HARPa in their working procedures.

Criticalities in HARPa and requested changes:



Criticalities encountered by the Spanish partners in the use of HARPa in Spain during the heating campaigns
HARPa tool calculations provide indicative savings results and may be higher than the ones effectively reached, creating a lack of trust in the consumers towards the tool and the entities which are supporting it.
The caption "Get your new heating system!" seems to be leading the user to buy a new appliance.
The caption "More information about professionals and subsidies" might be more suggestive.
Lack of awareness and interest from the consumers' point of view. In the design of the application, there is a lack of understanding of users' needs, what they are most concerned about, what kind of information they look for, etc.
Needed changes in the methodology and/or HARPa for correct and successful implementation in Spain
Introduction of a link to be added to the subsidies section, as in addition to the information on boiler subsidies, specific for renewable heating appliances.
Improvement of the climatic zones' precision and inclusion of further regional climatic areas not currently included
Inclusion of air-to-air heat pump systems in the suggestions for the installation of novel heating systems



As depicted in Deliverable 6.1, no procedure for labelling existing heating appliances was in place in Portugal before HARP started. Currently, the incentives for the replacement of old and inefficient heating systems are based on a first-come-first-served rule (and do not reflect the needs and the available resources of consumers). Furthermore, the incentive is presented in the form of a reimbursement, therefore the consumer always has to bear with the investment cost up-front and only after paying for the appliance can he apply for the incentive, which may or may not come. When consumers want to ask for incentives for the replacement of a heating appliance, they only have to present information related to the new appliance, including the energy label and the invoice. This mechanism is not efficient because it allows end-users with already efficient systems to obtain financial incentives just because they are well informed about the programmes and have purchase capacity. ADENE's idea is to prioritize the distribution of the incentives, targeting the replacement of the most inefficient ones (either via an eligibility criterion or through additional financial support for the replacement of appliances classified as C or D class). This approach also tackles energy poverty.

Criticalities in HARPa and requested changes:

Criticalities encountered by the Portuguese partners in the use of HARPa in Portugal during the heating campaigns
Potentially, for the sake of simplicity, use solely the 1 st part of the app until the emission of the energy label for existing heating systems and then channel solely to the available solutions on the market with access to the factsheets (leaving it up for a heating professional to provide customized and commercial data);



In the future, it may be necessary to revise the scale according to the updated version of the EU regulations for new heating systems.

Needed changes in the methodology and/or HARP for correct and successful implementation in Portugal

Update energy prices and investment prices for the different technologies; Energy prices will be updated before the end of the project and the investments when relevant, according to market evolution.

Eventually revise the code to present solely renewable heating solutions; This modification will be further evaluated upon the project's end.

3 Policy integration suggestions for EU countries and at the EU level

3.1 Inclusion of HARP in policy instruments, subsidy programmes and maintenance procedures in participating countries - Executed actions



The National plan from 2025 onwards for all existing/new buildings requires that at least 65% of heating demand to be covered by renewable energies. In the case of existing buildings, this becomes mandatory when the heating system is being replaced. If the replaced appliance is a combi system, the 65% renewable energy requirement includes also DHW). It is possible that new regulations to expand retrofitting of heating appliances will come into force at the end of 2023. This new policy framework could potentially incorporate HARP into effective policy instruments, or HARP could be expanded and used as an information tool to find heating solutions for renewable energy (and also multi-family housing) and provide suggestions for support programmes.

As explained in Section 1.2, the feedback from the German partners showed that in Germany subsidy programmes are more motivating than the labelling for the retrofitting of heating appliances. As explained in Deliverable 6.1, the Federal Promotion for Efficient Buildings (BEG), the installation of efficient heat generators, of systems for heating support and the connection to a building or heating network with renewable energy components is attractively promoted. The subsidy rate is at least 20% of the eligible expenditure.

Therefore, alternative measures to embed the HARP methodology in the national policy framework were discussed during the project.

- **Individual Building Renovation Passport (iSBP):** A potential way for motivating consumers is the use of the **individual Renovation Passports**. For example, if a homeowner plans to renovate the house and asks a professional for technical advice, the energy consultant/chimney sweeper will provide a dedicated report, focusing also on minimizing the expenses for the renovation (e.g., the preparation of the energy consulting report for the Renovation Passport is subsidised at 80% and only 20% of the cost needs to be assumed by the homeowner). This report contains either an individual renovation roadmap (renovation in several steps) or full renovation in one step. If a refurbishment measure is implemented as part of an individual refurbishment roadmap (iSBP) an additional funding bonus of 5% is



possible. In addition to the BEG EM subsidy rates (See Deliverable 6.1 “Best practices for introducing indicative labelling for existing heating solutions”), a bonus of 10% can be granted for the replacement of an oil-based heating system, provided it is replaced by one of the following technologies:

- Gas hybrid heating
- Biomass heating
- Heat pump
- Renewable hybrid heating
- Heat transfer station of a network with a share of renewable energies of at least 25% or 55%.

The eligible costs for energy refurbishment measures are capped at 60,000 € per housing unit. The renewal of the heating system in the building can be funded as part of the eligible costs for energy efficient renovation of existing buildings.

In the NEF meetings, different participants have confirmed that in their opinion the iSFP is a very useful tool for facilitate the implementation of sustainable goals in buildings. The HARP methodology and HARPa tool could be included in the iSFP as a voluntary instrument to increase the end-user's awareness on efficiency of their heating appliance, thus triggering replacement by a more efficient system.

- **Adaptation of current German labelling system with HARP water heating feature:** One of the policy actions considered in the framework of HARP is to make the German methodology consistent with the HARP one (in which calculations and algorithms are in line with EU standards), also adding the options to label domestic water heaters and combi heaters. The Ministry of Economics, Affairs and Climate Actions in Germany is the main stakeholder here. Since there was no interest from the Ministry to participate in the organized NEF meetings, according to DENA this suggestion did not raise interest since in Germany mainly space and combi heaters are installed, whereas pure DHW heaters are rare.
- **Awareness actions:**
 - Workshop with nationwide stakeholders within the project “Building Forum Climate Neutral” on Renewable Energies in Buildings combined with HARP.
 - Local/regional energy advisor associations will be informed of HARP articles in association magazines, mainly for awareness raising reasons.



There are two main incentive/subsidy programs towards consumers managed by the French government, as explained in more details in Deliverable 6.1. One is called “Maprimérénov” - Simulez gratuitement votre Prime en quelques clics | Monexpert (monexpert-renovation-energie.fr) and helps consumers to get information and also to find ways to finance the renovation of their building and of their heating appliances through national incentives and subsidies. The second one, called “Prime CEE”, can give up to 4,000 € to consumers to help them replacing their heating appliance.

In France, the discussions about a possible public/governmental endorsement of HARP have been slowed down by the COVID pandemics and the elections of 2022, which had a strong impact on the agenda and priorities of the Directorate General of Energy and Climate - DGEC. Uniclimate stated that it is difficult to integrate HARPa into the French public ecosystem, especially because the current government is focusing on the global renovation of buildings, more than one single renovation actions



(like the retrofitting of a heating system). As explained in Section 4, the main impact of HARP in France is on the private sector (official adoption of the HARPa by the French industrial associations). Nevertheless, efforts to inform French policymakers and propose to them the public endorsement of HARP were made during the duration of the project.

- **FAIRE programme:** It is a one-stop-shop for homeowners willing to renovate their house, led by ADEME and being part of the “Maprimerénov” national initiative programme (Energies et Avenir, HARP partner, is part of the programme). Uniclimate tried to push for the integration of HARP in the incentive mechanisms, which could have had the role of informing customers on the available public incentives related to the suggested heating system in the second part of the tool use. This could have been a first step for the consumers before reaching the professionals for the replacement. Unfortunately, this was not successfully embraced by ADEME.
- **Maintenance procedures:** Since no database is in place to store the information coming from the maintenance procedures, HARP could be used to collect that data (efficiency class, energy consumption, etc.) if each professional uses HARPa during the yearly maintenance activities. This will be proposed again to the DGEC, once the new labelling application will be operative in France (See Section 4).



In Italy, the main governmental efforts to improve the efficiency of residential buildings are based on the incentives [Ecobonus](#), [Superbonus](#) (Super-ecobonus) and [Conto Termico](#). The potential endorsement of HARP in policy instruments could happen through one or more of these subsidy programs. The training of professionals developed with [CNA](#) and [CNI](#) could become an innovative way to use HARPa for increasing the competitiveness of engineers and architects attending the training courses.

