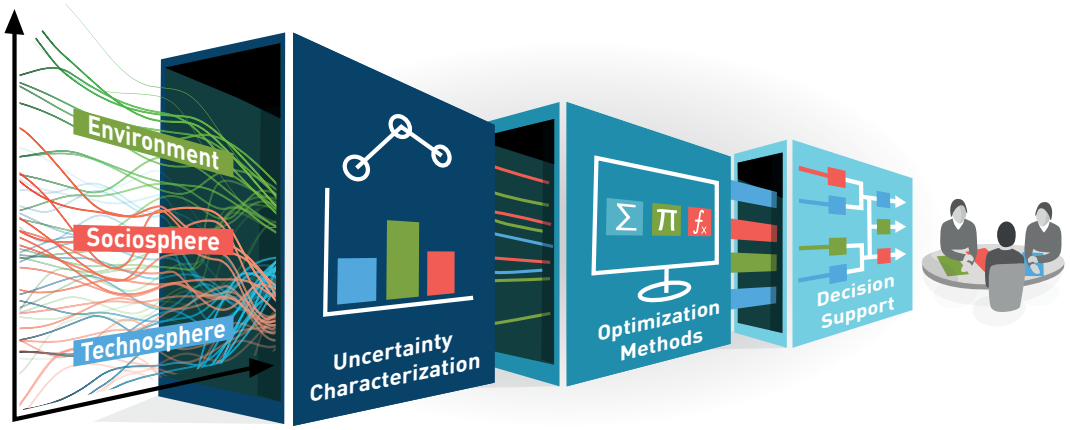
PhD positions in Decision-Making under Uncertainty for the Energy Transition

Politecnico di Milano, Italy



The **Moret group** at **Politecnico di Milano** is looking for doctoral students working on energy systems modeling and decision-making under uncertainty for the European energy transition. The positions are funded by the **ERC Starting Grant project UNITES** (Uncertainty Integration for a Transition in Energy and Sustainability), which connects several groups within and outside Politecnico di Milano and focuses on developing methodologies to consider uncertainty in energy transition models. The research group is led by Dr. Stefano Moret, Associate Professor in the Department of Management, Economics, and Industrial Engineering.

The research of the Moret group develops along two main research axes: (i) the development of fast and concise sector-coupled energy systems models and (ii) the consideration of uncertainty in energy systems planning and strategic decision-making. The group develops advanced mathematical methods to embed uncertainty in energy systems optimization models and has a strong interest as well as track record in applying these models to support strategic decision-making in industry and the public sector. Examples of relevant publications can be found here.

Project Background

Geopolitical and socio-economic uncertainties are putting the European and Global energy transitions at risk. These deep uncertainties affect the analytical assessments underpinning energy and climate policies. For example, the models used to inform energy planning rely on uncertain forecasts and assumptions for future energy demands, macroeconomic indicators, social acceptance, fuel prices, technology costs, and climate scenarios. Due to fundamental methodological, computational, and data challenges, this uncertainty is at best rarely considered in energy planning, which increases the risk of failing to meet urgent climate targets. This makes accounting for uncertainty one of the major unsolved problems in energy planning. UNITES contributes to addressing these limitations, working towards the vision of a systematic consideration of uncertainty in energy systems and strategic decision-making models to enable a robust and timely energy transition.

Project Description

You will work within a highly interdisciplinary project, at the intersection of energy modeling, operations research and decision support, where you will develop novel methods for modeling, optimization under uncertainty and decision-making for energy systems planning. More specifically, you will participate in (i) developing cutting-edge optimization and AI methods to consider uncertainty in energy system models; (ii) characterizing and accounting for the uncertainty associated with the planning of future energy systems; (iii) modelling and assessing the impact of uncertainty in the European energy transition, with unique opportunities for outreach and impact. To this end, you will have access to state-of-the-art computational capabilities, and you will be in contact with leading experts at Politecnico di Milano and internationally.

Your Profile

We are looking for a proactive and highly motivated candidate, with a MSc degree in a quantitative discipline (such as engineering, physics, or mathematics) from a recognized University. You have a strong background in quantitative modeling (mathematical modelling and optimization are an asset), energy systems and/or programming. A professional command of English (both written and spoken) is mandatory. Furthermore, you enjoy working in a dynamic and international environment with other doctoral students and postdoctoral researchers.

Interested?

Expressions of interest can be submitted at this link: https://forms.gle/oPiQp87nJeyUp88T7. (The form requires a Google account; if you cannot access it, please let us know.) We look forward to receiving your online application with the following documents:

- Curriculum Vitae
- Motivational Letter, max. two pages
- Transcript of records (including details of grades for both BSc and MSc)
- Contact details of 2 referees

Please note that we exclusively accept applications submitted through our online application portal before **October 17, 2025**. We will not consider applications sent via email. The expected start date of the positions is **February 1, 2026**.

Depending on the profile and preference of the applicants, the successful candidates will be enrolled in one of the following Doctoral programs:

- STEP Change Doctoral Programme
- PhD Programme in Management Engineering

Questions regarding the position should be directed to Stefano Moret, morets@ethz.ch (no applications).