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## **ENRiMA AT THE 9TH INTERNATIONAL CONFERENCE ON COMPUTATIONAL MANAGEMENT SCIENCE**

On 19 April, the first concrete results of the EU-funded EnRiMa project will be outlined in London at the 9<sup>th</sup> International Conference on Computational Management Science. During the two-hour session entitled “Energy Systems III,” which is organised and chaired by Dr. Afzal Siddiqui (University College London and Stockholm University), three presentations will be dedicated to introducing the work carried out so far by the EnRiMa project consortium, with particular focus on modelling energy flows in buildings and assisting decision-making processes related to the dispatching and installation of energy resources.

EnRiMa is an EU-funded FP7 project that started in October 2010 involving nine European partners including universities, R&D organisations, energy providers, and SMEs. The project is coordinated by Stockholm University. The aim of EnRiMa is to develop a decision support system (DSS) to enable operators to manage energy flows in public buildings, delivering a holistic solution for meeting the energy needs in a more efficient, less costly and less CO<sub>2</sub>-intensive manner. In order to improve energy efficiency and provide adequate risk management to users of public buildings in the EU, the EnRiMa project takes a flexible solution approach based on energy-flow modelling and stochastic optimisation integrated with information and communication technologies (ICT).

Crucial to this effort is modelling the energy flows, illustrated by Sankey diagrams, at each of the project’s test sites. A Sankey diagram is a graphical tool that allows for an accurate representation of how energy produced by resources flows to loads. The link between loads and resources not only aids visualisation of energy flows in buildings but also serves as constraints in the mathematical programs at the core of EnRiMa’s DSS. As discussed, the objective of the DSS is to help improve operational and strategic outcomes related to managing energy resources in large public buildings.

Operational decisions concern the dispatch levels of existing technologies in meeting, for instance, the comfort levels of building users on a short-term hourly basis. In this respect, one of EnRiMa’s extensions to the existing state-of-the-art is to loosen the traditional definition of demand for heating or cooling and to consider instead user requirements for certain temperature levels.

Strategic decisions, on the other hand, deal with medium- and long-term time horizons and focus on adoption of new technologies, replacement of existing ones, and retrofits to the building, also taking into account external factors as the evolution of energy markets and of policy frameworks. Furthermore, both kinds of decisions require treatment of

uncertainty, e.g., in energy prices and technology performance, which necessitate the use of scenario generation.

EnRiMa's work will be presented on Thursday, 19 April starting at 8:30 AM in room 144, Department of Computing, Imperial College London, 180 Queen's Gate, London SW7 2AZ.

**More info:**

EnRiMa website: <http://enrima-project.eu>

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