

REPLACE

Making heating and cooling for European consumers efficient, economically resilient, clean and climate-friendly

Renewable Heating & Cooling options and real-life stories from Europe

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Renewable H&C at home – A practical guide for end-users

- REPLACE report “Renewable Heating & Cooling Replacement Technologies for End Consumers” available at [THIS LINK](#)
- Available in 9 languages: BG, BiH, DE, ENG, ES, HR, MK, SI, SRB
- **Objective:** to provide a practical guide to end-users who are considering replacing their heating system or undertaking an energy efficiency measure in their home.



What is in the report?



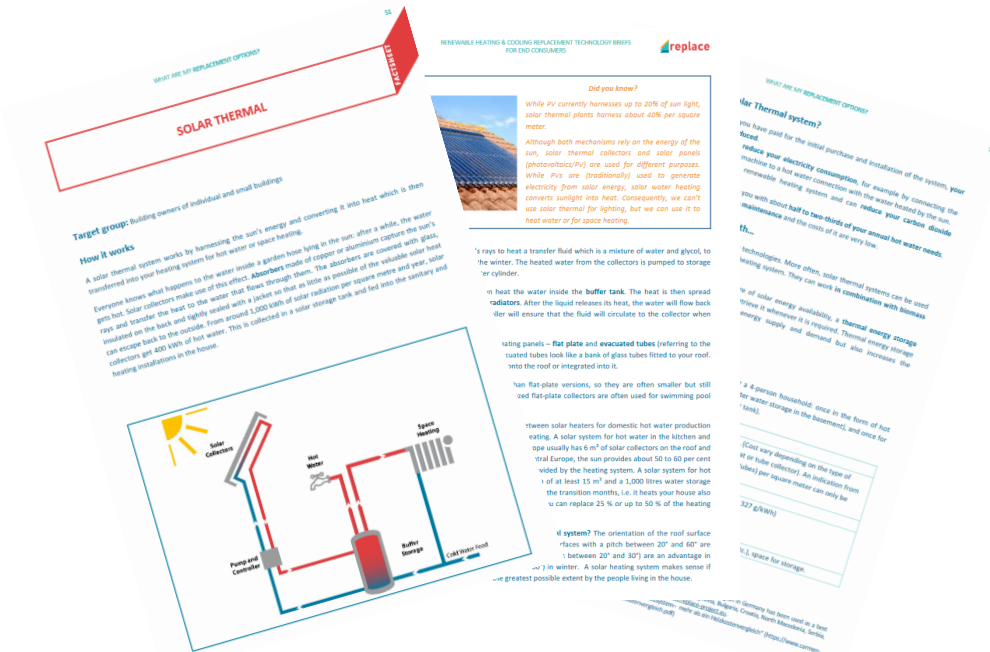
- **Useful information on the economic, environmental and social benefits** of replacing an old and inefficient heating system with an innovative low-carbon and renewable one
- **Advises on the steps that every informed consumer should take** before and during the replacement process
- **Answers the most common questions** that end-users ask in the replacement process
- **A comprehensive list of the renewable heating and cooling technologies currently available** on the European market through concise and illustrated technology factsheets.



RH&C technologies covered in the report



- Biomass boilers for wood pellets and for logwood
- Biomass heating systems with woodchips
- Modern wood stoves and pellet stoves
- Electric heat pumps
- Solar thermal
- Photovoltaic power for heating
- Renewable mechanical (active) cooling
- Multifunctional façade systems
- Other heating options (i.e. collective actions, shading and insulation, infrared heating systems, etc.)



How to replace your heating system?



1. Get familiar with the technologies available on the market



2. Check whether a total or partial insulation of the building shell is needed on top of a heating system replacement



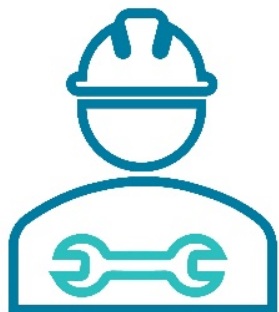
3. Get in touch with an energy adviser



4. Estimate the benefits and costs



How to replace your heating system? - II



5. Contact an installer



6. Apply for regional/
national incentives



7. Go for it, enjoy and tell others how nice it is!



Renewable H&C at home – A handbook for intermediaries & investors

- REPLACE report “Residential Heat Decarbonisation Solutions – A Handbook for Installers, Plumbers, Chimney Sweepers and Investors” available at [THIS LINK](#)
- Available in 9 languages: BG, BiH, DE, ENG, ES, HR, MK, SI, SRB
- **Objective:** to encourage the commitment of intermediaries and investors towards the transition of the residential H&C sector



RESIDENTIAL HEAT
DECARBONISATION SOLUTIONS
– A HANDBOOK FOR INSTALLERS,
PLUMBERS, CHIMNEY SWEEPERS
AND INVESTORS –



Making heating and cooling for European consumers
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What is in the report?



- Provision to **professional intermediaries** (such as installers, chimney sweepers, building developers, energy advisors, etc.) of **in-depth knowledge of the RH&C systems options available** on the market today.
- Tips for intermediaries on how to become **well-trained facilitators of replacements** and on how to **enable them to measure and communicate expected energy and financial savings and wider societal benefits** of H&C replacements.
- **Information for investors** (either financing institutions, public authorities, energy suppliers, or homeowners) about **economic issues, best practices and innovative business models, and model contracts** for RH&C solutions.



