



Call for PhD students (Early Stage Researchers) to develop the PhD in CITCEA-UPC, CINERGIA, and ALSTOM WIND in Barcelona (Spain) involved in the Marie Curie Initial Training Networks (ITN) FP7-PEOPLE-2012-ITN project “Multi-terminal DC grid for offshore wind “ MEDOW.



Applicants are invited for Early Stage Researcher (ESR) positions in the Marie-Curie Multi-terminal DC grid for offshore wind, initial training network (MEDOW ITN) at CITCEA-UPC, CINERGIA, and ALSTOM WIND. ESRs will work with leading researchers from the UK (Cardiff University, National Grid), Spain (UPC, Cinergia, Alstom Wind), Portugal (Uporto, Efacec), Belgium (Leuven, Elia), Denmark (DTU) and China (EPRI Electric Power Engineering Co. Ltd). To utilise the expertise of the ITN, and to facilitate multi-disciplinary collaboration, the researcher will have the opportunity for international secondments.

Multi-terminal DC grid for offshore wind (MEDOW)

A DC grid based on multi-terminal voltage-source converter is a newly emerging technology, which is particularly suitable for the connection of offshore wind farms. Multi-terminal DC grids will be the key technology for the European offshore SuperGrid. In this project, DC power flow, DC relaying protection, steady state operation, dynamic stability, fault-ride through capability, and impacts of DC grids on the operation of AC grids and power market will be studied. Systematic comparison of DC grid topologies and stability control strategies will be carried out. DC grids for offshore wind power transmission and onshore AC grid interconnection will be investigated. Operation and control will be evaluated using various simulation platforms and experimental test rigs. The achievements from the project will contribute to integrating offshore wind power into the onshore AC grids in European countries and for the European Super Grid.

Available positions in CITCEA-UPC, CINERGIA, and ALSTOM WIND S.L , Barcelona (Spain)

Fellow	ESR4
Host institution	CITCEA-UPC (Barcelona)
Duration	36 months
Start date	October 2013
Project title	Control of multi-terminal HVDC systems for offshore wind power
Supervisor name	Oriol Gomis, Antoni Sudrià (UPC)
Objectives	<ul style="list-style-type: none"> • Develop dynamic control systems for the offshore DC grids • Applied advanced control techniques to M-HVDC systems • Apply the proposed schemes to voltage and power flow control in M-HVDC • Model development and validation • Experimental validation with scaled platforms
Dissemination	Conference and journal publications, participation in all the project meetings and outreach activities.
Planned secondment	EFACEC (3 months), NGRID (3 months), DTU (3 months)

Fellow	ESR5
Host institution	Cinergia (Barcelona) + academic supervision UPC
Duration	36 months
Start date	October 2013
Project title	Power converter design and control for multi-terminal DC grids
Supervisor name	Miquel Teixidó (Cinergia), Oriol Gomis (UPC)
Objectives	<ul style="list-style-type: none"> • Analyze and develop voltage source converters for multiterminal HVDC grids • Applied advanced control techniques for the control of VSC • Model development and validation • Construction of a scaled prototype
Dissemination	Conference and journal publications, participation in all the project meetings and outreach activities.
Planned secondment	DTU (3 months), CU (3 months), KU Leuven (3 months)

Fellow	ESR6
Host institution	Alstom Wind (Barcelona) + academic supervision UPC
Duration	36 months
Start date	October 2013
Project title	Control of wind farms interfaced to multi-terminal DC systems
Supervisor name	Marc Sala (Alstom Wind), Oriol Gomis (UPC)
Objectives	<ul style="list-style-type: none"> • Develop operation and control systems for offshore wind farms • Applied advanced control techniques to such offshore wind farms • Coordination between wind farm and wind turbines • Model development and validation • Experimental validation with scaled platforms
Dissemination	Conference and journal publications, participation in all the project meetings and outreach activities.
Planned secondment	UPC (3 months), CU (3 months), UPorto (3 months)

Benefits and requirements

This FP7 project is funded by the European Commission. Full time 3 year contract. Very competitive salary and mobility allowance. Rules for recruitment are that ITN are limited to early stage researchers (ESR) in the first 5 years of their career. Therefore the applicant must not have been awarded a PhD and their research experience must total ≤ 4 years at date of recruitment (counted from the diploma/degree that gives the right to embark in a doctoral degree). ESR recruitment is also subject to the mobility rule, "The researchers may be a national of a Member State, of an Associated Country or of any other third country". The researcher must not have resided or carried out his/her main activity (work, studies etc) in the country of his/her host organisation for more than 12 months in the 3 years immediately prior to his/her recruitment. Short stays (e.g. holidays) are not taken into account. The ESR will ideally commence PhD enrolment / employment in October 2013.

Interested applicants should send the CV, academic report, cover letter and two or three references to: gomis@citcea.upc.edu, before 30/06/2013 (with reference: Meadow ESR), indicating which of the positions are of interest.

Essential Criteria

- A Masters degree in Electrical/Electronic Engineering from a leading University programme.
- Thorough knowledge of electrical power engineering and/or power electronics and/or control engineering and/or wind energy systems.
- Experience of computer simulation of power system dynamics and/or electromagnetic transients of electrical power systems and/or wind energy systems.
- Excellent English oral and written communication skills with well developed interpersonal skills.
- Ability to work effectively and collaboratively within a multidisciplinary team.
- A proven enthusiastic, self-motivated individual.
- Experience of communicating to a variety of audiences through different media along with the ability to present confidently to academic and non-academic audiences at meetings and conferences.
- Commitment to high quality research.
- A creative, innovative, team-working attitude.

Desirable Criteria

- Experience in the use of Matlab simulink, DigSilent Power Factory and PSCAD/EMTDC
- Experience in the design, building and testing of power converters
- Experience in DSP programming for power electronics applications
- Expertise in techniques of modelling, power system simulation software and control of electric power transmission systems and electrical machines.
- Experience in the reporting and management of project progress.
- Experience/competence in data analysis and dissemination of research findings.
- Knowledge of control system design techniques