



## RESPONSE – Open PhD Position

### Open PhD Position in

#### RESPONSE (GA No. 847585)

«RESPONSE - to society and policy needs through plant, food and energy sciences»

H2020-MSCA-COFUND-2018

#### ESR 05

### Engineering the Policy-Enabled Transition to Sustainable Multi-Energy Microgrids

Within the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 847585, ETH Zurich is offering a 36-month PhD position for an early-stage researchers (ESR) in in the area of sustainable energy systems.

#### Job Description

We are looking for excellent master graduates with a strong background and passion for computational modelling for energy economics, energy policy and energy systems. The ESR will work in a highly interdisciplinary setting at the interface between technical and policy aspects concerning the transition to an energy system that will strike a balance between centralized energy supply via large-scale power transmission networks and collections of local distributed multi-energy microgrids. This project aims to (a) understanding the technical, economical and societal factors that foster the transition to the current passive electric power distribution system to the future distributed multi-energy systems, and (b) informing energy policies that will enable this transition.

The successful achievement of such ambitious objectives is rooted in the integration of three classes of models, i.e. (a) energy systems optimization, (b) uncertainty and sensitivity analysis, and (c) applied economic models. Models for energy systems optimization for multi-energy microgrids have been developed by the Reliability and Risk Engineering Laboratory at ETH Zurich and will be applied in the sensitivity analysis, which will identify under which technological, societal and environmental factors multi-energy microgrids demonstrate their “business case”. Subsequently, agent-based models (ABM) will be developed to study the capability of energy policies to enable the transition to the target multi-energy microgrids. The developed ABM will be contrasted against the results of established models for testing energy policies, i.e. Dynamic Stochastic General Equilibrium models.

The scientific outputs of the project will be published in prestigious journal in the field of energy economics/policy and systems. The policy recommendations emerging from this project will have an impact on the Energy Strategy 2050. The outcome of the project will be translated into a language accessible to the general audience. Information to be share are related to the decision-making of the citizens that can foster the transition to a sustainable



energy systems. What is gained by the citizens as individuals? What are the benefits for the society at large?

A planned secondment (i.e. internship) of four months at the Swiss Federal Office of Energy is part of this project. During this secondment, the ESR will be integrated in the policy projects of the Swiss Federal Office of energy and will be in direct contact with relevant experts and decision makers. The close collaboration with the Swiss Federal Office of Energy will guide in the definition of model parameters, which affect the results of the three aforementioned classes of models.

### Interested / Your profile

To perform successfully, potential candidates should have strong interest in computational models for energy economics, policymaking analysis and sensitivity analysis. An expertise in agent-based modelling, mathematical optimization and uncertainty/sensitivity analysis is a strong prerequisite for the successful completion of the project. Good writing and communication skills are also essential.

**Eligibility:** Early stage researcher in the first 4 years (full-time equivalent) of their research careers, including the period of research training, starting at the date of obtaining the degree which would formally entitle them to embark on a doctorate either in the country in which the degree was obtained or in the country in which the initial training activities are provided.

At the time of recruitment (for call 2 = July 1, 2020) by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in Switzerland for more than 12 months in the 3 years immediately before the reference date. Compulsory national service and/or short stays such as holidays are not taken into account.

**Language requirement:** English, German (desirable) / Proficient oral and written English skills are expected.

**Main Research Field:** Energy economics and policy

**Sub Research Field:** Energy systems

RESPONSE is open to applicants of any nationality.

**For submitting your online application:** <https://join.lszgs.uzh.ch/> (select PhD Program Science and Policy). The online application should contain all information as indicated by the application portal. Moreover, the following documents have to be uploaded under “further documents”: 1) a letter of motivation to join a) the RESPONSE doctoral programme and b) to apply for this specific position (ESR xx), 2) a comprehensive CV, and 3) transcripts of records. If you apply for more than one RESPONSE position, please refer to them in your letter of motivation. Please note that we exclusively accept applications submitted through our online application portal. Applications via email or postal services will not be considered.



## Benefit

We are offering an interesting position at the interface of science and policy. While working in an international, interdisciplinary and innovative research environment at ETH Zurich, the ESR will be jointly co-supervised by the Reliability and Risk Engineering Laboratory at ETH Zurich and the Swiss Federal Office of Energy.

The complete 36 months will be under 100% working contracts.

The PhD salary follows the regulations of ETH Zurich and will be according to EU regulations for Marie Skłodowska-Curie Early Stage Researchers. The monthly gross salary will not be lower than CHF 3920.

The successful candidate will be matriculated and will have a working contract at ETH Zurich. He/she will work in Switzerland. The secondment will take place in Berne, Switzerland.

Expected starting date of the working contract: **01.09.2020**

For questions and further information on the position, please contact (Prof. Dr. Giovanni Sansavini [sansavig@ethz.ch](mailto:sansavig@ethz.ch)), no applications.

## Further information

**RESPONSE Doctoral Programme (DP):** «RESPONSE - to society and policy needs through plant, food and energy sciences» is funded by the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie Grant Agreement No 847585. RESPONSE DP builds on the academic expertise of three world-leading institutions - ETH Zurich, University of Zurich and University of Basel. The successful candidate will be integrated in the research network and infrastructure of the internationally renowned competence center [Energy Science Center](#).

All RESPONSE ESRs will follow the [PSC PhD Program Science and Policy](#) that is unique in its kind. Through the curriculum of this program, ESR will be trained in the communication of scientific evidence to policy-makers and the public; the involvement of different stakeholder groups as well as in policy development and endorsement in Europe and at global scale.

### For project, programme and application details:

<https://www.plantsciences.uzh.ch/en/research/fellowships/response.html>



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