Decarbonisation of Heating is possible with IoT Heat Pumps

Brussels, May 11.

Despite the bad weather forecast, it was a sunny morning when more than 200 people arrived at the first DecarbHeat Conference organised by EHPA, the European Heat Pump Association.

I was delighted to spend two days discussing the future of the heating and cooling sector in Europe with policy makers and industry representatives to understand the extent of interest in finding a sustainable way to reduce CO₂ emissions.
DecarbHeat? DecarbEurope!

I personally really appreciated the way in which EHPA organised this event. Unlike similar conferences around the world, they decided to avoid focusing solely on the heating market or heat pumps and rather sought wider involvement of many different players interested in the decarbonisation process.

Consequently, success stories on the intelligent use of heat pumps, presented among others by Mr. Ulrich Stiebel from Stiebel Eltron, were accompanied by interesting examples of decarbonisation in the lighting sector (Philips), retail (Ikea), energy production (Enel), brick industry and even aeronautics.

With my engineering background, I was impressed by Mr. Pascal Danthony from Airbus, who presented a well-developed decarb project based on an active heat recovery system using a heat pump. This system has been applied to a huge painting booth for A350 aircraft, not the place that most commonly comes to mind when thinking about heat pumps! The interesting results - 94% reduction in CO₂ emissions - were achieved by using CO₂ as the refrigerant for the heat pump, a well-known refrigeration solution that still has a small share in the air conditioning market. However, we can say that it is possible to reduce CO₂ emissions by using CO₂.

AIRBUS St NAZAIRE_A 350 Paint Booth

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Later on, during the late afternoon networking cocktail, I was pleased to listen to Ms. Eva Dvorak presenting the award-winning project of Heat Pump City of the Year 2017 from Vienna. I found the way that they addressed "individuals as stakeholders in the decarb process in cities to be very interesting. You can now walk around the city and use an app on your smartphone to learn about good examples of reducing energy wastage and new efficient technologies, as well as historical buildings and museums! Sharing knowledge as the key to success!

This good mix of different sectors of industry, end users and policy makers, including MEPs who participated actively in the discussion, provided participants a full overview of the different aspects of decarb needs in different countries. This is the reason why, right from the first day, everybody agreed how this event represented a first step towards the decarbonisation of Europe, rather than just looking at heating.

And what about IoT?\(^1\)

Well yes, IoT, machine learning, artificial intelligence, connectivity were all mentioned throughout the event, with special focus during the technical session on the morning of the 12th.

As expected, the “digitalisation” of the heating sector was a topic clearly introduced by Patricia Arsene, representative of the EU commission who works at the Directorate General for Communications Networks. She emphasised the role of policy makers and industry representatives in understanding the need for a standard smart grid framework, in which appliances belonging to different markets (e.g., white goods, heating, photovoltaic, energy, etc.) can potentially find a common language for sharing information.

I took part in this discussion as a panelist in the morning.

We underlined the need for this framework to let industry concentrate its efforts on value-added services provided through connectivity and digitalisation. In other words, we would prefer to focus on the contents (service) rather than on the container (communication protocol).
Some early examples of applications of IoT-based technologies were presented by Dr. Oliver Grün, Grün Software, (elevator maintenance services), by Philippe Duchene, Danfoss (supermarkets and building management) as well as by Ulrich Stiebel, Stiebel Eltron, by Dr. Andreas Bühring, Viessmann and by me (heating systems and heat pumps).

Individuals and youth ambassadors

The two-day programme included many other interesting activities and topics. I would love to say more about the ceremony, including the valued participation of Brussels Minister Céline Fremault and H.R.H Prince Laurent of Belgium, or the “Industry Pledge” signed by most of the participants, or the fascinating visit to a new building under development just beside the BEL (as well as mentioning the tasty DecarbHeat beer brewed for the event!).

However space is limited.

I'd like to close with the words of the “youth ambassadors” who expressed the opinions and feelings of the millennials about all the topics discussed at the conference:

“Decarbonisation of heat has a vital role in the climate change mitigation. European legislation will have an important impact. Collaboration needed within industry and among industry and government”

(Jalle Meus, YERA)

“It's not about technology, it's about how it affects how we organise society: economic rules are the glue” (Ruben Baetens, 3E).