- **Incentive mechanisms:** The possible tying of the HARP methodology to the subsidy programs in place has been investigated. Through HARP, applicants could be asked to provide information about the energy class of the old appliance as a prerequisite to obtaining the subsidy. HARP can also facilitate the distribution of incentives to provide retrofitting budget where needed (e.g., only to customers who have a C or lower efficiency class of their systems). This would incentivize customers with low-class systems to retrofit them and mitigate energy poverty problems. In addition to the national incentives, local funding could be modulated depending on the classes of the replaced appliances.

After an in-depth analysis of the subsidy programs performed by ENEA, the result was that in the case of the Superbonus and the Ecobonus, the comparison between the efficiency before and after the intervention is already the basis of the subsidy request, given that the incentive is not allowed if there is no quantifiable energy saving in the replacement of the heating system. In order to apply to Superbonus, for example, to obtain an incentive for sustainable-related retrofitting the end-user must show that the intervention improves the energy class of the building by at least two classes. A list of requirements is in place for each energy upgrade measure. For the replacement of the heating system, these requirements change according to the technology selected for the replacement. Given all this, the technical benefit of adding the HARP labelling methodology to the procedure would therefore not be tangible.



- **Training for obtaining formative credits by the engineers:** CNA and CNI are the national professional order summits for engineers and architects (both are private entities with public participation). The courses they offer to their members are either organized internally (especially at regional level), or in cooperation with external entities. During the second heating campaign Assotermica, Eurac and ENEA organized HARP training sessions with the help (promotion) of some of the NEF members, among them CNA (and other such as Angaisa, CTI, and AICARR). Similar trainings will be offered again in the near future. HARP methodology will be used as a basic tool for giving unexperienced and/or non-sectorial professionals a first understanding on heating appliances and their efficiencies.
- **Meetings at institutional level with national and local actors:**
 - Ministry of Economic Development: in the context of the transposition of the EPBD Directive (844/2018), Assotermica met with the technical department of the Ministry. After showing HARP methodology and HARPa to its representatives, they affirmed that it could possibly accelerate the upgrade of the existing heating systems in Italy. What the Ministry is concerned about is introducing an additional cost for the end-user in case the labelling cost was not to be covered in a different way. The Ministry representatives clearly stated the utilization of HARPa should be voluntary (therefore offered to the end-user in the incentive framework) but should not be made mandatory from the beginning to select which subsidy requests are worth and which are not.
 - At the local/regional level for developing a pilot project in a restricted area using HARPa (one Piemonte (Air quality Dept Responsible), Regione Lombardia, ANCI (National Association of the Italian Municipalities)). Unfortunately, this has not been seen as a priority from the different administrations, so the contacts stopped.
- **Awareness actions:**
 - Seminar with Confartigianato - Craftsmanship exhibition (end of October 2021). HARPa mode of operation was shown to maintenance personnel, burner operators and professionals in the field. The first feedback was positive.
 - Expo comfort conference (March 2021) - HARPa mode of operation was shown to professional actors (such as ANGAISA).
 - 2 training sessions with AICARR (engineers/experts, designers). AICARR is part of the Italian NEF. Assotermica sensitised its associated companies during the project regarding the importance of having a smart tool such as HARPa.
 - One training session with CNA, which is a relevant national association of installers (the national council of architects CNA is a different entity)
 - Marche Region published a news item on HARP on its own thematic channel, which contains a section on thermal systems. In the same section on [thermal systems](#), the Region has inserted a hyperlink to the information box on HARP on Italy in Class A website.





In Spain, the policy framework is based on the national legislation, but subsidy plans for the retrofitting of heating systems are provided at regional level. Therefore, to evaluate the potential use of HARP methodology in Spain, the Spanish partners have been in contact with national and regional entities.

- **Regulation of Thermal Installations of Buildings:** The Regulation of Thermal Installations of Buildings is the main instrument at the national level regarding building's energy performance and is periodically updated to more energy demanding levels, for example by prohibiting inefficient systems. This has been considered the main policy instrument able to endorse HARP. Nonetheless, IDAE's – Spain's National Energy Agency feedback in relation to HARP was only partially positive since the app does not only provide renewable heating solutions. Given this approach this opportunity was not pursued.
- **Analysis of regional energy subsidies:** In Spain, there are different programs to promote the replacement of heating installations. Most of the subsidies are based at the state level, nevertheless, Autonomous Communities (*Comunidades Autónomas*) are the ones which manage the budget and the requirements for the subsidies attribution. In addition, some Municipalities also have local subsidy mechanisms in place. Recently, in order to meet the targets in CO₂ emissions reduction, the Government has penned a new program in order to increase the penetration of renewable heating systems in Spanish households. In HARPa, there is a direct link to the available regional subsidies for [replacing boilers, which](#) redirects the user to the OCU webpage. There are also specific subsidiaries for [renewable energies](#).
- **Meetings at institutional level with national and local stakeholders:**
 - **IDAE:** CREARA and OCU met the Spanish Energy Agency representatives to show them the potential of HARP. Their feedback was positive (since HARP is based on an EU-wide methodology, it is thought for both professionals and users and simplifies the Spanish climatic areas in a good way). Unfortunately, since HARPa also considers natural gas-based solutions as a replacement option, IDAE cannot officially support it since it goes against their policies which only push for renewable solutions. IDAE suggested that the approval from FEGECA would be essential for the successful exploitation of the methodology.
 - **FENIE:** As described in *Deliverable 6.1 - Best practices for introducing indicative labelling for existing heating solutions*, CREARA had different meetings with FENIE and their interest was positively perceived. Finally, when FENIE realised the HARP tool suggests not only air heat pumps but also all other technologies, they decided not to endorse HARPa because they only work with heat pumps. This has been perceived as a red flag for them, because their clients may be motivated to install other technologies different than the air heat pumps and therefore contact other professionals. FENIE is currently analysing and discussing how to move forward with HARP.
 - **Regional energy agencies:** Since the subsidies for the replacement of old boilers are managed at the regional level, HARP partners needed to understand which were the needs of the regional energy agencies and how they can support the endorsement of tools like HARPa. HARP partners found out that when local administrations are developing new regulations and/or new subsidy programmes, it is difficult to



incorporate external tools (because they would depend on external support for updating and maintenance, and furthermore problems with the intellectual property can arise). Regional policymakers have been open to the possibility of supporting HARP dissemination but mainly made it clear that an official endorsement at the public level is difficult to reach, for example imposing the energy class as a mandatory requirement for obtaining incentives (especially because of the difficulties encountered to contact the responsible people for each public administration). Therefore, the main strategy of HARP partners was to ask for support in disseminating the tool as an informative instrument for the end-users to increase their awareness.

- *Agencia de Andaluza de Energía:* HARP partners held a meeting with a representative of the Energy Agency. They requested an explanation of the methodology of the tool which CREARA delivered through HARP deliverables D3.1 *Labelling methodologies and validation report* and D3.2 *Guideline for the application of the labelling methodologies for installed appliances*. CREARA also sent all the HARP materials addressing end-users, because *Agencia de Andaluza de Energía* found those interesting as well to reach citizens. They are currently deciding whether to adopt the HARP methodology and to include the HARPa in their website.
 - *Comunidad Autonoma de Asturias - DN Industria - Region of Asturias:* CREARA and OCU had a meeting the Industry General Director. He recognized the potential of the tool but said that FAEN (*Fundación Asturiana de la Energía*, the regional energy agency) should be contacted. CREARA and OCU had then a meeting with them. They were very interested in the tool and in all the materials elaborated for the end-users. CREARA shared all these materials with them. They included the project information in their website (<https://www.faen.es/proyecto-harp/>).
 - *AGENEX, the regional energy agency of Extremadura:* AGENEX have been officially using the HARP tool in meetings with residents' associations, in order to inform them graphically and didactically about the efficiency of their equipment. The use of the HARP tool has mainly focused on the first section or functionality of the tool: the labelling of existing heating systems. They also confirmed, through a signed letter of support, their commitment in continuing using the application and potentially include it in future subsidies scenarios (ANNEX II).
- **Awareness actions:**
 - The HARP leaflets were reorganised so that they are now accessible, visually attractive etc. They were physically distributed to all Spanish OMICs (Municipal Consumer Information Offices) in which OCU has its own delegated, and online distributed to the rest except for those in Navarre due to a problem with their databases. The OMICs delegates were invited to distribute them directly to consumers. OCU, the Spanish consumer association, organised active actions on social media to spread the voice about the importance of retrofitting heating appliances. Webinars had a good audience (more than 600 consumers involved).





