

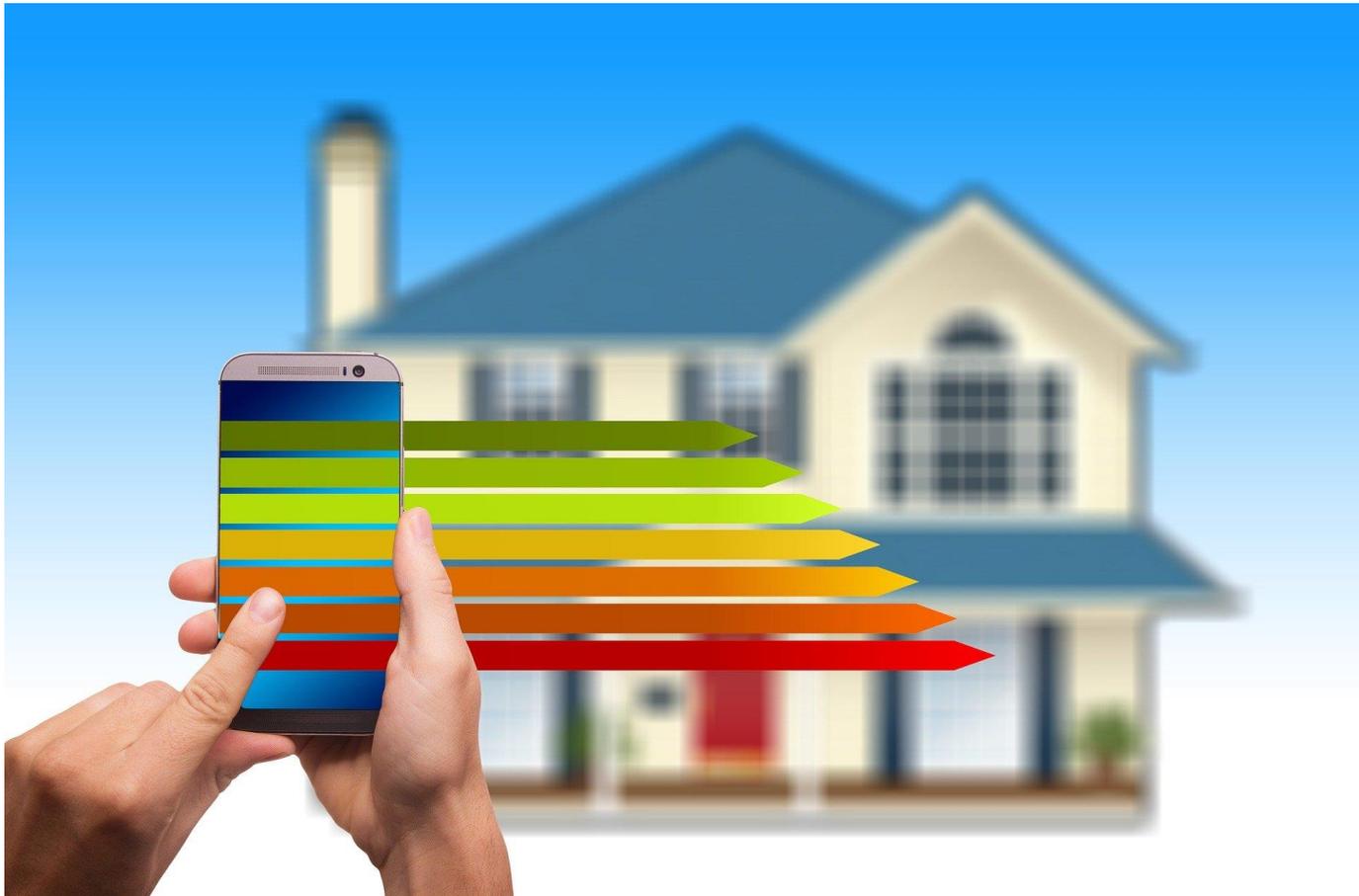
Efficient heating

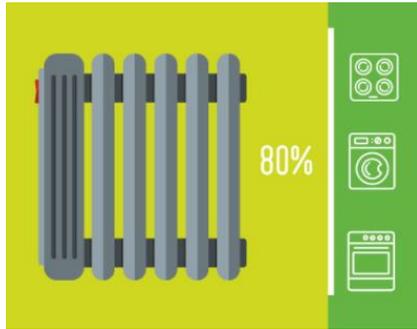


Efficient heating technologies on the market, their benefits and drawbacks

Prepared by ENERGIES 2050 for HARP project consortium

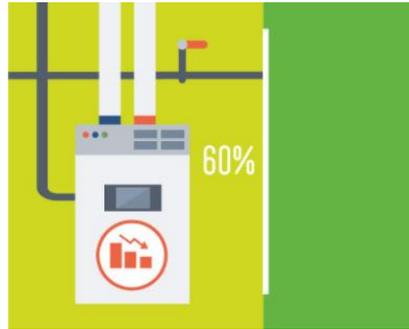
It is a high time to change your heating system





