ULB UNIVERSITÉ LIBRE DE BRUXELLES

PhD position

Leveraging electricity demand flexibility for the energy transition

École polytechnique de Bruxelles

Application deadline: 15/04/2022
Start date: between the 1st of June 2022 and the 1st of September 2022

Job Description

In the BEAMS department of the École polytechnique de Bruxelles of the Université libre de Bruxelles (ULB), we have a fully-funded PhD position in the framework of the DemandFlex research project funded by the Belgian Federal Energy Transition Fund, and we are looking for a motivated PhD candidate with an interest in techno-economic optimization of electricity markets. The prospective PhD candidate will work on the technical aspects of demand flexibility foreseen in the DemandFlex project research under co-supervision of Pierre Henneaux and Mohammad Moradzadeh.

DemandFlex brings together the expertise of three research centers of ULB (BEAMS for the technical aspects, the Centre de Droit Public for the legal aspects, and ECARES for the economic aspects) to analyse and evaluate the technical, legal and economic solutions to foster an active role for electricity demand in the Belgian electricity system. The ongoing transformation of the electricity system provides the motivation for the project. Increased penetration of renewable sources of electricity, including decentralized sources, the development of storage and automated demand management, as well as the increasing electrification of road transport and heating all raise challenges (and opportunities) for the traditional electricity system model where supply adjusts to demand. Across the world, a new paradigm is emerging where electricity demand is playing a more active role. This “flexibilization” of demand is an essential lever to facilitate the integration of renewable sources of electricity as part of the climate transition and to ensure supply adequacy without massive investment in peak production capacity. Demand flexibility already plays a role in Belgium today but it is far from reaching its potential. The barriers to the full exploitation of this potential are technical, economic and legal, hence the value for multi-disciplinary research which crosses perspectives, and for interactions with practice as envisaged in the project.

Profile

- You have a MSc in Engineering (preferably electrical power engineering) with a background in demand response, optimization algorithms, power system modelling and simulation tools
- Excellent programming skills (e.g., Matlab/Simulink, Python, C++)
- You obtained good grades in courses related to the topics relevant to this PhD position
- You are a team player but are also able to do independent research (demonstrated by, e.g., excellent grades on a MSc thesis, etc.)
- You have a critical mindset
- You have an excellent proficiency in the English language (both speaking and writing)

Offer

- A funded PhD scholarship
- An exciting interdisciplinary research environment
- The possibility to take part in international conferences and collaborations
- A competitive salary

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Interested?

For more information, please contact

- Pierre Henneaux (pierre.henneaux@ulb.be)
- Mohammad Moradzadeh (mohammad.moradzadeh@ulb.be)

Applications must be sent by e-mail to demandflex@ulb.be with the subject "PhD application for DemandFlex-BEAMS". They must include the following:

- A motivation letter with a statement of skills and research interests
- A Curriculum vitae
- A transcript of marks in BSc and MSc studies
- The names and contact information of 2 references

Note that, before a formal application, a prior, informal contact is encouraged.

The application deadline is 15 April 2022, but earlier applications are encouraged and will be considered as soon as they are received. The position can be closed earlier in case a suitable candidate has been found. The start day is in the interval of 1 June 2022 – 1 September 2022.