



**UNIVERSITÉ
DE GENÈVE**

**INSTITUT DES SCIENCES
DE L'ENVIRONNEMENT**

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CYCLE DE FORMATION ÉNERGIE – ENVIRONNEMENT

SÉMINAIRE 2017-2018

« Context, trends and challenges of energy storage »

David PARRA

UNIGE

Jeudi 12 avril 2018 à 17h15

Salle B001 au rez-de-chaussée – Uni Carl Vogt

66, bd Carl Vogt, 1205 Genève

<http://www.unige.ch/sysener/fr/contact/plan>

L'orateur

Dr. David Parra is a Senior Researcher and Teaching Fellow (Maître-Assistant) at the University of Geneva since August 2017 and he currently leads the energy storage research.

His background is in mechanical engineering with energy specialisation from the Carlos III University in Madrid (2002-2007, Spain). After some working experience in the railway industry, he moved to an experimental research position at the Solar Thermal and Heat pump Laboratory of the Spanish Research Council (CSIC) in May 2008. At the same time, he studied a MSc in Thermal and Fluids Engineering (best student award).

In October 2010, he was awarded a competitive scholarship with funding from the European Commission to undertake a PhD on renewable energy and energy storage at the University of Nottingham (UK) under the supervision of Prof. Mark Gillott and Prof. Gavin Walker. He focused on optimum energy storage for communities and was the project manager and designer of a hydrogen storage system integrated in a low carbon community (The Creative Energy Homes). Moreover, he engaged the utility company E.ON to expand the work and funding on optimisation of community energy storage for microgrids.

In September 2014, he moved to a Post-doc position at the University of Geneva (group led by Prof. Martin Patel) and he performed techno-economic and environmental assessment of energy storage technologies within the federal project SCCER-STORAGE. Since then, he has expanded his work into energy efficiency for buildings and districts, creating data-driven models to provide optimal solutions for techno-economic, environmental and social targets from a multi stakeholder perspective. He is also a Visiting Scholar at the Massachusetts Institute of Technology (MIT) in Boston (USA).

La conférence

Renewable energy technologies, together with energy efficiency, are needed to transform our planet and meet climate change targets. The progress of technologies such as solar and wind has been unprecedented in terms of cost reduction and capacity additions. However, new renewable energy technologies still supply a small fraction of the final energy demand.

In order to ensure continued growth of renewable energy supply to sustain the transition to a low carbon economy, it will be necessary to overcome key challenges associated with these technologies such as their intermittency and uncertain public and policy support.

This talk addresses energy storage as a solution to increase the penetration and value of renewable energy technologies. We will discuss storage technologies, applications, recent progress, challenges and outlook across Switzerland and beyond.

Finally, we will examine some results and ongoing work from the Swiss federal project SCCER-STORAGE, based on complementary research methods and tools for technologies such as batteries and hydrogen. Some highlights of this discussion will include the analysis of benefit stacking and further energy system integration enabled by storage technologies.