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Webinar - HARP

HO2020: per la riqualificazione energetica

WP2 - Consumer and the heating market

WP3 – Labelling methodologies and tools

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Assotermica

Associazione produttori
apparecchi e componenti
per impianti termici

R2M
RESEARCH TO MARKET
SOLUTION


eurac
research

ENEA

ENTE PER LE NUOVE TECNOLOGIE,
L'ENERGIA E L'AMBIENTE

eurac
research

HARP
Heating Appliances Retrofit Planning



At Eurac Research, more than **400** researchers work and focus on issues that closely affect people's lives. The aim of the activities is to contribute to a **healthy society**, to **regions where it is worth living** as well as managing appropriately social, cultural and ecological diversity.

The Institute for Renewable Energy at Eurac Research

The Institute for Renewable Energy at Eurac Research conducts **applied research** on how to **produce energy** using **advanced energy systems** based on sustainable energy sources, how to **manage** them and **reduce** their consumption.

In our projects, we use and combine different methodologies, such as:

Tests in our labs
Dynamic simulations
Field monitoring
Surveys



~ 100
collaborators

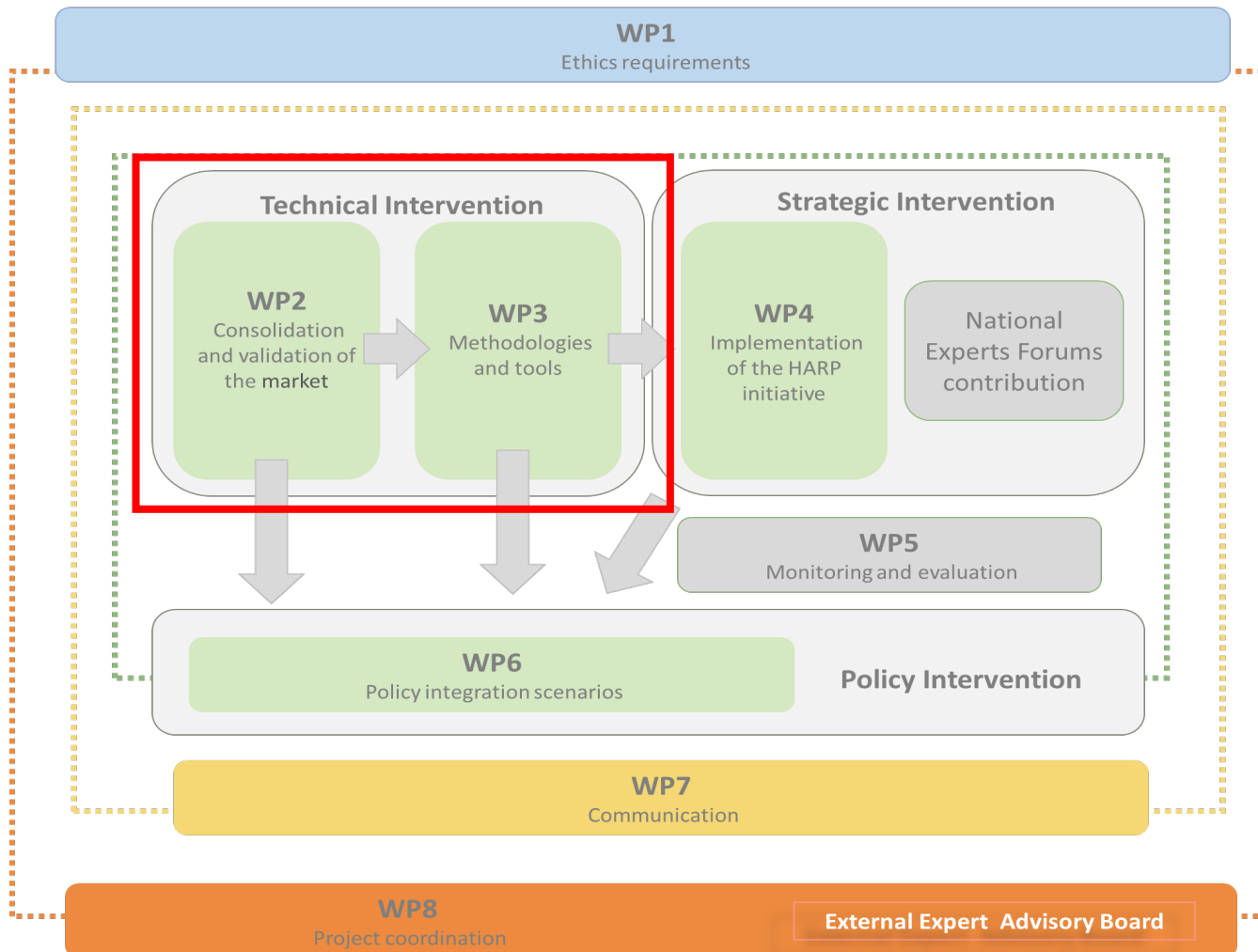


~ 50 projects and
consultancies



7 labs

HARP – WP2 and WP3



Task 2.1 Consumer behaviour change journey

- Understand **consumers** inner **motivations** for the replacing (upgrading) of their appliances
- Survey distributed online for each country



