



**UNIVERSITÉ
DE GENÈVE**

**INSTITUT DES SCIENCES
DE L'ENVIRONNEMENT**

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CYCLE DE FORMATION ÉNERGIE – ENVIRONNEMENT

SÉMINAIRE 2014-2015

Heat Roadmap Europe: increasing renewable energy and improving energy efficiency by connecting the electricity and heat sectors

David CONNOLLY

Aalborg University

jeudi 19 mars 2015 à 17h.15

Auditoire D 185 - Bâtiment D - Uni Battelle

7, route de Drize, 1227 Carouge

PROGRAMME DES PROCHAINES CONFÉRENCES :

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|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jeudi 26 mars 2015 à 17h15 | Pierre VEYA, Ancien rédacteur en chef du temps
« <i>Analyse du discours politique autour de l'énergie (titre provisoire)</i> » |
| Jeudi 16 avril 2015 à 17h15 | Andreas RUDINGER, IDDRI
« <i>Projets citoyens pour la production d'énergie renouvelable : enjeux et conditions de succès</i> » |
| Jeudi 7 mai 2015 à 17h15 | Lolvé TILLMANNNS, Eco Energie Etoy
« <i>Coopérative Eco Energie Etoy : 20 ans de production d'énergie renouvelable</i> » |
| Jeudi 21 mai 2015 à 17h15 | E. BERTINOTTI, Banque Alternative Suisse; S. JOURDAN, Revue Durable
J.-M. ZGRAGGEN, SIG; B. MOLINEAUX, coopérative équilibre
Table Ronde : « <i>Quel potentiel pour les coopératives d'efficacité énergétique ?</i> » |

L'orateur

David Connolly is currently working as an Associate Professor in Energy Planning at Aalborg University in Copenhagen, Denmark. His main areas of research are the design and assessment of 100% renewable energy systems, with a key focus on the integration of intermittent renewables (such as wind), district heating, electric vehicles, and the production of synthetic fuel for transport. More information is available on his website: <http://dconnolly.net/>. He graduated from Mechanical Engineering at the University of Limerick in 2007, receiving the University's Gold Medal for the highest results of that graduating year. He then went on to complete a PhD in energy planning, also at the University of Limerick, after being awarded an Advanced Scholars Award from the University and a PhD scholarship from the Irish Research Council for Science, Engineering and Technology (IRCSET). He won the Globe Forum "Early Career Research Award" at the 2010 Globe Forum conference on sustainability and in 2011 he joined Aalborg University in Denmark as an Assistant Professor in Energy Planning.

La conférence

Many strategies have already been proposed for the decarbonisation of the EU energy system by the year 2050. These typically focus on the expansion of renewable energy in the electricity sector and subsequently, electrifying both the heat and transport sectors as much as possible. In these strategies, the role of district heating has never been fully explored, nor have the benefits of district heating been quantified at the EU level.

Heat Roadmap Europe (www.heatroadmap.eu) combines the mapping of local heat demands and local heat supplies across the EU27. Using this local knowledge, new district heating potentials are identified and then, the EU27 energy system is modelled to investigate the impact of district heating. The modelling includes all sectors of the energy system (i.e. electricity, heating, cooling, industry, and transport), and it also simulates the balancing of the electricity, thermal, and gas grids on an hourly basis, using the advanced energy systems analysis tool, EnergyPLAN (<http://www.energyplan.eu/>).

The results indicate that a combination of heat savings, district heating in urban areas, and individual heat pumps in rural areas will enable the EU27 to reach its greenhouse gas emission targets by 2050, but at a cheaper price than a scenario which focuses primarily on the implementation of heat savings.