Views from the heat pump industry on quality and compliance issues

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European Heat Pump Association (EHPA)

- 110 members from 22 countries (status 07/2014)
  - Heat pump manufacturers
  - Component manufacturers
  - National associations
  - Consultants
  - Research & test institutes
- EU-wide representative of heat pump industry
- Registered in Brussels

EHPA represents the majority of players in the EU heat pump industry!

Vision: Heat pumps as a core technology for heating, cooling, hot water in Europe
When we are talking about heat pumps in Europe ...

- Heating
- Cooling
- Hot water

- For all cold, average, warm climates

- Residential
- Commercial
- Industrial applications

- Alone or in combination (hybrid)
Heat pumps work – but how?

Heat + pump

Picture: SKS
Heat pumps in the EPBD (2010/31/EU)

- Article 2, para 18: **heat pump** means a machine, a device or installation that transfers heat from natural surroundings such as air, water or ground to buildings or industrial applications by reversing the natural flow of heat such that it flows from a lower to a higher temperature. For reversible heat pumps, it may also move heat from the building to the natural surroundings.

- Article 6
  HP a highly efficient alternative
The positive effect of heat pumps to buildings/processes

- PEF
- RES
- HP
- gas
- coal

\[ \eta_{\text{gas}} = 85\% \]
\[ \eta_{\text{coal}} = 65\% \]

green aux energy
Are heat pumps relevant to nearly zero energy homes?

- Heat pumps will be a major contributing technology towards realising **nearly zero energy houses** as
  - They reduce demand for conventional energy sources
  - They can benefit from local PV electricity
  - Alone or by integration with other energy sources, they provide 100% renewable (meaning zero fossil energy) heating and cooling systems

- How can we maintain **quality of systems** and **accuracy of data**
What constitutes quality in a heat pump system?

- **Production and product quality**
- **System quality**, influenced by
  - Planners, architects
  - Drillers
  - Installers

### System quality

**Heat source + Heat exchanger**

- Air
  - Outside
  - Exhaust
- Water
  - Aquifer
  - Surface
  - Exhaust
- Ground
  - horizontal
  - vertical

**Heat pump**

**Hydronic heating**
- floor wall
- radiator

**Heat distribution**
- Air (via fan coil)

**Match of building demand and heat pump system is key for reliability and performance**
The approach of the heat pump industry to verified product quality

Today’s **EHPA quality label**
- Third party performance testing
- Product and spare parts warranty
- Availability of installation material

- In parallel: national (government driven) approaches
  NF PAC, MCS, Harp list, Eurovent, Energylabel, Ecolabel

- Future:
  One certificate to cover the requests of end users and public bodies alike
EHPCA EUCERT program

- Training
- Certification
- Dissemination
- www.ehpa.org/eucert
Determination of efficiency

- Key questions
  - System boundaries
  - Position and accuracies of meters

- reporting of the heat pump unit
  - Via the systems interface
  - Via apps and smartphones

- Via cloud based solutions
  - http://www.liveheatpump.be//t/en
  - https://www.nibeuplink.com
Determination of efficiency/2
Via field measurements

- **SEPEMO-Build**
  - Definition of system boundaries, meter positioning and accuracy

- **Fraunhofer HP monitor**
  (probably largest field test in the EU)
The 21st century alternative
Online monitoring

- **Connecting** the heat pump to the Web / cloud servers
- **Permanent access** to performance data
- Immediate / pre-emptive maintenance possible
- Potential basis for performance warranties
- Additional benefit
  - Integration of weather data and user behaviour to ensure optimized performance
  - **Provide load balancing power to smart grids on the demand side**
Thank you
The European Heat Pump Association EEIG

- EHPA is a Brussels based industry association which aims at promoting awareness and proper deployment of heat pump technology in the European market place for residential, commercial and industrial applications. EHPA provides technical and economic input to European, national and local authorities in legislative, regulatory and energy efficiency matters. All activities are aimed at overcoming market barriers and dissemination of information in order to speed up market development of heat pumps for heating, cooling and hot water production.

- EHPA coordinates a quality initiative including a Quality label for heat pumps and Certification standards for heat pump installers. The association compiles the annual heat pump statistics and organizes a number of events, among them an annual heat pump conference.

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