DO YOU KNOW HOW MUCH WE ALL SPEND ON HEATING?

Space and water heating represent 80% of the total energy demand of EU households.



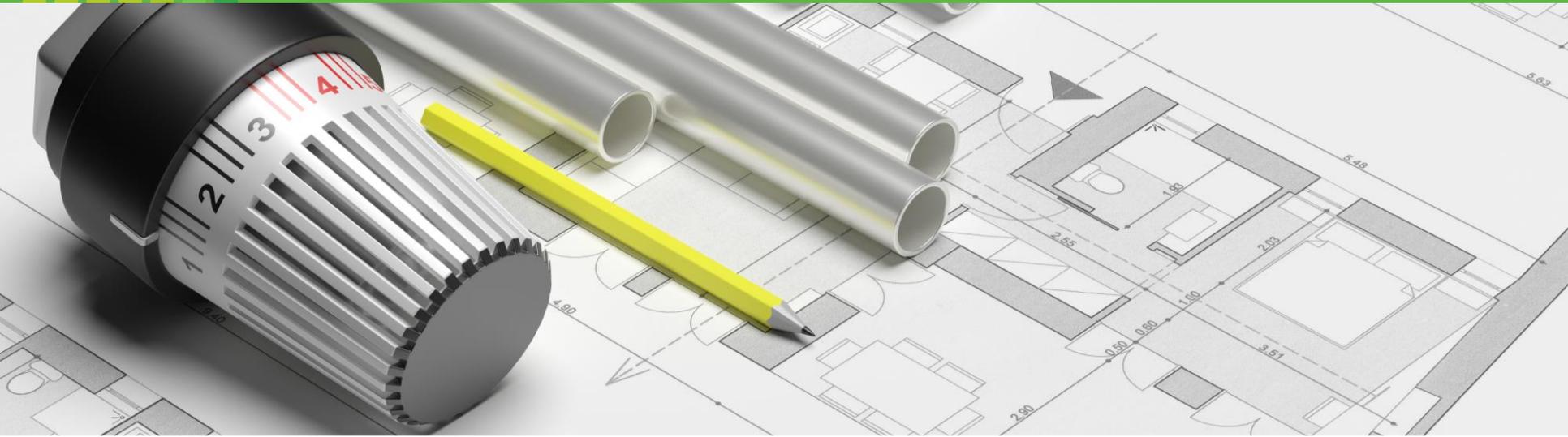
ARE YOU SURE YOUR CURRENT SYSTEM IS EFFICIENT?

At European level, 60% of the installed stock consists of inefficient heating systems.



DO YOU HAVE AN OLD SYSTEM? IT'S TIME TO CHANGE!

Whatever the country you are living in, and regardless of the heating system installed, your system is likely to be older than 15 years and thus potentially highly inefficient.



Have you thought about changing your current heating or hot water system?

DON'T BE AFRAID TO CHANGE a more efficient heating system will pay off by saving you money and helping to reduce your carbon footprint!



