

Popular science summary of the PhD thesis

PhD student	<u>Panagiota Gianniou</u>
Title of the PhD thesis	<u>Energy Demand Models For Buildings In A Smart Cities Context</u>
PhD school/Department	<u>Civil Engineering</u>

Science summary

* Please give a short popular abstract in English (approximately half a page) suited for the publication of the title, main content, results and innovations of the PhD thesis also including prospective utilizations hereof:

Energy is one of the major drivers in smart cities. Smart cities initiatives and their focus on city level energy policy management has emphasized the need to move from the traditional micro-level building energy modelling towards the development of aggregated energy demand models. This calls for methods that can be scalable to higher levels of aggregation, ranging from clusters of buildings to neighbourhoods and cities. This PhD Thesis aims at investigating the different approaches that characterize building energy demand modelling at large scale. Such models are focal for the operation of energy grids, i.e. electrical, gas and thermal. The models are also pivotal with respect to new establishment of energy infrastructure in planning and designing. The main objectives of the thesis are to present available modelling techniques, analyse their applicability on aggregation level by applying them on real world cases, and give directives for the utilization of these models for different purposes. Furthermore, the role that buildings can play on the stabilization and flexible operation of the energy grid is determined. Hereby, the thesis is an early attempt to carry out research in a field, where path-finding approaches were the most important findings with respect to setting directions for future research.



Popular science summary of the PhD thesis

PhD student

Panagiota Gianniou

Please email the abstract to the PhD secretary at the department