

## AN URGENT CALL FOR THE PHASE-OUT OF FOSSIL SPACE HEATING SYSTEMS AND FOR THE SUPPORT OF RENEWABLES IN THE HEATING SECTOR

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**ABSTRACT:** In order to meet the climate change target of limiting global warming to 1.5 °C as well as the target of a full decarbonisation by 2050, systems for space heating based on fossil fuels must be phased out as soon as possible. This applies to oil boilers, but also to natural gas boilers, as well as to the supply of district heating (DH) based on fossil fuels. Current fossil fuel heating sources need to be substituted in the future by a broad mix of different renewable energy sources, including biomass, solar thermal energy, free energy, geothermal energy, and renewable electricity. Biomass is the dominant renewable energy source for space heating today and will play also a crucial role in a fully decarbonised space heating scenario in Europe. The paper introduces the current ongoing activities of the European Technology and Innovation Platform on Renewable Heating and Cooling (RHC-ETIP) which has recently released the “2050 vision for 100 % renewable heating and cooling in Europe”. It furthermore presents the EU H2020 project REPLACE which aims to boost the phase-out of inefficient and old heating and cooling systems by targeting consumers, investors/owners as well as intermediaries (installers, plumbers, and chimney sweepers) and helps them to make informed decisions.

**Keywords:** heating, consumers, renewable heating, energy efficiency, district heating, phase out plans

### 1 INTRODUCTION

The heating and cooling (HC) sector comprises 50% of the final European energy consumption (EC, 2020). Furthermore, it is responsible for over 68% of all natural gas imports. Permanently reducing energy consumption and increasing the share of renewables in this sector is paramount for a sustainable Energy Union. In particular, the fact that 80 million out of 120 million installed space heating systems in Europe currently achieve an energy label class C or D gives rise to major concern.

In order to meet the climate change target of limiting global warming to 1.5 °C as well as the target of a full decarbonisation by 2050, systems for space heating based on fossil fuels must be phased out as soon as possible. This applies to oil boilers, but also to natural gas boilers, as well as to the supply of district heating (DH) based on fossil fuels. Current heating sources need to be substituted in the future by a broad mix of different renewable energy sources, including biomass, solar thermal energy, free energy, geothermal energy, and renewable electricity. Biomass is the dominant renewable energy source for space heating today and will play also a crucial role in a fully decarbonised space heating scenario in Europe.

The paper introduces the current ongoing activities of the European Technology and Innovation Platform on Renewable Heating and Cooling (RHC-ETIP) which has recently released the “2050 vision for 100 % renewable heating and cooling in Europe”. It furthermore presents the EU H2020 project REPLACE which aims to boost the phase-out of inefficient and old heating and cooling systems by targeting consumers, investors/owners as well as intermediaries (installers, plumbers, and chimney sweepers) and helps them to make informed decisions.

### 2 THE RHC-ETIP

The RHC-ETIP, officially endorsed by the European Commission since October 2008, aims at playing a decisive role in maximising synergies and strengthening efforts towards research, development and technological innovation, which will consolidate Europe’s leading position in the sector (RHC-ETIP, 2020).

The platform is structured according to so-called technology panels on biomass, solar thermal energy, geothermal energy and district heating and cooling & storage, and heat pumps. The Technology Panels are a pool of experts in charge of providing specific technology input to the strategic documents produced by the Horizontal Working Groups and to the activities of the European Technology and Innovation Platform on Renewable Heating and Cooling.

In October 2017, a restructuring process started and Horizontal Working Groups (HWGs) were introduced, fostering its multisectoral and multidisciplinary approach. As a new approach, HWGs bring together interested experts from different technology panels to work on common horizontal topics, defined on the basis of main challenges to be addressed by the RHC-sector. Current HWGs are:

- 100% RE Buildings
- 100% RE Industries
- 100% RE Cities
- 100% RE Districts

The RHC-ETIP has recently released the “2050 vision for 100 % renewable heating and cooling in Europe” (RHC-ETIP, 2019). Therein, the Members of the Platform unanimously concluded that a full switch to 100% by 2050

can only be reached with a very strong and resolute political will to change the HC sectors. Technologies for the substitution of fossil fuel systems are mature and commercially available, but without the right political decisions, this target cannot be reached. Thus, there is an urgent call to politicians at the EU level and at the national levels to make courageous decisions for the phase-out of fossil space heating systems and for the support of renewables in the heating sector.



**Figure 1:** Logo of RHC-ETIP

### 3 THE REPLACE PROJECT

In parallel to the introduction of political measures, targeted campaigns can be a suitable tool to inform consumers and to guide their decisions. The EU H2020 project REPLACE (Contract No. 847087) (REPLACE, 2020) aims to boost the phase-out of inefficient and old heating and cooling systems by targeting consumers, investors/owners as well as intermediaries (installers, plumbers, and chimney sweepers) and helps them to make informed decisions.

All activities proposed by REPLACE aim to inform and motivate consumers to replace their old and inefficient HC appliances with better, greener alternatives with the benefit of monetary savings and improvements in air-quality, comfort, safety, and security of supply. REPLACE also addresses fuel poverty and reduces the risk of a heating crisis by supporting the use of regional renewable energy sources (such as solar, ambient heat or biomass) and equipment produced in the EU (biomass boilers, heat pumps, solar collectors).



**Figure 2:** Logo of the REPLACE project

### 4 POLICY RECOMMENDATION

The authors of the current paper, representing the RHC-ETIP and the REPLACE project, urgently call politicians, policy makers and scientists to support the phase-out of fossil space heating systems and to support renewables in the heating sector. Considering the targets of the Paris Agreement (UNFCCC, 2020), it is not tolerable that governments still support fossil fuel systems in the heating sector with taxpayer's money. This is, for example the case of the newly introduced market support programme of BAFA (2020) by the German Government. In this programme, the replacement of old heating systems with new heating systems is supported which is generally very positive. However, up to 40% of the investment support is granted for the replacement of old heating systems with fossil gas-hybrid systems. This needs to be stopped. In contrast, other countries have already banned the installation of new fossil heating systems, e.g. Denmark for oil and gas boilers in new buildings. This should be the benchmark for all countries in Europe and also for the European Parliament, setting the European framework for the Member States.

### 5 CONCLUSIONS

Different initiatives and projects at European level actively contribute to support the energy transition in the heating and cooling sector, such as the RHC-ETIP and the REPLACE project.

The EC states that "according to 2018 figures from Eurostat, 75% of heating and cooling is still generated from fossil fuels while only 19% is generated from renewable energy. To fulfil the EU's climate and energy goals, the heating and cooling sector must sharply reduce its energy consumption and cut its use of fossil fuels." (EC 2020)

Taking this strong statement of the European Commission into consideration, the authors of the present paper urgently call politicians and policy makers at European, National and regional levels to implement the following measures:

- To stop the support of any kind of fossil fuel heating system with public money.
- To ambitiously support the energy transition in the heating sector, supporting renewable energy systems.
- To develop clear and ambitious plans for the phase-out of fossil heating systems for new buildings, but also for the old building stock.

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