Understand consumers inner motivations to adopt efficient heating systems



Identify the important factors for explaining the efficient heating equipment diffusion process in the participating countries



Treatment and storage of the data

Task 2.1 Consumer behaviour change journey

		Attitude on heating equipment use in general						Behavioral Intention to change to an EEHA					
		Att						BIC					
		ALL	FR	GE	IT	PT	SP	ALL	FR	GE	IT	PT	SP
Operation and Maintenance work	OM	Red	Red			Red		Red		Red		Red	
Engagement	EG	Green	Green					Green	Green				Green
Relative Advantage	RA								Green				
Energetic Efficiency	EE	Green						Green		Green	Green		Green
Social Influence	SI	Green		Green		Green		Green		Green			
Price Value	PV												
Wellbeing	W												
Total Cost	TC		Green						Green				
Conditional Value	CV												
Savings	Sav							Green	Green				
Green-Self Identity	GSI								Green				
Label	Lab	Green	Green					Green			Green		
Co-Benefits	CB			Green						Green	Green		
Co-Benefits Investment	CB Inv	Green			Green	Green		Green		Green	Green	Green	
Spatial Characteristics	SC		Green						Green				
Communication Channels - Media	CCM											Green	Green
Communication Channels - Organizations	CCO	Green	Green					Green	Green		Green	Green	
Number of Children in the Household	HC4	Green		Green				Green		Green		Red	Green
House Energy Class	HEL			Red			Red			Red		Green	
Owner of the House	HC6	Green	Green										
House Age	HA			Red		Green		Green				Green	
Apartment	HC9		Red					Red	Red				
Price Opinion of Heating Solutions	SE4		Red			Green							

Warning: this slide is a partial elaboration of results. It gives only an overview and does not represent the final results. (Coming soon)

Task 2.2 Buildings and heating appliances stock

- Characterization of the **heating appliances stock**
 - France, Germany, Italy, Portugal, Spain and EU 28
 - Identification of most common solutions/technologies to the building's typology
 - Analysis of the heating stock in terms of: age, capacity, average efficiency and average/expected energy class, etc.
- **Space heating** appliances and **water heaters**

Task 2.2 Buildings and heating appliances stock

For France, Germany, Italy, Portugal, Spain, EU 28 heating appliances stock and building stock have been analysed

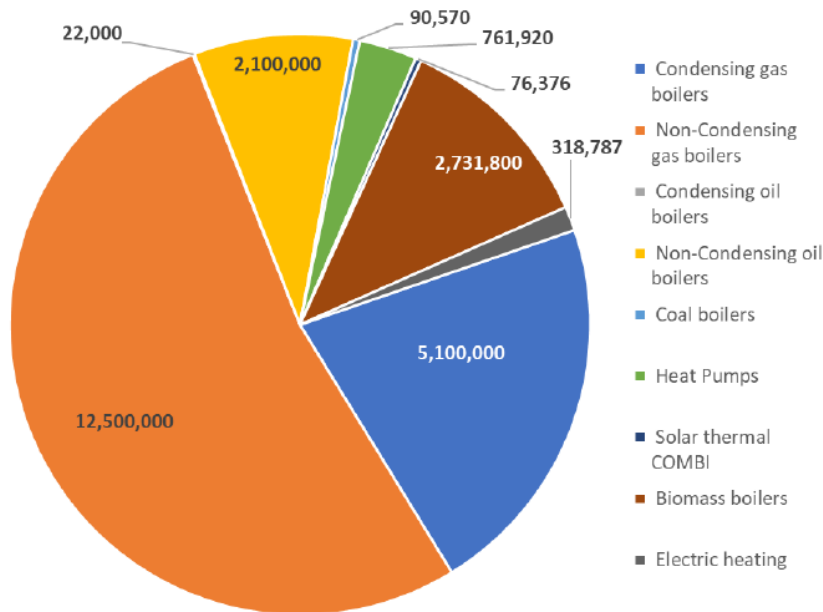


Figure 17 Space heating combi/space heating units installed in Italy in 2017

Table 6 Number of heating appliances installed in Italy (database)