**Ever thought about
planning the
replacement of your
current heating system?**

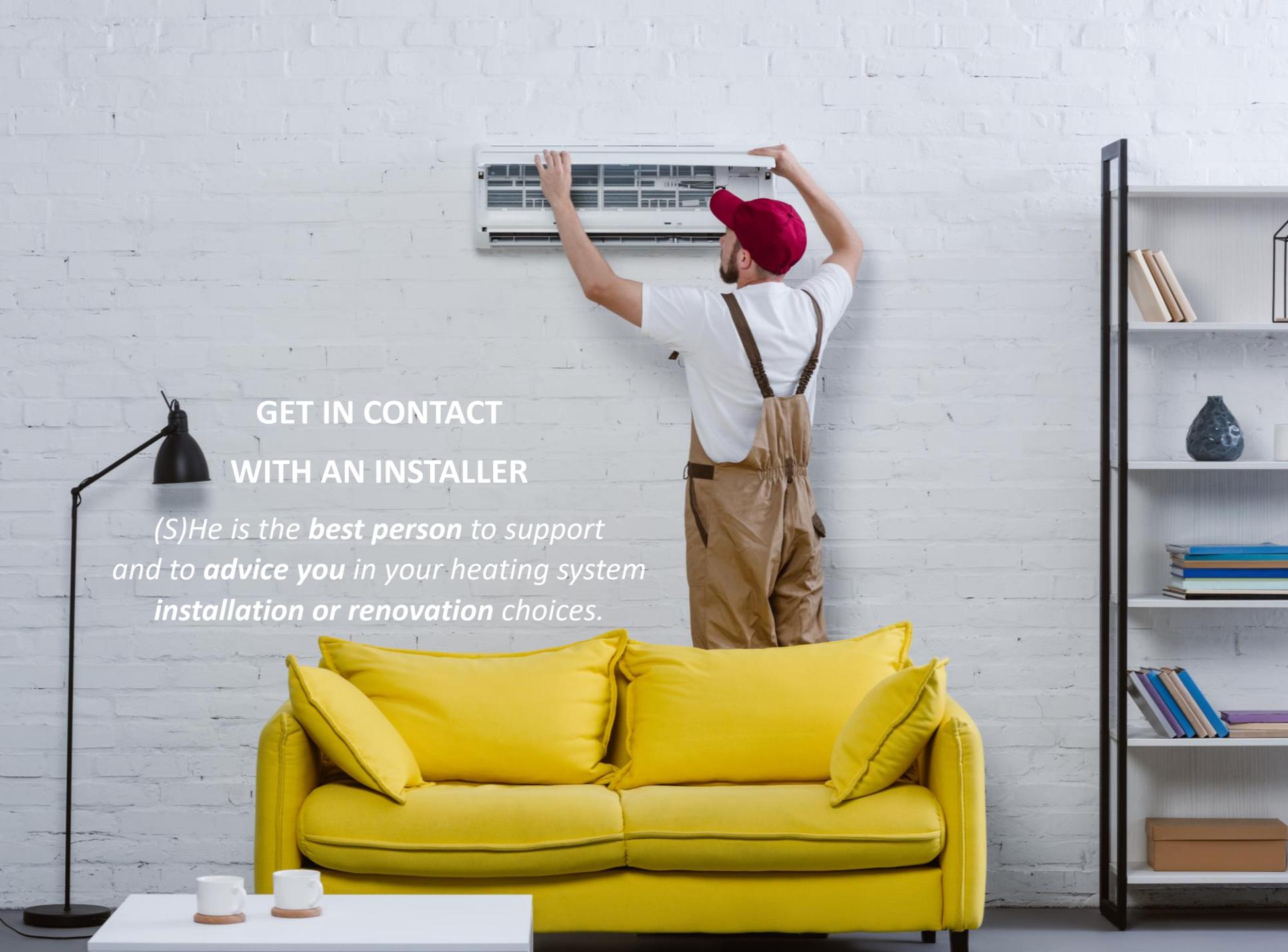
Most people do not think about their heating until it breaks down. Act now and start to compare, plan, and choose the solution that suits you best.

**Planning helps to
avoid problems and to
save money**

If you have a system that is older than 15 years, it is time to consider replacing it and start saving money.

**A more efficient
system emits less CO₂**

Hence, changing your heating system will ultimately help to save resources and protect our planet.



GET IN CONTACT
WITH AN INSTALLER

*(S)He is the **best person** to support
and to **advise you** in your heating system
installation or renovation choices.*

Efficient heating technologies on the market



Heat pumps

BENEFITS

- ✓ Heat pumps use local renewable energy
- ✓ Any geothermal heat pump substantially contributes to the reduction of greenhouse gases emissions and combined with renewable electricity the technology is carbon free during operation
- ✓ Heat pumps are easy to use
- ✓ Improved surrounding air quality
- ✓ Highly energy efficient
- ✓ Higher real estate value
- ✓ Suitable for different buildings and needs due to the high variety of heat pumps models and technologies.

[note: the information presented here can be changed with anything else from factsheets]



Solar thermal

Solar thermal technology converts sunlight into heat, which is then used to produce hot water, heat or even to cool buildings. The solar collectors are usually installed on the house roof, though they can be also integrated into building elements (e.g. balconies, façades) or on other shadow-free areas.



