RECRUITMENT OF A TENURE TRACK ASSISTANT PROFESSOR
IN ENERGETICS (SMART GRIDS)

Institution: MINES ParisTech (Ecole Nationale Supérieure des Mines de Paris)
Laboratory: Center for Processes, renewable energies and energy systems (PERSEE)
1 rue Claude Daunou, 06904 Sophia Antipolis, France.

To develop its research and teaching activities in the field of Smart Grids, MINES ParisTech is opening an assistant professor position in Energetics.

This 3-year position is aimed at a young researcher (male or female), who is motivated by multidisciplinary work ranging from fundamental research to industrial applications. The successful candidate will have the opportunity to take part in collaborative research projects at the Centre PERSEE and thus contribute to industrial and economic innovation. He/she will also have the opportunity to define a PhD subject during his/her first year at PERSEE that he/she will supervise together with a senior member of the team officially accredited for such a task.

The position is to evolve into a permanent lecturer and researcher within 3 years in the framework of a Tenure Track procedure. A description of the process is available on the MINES ParisTech website: http://www.minesparistech.fr/Ecole/Recrutement/Travailler-a-MINES-ParisTech/

1. Center for Processes, renewable energies and energy systems (PERSEE)

The Centre PERSEE is one of 18 research Centers at MINES ParisTech. Its field of expertise is New Energy Technologies and Renewable Energies. Its research strategy is based on a "micro / macro" approach from (nano) materials to energy systems. It is developed around three structuring axes: i) materials and components for energy, ii) sustainable processes and technologies for conversion and energy storage, and iii) renewable energy sources (RES) and smart grids. The corresponding research activities are carried out within the Center's two groups: MATPRO ("Materials and Processes for Energy") and ERSEI ("Renewable Energies and Smart Grids").

PERSEE is also actively involved in education and training. For example, it is responsible for the MINES ParisTech "Machines and Energy" undergraduate Engineer program, the School's doctoral specialty, "Energy and Processes", and the International Chinese-European Master's, CARE. It also runs the international Specialized Masters ENR and ALEF created by the Center in 2002 and 2007 respectively.

The candidate will integrate the research group ERSEI. This group works on developing methods and tools for the optimal integration of distributed generation, including renewable energies and storage, into power systems and electricity markets. The group's research activity is divided into three themes. The first is based on developing advanced short-term forecasting methods for various applications in power systems (i.e. RES production, consumption, dynamic line rating, etc.). The second concerns modeling hybrid multi-energy systems of limited size incorporating RES units, for the electrification of remote sites ("off-grid"). The third theme focuses on integrating renewable energies into power systems and electricity markets. One of the key aims is to develop innovative approaches for predictive management and planning of power systems, taking into account inherent uncertainties in renewable generation, storage options, flexibility of demand, and the deregulated market environment. These issues are at the heart of smart grid research.
PERSEE is located at the scientific technology park of Sophia Antipolis, near the cities of Nice, Cannes and Antibes. Its staff comprises 40 to 50 people, including 24 permanent positions. The ERSEI group includes 17 people (01/03/2016).

2. DESCRIPTION OF THE VACANCY

Research.
The successful candidate is expected to have already proven his/her ability to elaborate academic research in the field of smart-grids. He/she will be involved in developing research activity, including innovative methods for modeling, management and planning of power systems integrating distributed generation, storage, renewable energies, electric vehicles and active demand. The candidate will contribute to expanding the group’s activities considering fundamental aspects such as the development of:

- Multiscale modeling approaches to study power systems taking into account their growing complexity and the need for greater interaction between the different levels (transport, distribution, etc.) and stakeholders, in the new context of deregulated electricity markets. This will involve developing new methodologies to integrate storage at different spatial scales (buildings, neighborhoods, cities);
- Probabilistic approaches for predictive management and long-term planning of power systems capable of integrating the various uncertainties inherent to producing renewables and demand, which is a major challenge for future power systems. These methods are intended to meet the need for complex management of the various power system components (RES plants, storage units, etc.) in order to provide flexibility and system service and thus enable massive RES integration. (In this frame embedded intelligence approaches could also be considered);
- Methodologies and tools capable of exploiting in an intelligent and cost effective way very large amounts of data at different spatial and temporal scales; this is a priority in the context of the emerging “digitalization of energy” for applications such as management, network planning demand modeling, and RES and demand forecasting, etc.

The candidate will also be responsible for developing part of his/her activities within the project “Smart Campus Nice - Sophia Antipolis” in close collaboration with the project partners and the three other national smart campuses (Saclay, Lille and Grenoble).

Research activity in this area could potentially include an experimental component in relation to the research projects and educational activities developed.

He/she will be expected to work autonomously and develop creative research programs on his/her own topics. He/she will also be expected to initiate externally funded research projects, and establish strong relationships with academic and industrial partners.

The successful candidate will jointly supervise PhD students, publish in top journals, and participate in international conferences in the field.

Teaching activities
The candidate will take part in the various undergraduate and graduate courses and teaching sessions with which the PERSEE Center is involved. These are open to MINES ParisTech students and post-graduate engineers.

He (she) will act as assistant to the manager of the Specialized Master ALEF ("International Energy Management") in which he/she will be responsible for the module "Alternative Energy Technologies". He/she will also possibly contribute to MINES ParisTech’s undergraduate Engineering cycle. He/she may also be required to participate in new training courses as part of the PSL research university of which MINES ParisTech is a founding member.

He/she will be encouraged to organize new courses to extend the Center’s educational curriculum.

Special features of the candidate’s profile
At the time of the appointment, the applicant must have a doctoral degree in electrical engineering or/and applied mathematics or a related subject.

Experience in the field of renewable energies and/or smart grids is highly appreciated together with proven expertise in probabilities and statistics and/or optimization methods and/or modeling of large dimensional systems.
A post-doctoral experience, especially in a foreign laboratory, would be an asset for this position.

As the position involves cooperation with international partners, strong social and communication skills are required in addition to a solid command of the English language.

The applicant will have to show his/her capacity to conduct research work in a multidisciplinary context, together with an aptitude for teamwork. Previous experience in academic or industrial research would be appreciated.

3. APPLICATION

The application should include:

- Covering letter presenting the candidate’s research and teaching project;
- Detailed CV;
- List of recent research work and publications;
- Assessment reports of the candidate’s PhD;
- If possible, three reference letters directly sent to PERSEE from specialists selected by the candidate. If not, the application should at least include the names and contact details of three leading scientific figures who could be contacted to give their opinion on the candidate’s work and abilities.

The application should be sent by the 16th May 2016 at the latest to the following address:

Centre PERSEE - MINES ParisTech,
1 rue Claude Daunou - CS 10207,
F – 06 904, Sophia Antipolis cedex, France

FAO: M. Arnaud RIGACCI, Director

and/or (preferably) by e-mail to arnaud.rigacci@mines-paristech.fr and georges.kariniotakis@mines-paristech.fr

Applications will be evaluated by a jury comprising researchers from MINES ParisTech and external scientists. Preselected candidates will be invited to present their work and scientific project in front of this jury.

For further information, please contact the human resources department at MINES ParisTech, and/or M. George KARINIOTAKIS.