



## - PECS Talks 2019 -

*Short Course Announcement*

Tuesday June 11<sup>th</sup>, 2019  
10:00-13:00 Magenta Seminar Room D floor  
14:00-16:00 EG

### **The multi-dimensional approach to the energy systems analysis**

**Dr. Daniele Grosso (Politecnico di Torino)**

The analysis of the energy systems cannot be considered a purely technical exercise, aiming at describing them only under a physical perspective, but it should take into account the interactions among several interdependent dimensions, like the technological, the economic, the environmental, the social and the geopolitical ones. The consideration of these interrelationships is thus a crucial element for an effective strategic mid-/long-term planning able to effectively support the policy decision-making processes.

A brief overview of these dimensions is proposed within four short seminars, focusing on some of the most relevant aspects.

In particular, the environmental, economic, geopolitical and economic criticalities related to the energy systems are firstly discussed, putting into evidence the role of the energy sector with respect to climate change and air pollution negative effects, the main international environmental targets, the effects of political tensions on the international supply of energy commodities (e.g. the Russian-Ukraine gas crises), and the link between geopolitical events and economic energy impacts.

Furthermore, with reference to the environmental aspects, the possible long-term strategies for implementing an energy transition towards decarbonised energy systems are analysed, focusing on the role that the electrification of the energy final uses and the so-called “electricity triangle” could play.

In this transition, the analysis of the technological evolution in the end-use sectors has a great relevance. For this reason, a short overview of the possibility of coupling transport and energy models for better analysing the mobility, especially at urban scale, is proposed as an example.

Finally, considering instead the energy supply security, some methodological approaches for quantifying the non-numerical aspects related to the impacts of geopolitical events on the energy system (particularly crucial for countries like Italy, highly dependent on the import of energy commodities) are described.

#### **Short Biography**

Dr. Daniele Grosso received his Master degree in Nuclear Engineering and his Ph.D. in Energetics from Politecnico di Torino. Currently he is research fellow at the Energy Security Lab (ESL) @ Energy Center – Politecnico di Torino. His research activity focuses on modelling and analysis of energy systems, with a particular attention devoted to the security aspects of energy infrastructures.

**The short course is addressed to the students of Planning of Energy Conversion Systems (prof. Norma ANGLANI), but it is open to whom may be concerned**