Biomass boiler

Did you know?

Pellet boilers central heating systems, which are operated with wood pellets, are particularly convenient: pellets are kept in a storage room or tank and supplied to the boiler by means of either a suction or screw conveyor system. The systems are fully automated and can be modulated in a power range from 30 to 100 %.



Condensing boilers

Did you know?

Condensing boilers can reach an energy efficiency class B to A, while boilers equipped with the most advanced controls can even reach class A+.



Hybrid heating system

Mix and match for optimal results: each technology and each energy source has its own advantages as well as downsides. This has led manufacturers to consider the feasible combinations of existing technologies and energy sources, in order to maximise their benefits and compensate their weaknesses. Hybrid systems can offer tailor-made solutions to respond to diverse heating needs.



Water heaters

There are several technologies allowing to heat water efficiently. The most common primary energy sources used to heat water efficiently are gas, biomass, solar thermal, air and ground heat pumps...

Your choice depends on the type of energy you want to use, the type of building, or the hot water needs.





Want to know more?

Visit www.heating-retrofit.eu/

to consult factsheets about
efficient heating systems

Efficient heating – beyond the economics



Efficient heating technology

- Provides **direct benefits**:
 - Energy saving
 - Cost savings
 - Reduction of CO₂ emissions
- But also **co-benefits**: benefits that are not directly related to the energy consumption

Energy Efficient Heating Appliance

Direct benefits

- Energy savings
- CO₂ reductions
- Money savings

Co-benefits

- Thermal comfort
- Added value of property
- and much more...



Co-benefits

- ✓ Reduction of environmental impact
- ✓ Real estate added value
- ✓ Improved air quality
- ✓ Thermal Comfort
- ✓ Independence from energy prices
- ✓ Improved aesthetics
- ✓ Ease of use
- ✓ Gain of useful area



Co-benefits

**To EU consumers
some co-benefits are
more relevant than
others**

- The most relevant co-benefits are: thermal comfort, air quality and reduced environmental impact.

**Different countries,
different co-benefits**

- The co-benefits chosen depend on the context. In France, the most relevant co-benefit is the increase in the added value of the building, while in Spain thermal comfort and the independence from energy prices are the most valued.

**Consumers are
willing to invest in
co-benefits**

- The reduction of environmental impact and independence from energy prices are the most valued co-benefits in terms of monetary value. In opposition, aesthetics was the one less likely to invest.

Facts and misconceptions about heating



CHOOSING A HEATER WITH AN ENERGY EFFICIENCY CLASS A AND ABOVE IS SMART FOR MY WALLET

True!

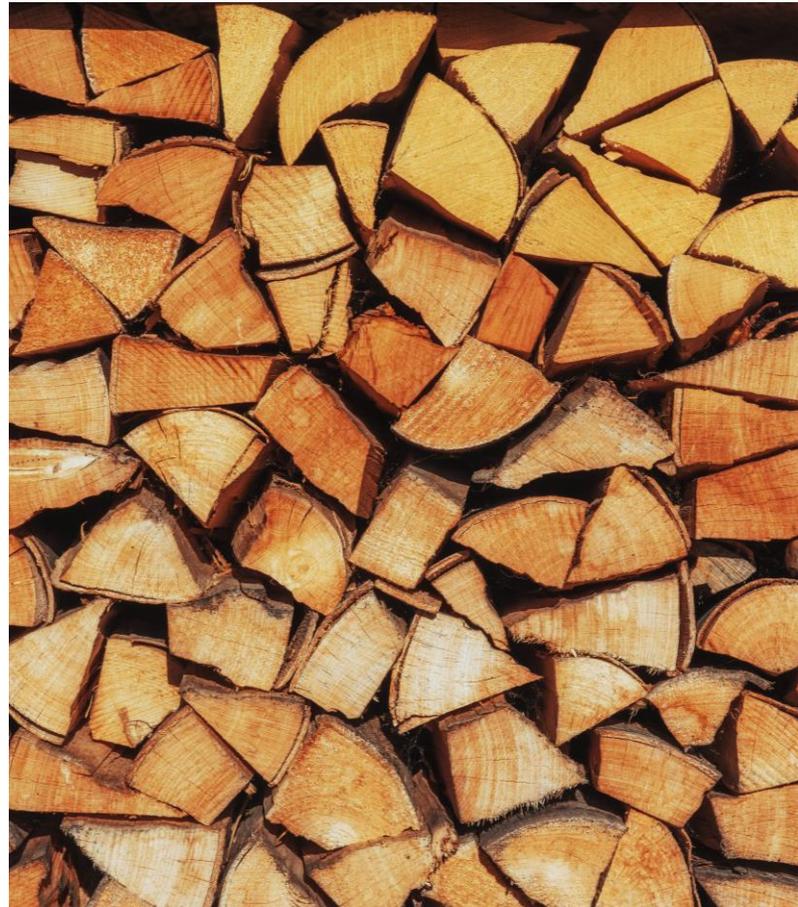
Yes, energy efficient heating has a direct positive effect on your energy bill. What's more? Despite the upfront investment needed, energy efficient heating pays off. The longer you wait, though, the more it will cost you – so act now! If you do have an inefficient heating system currently installed in your home, make sure to get it checked and inform yourself about modern alternatives that exist on the market in your country.



