

Response on “An EU Strategy on Heating and Cooling”

9 September 2016

Following the Commission’s Communication on “An EU Strategy on Heating and Cooling” in February 2016, the European Parliament adopted on 12 July 2016 the Initiative Report from ITRE-Rapporteur Adam Gierek reflecting it. On 13 September 2016 the European Parliament is supposed to vote in plenary session on this issue. The target of this strategy is to reduce the energy and the carbon footprint of European heating and cooling. It is based on three pillars:

1. Recover residual heat
2. Use efficient technology to produce heat and cold
3. Substitute fossil fuels with renewable energy sources

IFIEC Europe welcomes the EU Heating and Cooling Strategy and supports all initiatives that could improve energy and carbon efficiency in industry when economically justified and technically feasible. However, IFIEC has concerns with some proposed suggestions that are not applicable in industry either from a technical or economical point of view:

1. Recover residual heat

The continuous efforts of European energy intensive industry to increase energy efficiency are increasingly reaching the boundaries of the technological possibilities. Today, lots of industries have still residual heat left but only at low temperatures (around 100 °C), which is usually not compatible with industrial process requirements (200->1000 °C). A stronger focus on innovation will be necessary to recover the remaining thermal energy economically. This low temperature heat could be used for heating buildings in tertiary or residential sectors. However, this requires investments in export infrastructure (heat recuperation units on site), heat distribution networks and backup infrastructure that are not economically feasible and not always efficient (to transport heat over a long distance is not efficient in terms of energy as industrial sites are usually located far from the cities). This lack of profitability is an important reason why such investments have not been done yet. Innovation on upgrading low temperature heat to industrial levels is therefore a valuable research alternative. Other reasons are the lack of coordination and parties willing to invest in heat distribution including a backup facility.

- We are in favour of voluntary agreements to improve manufacturing’s energy efficiency rather than binding requirements that could jeopardize European industry competitiveness.
- We also recommend that the term "waste" heat is replaced by “residual” heat in all formal communications of the European Commission (Directive, Horizon 2020, project titles etc.) to make a shift in the attitudes of all stakeholders towards valuating this clean energy at the same level as renewable energy.

2. Use efficient technology to produce heat and cold

Combined heat and power (CHP) can result in significant energy and CO₂ savings compared to the separate production of heat and electricity but is usually not competitive with conventional fuels. Combined heat and power fits to a decentralised electricity model as put forward in the Communication of the Commission, and therefore

- CHP should not be penalised by extra taxes and levies on energy produced for direct use.

Heat pumps enable to produce heat from relatively low temperature sources. Their potential use in industry remains low because the temperature of produced heat is usually not sufficient and overall efficiency is too low compared to the costs to meet industry process requirements. It would require innovation support to develop and implement this application in industrial processes.

- Heat pump technology requires research and innovation to increase its performance and make it useful on industrial level.

3. Substitute fossil fuels with renewable energy sources

Energy sources need the following properties to be useful for energy intensive manufacturing industries:

- High temperatures: Not all renewable energy sources are capable of reaching the high temperatures that are needed in manufacturing processes economically.
- Secure and non-intermittent: Except biomass and geothermal, other renewable energy sources are intermittent and usually cannot offer the required secure operating levels.
- Close to the manufacturing site: High temperature geothermal heat requests specific geological conditions that are not met everywhere in Europe. Thus, geothermal can only be implemented on a few industrial sites in continental Europe.

Biomass is the fuel which best suits with the industry requirements (continuous and stable supply, high temperature of heat, predictability and reliability...). However, the main constraints for using biomass in industry are:

- Availability: Europe becomes a large importer of biomass and biomass for energetic use is in competition with food production as well as other industrial sectors that use biomass as a raw material (e.g. paper industry, wood panel manufacturing).
- Logistical requirements: infrastructures for its delivery and its storage on site require both space that is not necessarily available on existing industrial sites, and tremendous investments that could jeopardize the profitability of such fuel switch projects.
- High price: industrial biomass (biogas, pellets) needs to be processed. These fuels are far more expensive than fossil fuels and not reliably available in large quantities in Europe at a competitive price.

To use alternative fuels, for example hydrogen in cogeneration units based on reciprocating engine or combustion turbine, is not a reality today. Research programs in this field should be launched before this technology can become an industrial reality.

To use renewable electricity to generate heat directly with heaters or indirectly with heat pumps is a way to decarbonize industry – although the latter is limited in temperature level. However, electricity remains an expensive energy carrier that is not competitive compared to other energy carriers and sources (fossil fuels).

- Fossil fuels cannot simply be replaced with renewable energy sources. The economical and technological feasibility of potential renewable energy sources and their availability should be taken into account.

In terms of heating and cooling, IFIEC advocates in general for:

- No mandatory heat recovery measures but voluntary schemes taking into account economic criteria used in energy intensive industries in order to safeguard European industry competitiveness.
- Additional investment in R&D to accelerate the performance improvement of existing technologies including those for recovering and upgrading energy from low temperature residual heat and to find and work out breakthrough and competitive low carbon technologies.
- The economic and technological feasibility of potential improvements and availability of renewable energy sources should be taken into account.
- The heating and cooling measures should allow for EU manufacturing industries to maintain their international competitiveness.

IFIEC Europe represents energy intensive industrial consumers where energy is a major component of operating costs and directly affects competitiveness