
Expert of atmospheric flow modelling for Offshore Renewable Energy Applications

N/Ref: FEM-SAS-2020-185

Company description

FRANCE ENERGIES MARINES (FEM) is the French Institute for Energy Transition (ITE) dedicated to Marine Renewable Energies (MRE). FEM's mission is to provide, enhance and nourish the scientific and technical environment necessary to remove the obstacles facing the MRE sector. This mission has three main objectives: to stimulate the competitiveness of the sector, to increase the attractiveness of the French territories and to support regional and national authorities.

FEM's core business is to develop, coordinate and scientifically manage collaborative R&D projects and to realize engineering and research activities around these projects. FEM benefits from financial support received from the French Investissement d'Avenir program and the European Union. On the basis of this research investment, the Institute is developing a scientific and technical support activity for the MRE sector in various areas: recommendations, project management assistance, testing, design, dimensioning, etc. FEM is also very involved in the animation of the sector at the regional, national, European and international levels.

FEM is currently established on 3 sites: the head office is located in Brest, and two branches are located in Marseille and Nantes.

Position description

FEM is launching the CASSIOWPE project addressing the development of a coupled modeling system involving atmospheric, wave and ocean models with application in the characterization of the meteocean conditions of the Gulf of Lion in the Mediterranean Sea. The goal is to provide the ORE industry with highly accurate and consistent databases of wind, wave and oceanic properties, both for the energy resource evaluation and for the design of floating wind turbines that will be deployed in the area in the near future.

FEM is looking for a permanent scientist to contribute to the implementation of the coupled model, improvement of the physical parameterization of the air-sea interaction and exploitation of the modeling chain output. An anticipated follow-up project will consist in applying the modeling chain to constitute coherent and reference wind, wave and current properties for the area of interest.

This permanent position also falls within a more global and long-term strategy of the Institute that prioritizes the development of tools and skills in order to support a massive deployment of Floating Offshore Wind Turbines along the French coastlines and overseas. As such, FEM is aiming to construct a research program addressing the characterization of the atmospheric flow properties of interest at areas targeted by the offshore wind industry. The scientist will have to contribute to the deployment of this large research program and the corresponding collaborative projects with the objective of providing decisive information regarding the wind resource and wind design conditions at offshore sites.

Activities

The successful expert will work under the responsibility of the Site Characterization Program Manager and in frequent liaison with experts from other FEM R&D programs to solicit their expertise. His/her first task will be to contribute to the scientific and technical tasks planned in the CASSIOWPE project, in particular regarding the development, implementation, operation and exploitation of the air-sea coupled modelling chain and its outputs.

From a more general point of view the expert will be responsible for:

- Leading the development of atmospheric observation research activities applied to offshore wind at FEM through the design of an ambitious research program on these topics
- Defining and coordinating the setting up and realization of corresponding research projects
- Contributing to the scientific tasks of the projects
- Developing collaborations with the leading European and International institutes in the field of the atmospheric research for offshore wind
- Enhancing the relationships of FEM with key industrial players in the field of the offshore wind, such as turbine manufacturers
- enhancing the collaboration between the Site Characterization R&D programs and the other FEM's research programs
- supervising PhD students, postdocs and research engineers involved in the research projects dealing with atmospheric characterization at FEM
- publishing the results of the collaborative research projects in peer-reviewed international scientific journals and conferences
- contributing to FEM service offers tailored for the offshore wind industry

Background and scientific and technical Skills

The candidate must hold a PhD in the field of the atmospheric modelling and ideally have an in-depth knowledge of air-sea interactions and their effects on the atmospheric boundary layer applied to offshore wind applications.

A strong appetite for applied collaborative research in the offshore wind industry field is required.

Essential:

- Extensive experience with meso scale flow modeling (e.g. WRF, AROME), and Large Eddy Simulation approaches,
- Extensive experience with High Performance Computing,
- Proficient experience with air-sea interaction physics and their influence on the atmospheric boundary layer,
- Solid research record demonstrated by a significant number of papers published in international peer-reviewed journals,
- Excellent writing ability and oral communication skills,
- At ease with communicating in English.

Desirable:

- Experience with CFD modeling of the atmospheric flow, possibly within a wind farm,
- Experience in the field of research activities applied to offshore wind.

Candidate profile

- Scientific rigor
- Open mind and intellectual curiosity
- Proactiveness
- Appetite for applied collaborative research in the offshore wind industry field,
- Ability to define the most promising research tracks within this context.

Supervision

Jean-François Filipot: Scientific Director of France Energies Marines and Manager of the “Site Characterization” research program and team.

Practical information

Type of contract: permanent position

Location: FEM’s headquarters: 525 avenue de Rochon, Plouzané, France or possibly in other FEM’s offices in Nantes or Marseille, France

Starting date: March 2021

Application procedure and contact

Please send CV and cover letter to contact@ite-fem.org by **December 4, 2020**. The best candidates will be invited to provide, by **January 3, 2021** a proposal of no more than 10 pages presenting his/her perception of the industrial research activities within his/her field of expertise that s/he envisions carrying out with FEM and its members in the mid to long term in order to answer the main challenges facing the offshore wind industry.

For any additional information, please contact jean.francois.filipot@ite-fem.org

In case of an expected secondment of the candidate by a member of France Energies Marines, the application should mention the agreement of the present employer.