In Portugal, being the only HARP country with no voluntary or obligatory scheme for labelling of installed heating appliances, there was the need to create from scratch a sector framework that can facilitate the implementation of a methodology to calculate the energy efficiency of existing residential heaters. The experience gained by ADENE in the exploitation of HARP in the national context and the cross-fertilization exchange of knowledge with other technical teams (namely the teams responsible for the transposition of EPBD to the national context and, for the definition and management of the Environmental Fund incentives, etc.) allows an efficient approach to the introduction of the energy labelling methodology in the Portuguese National framework. The best practices and lessons learned from the other HARP countries facilitated the workflow of ADENE, which has targeted different potential policies, incentives and regulations in which to introduce HARP.

- **Long Term Renovation Strategy (ELPRE)** references HARP as a supporting tool to trigger the replacement of existing heating systems. ELPRE is the National long term renovation strategy that was published in 2020 and has several measures that should be implemented until 2030 to foster the renovation of buildings. This is the first national policy endorsement that has been achieved in HARP. ADENE is in contact with the team responsible for monitoring ELPRE to monitor the extent to which this measure has been implemented. This result was achieved through meetings with the ELPRE team, and it was successful because the strategy defines execution indicators (for example: nr. of labels issued, number of incentive programmes requiring the energy label for existing heaters, impact of the national communication campaigns towards consumers regarding energy efficient heating, etc.) and the energy savings of the different measures proposed have to be accounted for to assess the impact of the measures defined and implemented within ELPRE.
- **EPBD** - ADENE is part of the national team responsible for the definition of the transposition of the EPBD into the national context. In this process there is the potential to harmonize the energy labelling framework with the building energy certification scheme since at present those are quite different (e.g., seasonal efficiency vs nominal efficiency) and it's not possible to link the information on the building certificate with the products energy label. The topic was already addressed in 2020 but it was not implemented. ADENE will go for a second try once the new EPBD is published (potentially before the end of 2022) and the transposition process begins.
- **One-stop-shop (Portal Casa Mais)**: One-stop-shops are one of the measures listed in the EPBD to reinforce buildings energy retrofit. In particular, the European Commission asks for “accessible and transparent advisory tools, such as one-stop-shops for consumers and energy advisory services, on relevant energy efficiency renovations and financing instruments” (article 2). In Portugal, ADENE manages an open-stop-shop and given that ADENE is the entity managing the building's energy certification system, the one-stop shop is linked to the energy performance certificates (EPC) database and whoever has an energy certificate can register and automatically access the information in the EPC. One piece of information included in the EPC are energy efficiency measures that can be implemented to improve the house's energy efficiency. The report from the energy expert is available in the EPC and, through the one-stop-shop, the building owner can send out a request for commercial offers to implement the suggested measures. After that, the one-stop-shop will provide an offer and, if the consumer agrees, a technician takes over the job, implements the energy efficiency measure(s), and finally, the user scores the service. Users can always consider more energy efficiency measures



than the ones listed by the energy expert when issuing the EPC. HARP is already included in Section “Simulators” and allows the consumers to “Calculate the efficiency of your heating system”, so that if the consumer finds out that the heating appliance is too old and inefficient, HARPa provides a push so that they can decide to ask for commercial proposals, all in the one-stop-shop.

- **National Directorate of Energy:** ADENE contacted the National Directorate of Energy, responsible for the certification of the gas technicians and companies, to present the HARP project, methodologies and tools and invite them to consider the endorsement of the labelling of existing heating appliances. If the National Directorate endorsed HARP, it could disseminate it towards the network of certified gas professionals and companies, presenting it as a best practice to include the energy class of existing heating systems in the maintenance procedures (and related report). This suggestion was well-received because of the voluntariness (each professional can decide whether to adopt it or not). Labelling existing heating appliance can be included in the voluntary checklist for maintenance professionals during their services. Since maintenance procedures are not obligatory, the effectiveness and the capacity to monitor the implementation of this measure would be limited. One potential idea would be to link it to the National Buildings Energy Performance Certification Scheme and have the maintenance report to be required for the emission of the building’s energy certificate (this would of course only target buildings that request an EPC).
- **Recovery Fund:** Right now, existing incentives do not consider the status of the existing appliances and, therefore, do not set priorities on which interventions should be financed first. For example, the replacement of the oldest and most inefficient appliances should have a higher priority. The users that need to change their systems the most are often unaware of the available incentives and only the users with access to information and technical capacity usually apply. Given that, the first-come-first-served approach does not fight energy poverty. ADENE wants to establish the baseline from which the existing appliances shall be considered inefficient and eligible or prioritized for funding. This is where the HARP tool can effectively help. The HARP tool should be used to assess the efficiency of the existing heater and appliances below C class should be prioritized or benefit from an extra incentive.
- **Renovation Passport:** The European Commission is quite open on which measures are to be developed for the Renovation Passport. Labelling existing heating appliances could be a good way for including heating & cooling strategies for retrofitting. The pieces of information to be included in the Renovation Passport are, for example:
 - timeline for the implementation of the measures identified in the Passport
 - type of the equipment involved
 - efficiency of the systems
 - etc.

The HARP methodology could be a good way to acknowledge the potential of addressing the replacement of the existing heating system

- **Direct subsidies for professionals:** Economic contribution to participate in trainings could be a way to attract professionals and “compensate for the loss of business” while attending the training, thus facilitating access to training sessions. Another way to achieve this would be to award eligibility to apply to certain incentive schemes only to trained professionals. Only certified professionals would be considered able to provide the required competences to




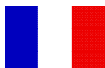



develop certain types of projects, such as replacing a heating system and proposing energy efficiency measures.

- **Meetings at institutional level with national and local actors:**
 - **Portuguese technical team responsible for the transposition of the EPBD to the national regulation.** The team is constituted by ADENE, DGEG (National Energy and Geology Directorate), LNEC (National Civil Engineering Laboratory) and ITeCONS (a research institute that has been involved in the EPBD transposition to the Portuguese context since the beginning). Upon this first meeting several emails and meetings with content exchange took place, namely until the methodology for water heating appliances was finalized. Unfortunately, it was not possible to consider this at this stage, but the topic is again on the agenda for the next transposition process to start at the end of 2022 with the publication of the new EPBD.
 - **Portuguese islands representatives:** ADENE is in contact with the Autonomous Regions representatives for revising energy efficiency plans (e.g., Madeira). The islands administrations have the opportunity to design their own incentive programs, independently of the main Portuguese government (e.g., voluntary program for energy audit). HARP is currently included in a voluntary program for energy audits to houses as an informative tool for the Madeira's citizens.
- **Environmental Fund responsible:** ADENE presented the HARP project, methodologies and application to the Environmental fund management team as a suggestion for its inclusion as a baseline value for applying for EU renovation funds. Right now, a "first come first served" strategy is in place, independently of the user's financial resources and the type of system they want to replace. ADENE wants to include HARP use so that the users can themselves evaluate the labelling of their systems and potentially apply for an extra 10% funding for replacing inefficient heating appliances (normally the incentive covers 70% of the entire cost).
- **Awareness actions:**
 - The Portuguese consumer association DECO developed different awareness actions. One of the most relevant types of feedback was that "the heating system is not an appealing topic" for end users. Even when they are interested and recognize the potential savings, it is considered a complex and expensive issue. Additionally, co-benefits should be expressed and communicated to the end user in a more appealing way.

3.2 Summary of the guidelines for implementation in the HARP countries

After analysing the performed actions and national based initiative for each of the HARP countries, Section 3.2 aims at providing a summarized overview of the stakeholders to be involved for the public endorsement of the HARP methodology and the main actions for including the energy labelling of existing heating solutions in the national policy contexts and regulations. It can be observed that there is no reference regarding the financing of this instrument in this section. This is because another report within HARP (Deliverable 6.3) is focussing on business models, thus being entirely devoted to understanding how to make the implementation of HARP financially sustainable in the long term.



