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CYCLE DE FORMATION ÉNERGIE – ENVIRONNEMENT

SÉMINAIRE 2013-2014

# Grey energy and environmental assessment of renewable energy systems

SÉMINAIRE EN FRANÇAIS ET EN ANGLAIS

**Martin PATEL et Pierryves PADEY**

*Université de Genève*

**Jeudi 8 mai 2014 à 17h.15**

**Auditoire D 185** - Bâtiment D - Uni Battelle

7, route de Drize, 1227 Carouge

*PROGRAMME DES PROCHAINES CONFÉRENCES :*

**Jeudi 15 mai 2014 à 17h15**

*« Mesurer ce qui n'existe pas : le défi de l'évaluateur»*

Daniel Cabrera, Unige

## Les orateurs

Martin K. Patel is professor at the University of Geneva, where he holds the chair of Energy Efficiency since September 2013 (at the Institute for Environmental Sciences and Forel Institute, Energy Group). After having studied chemical engineering at the University of Karlsruhe, Germany (graduation as Dipl.-Ing. in 1992) he was researcher at the department "Energy Technology and Energy Policy" of the Fraunhofer Institute for Systems and Innovation Research (ISI) in Karlsruhe, Germany from 1993 until mid 2000. From 2001 until 2013 he was first assistant professor and later on associate professor at the Copernicus Institute of Sustainable Development at Utrecht University in the Netherlands, where he was co-ordinating a research cluster on advanced material and energy systems.

Dr. Pierryves Padey is post-doc researcher at the University of Geneva, where he joined Martin Patel's group in January 2014. After his studies of Material Science at EPFL from 2004 to 2009 he did a post-master degree in Energy management at Mines ParisTech (France) and Tsinghua University (Beijing, China). In November 2013, he defended his PhD thesis (Mines ParisTech, France) entitled "Simplified LCA : General Framework and applications to energy pathways".

## La conférence

Renewable energy systems avoid the use of fossil fuels and nuclear energy but they do not do so completely: the production of the installations and – depending on the technology – their operation require non-renewable fuels, in some cases also substantial quantities of other types of non-renewable resources and they cause environmental and health problems. But to which extent, how do these impacts differ across the technologies and how variable are the results? What are the pitfalls, have there been any bad surprises and how do the impacts evolve with advancing technology?

This lecture which will be jointly given by Martin K. Patel and Pierryves Padey will answer these questions by first presenting the principals of environmental life cycle assessment (LCA) including its critical features and deficiencies. This will be followed by an overview of results for renewable energy systems as found in the literature. Selected controversial aspects such as accounting for indirect land use change will be discussed next to parametric analysis in order to capture technological diversity and progress (at the example of wind energy).