ITALY	Autonomous heating (SFH + MFH-A)	Central heating (MFH-C)	Total
Condensing gas boilers	3,929,040	1,170,960	5,100,000
Non-Condensing gas boilers	9,630,000	2,870,000	12,500,000
Condensing oil boilers	10,085	11,915	22,000
Non-Condensing oil boilers	921,060	1,178,940	2,100,000
Coal boilers	90,394	176	90,570
Heat pumps	647,632	114,288	761,920
Solar thermal COMBI	76,376		76,376
Biomass boilers	2,725,000	6,800	2,731,800
Electric heating	186,449	132,339	318,787
Total	18,216,036	5,485,417	23,701,453

Task 2.3 Market solutions and potential

- **Characterization of market** available heating solution
 - Looking at energy labelling and eco design regulations, defined at the HARP countries level, considering the RES potential.
- Matrix of different **technological solutions** defined for each country:
 - Efficiency class
 - Price and costs, Lifetime
 - Sound power levels, Emissions
 - Installation requirements

Task 2.4 Technology analysis beyond the economics: co-benefits

- Identification and evaluation of the set of **co-benefits** associated to each heating solution / technology.
- Task results will be **integrated in the online app**
- Survey sent to experts:

What co-benefits would you associate with a specific heating solution? Please rate the co-benefits according to their importance

Please only enter numbers. (+3 very positive; +2 positive; +1 slightly positive or -3 very negative; -2 negative; -1 slightly negative)

	Thermal comfort	Air quality	Noise	Aesthetics	Ease of use / Control by user	Impact on useful living area	Added value to the property	Energetic autonomy	Reduced environmental impact
Biomass boilers	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Combined heat and power	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Electric heat pumps	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

WP3 - Labelling methodologies and tools

Establish and validate the **methodologies for labelling existing heating solutions** and deploy the **online app** that accompanies the consumer acquisition journey:

1. develop the **methodologies for labelling existing heating solutions** (before EL regulation), space and water, in line with the European energy labelling regulation for new appliances
2. **HARPa – online tool** to support consumer decision process
 - Basic interface aimed at **consumers**
 - Advanced interface aimed at **professionals**

Energy Labelling for OLD SH appliances

Voluntary:

- Spain – Fegeca, France – Uniclimate, Italy – Assotermica

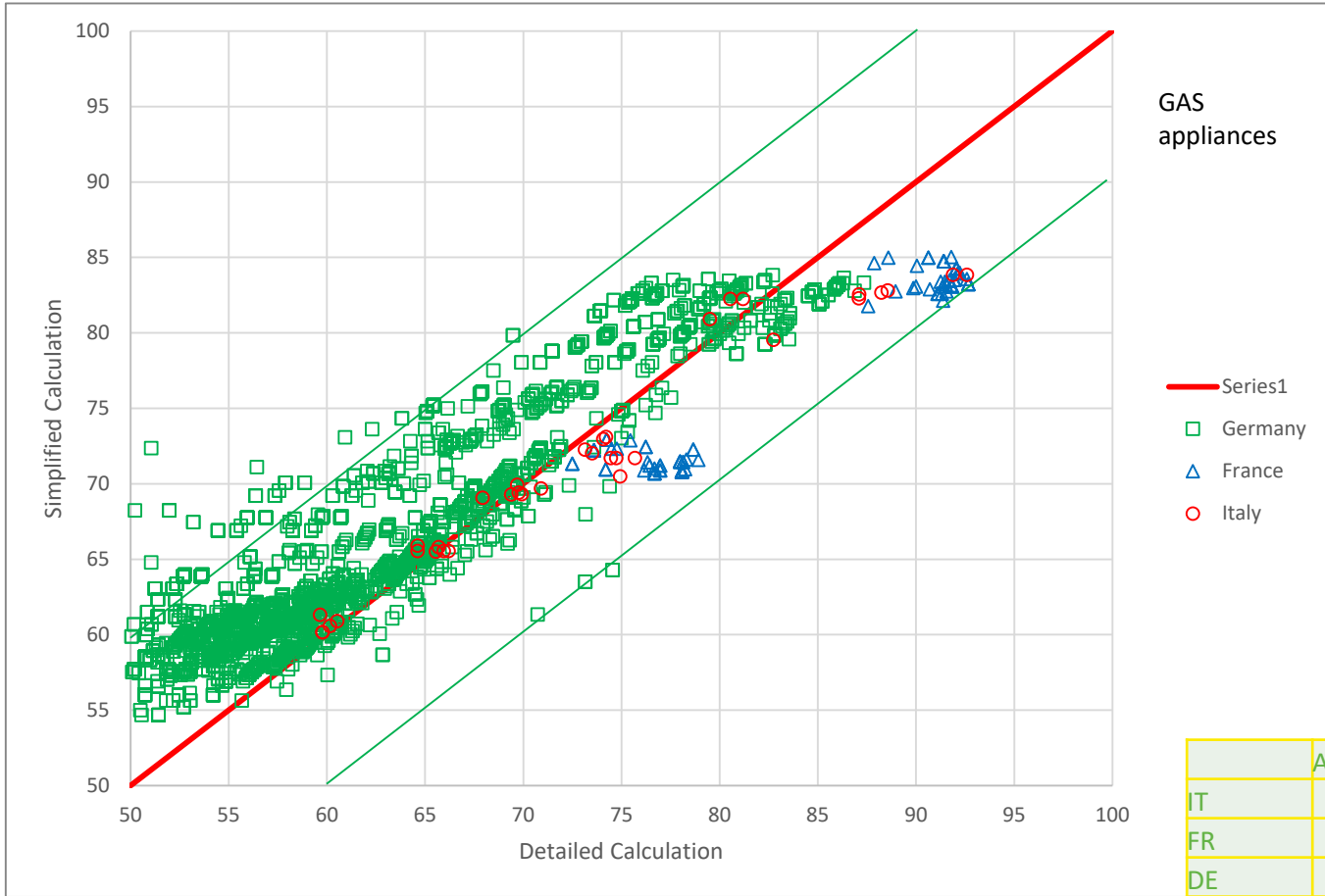
Mandatory:

- Germany

The proposed method is based on the Italian scheme:

- Calculation method **agrees** with **Regulation EU 811/2013**
- Two levels of detail:
 - **Simplified** calculation for **common** user
 - **Detailed** calculation for **professional** user

Energy Labelling for OLD SH appliances



Validation:

- 4600 models
- From 1972 to 2019
- From 6 kW to 70 kW

	Avg	Max	Min
IT	1.47	8.74	-1.71
FR	6.50	9.44	1.16
DE	-4.09	10.25	-22.91

Energy Labelling for OLD WH appliances

There are not available existing schemes for WH.

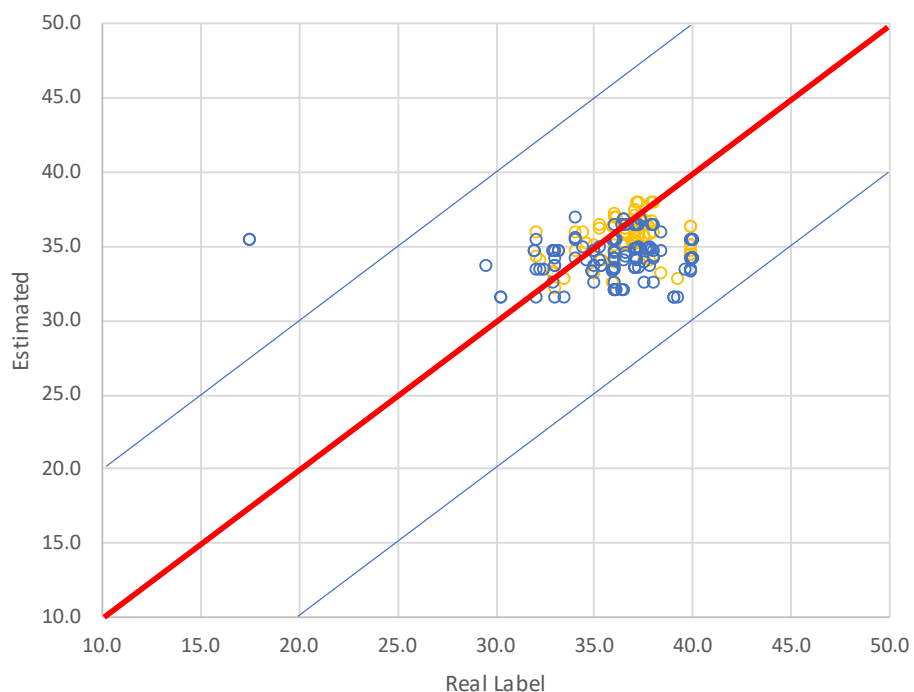
The proposed method is under validation:

- Calculation method **agrees** with **Regulation EU 812/2013**
- Two levels of detail:
 - **Simplified** calculation for **common** user
 - **Detailed** calculation for **professional** user