Country	<u>Who shall manage the process to assure compliance and quality?</u>	<u>Who shall conduct market monitoring activities?</u>	<u>Who shall be involved in developing successful awareness actions?</u>
	BMWK with DENA support	Ministry of Economic Affairs and Climate Action	Regional energy agencies together with consumer associations
	DGEC with Uniclimate and Energies et Avenir support.	Ministère de la Transition écologique	Energies 2050
	Assotermica with the support of ENEA	Ministry of Ecological Transition	Relationship with Altroconsumo
	IDAE, together with all the regional agencies	Ministry of Ecological Transition	OCU with the representatives of the regional energy agencies
	ADENE	ADENE in collaboration with the National General Energy Directorate	Relationship with DECO, innovative actions such as live events on social media

3.3 The European context and the potential implication of HARP at EU level

At the EU level, different policies and plans are related to the implementation of activities for the retrofitting of old and inefficient fossil fuel boilers. In previous sections the role of the EPBD and its transposition to the member states have been discussed (revised in 2018 and expecting a new revision still in 2022, the directive will help reaching the buildings renovation goals set out in the European Green Deal), along with the Long-Term Renovation Strategies, in which EU countries have defined strategies that foster investments in the renovation of residential and commercial buildings. Other initiatives, such as the Renovation Wave Strategy, which aims at renovating the EU building stock and improving energy efficiency while driving the clean energy transition, could in principle promote and endorse the HARP methodology and application. In addition, the brand-new [RePower EU](#), the Joint European action for more affordable, secure and sustainable energy, is of interest for promoting energy savings in residential buildings and therefore facilitates the dissemination of labelling applications. For example, Repower EU mentions as fundamental goals for the European Member States, “...reducing faster the use of fossil fuels in our homes, buildings, industry, and power system, by boosting energy efficiency, increasing renewables and electrification...” and provide “Free-of-charge advice, inspection, energy audits and energy performance certificates to create awareness and provide recommendation on energy savings, as well as spot checks in thermal heating systems and fast-track maintenance to reduce wastage”.

Furthermore, as presented by the recent publication of HARP’s partner ECOS, in a report about which countries have plans to phase out from fossil fuels by 2050 ([Member States’ ambition to phase out fossil-fuel heating – an analysis](#)), it is clear that the transposition of EU regulations and policies can



affect the proactivity of the Member States. At the same time, it is shown that National policies are “more ambitious than the EU regulations when it comes to phasing out fossil fuels in the building sector from 2020 to 2050”.

HARP partners’ focus was on the EPBD and on the specific potential of the integration, at European level, of the HARP methodology into the Renovation Passport, for which the European Commission will promote and set a series of guidelines for the Member States to be implemented at National level. Currently, the main relevant extracts of the EPBD related to the Renovation Passport which were discussed with the HARP partners are Articles 10 and 22:

- **Article 10 - Renovation Passport**

1. By 31 December 2023, the Commission shall adopt delegated acts in accordance with Article 29 supplementing this Directive by **establishing a common European framework for Renovation Passports**, based on the criteria set out in paragraph 2.

2. By 31 December 2024, Member States shall introduce a scheme of Renovation Passports based on the common framework established in accordance with paragraph 1.

3. **The Renovation Passport shall comply with the following requirements:**

(a) it shall be issued by a qualified and certified expert, following an on-site visit;

(b) it shall comprise a renovation roadmap indicating a sequence of renovation steps building upon each other, with the objective to transform the building into a zero-emission building by 2050 at the latest;

(c) it shall indicate the expected benefits in terms of energy savings, savings on energy bills and operational greenhouse emission reductions as well as wider benefits related to health and comfort and the improved adaptive capacity of the building to climate change; and

(d) it shall contain information about potential financial and technical support.

The introduction of voluntary Renovation Passports to equip building owners planning a staged renovation of their building. **Member States will have to introduce a scheme of Renovation Passports based on the common framework to be developed by the Commission by the end of 2024, in order to give their citizens access to the use of this tool.**

Member States shall set up national databases for energy performance certificates of buildings, which also allow to gather data related to building Renovation Passports and smart readiness indicators. Information from the national databases shall be transferred to the Building Stock Observatory, based on a template to be developed by the Commission.

Member States shall make simplified procedures for updating an energy performance certificate available where measures identified in a Renovation Passport are put in place

- **Article 22 - Member States shall ensure that the energy performance certification of buildings, the establishment of Renovation Passports, the smart readiness assessment, the inspection of heating systems and air-conditioning systems are carried out in an independent manner by**



qualified and/or certified experts, whether operating in a self-employed capacity or employed by public bodies or private enterprises.

In this context, the HARP consortium already performed various efforts (especially in Germany and Portugal) to find a way to adapt the HARP methodology and its use in the Renovation Passport and the EPBD, as seen in this Deliverables 6.1 and 6.2 and presented in the next section. In Deliverable 7.4, guidelines and step-by-step action plans for two other European countries (Greece and Poland) are presented, focusing on how the two responsible entities (the Greek Solar Industry Association and the Polish Association of Producers and Importers of Heating Devices) can privately endorse the use of the methodology. HARPa will be used as an informative tool for end users to raise their awareness on the potential energy savings related to the replacement of heating systems. If this implementation turns out to be successful, both entities will push for implementation of the HARP energy labelling methodology for old heaters at public level (through subsidies and/or maintenance procedures). It is expected that having seven European countries actively using the HARP methodology can trigger its utilization at wider European level.

4 Public/private endorsements and guidelines for the EU members

4.1 Cross-cutting knowledge exchange between the HARP countries and handover of the methodology and HARPa

The most relevant result of the HARP project are the methodologies for labelling existing appliances and the adoption of these should be the focus of the policy integration scenarios. Even for those countries that have a labelling scheme already in place, the HARP methodology could be useful and be integrated in the existing one, while maintaining the original branding.



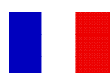
In Germany, the presence of two different labelling mechanisms (HARP and the national database) led to difficulties in endorsing HARP methodology and tool in the national policy framework. Furthermore, the competition with other similar mechanisms prevented HARP to be visible at the national level. For example, the Efficiency Class Calculator ([Heizparer](#)) and [CO2 online](#) are similar apps that allow the end-users to calculate their heating systems' efficiency.

It is clear that the existing mechanism, including the BDH database of heating appliances, will be maintained. Nonetheless, the adoption of the HARP methodology to calculate the efficiency of space heaters in a harmonized way with the European label is a feasible option. Furthermore, the potential adoption by the existing labelling scheme for water and combi systems to integrate HARP methodology remains an option for the after-project exploitation in Germany. Through the Building Forum Climate Neutral project funded by the BMWK, there would be the possibility to further publicise the HARP methodology beyond the HARP project and to approach the Ministry again together with the project network partners and to promote the HARP methodology.

A possible endorsement which has been considered is through the Renovation Passport, for which the European Commission will set clear guidelines for the transposition at the National level. There is a long list of activities that the German government must perform for transposing this instrument at the National level. Here the HARP methodology could be included. Potentially, the Renovation Passport will be mandatory for every big renovation of residential buildings, and the efficiency increase from



the existing to the renovated heating system should be considered. Since there is no building logbook in place in Germany at the moment, the Renovation Passport can create the link with the EPC, including the efficiency of the heating system. This implementation would provide a unified German database of heating appliances (while at the moment, the Federal states own this information, but it is not available at National level). HARP methodology can be linked to an on-site consultation (like the iSFP – Individual Renovation Roadmap report, presented in Section 3.1), since the iSFP is considered by many German stakeholders to be a useful and helpful instrument. DENA will promote activities in this direction in the next future. These activities could be triggered by various projects in which DENA is involved: Through the [isfp project](#) itself, in cooperation with the BEG office, and through the expert assessment on the further development of the Building Energy Act and the EPBD funded by the BMWK.



HARP tool is considered by the French stakeholders involved in the project to be more effective compared to Mon Étiquette Chaudière. **In France, Energies et Avenir and Uniclimate will create a new tool, integrating the HARP methodology and calculations for labelling installed heating systems in the existing Mon Etiquette Chaudière.** The tool will have a new name, "*Mon etiquette Chaudière-Chauffage*" and will represent an advanced version of the existing tool, since it contains the multi-technology approach from HARP. HARP logo and banner will be present in the application layout, as well as the European's Commission funding. This decision was supported by the Energies et Avenir associates, which decided to step back from the French tool to work on the HARP tool and methodology, since HARP is already proving it has more assets than the French tool currently in place. A proposition document, "*Adoption proposition of the HARP methodology inside the new French national labelling tool*", shared with the European Commission and signed by the HARP partners Uniclimate and Energies et Avenir, is available in the Annexes. In Deliverable 6.3, more financially-related details are available regarding the customization of the tool for the French case. Below, some of the main points are reported.

