



SPECIAL SESSION

## MULTI-VECTOR URBAN DISTRIBUTION SYSTEM IN THE SMART GRID FRAMEWORK

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### OBJECTIVE AND TOPICS

The existence in the same territory of different infrastructures devoted to different energy vectors (electricity, gas and heat) and the necessity of using efficiently the existing infrastructures, have led to investigate the possible optimal use of them together. In particular, this special session aims to collect studies related to different “distribution systems” (i.e., medium voltage network, medium pressure gas system, hot water circuits) which exist in the same territory (i.e., urban area) and can support each other for technical issues affecting them, for reaching the goal to have sustainable and energy optimized urban areas.

These aspects involved different topics, for example:

- ❖ The investigation of the conversion systems, allowing the connection among the different infrastructures (i.e., heat pumps, power-to-hydrogen, power-to-methane)
- ❖ The study of the effects of the installation of the above-mentioned conversion systems on the operation of the different infrastructures (e.g., how the hydrogen concentration can affect the proper operation of the gas network)
- ❖ New combined planning procedures considering all the three infrastructures
- ❖ The ICT for allowing all these systems communicating and understanding each other, with particular focus on how to do it with the current communication infrastructure and standards, but also by highlighting potential bottlenecks to be solved
- ❖ Study of the protection systems for the electrical grid, but also the how safety systems of gas grid and district heating have to evolve for handling with the new conversion systems installed

*All the instructions for paper submission are included in the conference website: <https://www.eeeic.net/eeeic>*