marcogaz

Response to the public consultation of the European Commission on the action plan on accelerated roll-out of heat pumps across the EU

August 2023

CONTACT

MARCOGAZ AISBL

Rue Belliard, 40

1040 Brussels – Belgium

marcogaz@marcogaz.org

www.marcogaz.org

ABOUT MARCOGAZ

Founded in 1968, MARCOGAZ represents 29 member organisations from 20 countries. Its mission encompasses monitoring and policy advisory activities related to the European technical regulation, standardisation and certification with respect to safety and integrity of gas systems and equipment, rational use of energy as well as environment, health and safety issues. It is registered in Brussels under number BE0877 785 464.

DISCLAIMER

Introduction

Marcogaz, the technical association of the European gas industry, welcomes the initiative of the European Commission to try to remove existing barriers and limitations for a faster roll-out of heat pumps across the EU as their high efficiency and use of free renewable energy has the potential to contribute substantially to the CO_2 emission and fossil fuel import reduction targets.

Any plans to expedite the roll-out of heat pumps however, especially in the huge stock of existing buildings, should consider the constraints that need to be overcome to be successful.

Marcogaz believes that focusing on decarbonizing heating from a bottom-up perspective, rather than deciding for a top-down one-heating-technology-pathway, would allow for much faster CO_2 emission and fossil fuel import reductions while reaching the same targets.

Constraints to overcome are essentially formed by the existing old building stock and power supply infrastructure.

Existing building stock

- Existing buildings are often not fit for efficient application of a power-driven heat pump due to:
    - high thermal needs (nearly 35% of the buildings in Europe are over 50 years old, and almost 75% of the building stock is considered inefficient) requiring bigger heat pumps causing higher electrical load.
    - being equipped with a high temperature emitting system which renders the heat pump significantly less efficient and thus requires again higher electrical load.

- Existing buildings are moreover not always equipped with a central heating system, but e.g. with direct electric heating or with one or more individual room heaters; switching to a hydronic heat pump requires also equipping the building with a centralized heat emitting system which represents a significant supplementary investment[1] and a lot of chopping and breaking work.

- Noise by the outdoor unit may generate nuisance to neighboring premises.Minimum distances ought to be respected (existing standards/regulation).

Therefore, in many cases renovation of an existing building is a priority before switching to efficient heat generation by a power-driven heat pump only. And besides the building envelope, also the energy related systems often have to be adapted too (e.g. heat emitting system, hot water production, PV panels and possibly a stronger power grid connection).If not, heat pumps will be oversized, resulting in inefficient operation as demonstrated by several studies.

[1] The installation of heat pumps is associated with much higher investment costs compared to conventional heating methods. In this regard, it is necessary to take into account energy poverty and a significant part of the population, which cannot afford the purchase and installation of a heat pump.

Existing power supply infrastructure

- The capacity of the existing (local) power grids is not necessarily ready for strong increase of the load (peak demand) due to massive electrification of heating and other end-use sectors (especially e-mobility), even in urban areas.

- Also, distribution power grids voltage stability can be significantly impacted by increasing penetration of the power-driven heat pumps.

- Decentralized PV power generation is both intermittent and significantly lower during the colder periods of the year, which are precisely those where heating systems are required to be operative. Hence, power-driven heat pumps linked to locally installed PV capacity in self-consumption schemes, need to rely more heavily on power supplied by the electricity grid during cold seasons, further straining the network. It must also be noted that air-water heat pumps have noticeably lower efficiencies when outside temperatures drop.

Increased flexibility and/or reinforcement of the power grid will be indispensable at many places. This would lead to costly investments to strengthen the electricity distribution and transmission networks, which will have to be covered by an increase in network fees to be paid by all users In addition, not fully depreciated stranded gas assets would also still have to be paid by society.

To ensure a fast impactful Action Plan for the heating and cooling sector, the following actions should be considered:

- Evaluate and define the appropriate heating solution for existing buildings on basis of an environmental assessment of the local situation (cf. bottom-up approach) which includes at least the building properties and the systems it is equipped with, the available energy vectors and the climatic conditions.

- Foster all efficient technologies and combinations of technologies to achieve the fastest and highest decarbonisation levels at lowest cost, for specific customer types, property types, across different climates and accounting for local circumstances and resources. Hybrid systems, CHP and renewable-gas-ready condensing boilers should also still be allowed whether combined or not with district heating. In existing buildings, they can offer:
    - immediate substantial reduction of gas demand and of CO_2 emissions without creating a lock-in of fossil energy use as:
        - further reduction of heat demand will still be cost-effective and make the building suitable for even more efficient appliances when the heat generator is next replaced.
        - the remaining fossil gas will gradually be replaced by low-carbon/renewable gases.
    - flexibility for the power grid and its adaptation process:

        - hybrid heat pumps have lower power needs than equivalent electrical heat pumps, and allow for switching from electricity to natural gas and vice versa in function of needs.
        - CHP can help avoiding reinforcement of power grids where not cost-efficient.
    - use of the widespread existing natural gas infrastructure which can also be used for balancing fluctuations in the power grid (i.e. sector coupling using power-to-gas technologies).
    - help to overcome energy poverty and affordability issues.
    - a solution for cases where a heat pump cannot be installed (e.g. noise nuisances).

- Promote and support the energetic renovation of buildings including the envelope and the energy using systems (e.g. heat emitting system, hot water production, PV panels and eventually a stronger power grid connection) they are equipped with.

- Provide a framework that encourages rapid growth of low-carbon and renewable gas production.