- **New tool name:** The existent French tool on the French market named by Energies et Avenir and COENOVE is already recognized by the French installers associations and has already benefited from the sector support. It is to be replaced by this new tool that would merge both HARP and Mon etiquette Chaudière's methodologies. Uniclimate and Energies et Avenir would like to keep a part of its original name "Mon etiquette Chaudière" (which means "*My boiler label*") and add "Chauffage" (heat) to the initial name, to demonstrate the multi-technology approach of the HARP methodology and open the promotion to all the appliances considered in this tool. Moreover, The Mon Etiquette Chaudière-Chauffage is understandable and evokes the use/purpose of that tool while reading its name.
- **The use and the mention of the HARP methodology in every step of the tool:** The French partners want to make sure users are aware this tool is based on the HARP project. This will be shown directly on the home page of the tool and in the frame of every step of the labelling procedure.
- **Change the tool's aspect and design:** French partners want to make the tool more user-friendly thanks to simplified visuals, some modifications to its general design and erase some of the transition problem bugs between each questionnaire page.



- **Creation of updated Backoffice cockpit:** This cockpit will enable the administrator to collect the statistics of the tool in real time such as i) Number of energy labels generated, ii) Percentage of resources used and other data that are used in the tool.

The new tool will be presented to the DGEC, in the belief that using an application linked with a methodology developed at European level and endorsed by the French heating industry will open the door to new interactions with French policy makers.

National incentives such as the MaPrimeRénov and Prime CEE created by the French government could definitively facilitate the spread of the use of Mon etiquette Chaudière-Chauffage. Currently, the tool is hard to be integrated into any incentive program because deep changes in the national policy framework would be needed. Nevertheless, it would be interesting to apply the methodology to subsidy programmes and/or maintenance procedures, depending on the installers' and supplier associations' support.

The subsidy programmes currently in place, such FAIRE (now France Rénov') and Maprimerenov are being constantly modified. There is a will of the French government to abandon the approach of renovating single appliances and rather focus on global renovation. This would clearly minimise the importance of retrofitting old and inefficient heating appliances. Energies et Avenir & Uniclimate have sent a position paper to the presidential candidates (before the French elections of 2022) and other French institutions about this problem with a short presentation of the actions they are proposing as professional associations on this subject, and mention of the HARP project and its potential role in new subsidies were also integrated. As described in Deliverable 6.1, the first interactions with the DGEC were positive, but were blocked due to sanitary reasons and French elections in 2022. The French partners will try again to get in contact with the DGEC after the use of the new Mon etiquette Chaudière-Chauffage has been evaluated (first quarter 2023).

As previously mentioned in the Deliverable 6.1, it could be interesting to motivate the consumers to use the new French tool on the website France Rénov' on the page ["travaux de renovation"](#) that mentions the upgrading and control of heating systems and building insulation. This is a way to give the consumers a perception on their energy consumption and inefficiencies and then lead them to a professional advice.

Uniclimate plans to continue raising awareness thanks to the Energies et Avenir associated manufacturers companies' network. Energies et Avenir's will propose the HARP dissemination material for their member associations and the programs they are part of.



Assotermica is pushing the Italian policymakers since the development of *Etichetta Energetica* in order to include the labelling of existing heating systems in the Italian legislation. The main limit of *Etichetta Energetica* is that it was made by the industry for the industry and therefore it raises scepticism in public administrations. At the same time, the HARP methodology is not only promoted by Assotermica, but also validated by a scientific body (EURAC), promoted by a European-wide partner (EHI) and supported by ENEA (promoted on the portal, etc.). It is therefore clear that Assotermica is no longer alone in promoting a methodology and a tool to label existing heating devices and the Italian partners are confident that the barriers encountered so far can be overcome to make the HARP



methodology well-established among Italian stakeholders. Assotermica will continue its advocacy efforts, thanks to the contacts established during the HARP duration and will sustain the operation of the methodology with their own private funds (more details in Deliverable 6.3). Assotermica will further push after the end of the project for the endorsement at the public level of the HARP methodology and tool. Considering also that no public resources are being requested, Assotermica is confident to maintain interaction with the Ministry of Economic Development and the Ministry for the Ecological Transition. For the Ministries contacted by Assotermica, it is important that the labelling does not turn into a cost for end users. If successful at the private industrial level, there would be the possibility to talk about HARP implementation in a public policy instrument. Other related problems were encountered, such as the COVID pandemics (which made HARP not at the top of the agenda), the slow political process and the reluctance of some of the interviewed installers to be included in the list of professionals of HARPa. To overcome the latter issue, Assotermica and ENEA are already in contact with relevant stakeholders such as ANGAISA, CNA, Confartigianato, CTI (e.g. CTI participated in a HARP training session and agreed on the need for public endorsement) and Altroconsumo to evaluate which is the best alternative to promote the energy labelling of old heating appliances.

The HARP labelling methodology was accepted by professionals as an easy, but comprehensive approach to labelling. HARPa is perceived by installers as a user-friendly tool which can provide valuable support in their daily work (e.g., maintenance procedures). **As one of the major outcomes of HARP in Italy, it is worth mentioning that ENEA will further develop the Italian version of HARPa, adding the geographical location of the installed appliances for mapping the boilers' stock.** HARPa will therefore replace Assotermica's application (Etichetta Energetica). At the Italian level, Assotermica will adopt the first part of the application (up to the point where the energy class/status installed heating appliance is presented to the user), since it serves as an informative tool to stimulate end-user thinking to replace devices. The second part of the application, related to the suggestions for technology replacement, had negative feedback because of the burden caused by the need for explaining the results obtained. The HARP methodology and layout will be integrated into Etichetta Energetica, maintaining the HARP logo and the European Commission banner, so that also ENEA could promote it on their channels.

ENEA and external stakeholders promoted the application:

- ENEA DUEE (<https://www.efficienzaenergetica.enea.it/>), which plays the role of the National Agency for Energy Efficiency, has published info about HARP and the link to HARPa in the section of its site called 'We report to you' ("Vi segnaliamo"). The ENEA DUEE website includes sections specific to the end-customers and to national incentives for the energy improvement of existing buildings.
- HARPa is included in the software section of the Italian [one-stop-shop](#) on energy performance of buildings. Since incentives like the EcoBonus require to calculate the potential energy savings related to the retrofitting of installed heating appliances, the use of HARP methodology works well to give a preliminary information to the customers.
- Moreover, in the latest annual report on tax deductions or the energy efficiency of existing buildings, an institutional reporting that ENEA does by law for regions and decision-making bodies, a description of the tool has been added that illustrates the main points of the labelling procedure and the hyperlink to the application (the article is on pages 53 and 54 of the [report](#), the link at page 54). According to the Italian regulation (D.L. 63/2013, article 14, clause 3-bis),



ENEA presents this report to the Italian Ministry of Economic Development, Italian Ministry of Economy, Regions and Autonomous Provinces of Trento and Bolzano.

At present, the best way to integrate HARP into public policies is the national Decree 74/2013, one of the national decrees which implement the EPBD, particularly the sections related to inspections of the heating, ventilation, and air- conditioning (HVAC) and domestic hot water (DHW) systems.

During the project duration, the Italian partners found many difficulties in reaching end users. Therefore, it is suggested to find a bridge between Assotermica and the end users, which could be done by the consumer association Altroconsumo, even if they currently focus more on the new technologies that can be installed rather than on the existing heating appliances.



The feedback received by the Spanish partners when disseminating HARP methodology was positive but at the same time showed that implementation in national instruments will be hard due to different reasons (e.g., HARPa includes also natural gas driven technologies, inactivity of regional authorities, high workloads of installers and professionals, etc.). The inability of IDAE to publicly support HARP methodology at national level made the Spanish partners focus on regional administrations. The proposal to be made to the representatives should include a free use of the HARP methodology and calculations so that the regional energy agencies can develop their own tool.

