ESR Job Vacancy

Position	**ESR1.3**		
Title	Hybrid agent-based optimisation model for self-scheduling generators in market environment		
Centre	Delft University of Technology (TU Delft, www.tudelft.nl)		
Location	Delft, The Netherlands		
Start date	1 July 2016 2016	**Duration**	48 months
Closing date for applications	**6 March 2016**		
Communications of results	**15 May 2016**		

Job description

Individual Research Project

The objective of this Individual Research Project is to create and advance knowledge on the operation of the future power sector if smart grids with renewable generation units are adopted, with a multitude of active players interacting with each other in social networks, and with the electricity network, through a variety of ICT tools. The emerge of prosumers actively scheduling generation and demand according to own preferences calls for novel control and management functions based on economic and social incentives. This project aims to develop a hybrid modelling and simulation environment using agent-based technique in combination with distributed optimization and institutional design for smart grids with a high penetration of RES (Renewable Energy Systems). The proposed modelling and simulation environment can be then used to investigate the interaction between the physical, ICT and social layer in different markets environments.

Tasks

- Modelling self-sustainable prosumers.
- Defining incentives both in terms of price signals and social values, which sometimes may be more effective than economic signals, to influence prosumers' decision.
- Combining distributed optimisation with institutional design in ABMS (agent-based modelling and simulation).
- Developing a modelling framework to represent physical, ICT and social layers and their interactions in the operation of the future energy systems with high penetration of RES.

Career

In Marie Sklodowska-Curie Actions, ESRs are paid a competitive salary, including a Mobility Allowance and a Family Allowance (subject to family situation). The successful candidate will be working on an Individual Research Project (IRP) at TU Delft, Faculty of Technology, Policy and Management (TPM), and will have secondments related to their research at Catalonia Institute for Energy Research (IREC, www.irec.cat) and Flemish Institute for Technological Research NV (VITO, www.vito.be). She/he will be enrolled in the TU Delft PhD programme and conduct the research corresponding to the IRP at TPM as part of her/his thesis. Tuition fees will be covered by the fellowship and the network will also support training activities and periodical events, which will allow the ERSs to develop their career in a multi-sectorial environment and to obtain a wide knowledge on the control of electrical networks.

PhD Programme

The successful candidates will be enrolled in the TPM PhD programme of the TU Delft Faculty Graduate School, http://www.tbm.tudelft.nl/en/research/graduate-school/.

Supervisor

Zofia Lukszo

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Marie Sklodowska-Curie grant agreement No 675318.

Planned secondments (compulsory)

The ESR will perform secondments at IREC (Barcelona, Spain) and VITO (Genk, Belgium), which will be less than 30% of the total employment time.

Eligibility conditions

1. The candidate must not have resided or carried out his/her main activity (work, studies, etc.) in **THE NETHERLANDS** for more than 12 months in the 3 years immediately prior to his/her recruitment under the project (short stays such as holidays are not counted).
2. The candidate must be within 4 years of the diploma granting you access to doctorate studies at the time of recruitment and has not yet been awarded the doctorate degree.
3. The candidate may be of any nationality.
4. The candidate must work exclusively for the project during the employment contract.
5. The candidate must fulfil the conditions to be admitted in the PhD programme of the TU Delft Faculty Graduate School, http://www.tbm.tudelft.nl/en/research/graduate-school/.

These conditions must be fulfilled at the starting date of the contract. The starting date for each position is tentative.

General requirements

Education Degree

To be eligible for the TPM PhD programme of the TU Delft Faculty Graduate School, the candidate must:

1. have an MSc degree (or equivalent) in a relevant field of science or engineering
2. proven proficiency in the English language (e.g. being a native speaker or having a TOEFL score of at least 100 or an IELTS score of at least 7).

Qualifications

Preference will be given to candidate with a engineering degree or a master degree (or equivalent) in a natural science, applied mathematics, or other relevant disciplines.

Language

English: Good communication skills both oral and written.

Experience

Desirable background in:

- Agent based modelling
- Numerical optimization
- Smart energy networks
- Business, policy and management
- Economics

Skills

- Strong motivation to pursue a PhD degree.
- Ability to work independently and as part of a team.
- Excellent skills in writing and presentation.

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- Highly-motivated with the ability to set and meet deadlines appropriate to the progress of the project.
- Willingness to interact closely with the INCITE partners.
- Willingness to work on the boundary of several research domains.

Job details

Gross salary	Between €2146 and €2744 per month depending on the family situation (Amounts subject to taxation according to Dutch law). The position covers tuition fees and other training expenses.
Duration	48 months
Type of contract	Full-time
Hours per week	38 hours
Place of work	Delft
Province/State	South Holland
Local language	Dutch
Country	The Netherlands

The contract will be subject to the regulations of the Marie Slodowska Curie Innovative Training Network Fellowships of the European Commission and in accordance with the work contract regulations of the Netherlands.

Selection criteria

- Fit with general requirements listed above
- Motivation for selecting this project and for selecting TU Delft
- Background and expertise should fit the given topic
- Fit within the current team
- Communication and presentation skills
- Ability to work both independently and within a team
- Ability to overcome and solve problems.

After the first selection stage, the top five candidates will be invited to a remote interview via video conference.
Equal consideration will be given to female and male applicants.

Applications

All applications must include:

1. The **application form** (INCITE template).
2. A detailed **CV**, including list of publications, a Master thesis summary and the names of two referees (name, title, affiliation, e-mail and telephone number(s)) who are willing to provide detailed recommendation letters about the candidate (INCITE template).
3. One **motivation letter** for each position applied for (INCITE template).
4. **Copies of academic transcripts and degree certificates**, in English.

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All applications must be submitted by means of on-line application on the official website of INCITE - www.incite-itn.eu using the templates available in the website.

For further information: coordinator-incite@irec.cat.

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