FOREST ARE BEING DESTROYED JUST TO PRODUCE FIREWOOD

FALSE!

Sustainable forestry is an essential achievement of EU agriculture policy. In fact, the forest stand across Europe is quite stable. In addition, wood used for heating does not just come directly from forests but also from production residues (i.e. from industrial wood processing).



MY TOWN DOES NOT HAVE ENOUGH SUNLIGHT TO INSTALL A SOLAR THERMAL SYSTEM

False!

That is not a problem!
Solar thermal system works without direct solar radiation and in regions with low sunlight.



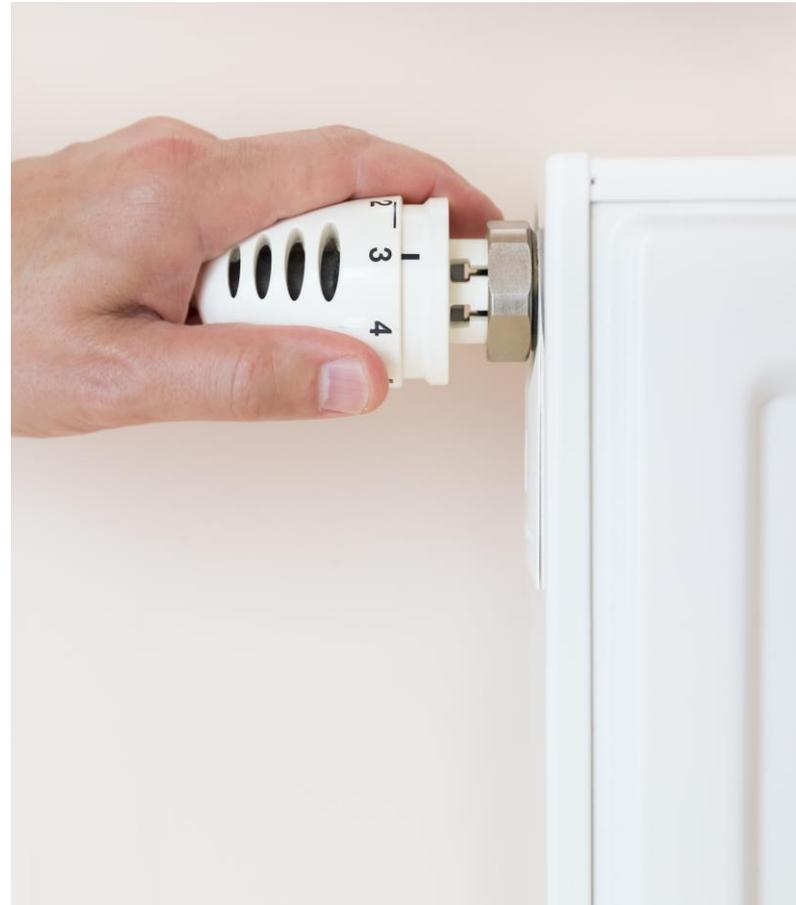


How to efficiently use the heating?

IT IS BEST NOT TO OPEN WINDOWS OF YOUR HOME DURING WINTER TO AVOID WASTING HEATING

FALSE!

Especially in Winter times, it is important to ventilate the rooms 5 to 10 minutes per day to renew the air and evacuate humidity, CO₂, and bad smells. However, to avoid losing too much heat, turn off the radiators or convectors when ventilating. Smart heating systems help you to detect open windows and optimise heating during all seasons.