The potential of a private endorsement of the methodology by a national partner of the project (by FENIE) is under discussion. Deliverable 6.3 provides a potential business model to keep HARPa active after the end of the project, thanks to private industry funds. It would be especially interesting to use the methodology for training of professionals, an activity that was implemented by CREARA during the project. An alternative possibility would be to provide training and learning courses for unemployed people, so that they can have a first knowledge on the heating sector, the efficiency of heating appliances and the best appliances to be installed to decarbonize the sector.

The feedback provided by the Spanish partners focused on the potential interest of the retail sector in making their heating systems more efficient. Instead of focusing on the residential sector, HARPa can work with large commercial buildings (e.g. positive contacts were made with Carrefour). The HARP tool can be placed on a tablet at the entrance of the shop to provide interactive information on the efficiency of the heating appliances to the customers. This could serve as a pilot project for HARPa (e.g. Carrefour aims at opening a line of business in the second part of 2022).

Furthermore, all the contents of HARP will be kept on OCU's website, so that the Spanish consumers can continue to use HARPa as an informative tool for knowing the efficiency of their heating appliances.

The HARP project as well as the HARPa tool has also been supported by regional public bodies in Spain. As presented in Section 3.1, **AGENEX, the regional energy agency of Extremadura, has been officially using the HARP tool in meetings with residents' associations, in order to inform them graphically and didactically about the efficiency of their equipment.** And will continue to do it in the future (See Annex II).



In particular, FAEN, the regional energy agency of Asturias, has published a section of the project on its website for the citizens of its region (<https://www.faen.es/proyecto-harp/>).

The regional energy agency of Andalusia has also shown interest in the methodology of the tool, and has asked us for more information in order to assess whether to adopt the tool internally or to publish it on their website. However, no concrete action has been taken so far.



Steps that ADENE followed for including HARP in policy, in this case in the Long-Term Renovation Strategy (from the first meeting with national stakeholders, to understanding incentives mechanisms that can host the use of the labelling, etc.).

- 1) Meeting with the team responsible for the Long-Term Renovation Strategy for Buildings to present the HARP labelling methodology;
- 2) Context: prioritize the attribution of financial incentives to the oldest and most inefficient systems;
- 3) Funds where it could be used: Environmental Fund, in force since 2020 and renovated each year since then. Other incentives managed by public organizations;
- 4) Assurance: the HARP app will be available in the long term (once the project ends it will be kept in operation by ADENE as one of ADENE's internal initiatives).

ELPRE – Long Term Renovation Strategy: ELPRE must monitor the measures listed. They suggested to have incentives based on the class of the heating systems. The indicator would be the cost per kWh of forecasted energy savings. HARPa's Cockpit would be useful for this. The new incentives should look to the proposal made by the Long-Term Renovation strategy and, potentially ADENE will be consulted to provide feedback regarding the definition of new incentive schemes.

Integration of HARP in incentive schemes: Since the effective savings achieved with the retrofitting of heating appliances are not directly calculated when requesting an incentive and estimates are provided (by the incentive's management team only for EU reporting purposes) using technical datasheets and general assumptions on energy demand, the HARP methodology could be used to evaluate the requests for incentives and rank the best interventions requests (in €/kWh saved), introducing the "real" expected efficiency of the installed heating boiler and expected savings due to the replacement by a more efficient system. The previous incentive programme (*Fundo Ambiental*) was based on reimbursement of the purchasing cost, which was preventing many potentially interested customers from retrofitting their boilers. *Fundo Ambiental* is over, and the resiliency and recovery fund will take the lead to design a novel incentive scheme. ADENE had meetings with the *Fundo Ambiental* team, which will support the design of the new the incentives by the recovery fund ([Recuperar Portugal](#)) proposing two different approaches to include HARP methodology:

- 1) HARP methodology as an eligibility criterion: subsidies should be awarded to those who currently have a poor energy performance appliance. A team of people should be responsible to check the requests. This approach would make the labelling mandatory.
- 2) Extra incentive to replace those appliances which are particularly inefficient (class C or below C). In this case the labelling would not be mandatory.



There is a need to understand if the Member States have to report how they will use the European budget from the recovery fund. If so, there are huge possibilities that ADENE's suggestions will be endorsed at the National level.

- **EPBD** - ADENE is part of the team responsible for the definition of the transposition of the EPBD into the national context. In this process there is the potential to harmonize the energy labelling framework with the building energy certification scheme since so far, they are quite different (e.g. seasonal efficiency vs nominal efficiency) and it's not possible to link the information on the building certificate with the products energy label. The topic was already addressed in 2020, but it was not implemented. ADENE will go for a second try once the new EPBD is published (potentially until the end of 2022) and the transposition process begins. Also, the fact that the HARP is now available in the Portuguese One stop shop (see below) can also be a push for it to work as a forerunner for its implementation in the EPBD transposition at National level.
- **One-stop-shop (Portal Casa Mais):** One-stop-shops are one of the measures listed in the EPBD to reinforce buildings energy retrofit. ([link](#)). In particular, the EU asks for “accessible and transparent advisory tools, such as one-stop-shops for consumers and energy advisory services, on relevant energy efficiency renovations and financing instruments (article 2). In Portugal, ADENE manages an open-stop-shop and, given that ADENE is the entity managing the building's energy certification system, the one-stop shop is linked to the energy performance certificates (EPC) database and whoever has an energy certificate can register and automatically access the information in the EPC. One piece of information included in the EPC fit measures to improve the house's energy efficiency. The report from the energy expert is available in the EPC and through the one-stop-shop the building owner can send out a request for commercial offers to implement such a measure. After that, the one-stop-shop will provide an offer and, if the consumer agrees, a technician will go on-site, implement the energy efficiency measure, and the user will score the service. The user can always consider and request commercial offers to more energy efficiency measures than the ones listed by the energy expert when issuing the EPC. HARP is already included in Section “Simulators” and allows the consumers to “Calculate efficiency of your heating system”, so that if the consumer finds out that the heating appliance is too old and inefficient, HARP provides a push so that they can proceed with the replacing process it in the same place.

AQUA+: HARP is also included in the voluntary water efficiency labelling scheme AQUA+ where the team responsible for this initiative at ADENE has created a page with the factsheets and direct link to the app. <https://www.aquamais.pt/saber-mais/guias-e-dicas/dicas-de-poupanca/agua-quente-sanitaria/>. AQUA+ is related to water efficiency in buildings (washing machines, domestic water heating, water equipment in general). HARP is also endorsed here, especially considering the water and combi heating system efficiency. The more efficient the system is, the less water is going to be wasted before it becomes hot. The HARP methodology has also been included in the training for the certified auditors of the scheme.

Co-benefits: the additional, collateral benefits of having an energy efficient heating system, looking beyond direct energy and money savings, should also be reinforced in the communication towards consumers, especially within national campaigns developed by public authorities and “market” independent organizations. Of course, the cooperation between these organizations and the heating industry to make an accurate evaluation of these co-benefits should be pursued. Information on co-



benefits should pass through education, training also to heating professionals, since they are always a key player in the active interaction with consumers. Consumer should be made aware of the importance of co-benefits! E.g., if one heats correctly, he/she will be affected with diseases less frequently and the house's value will increase. Thanks to the experience on the field during the first two heating campaigns, ADENE and DECO understood that consumers are interested in the co-benefits and want to understand more. Nonetheless, public recognition and endorsement, namely also via the energy efficiency incentives, should be reinforced to make the policies really working for the renovation of the heating appliances stock.

4.2 Summary of the potential national policy integrations in the HARP countries

The table below presents the summary of the feedback obtained by the national partners during the HARP heating campaigns and the actions needed (such as technical modifications and potential awareness raising) to improve the wide reach of the methodology developed during the project. Furthermore, a summarized description of the most important policies in each country of interest for HARP and the policy suggestions to endorse the HARP methodology at the public level in policy instruments (such as subsidy programmes and maintenance procedures) are presented.

Country	Feedback on HARP methodology uses and how to improve its wide reach	Main policies related to the heating systems and potential HARP endorsement
DE	HARP's methodology is more complete than the current German one and could be offered to replace existing labelling procedure. Existing labelling process works well, but this does not translate in a reason to change the heating system for the user.	The heating label is part of the Energy and Climate Fund and the National Action Plan on Energy Efficiency (NAPE). Federal Promotion for Efficient Buildings (BEG), the federal government's energy-related building promotion in the main subsidy programme for replacing heating appliances.
	Need to increase users' awareness through communication actions. Create a monitoring surveillance strategy to understand if the labelling has been correctly assessed by the chimney sweeper. Need to harmonize the German methodology with the HARP/EU one (calculation and algorithms) and include water and combi heaters.	HARP methodology can be included in the individual Renovation Passport strategy (direct report to user on how to improve their house energy efficiency). Since there is no building logbook in place in Germany at the moment, the Renovation Passport can create the link with the EPC, including in the report the efficiency of heating system.

