



**UNIVERSITÉ
DE GENÈVE**

**INSTITUT DES SCIENCES
DE L'ENVIRONNEMENT**

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CYCLE DE FORMATION ÉNERGIE – ENVIRONNEMENT

SÉMINAIRE 2013-2014

Technology and cost trends in on- and offshore wind energy

Frans VAN HULLE

XP Wind

jeudi 27 février 2014 à 17h.15

Auditoire D 185 - Bâtiment D - Uni Battelle

7, route de Drize, 1227 Carouge

PROGRAMME DES PROCHAINES CONFÉRENCES :

Jeudi 20 mars 2014 à 17h15

« *Integration of Wind Power in Power Systems* »

Ana Estanqueiro, LNEG

Jeudi 27 mars 2014 à 17h15

« *Énergie éolienne : le cas de la Suisse* »

Lionel Perret, Swiss Eole

Jeudi 10 avril 2014 à 17h15

« *Statistique suisse des énergies renouvelables* »

Urs Kaufmann, Eicher+Pauli

Jeudi 8 mai 2014 à 17h15

« *Grey energy and environmental assessment of renewable energy systems* »

Martin Patel, Unige

Jeudi 15 mai 2014 à 17h15

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

Daniel Cabrera, Unige

L'orateur

Frans Van Hulle (MSc Metallurgy, University of Leuven, Belgium) is active in wind energy for more than 3 decades. Director/owner of consultancy company XP Wind, he provides expert services in the field of wind turbine certification and accreditation, and for running EU R&D projects. He was principal Technical Consultant for EWEA in grid integration for eight years. Previously he worked 3 years with 3E NV (Brussels) in due diligence and offshore wind and 21 years at ECN establishing wind turbine design, testing and certification practices and standards.

La conférence

Wind turbines mostly grouped in wind farms have developed into reliable power generating facilities installed in large numbers across the globe. The technology is quite impressive: for example modern wind turbine blades are the largest rotating singular structures on earth. Onshore wind farms produce electricity at quite low costs (typically below 50 €/MWh) as a result of economies of scale and technical advancements. Offshore wind energy still has to overcome a number of challenges to achieve comparable energy cost figures. The seminar will make an exploration (now and future) into the main components of modern wind turbines, their design, functioning, manufacturing and quality assurance. Basic aspects of wind farm design, installation and operation will be highlighted both onshore and offshore. Principles of wind energy resource assessment and wind energy short term forecasting will be described illustrated with numbers from practice. A perspective will be given on present wind energy costs (onshore and offshore), the main influencing factors and how costs have developed over time.