TO BE COMFORTABLE IN YOUR HOME, YOU NEED TO HEAT TO MORE THAN 20°C

False!

Comfort is a personal feeling. You can heat your home to 22°C and still be cold. If your home is poorly insulated, damp, or has air leaks, you will experience a temperature lower than that indicated by the thermometer. That is one of the reasons why checking your heater alone is not enough. A good level of insulation is crucial too.



Want more information?

- Infographic of misconceptions about heating and more materials are available online at retrofit-heating <http://www.heating-retrofit.eu/>



HARP
Heating Appliances Retrofit Planning

CHOOSING A HEATER WITH AN ENERGY EFFICIENCY CLASS A AND ABOVE IS SMART FOR MY WALLET

Yes, energy efficient heating has a direct positive effect on your energy bill. What's more? Despite the upfront investment needed, energy efficient heating pays off. The longer you wait, though, the more it will cost you – so act now! If you do have an inefficient heating system currently installed in your home, make sure to get it checked and inform yourself about modern alternatives that exist on the market in your country.

However, how to choose an efficient heating system and how to use it efficiently? Here are 6 misconceptions that could help you see through!

X A BIOMASS BOILER CREATES HIGH LEVEL OF CO₂ EMISSIONS
Biomass can be used in heating, and wood is the form that is most widely used for that purpose. Wood is carbon neutral as a renewable resource: when burned, the same amount of CO₂ that was absorbed by the tree during its growth is released. One of the most efficient ways to use wood for heating are central heating biomass boilers, which can provide high comfort efficiently, while reducing the climate impact of heating.

X TO BE COMFORTABLE IN YOUR HOME, YOU NEED TO HEAT TO MORE THAN 20°C
Comfort is a personal feeling. You can heat your home to 22°C and still be cold. If your home is poorly insulated, damp, or has air leaks, you will experience a temperature lower than that indicated by the thermometer. That is one of the reasons why checking your heater alone is not enough. A good level of insulation is crucial too.

X THERE IS A SMALL DIFFERENCE BETWEEN CONDENSING TECHNOLOGY AND A GOOD OLD BOILER
The difference is significant! Modern condensing appliances are highly efficient and use virtually the entire energy content of the fuel to transform it into heat. Thanks to combustion optimisation and reusing heat energy of water vapour, a condensing boiler can save up to 25% energy compared to an old conventional boiler.

X BIOMASS BOILERS ARE LESS EFFICIENT
Biomass boilers are the latest and most efficient technology to produce heat in the most ancient way: firing wood. Each year, 40% of the wood sustainably produced in Europe is used for heating in European buildings. Modern heating systems use biomass in the form of pellets, yet multiple options exist. Wood-based central heating systems can supply an entire house with heat throughout the year. Moreover, they can easily be combined with solar thermal systems.

X HEAT PUMPS ARE ONLY SUITABLE FOR INDIVIDUAL HOUSES
Heat Pumps (HPs) are versatile. There are different kinds of heat pumps available (in different sizes), designed for different heat demands and purposes. Some devices are designed to heat/cool an entire house (i.e. gas heat pumps) with multiple rooms while others are better suited for apartments or small studios (air-to-air heat pumps). Most HPs are easy to install, whereas hybrid systems are even suited for renovations.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 847040.

www.heating-retrofit.eu
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Interested in more information?

Visit HARP webpage [[personalise with the national or EU webpage, depending on occasion](#)], a numerous materials for consumers are available, from factsheets about efficient heating technologies to serious games!



- Factsheets about efficient heating technologies on the market
- Infographics presenting misconceptions about heating and co-benefits
- Attractive serious games to test the knowledge and to learn more about heating technologies
- Animated and fun videos
- And much more...

HARP (Heating Appliances Retrofit Planning) project gathers 18 partners from 5 European countries. The main idea of the project is to motivate individuals to plan the replacement of their often old and inefficient heating appliances, with more efficient alternatives.

Within the HARP project, the HARP online tool will help you check the energy efficiency of your current heating system and find a tailored solution based on the most efficient alternatives available on the market, depending on your country.

You will also get a list of the main advantages associated with a more efficient heating system: such as energy and costs savings and reduction of CO₂ emissions.

Project partners



Thank you for your attention!

[National partners' contact information and/or webpages]

For more information:

www.heating-retrofit.eu [to be personalised with national HARP webpages]

Follow us on twitter:

@HARPproject & #HARP #HARPproject

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