Tips to intermediaries: Replacement project phases



1. Conception and consultation
2. Planning
3. Design
4. Decommissioning and disposal of old system
5. Realisation: installation and commissioning
6. Operation: use and maintenance



Tips to intermediaries: Failures to avoid and common mistakes



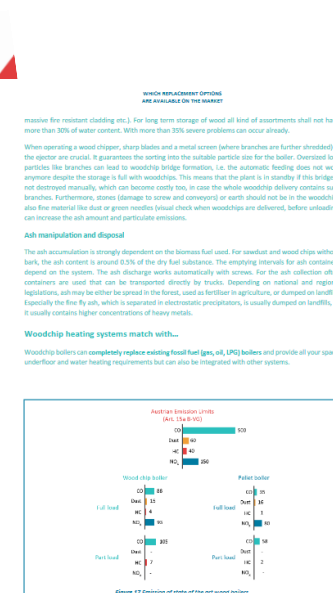
1. The wrong size
2. Disregarding the quality of the heat distribution water and the importance of the hydraulic balancing
3. Poor ductwork installation
4. Insufficient drainage
5. Inadequate inspection and missed opportunities in home performance
6. Insufficient refrigerant charge



Tips to intermediaries: REPLACE technology factsheets



1. Building type
2. Planning guidelines and recommendations for installers
3. Matching technologies for each system
4. Intallers' selling points for customers



Why should investors go for RH&C?



1. Clean energy investments yield an **economic return 3 to 8 times higher than the initial investment** during the whole project lifetime
2. The **instability of fossil fuel prices** presents a global opportunity to accelerate the shift to clean energy
3. Ambitious investment in RES and energy efficiency could lead to **63 mln new jobs by 2050**
4. **Stable regulatory framework** at EU and national level (i.e. favourable EU legislation and numerous financial incentive schemes)
5. **Positive externalities for the society** (i.e. reduction of GHG emissions)
6. **Security of energy supply**
7. **Creation of economies of scale**
8. **Technological leadership** of the European renewable heating industry
9. **Increased business value of the property**



Best practice examples of RH&C replacements

- REPLACE report “Best Practice Examples of (R)HC Replacements in the Target Regions” available at [THIS LINK](#)
- Available in 9 languages: BG, BiH, DE, ENG, ES, HR, MK, SI, SRB
- Objective:
 - To provide a catalogue of best practices and innovative approaches for H&C replacement from Western, to Central to South-Eastern Europe.
 - To show how replacements can be implemented under real local conditions, being technically and economically feasible at the same time.



Best practice examples



- Residential building refurbishment
- Heating and cooling replacement
- Demand-response and collective actions
- Innovative approaches like utilising mobile heating units or innovative building renovations

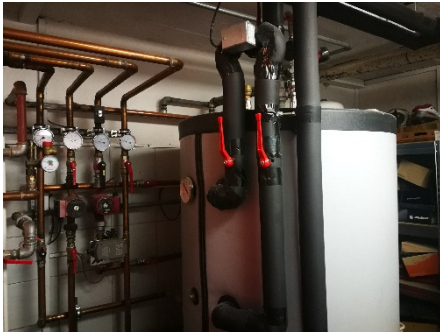


Bosnia and Herzegovina – From black coal to pure pellets



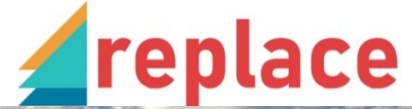
New heating system in use	Pellet boiler with radiator installation
Previous replaced heating system	Coal boiler with radiator installation
Building type	Detached family house
Installed capacity (kWth) – Before and after	35 kW → 40 kW
Primary energy - Before and after	51,282.40 kWh → 40,650 kWh
Annual energy savings (compared to the previous system)	1.2%; 0.4 MWh
Initial investment (purchase and installation)	3,300 EUR
Yearly CO ₂ emission reductions	9.93 t CO ₂

Slovenia – Oil boiler replacement with heat pump & solar collector



New heating system in use	Heat pump (air to water)
Previous replaced heating system	Oil boiler
Building type	Single family house
Heated floor area	140 m ²
Installed capacity (kWth) – Before and after	Before: 30 kW After: 9 kW
Energy carrier – before and after	Before: Fuel oil After: Electricity
Energy use for heating – before and after	Before: 2.5 m ³ After: 6,500 kWh
Initial investment (purchase and installation)	12,000 EUR
Yearly savings on the energy bill (compared to previous system)	38 % in EUR
Yearly energy savings (compared to previous system)	37 % in MWh
Yearly CO ₂ emission reductions (only heating system replacement)	45 %

Germany – Heating container in Penzberg: temporary solution as a bridge to renewable heat supply



- Ongoing modernisation of the swimming pool of the city of Penzberg (lasting several years)
- Switching from a gas CHP + peak load boiler to a woodchips heating system
- Interim heating solution: mobile container unit running on wood chips
- About the container:
 - Delivered, switched on and connected within one day
 - It can store up to 55 cubic meters of wood chips
 - Wood chips delivery two/three times a week in winter on the basis of short-term supply contracts
 - The container was purchased by the municipality of Penzberg and will be sold at the end of the project



THANK YOU!

For more information:

www.replace-project.eu



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