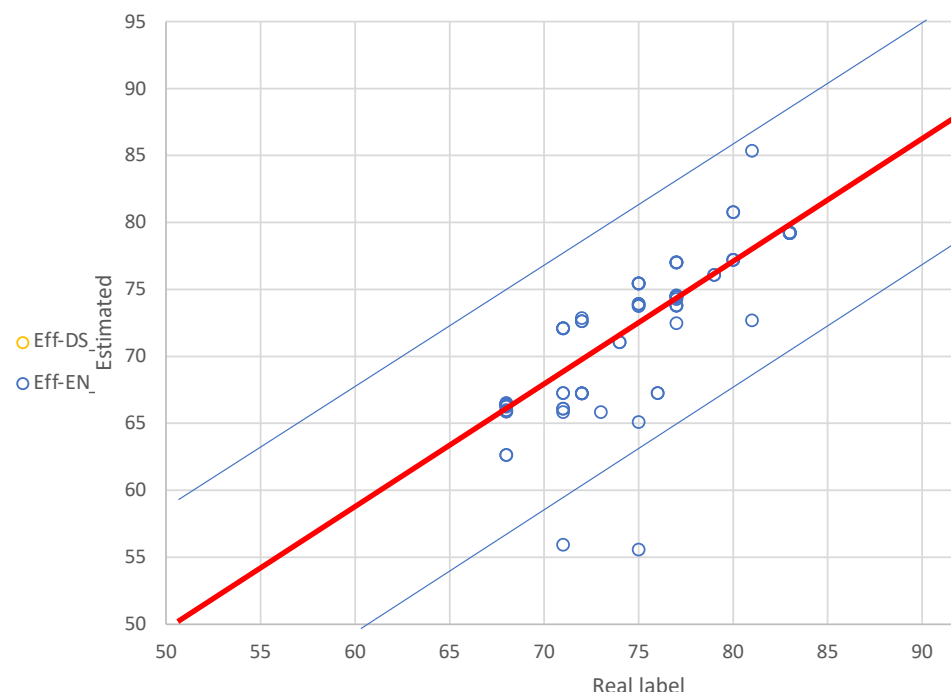
Validation is a work in progress

WH electrical

WH gas



DS – detailed calculation

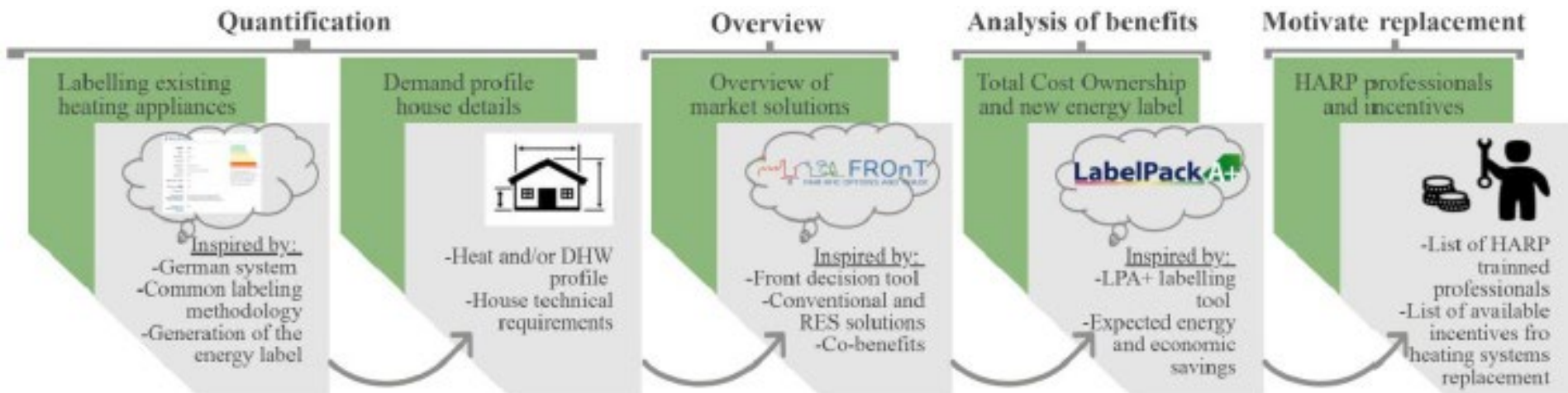


EN – simplified calculation

WP3 – Task 3.2 Tool

HARPa online tool:

5 steps that accompany the consumer decision process



Thank you for your attention!



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