Brussels, 15th February 2022

ASERCOM input to proceedings of stakeholder meeting on ENTR Lot 1 – Condensing units

ASERCOM is thankful for the opportunity to provide input to the ENTR Lot 1 review process. We participated at the stakeholder meeting and have now gathered the initial feedback from ASERCOM member companies.
We are afraid that we are still working on a more profound analysis by using our whole ASERCOM condensing unit database. But this takes a fair amount of time and we can only provide feedback so far based on our industry knowledge and technological considerations.
We would appreciate to have a direct meeting with the consultants as soon as we have our analysis verified and completed.
Without a proper assessment no decision on efficiency standards should be taken.

Market Data: Need for clarification

The market data for the ecodesign impact accounting on condensing units raise several questions. The price points cannot be the same for 2010, 2015, and then again 2030. The prices have been increasing due to more use of inverter technology, and in addition the last year showed a dramatic situation on the supply chain, from raw material to components and logistics cost as well as bottlenecks. A flat price for 20 years is not imaginable and we kindly request to learn of the reasons for these assumptions.
The same is true for the market growth in pieces. It appears that between 2020 and 2050 a CAGR of 1,5% was used for all types. Whereby from 1990 to 2020 the market was first decreasing and later with a slight growth/stable, resulting at a total CAGR of -0.5%. What are the drivers that have been observed behind these numbers?
In general, ASERCOM would understand if the market would be considered as stable. The major part of the market is saturated. In addition, the energy efficiency efforts are making an impact on reducing the energy losses by reducing the cooling load in general (i.e., doors on display cases).
On top there is increasing competition from other, non-regulated solutions for the large units. Many customers are rather price sensitive, and this competition becomes very noticeable, especially concerning larger variable speed units, as of above 20 kW – resulting in a high risk that the market will move towards unregulated packaged units.

Pressure on the choice of refrigerant from the F-gas regulation

Since 2014 the future direction of F-gas choice became clearer. New refrigerants and blends were introduced – the number of refrigerants proposed has nearly doubled in the last 10 years.
The compressor manufacturers took enormous development efforts to design new compressors accordingly, especially for A2L refrigerants (safety concerns). The A2L refrigerant blends presenting a GWP below 150 are zeotropic mixtures and have the challenge of a high

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temperature glide. It was necessary to overcome the difficulties of designing the compressor due to the different properties of these fluids, and to prove a reliability equivalent to the fluids already in use.
Market acceptance for A2L condensing units still needs to be ensured. Especially in case of a break down in an existing A1 installation an A2L unit would require a complete rework of the installation to adapt the adequate safety measures.
ASERCOM holds that the bonus for CUs with refrigerants with GWP lower than 150 should be maintained (same %) as it is still necessary to give time to the industry to consolidate these new technologies that are fundamental to support the sustainable transition to the very low GWP refrigerants.

Adaptation of the condensing units accordingly

When the A2L compressors became available, the condensing unit manufacturers started their own development efforts, taking care of the flammability challenges with A2L refrigerants. There are now a very fair number of condensing units with refrigerant blends with GWP below 150 available – well supported by the GWP <150 bonus.
The EN13215 “Condensing units for refrigeration – Rating conditions, tolerances and presentation of manufacturer's performance data” has just been updated in 2020 and the performance are now referred to the “mid-point” instead of the “dew point” to accommodate for high temperature glide refrigerants. This latest standard is not yet harmonized with the ecodesign regulation. We lack mid-point data in the ASERCOM certification accordingly.
The optimization of the heat exchanger is very important when using high glide temperature refrigerants. Manufacturers have to review the design of the condensers by implementing the counter flow geometry. This is a very promising approach but by far not yet completed.

Other opportunities to increase system efficiency

The consultant proposed to use SEPR instead of COP for efficiency measurements. In general, the small condensing units are very often placed indoors. Indoor installation at stable ambient temperature is well served with fixed speed solutions. Outdoor installations with seasonal temperature changes benefit from a variable speed solution.
For the MT units with 3-5 kW capacity, it might be reasonable to assume a mix between indoor and outdoor installations. A SEPR measurement could be considered in parallel to the COP measurement. This would allow the installer to propose a better match, depending on the local situation.

Energy Label

The condensing unit is only one part of the final system, and it needs to be properly matched with the evaporator side to achieve highest efficiency. A complete system label would be more relevant than an energy label for just the condensing unit. At the end of the day only the installer would be able to judge the efficiency of the installed system.
ASERCOM will be looking into the WICR scheme from Australia and evaluate its adaptation to the European situation. Such a scheme could give clearer guidance to the end user than an

energy label for one part of the system could.
Furthermore, the verification tolerances are much wider than the 7 label classes could possibly allow, making market surveillance impossible.
Ultimately, condensing units are typically B2B products chosen by refrigeration companies, not by the end users. Therefore, other predominantly technical factors else than the efficiency of the units or their energy classes in many cases play a decisive role in the purchasing decision.
For the above reasons, energy labels for condensing units are not an appropriate tool and should not be introduced.

Scope of the Regulation for condensing units

LT condensing units above 20 kW and MT units above 50 kW are a kind of exception in the market and generally compete with other unregulated products, and for this reason ASERCOM does not support the inclusion of the large condensing units in the regulation's scope. The same applies to the few occurrences of units having an evaporator on board – they should stay out of scope.

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