FR	The existence of two different labelling tools (<i>Mon Étiquette Chaudière</i> and HARPa) created confusion between the professionals. HARP tool is assumed as more complete when compared to <i>Mon Étiquette Chaudière</i> by the French stakeholders involved in the project.	Various modifications are ongoing in the national policy framework (the existing policy instruments are being continuously changed) therefore there were difficulties in endorsing HARP at public level. Decree N°2009-649 of the 2009 June 9 th on mandatory maintenance.
	HARPa will be used to update <i>Mon Étiquette Chaudière</i> in France. The new application will be called <i>Mon Étiquette Chaudière Chauffage</i> and is supported by the French heating industry.	New subsidies programmes, replacing <i>MaPrimeRénov</i> and FAIRE can reference HARP putting professionals in contact with users and provide a simple tool for labelling. Contacts with DGE are ongoing.
IT	HARP methodology is considered more complete than the one in place in Italy. It was validated by Eurac at the EU level by overcoming <i>Etichetta Energetica</i> 's functionality. Combi-heaters addition during the second campaign is a strong point in the use of the application. Main difficulty is to reach the end users.	The main governmental efforts to improve the efficiency of residential buildings are based on incentives called <i>Ecobonus</i> , <i>Superbonus (Super-ecobonus)</i> and <i>Conto Termico</i> . The decree named D.P.R. 74/2013 specifies the periodicity and deadlines for residential and non-residential appliances energy efficient controls.
	In Italy, Assotermica's methodology has been updated by the HARP's one. HARP methodology and layout will be included in <i>Etichetta Energetica</i> as the handover of the project. The IT department of ENEA will make the required modifications and promote the new tool.	Potential link to the national Decree named D.P.R. 74/2013 that has completed the implementation of the EPBD. Inclusion of HARP training in the existing professional courses (e.g. <i>crediti formativi</i>).
ES	The non-consideration of air-air heat pumps in HARP's tool is a weakness. The tool usability for both users and professionals, is a plus. IDAE only wants to promote renewable energy alternatives.	In Spain, the main national strategy from which incentives and detailed policies are developed is the plan on energy and climate " <i>Plan Nacional Integrado de Energía y Clima 2021-2030</i> ".
	Professionals are already very busy and they don't need any competitive advantage. Focus should be on industrial/commercial buildings or courses for unemployed people.	Focus on regional agencies and existing subsidies programmes (e.g. Madrid Plan Renove). Including HARP in the information provided to the users when they are applying for regional-based subsidies. AGENEX, the regional energy agency of Extremadura, officially endorsed HARP.



PT	The importance of co-benefits should be more straightforward. The app also misses information on installation and the maybe the solutions presented should focus solely on renewables.	National Long Term Renovation Strategy (EPREL) references the HARP as a supporting tool to incentive replacement of existing heating systems.
	The HARP methodology could be used to evaluate the requests for incentives and rank the best interventions requests (in €/kWh saved), introducing the “real” expected efficiency	<p>Potentially adopted within the National Buildings Certification Scheme to estimate the energy efficiency of existing heating appliances.</p> <p>If voluntary or compulsory maintenance procedures for space and DHW appliances were to be adopted the label for existing appliances could be considered.</p> <p>One-stop-shops, one of the measures listed in the EPBD to reinforce buildings energy retrofit, can also integrate the HARPa and promote the replacement of inefficient heating systems.</p>

5 CONCLUSIONS

Rather than focusing on the use of the application as a stand-alone product, Deliverable 6.2 focuses on how the HARP methodology could be part of National-wide policies in each country, for adoption at the governmental level. The uniformed feedback coming from all the partners responsible for the National campaigns, independently from the national system boundaries, is that the potential of existing heating appliances labelling would be immensely extended if the label became part of public policies. At the same time, the efforts made for endorsing the methodology at a public level were blocked by external factors which became urgent matters for the public authorities contacted (e.g. COVID pandemics, French Elections in 2022, Ukraine war and consequent focus on energy independence, etc.). It is clear to the project partners (while ENEA is against this position) that it is way more significant to include the use of the HARP methodology into national policies than to make specific stakeholders using it, as is happening in Germany, where the return for the selected stakeholders is perceived as too low. Criticalities, lessons learnt from the use of HARP in the two heating campaigns and requested changes to the HARPa are being considered during the last period of the project to improve the application and ensure its best use after the end of the project in each partner country.

For the exploitation of the HARP methodology and the potential use of HARPa after the end of the project, five different policy scenarios for the integration of the HARP energy label for existing heating appliances in Europe and in national public policies were analysed:

- 1. Harmonize the current labelling schemes for the energy labelling of existing heating appliances**



The labelling schemes for existing heating appliances currently in force in 4 out of 5 HARP countries (Germany, Italy, France and Spain) are not harmonized with the EU regulations applicable to new heating solutions. HARP proposes a developed methodology compatible with the European regulations considering both space, water and combi heating which can be adopted by the existing systems, either on a mandatory, or a voluntary basis. Since the HARP methodology follows the same energy scale of the new heating products label, end consumers can directly compare their existing heating appliance with the new solutions available on the market.

2. Reinforce the link to the Energy Performance of Buildings Directive (EPBD)

Heating is one of the most important energy-intensive services in most European residential buildings and therefore is an important criterion to take into account regarding for the evaluation and emission of buildings' energy performance certificates. The customization of the HARP methodology to the National level could facilitate the future adoption of the labelling methodology for existing heating appliances in the national building's certification scheme. This would link the information on the building certificate with the heating system energy label, offering the possibility to the end users to compare information between the performance of the existing system and new solutions on the market. Furthermore, professionals could use the recently launched EPREL – European product database, where all the products technical data (for energy label compliance) is available, to characterize in a more complete way the existing heating appliance.

3. One-stop-shop and Renovation Passport

As reported in Section 3.3., one stop shops and Renovation Passports are two of the tools endorsed in the EPBD to support the end user in the identification and adoption of energy efficiency measures in their house. HARP methodology would be a valuable input to apply in the context of one-stop-shop and residential building Renovation Passports since it would allow the consumers to simulate the energy class of their heating system and raise their awareness of the renovation potential. In the one-stop-shop, the consumer could also find other potential interventions to couple with the renovation of the heating system, improving the overall energy efficiency of the house (e.g. isolation of the walls). In the list of interventions for retrofitting promoted by the Renovation Passports, the heating systems should be always taken into consideration if older than 5 years, and therefore HARP methodology could be applied to verify the need for changing it or let the end-user focus on different improvements.

4. Maintenance procedures

Since maintenance procedures are compulsory in most EU countries, the visits of professionals at the consumers' houses are seen as a unique opportunity to evaluate the existing heating appliance and report the results to the consumer. This assessment can be extended beyond security and operation, evaluating also the energy performance of the existing heating appliance. This information can be included in the system's report passed on to the consumer, raising their awareness to the (in)efficiency of the system and the existing potential replacement solutions on the market.

5. Prioritize energy efficiency incentives, support the energy transition and fight energy poverty

To tackle energy poverty around Europe, available incentives should be prioritized for people in need and/or the ones who are not able to properly heat their houses during the winter season. Currently, most energy efficiency subsidies do not quantify and/or prioritize the energy savings that a new



heating device could achieve. Eligibility criteria should be set to push for energy-efficient solutions which can replace old and inefficient systems. Adopting the energy label of existing heating appliances in the process of requesting energy incentives (e.g., only support the replacement of heating appliances with an energy label C or below) would maximise the energy saving impact of incentives, while contributing to mitigate energy poverty problems. Prioritization (rank the interventions and prioritize the ones that guarantee the highest energy savings) or incentive surplus (provide extra incentive to the replacement of appliances labelled as C or below, e.g., 10% more incentive), would allow boosting the replacement of the oldest and most inefficient heating appliances. All these options, using HARP methodology, would help to achieve the highest revenues in terms of energy savings per public money invested, being able to measure and monitor the impacts of these measures.

