Professor Robert Gavriliuc

Interviews with experts

Professor Robert Gavriliuc is currently working at the Department of Thermodynamics and Thermal Equipment within the Faculty of Building Services Engineering. He has a PhD in Mechanical Engineering (1996 - expertise in Refrigeration Machines and Heat Pumps), and a MSc in Building Services Engineering (1984). He was responsible for several national research projects and partner in several other international research partners. He is a PhD supervisor, a certified expert in Thermal Engineering and also a certified Energy Auditor for buildings and buildings' equipment. He is member of several national and international scientific and technical associations, such as: Romanian Geoexchange Society (President since 2012), Romanian Association of Building Services Engineers (Education Committee), ASHRAE (2009 – president of the ASHRAE Danube Chapter), EGEC. He is also member of the Technical Committee on Energy Performance of Buildings and of the Commission for the Technical Experts' Certification within the Romanian Ministry of Regional Development and Public Works. Professor Gavriliuc has evaluated the proposals submitted within the Swiss-Romanian Cooperation Program, domain "energy" (2013, 2014). He also served as evaluator within the FP7 Program (2012, 2013) and Horizon 2020 Program (2015). His research interests are: energy efficiency, RES, geothermal energy, heat pump systems, absorption systems, thermo-acoustics.

"Legal and financial frameworks are needed to support the transition to smart, sustainable, and efficient heating and cooling solutions"

In countries like Romania, with an historical tradition in district heating, there is a need to replace existing inefficient systems, with smaller and more flexible systems based on renewables, says Professor Gavriliuc from the Faculty of Building Services Engineering of the Bucharest University.

What is the development of alternative heating systems in your country?

Romania has a strong tradition with district heating – as most Eastern European countries. However, in the last decades, there is a strong decay in district heating systems, which were designed in the Soviet era (when energy was cheap) for providing heat to dwellings, while the electricity from the CHP plants was provided to the nearby located industrial facilities. There has been a gradual disappearance of district heating systems first due to poor maintenance, then because they were very wasteful (leaks, losses), which led to increased prices. This led to disconnections from the networks, by consumers switching to gas, notably to have a greater control on their energy bills. Now, there is a need to replace existing large systems, with smaller ones, more flexible and efficient, and cheaper to operate. This is made difficult by the current legal framework.

What is your feeling regarding the possibility to retrofit the existing grid in Romania to make use of alternative energy sources (renewables, waste and cogeneration heat)?

There are actions taken, notably regarding replacing old and inefficient pipes with "pre-insulated pipes" and re-sizing the pipes to accommodate lower demand. There are also projects running on biomass, notably thanks to private financing. Yet, there is still

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much more to be done despite promising pilot projects. Much more funding, and relevant legislation, is needed for large scale deployment in Romania. This can be done by replicating other countries, for instance Denmark where district heating is a collective decision which, when taken, makes connection mandatory prior to other possible technical alternatives.

What is the situation of the building stock; is there some work made to reduce energy demand and promote the development of alternative energy sources and low temperature heating systems in Romania?

The programme in Romania, financed partially by the State, focuses on the envelope of the building and the refurbishment of the installation for heating and domestic hot water production. This generally yields 35-40% savings. Sometimes solar thermal is included. In a crowded urban area, where the density of the energy demand is high, it is more difficult to integrate other renewable energy sources such geothermal.

Within the FROnT project, national energy agencies and industry associations have worked to develop several recommendations and tools to promote renewable-based heating systems to the consumers. Do you think this is a relevant approach?

Yes, the consumer should have a minimum training, and receive advice from experts in the field, before taking a decision on a technical problem. This is valid for everyone at one point, as people cannot make a good decision without having the proper previous training.

You mentioned that consumers require the support of professionals. But professionals in some areas tend to mostly continue with "traditional" fossil based technologies. What do you think can be done to increase the awareness and the interest of these professionals?

First, we should work for the maintenance and the development of the district heating systems. Existing ones must be rehabilitated and prove their efficiency versus individual heating. This represents a large effort. Then, the efficiency of district heating systems should be enforced legally, through regulations. Besides, we should build on district cooling, notably in Romania where there is significant demand for cooling in summer. But so far, clients are not interested in this technology. Therefore, there is a need for pilot projects and for more information as this can be a win-win solution for both consumers and businesses alike.

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