



**UNIVERSITÉ
DE GENÈVE**

**INSTITUT DES SCIENCES
DE L'ENVIRONNEMENT
DPT. F.-A. FOREL**

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University of Geneva, Institute for Environmental Sciences, Energy Efficiency Group

In the energy domain, we have a vacancy for

a Ph.D. student on energy efficiency technology and energy storage.

The successful applicant will become members of the Energy Efficiency Group (<https://www.unige.ch/efficience/en>) within the Department F.-A. Forel for Environmental and Aquatic Sciences, Faculty of Sciences and will be housed by the inter-faculty Institute for Environmental Sciences (ISE, <http://www.unige.ch/environnement>) that is active in cross-disciplinary research in the domains of energy, climate change, surface waters and urban ecology as well as sustainability. The institute represents an enthusiastic, dynamic and international working environment. It offers an interdisciplinary Master programme in Environmental Sciences (MUSE) with a track on Energy to which the successful candidates will contribute.

Project and job description:

Energy efficiency and renewable energy play an important role in the European Union's Energy Efficiency Directive, in Switzerland's Energy Strategy 2050 and in the new energy and climate plans at the national and at the cantonal level. For example, the confederation is currently preparing a new CO₂ law (with the objective of net zero emissions) and the canton of Geneva has declared a climate urgency. Against this background we are studying the current and future potentials for energy savings and the opportunities for energy storage in the Swiss and European context.

The topics to be addressed by the new position include energy saving opportunities today and in future, thereby covering residential buildings, the commercial sector and selected industry sectors. In order to manage the loads on energy infrastructures and to minimize of fossil fuel consumption, best possible use needs to be made of the options of electrification as well as of the emerging opportunities related to energy storage (for electricity and heat). The assessment of these options requires the spatio-temporal analysis of electricity, heat and cooling demand. The planned research concerns various systems at different geographical scales, e.g. from the neighbourhood level, to cities, regions and the country as a whole. The analysis includes technical and economic potentials, thereby considering organisational and behavioural constraints, ultimately leading to policy-relevant conclusions. To this end, a variety of methods are applied including techno-economic analysis, bottom-up modelling (simulation), regression analysis, optimisation and geographical information systems.

Requirements:

Candidates should have background in physics, engineering and/or environmental sciences (M.Sc. degree) and they must be able to combine thorough technical understanding with economic assessment and broader aspects of the energy transition, including policy aspects. Experience in handling large datasets and modelling expertise using tools like Python, Matlab or R are expected. Experience with GIS tools is considered as advantage. Excellent knowledge of English (written and spoken) is a necessity and good knowledge of French and/or German are advantages.

The positions offer unique opportunities to the successful candidates to build a solid CV for an academic or professional career by further developing a wide range of analytic skills, presentation and reporting skills and networking in a cutting-edge R&D area that is essential for the energy transition, nationally and internationally.

Conditions of employment and application:

We offer a one-year appointment (with further extension by up to four years within the Ph.D. trajectory). The salary offered is in accordance with the regulations at the University of Geneva (approx. 2800 CHF/month net, prior to deduction of health insurance fee).

Interested applicants are kindly requested to send **until 15 July 2020** a letter describing their motivation and competences next to an up-to-date CV (an overview of publications, if relevant) as well as transcripts (with information on the course load and grades of the courses followed by the applicant). If necessary, the deadline will be extended until suitable candidates will have been found. Applications should be sent by email to Prof. Martin Patel (Martin.Patel@unige.ch).