The main results reached by the HARP project are surely the handover of the methodology at a national level to ADENE (Portugal), Uniclimate and Energies et Avenir (France), Assotermica and ENEA (Italy). HARP project partners will therefore continue to use the methodology at National level to label the existing heating appliances on their territories. HARP will be customized according to the National needs to make it more tailored on the specific framework of each country.

It is worth reminding the public endorsements achieved in Portugal, the Long-Term Renovation Strategy (ELPRE) that references HARP as a supporting tool to trigger the replacement of existing heating systems) and Spain, the Extremadura Energy Agency (AGENEX), showed its commitment of continuing using HARP for demonstration and potentially include it in future subsidies scenarios through a signed letter of commitment.

The HARP partners are confident that the labelling methodology for existing heating appliances developed during the project will be used for many years in the future and that, if supported by public authorities and policymakers, will be a game-changer tool for the decarbonization of the heating sector in the European Union.



6 ANNEX I: Proposal document for the endorsement of HARP in the French case



Adoption proposition of the HARP methodology inside the new French national labelling tool.

Energies et Avenir and Uniclimate - partners of the Heating Appliances Retrofit Planning (HARP) project.

We as industrial French Partners of the HARP project, part of the Horizon 2020 program launched by the European commission, are willing to adopt and implement the HARP methodology in our new updated version of the French Labelling tool for old heating appliances (supported by the French heating associations professionals).

We want to instal and create a new labelling tool – this tool will be an online platform based on the same type of layout as the existing European and national French tool; it will integrate the HARP methodology as the main method used for the calculations of the labels, with some modifications brought from the actual French tool in place.

To be able to settle this new tool in the long run we have written this proposal to ensure the European commission our honest will of implementation and adoption of the HARP methodology at a national level with the help of the professional heating associations.

The revision and creation of the tool would take us some time and manpower, so we have decided to shift some of the non-used extra budget of the project, to use them wisely and insure the tool adaptation process before the end of the project. The continuity of the tool's development and its adoption by the French professional sector will be insured by Uniclimate and Energies & Avenir during the post project period.

However, Uniclimate and Energies & Avenir have some requirements that needs to be taken into account, so the offer can take place in the best conditions possible

The main modifications and requirements are:

New naming of the tool.

We would like to name the tool “Mon etiquette Chaudière-Chauffage”

The existent French tool on the French market named by Energies et Avenir and COENOVE is already recognised by the French installers associations and has already benefited from the sectors support. It is to be replaced by this new tool that would join both HARP and Mon etiquette Chaudière's methodology. We would like to keep a part of its original name “Mon etiquette Chaudière” (which means my boiler label) and add “-Chauffage” (heat) to the initial name, to demonstrate the multi-technology approach of the HARP methodology and open the promotion of this project to all the Professionals appliances and concerned by this tool. (Heat pump and renewable energy). Moreover, The Mon Etiquette Chaudière-Chauffage is understandable and evokes the use/ purpose of that tool to the professionals and consumers while reading its name.

The use and the mention of the HARP methodology in every step of the tool.

We want to make sure the users see this tool's creation is based on the HARP methodology and its project initiatives. This mention at the HARP implications and support will be shown directly in the home page of the tool and in the frame of every step of this following one. It is very important to us that the HARP implication is mentioned along the way of the new “Mon etiquette Chaudière- Chauffage” tool since it is core element that will help us create it.

- **Change the tool's aspect and design.**



We want to make the tool more user friendly and simple to get for them; With simplified visuals and some modifications planned to be done on the general design of it (make it fully responsive) and erase some of the transition problems bugs between each questionnaire pages.

- **The adaptation of the texts and the technical terms**

Change the remaining English text on the new version of the tool, correct and adapt the technical terms that aren't accurate to the national spoken language.

- **A creation of updated Backoffice cockpit:**

This cockpit will be able to let the administrator, pilot and collect the statistics of the tool in real time such as:

Number of energy label produced

Percentage of resources used

And other data that are used on the tool

We will mainly focus on the technical part of the tool for the recreation of its new tool version.

Main Other criteria of modifications planned to be done:

- Change the age range of the technologies and the habitats (find the consumption elements of the habitats consumption)
- Adapt the C age factor to the classification of the technologies and the calculating methodology.
- define the climate zones by regions so it is more accurate on the weather estimation and to the RT2012 regulations
- modify the PEF and correct the CO₂ emissions data.
- Delete the question: "do you have reliable energy sources?" since it is supposed to be directly seen with the installer in charge of the renovation, and since the consumers wouldn't know how to respond to this question.
- Study the possibilities about existing supporting technology in the habitat.
- Add in the recommendation section the mention "estimated costs and savings, without the public financial aid"
- Cancel the recommendations with a combination of Heat pump and solar thermal due to the lack of relevance compared to the actual average expenses on the French market, and recommend fossil boilers with solar thermal appliances.

As mentioned before to be able to make those modifications and really implement the HARP methodology at a national level, we have worked with the workforces of Uniclimate and Energies et Avenir (Engineers, project manager, developer – IT, and professional association representative) on this adoption and update of this new tool.

We, Uniclimate have already proposed a shifting of hours for both partners that was previously sent and validated by our Project coordinator Joana Fernandez.

The budget to be shifted for both partners is detailed below.

Uniclimate

We will use the 3000 € of extra direct cost that aren't used for WP7 and the other non-used direct cost for travels

We will use the remaining non-used travel costs for Uniclimate: 2998.45€



This gives us a total of 5998.45 € of other direct cost shifted from Uniclimate's initial given budget that we will use for the remodelling and adaptation of the tool in France.

Energies et Avenir

We will use the 2750€ of extra direct cost that aren't used for WP7 and the other non-used direct cost for travels

We will use the remaining non-used travel costs for energies et avenir: 8590 €

This gives us a total of 11 340 € of other direct cost shifted from Energies et avenir's initial given budget that we will use for the remodelling and adaptation of the tool in France.

This agreement will be doable in exchange of a good tracking of the man power, A real implication, some viable resources, perspective of adoption in the long term by the French industrial partners.

This co-signed proposition by Uniclimate and Energies et Avenir's is to make sure those propositions of adoption are respected and maintained in the long-term bases.

By signing this document Uniclimate and Energies et Avenir agree to respect the initiatives mentioned previously, to adopt the HARP methodology in this new national tool that will merge both existing tools, respect the adoption ethics of the HARP project on the French sector and will make sure to provide all the necessary documents (Business plan, Hourly rate budgets/cost estimations for the shifted budget used, access to the data generated by the labels) to the European commission and the HARP partners concerned by this methodology adoption.

Jean-Paul Ouin

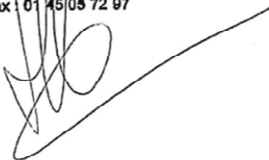
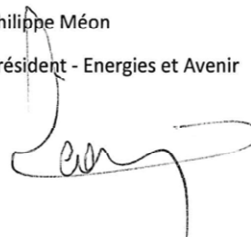
Délégué Général - Uniclimate

On the 20th of may 2020

Philippe Méon

Président - Energies et Avenir

UNICLIMATE
11-17 rue de l'Amiral Hamelin
75783 PARIS Cedex 16
Tél. : 01 45 05 70 00
Fax : 01 45 05 72 97

7 ANNEX II: Letter of support from AGENEX



To whom it may concern:

By means of this letter, I, as a technician and HouseEnvest's project manager and coordinator at the Extremadura Energy Agency (hereinafter AGENEX), hereby state that the Extremadura Energy Agency (hereinafter AGENEX) has been actively using the HARP tool in meetings held with residents' associations, in order to inform them graphically and didactically about the efficiency of their equipment.

The use of the HARP tool has mainly focused on the first section or functionality of the tool: the labelling of existing heating systems.

AGENEX therefore confirms that the HARP app is a useful tool, and reports that it intends to continue using it, and will continue to promote its use in the same way as it has been doing so far.

In any case, the content of this document does not constitute any legal obligation.

In Badajoz, on the 23rd of June 2022.

MARQUEZ
POCOSTALES,
FRANCISCO JAVIER
(AUTENTICACIÓN)

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FRANCISCO JAVIER
(AUTENTICACIÓN)
Fecha: 2022.06.23 12:03:42
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Francisco Javier Márquez Pocostales

Technician and project manager

Extremadura Energy Agency – AGENEX (c)

