

N/Ref : FEM/2017-375

Object

Job description for a « Research engineer specialised in Marine Renewable Energies » with knowledge of farm optimization software (energy yield, layout optimization) 7-month temporary (renewable) contract (M/F)

Company Description

FRANCE ENERGIES MARINES (FEM), the national reference institute dedicated to research in the field of Marine Renewable Energies (MRE), supports the nascent MRE industrial sector with the means and skills that increase competitiveness by mutualizing research and development costs, reducing risks and accelerating the acquisition of data and knowledge. The principle of this structure is based on a broad public-private partnership involving numerous members including industrials, SMEs, regional authorities, advanced research and training institutions and competitiveness clusters. The headquarters of FEM are located in Brest, France.

As part of its program "MRE array layout and network integration", FEM is looking for a « Research engineer specialised in Marine Renewable Energies » with knowledge of farm optimization software (energy yield, layout optimization) in order to ensure the development of this expertise through collaborative research projects in a mixed industrial/academic context.

Position Description

Working with the R&D team and under the responsibility of the program manager for "MRE array layout and network integration", the Research engineer specialised in Marine Renewable Energies (energy yield, layout optimization) will contribute to the development of this expertise within this research program by intervening in two essential aspects:

- Provide expertise on MRE farm optimisation based on multiple criteria. These skills will be applied directly to the France Energies Marines collaborative R&D project VALARRAY. This project has the objective of running a benchmark of tidal and floating wind farm optimization software/code in order to identify the gaps between the capabilities of available code against sector needs, and then specifying the tool set that would be developed/implemented in a second phase of the project. The Scientific and Technical (S&T) fields involved in such multi-variate tools are numerous. One can mention the evaluation of the Levelized Cost of Energy (LCoE) which is based on: the energy yield evaluation and the associated uncertainties, the CAPITAL EXpenditure (CAPEX) and OPERational EXpenditure (OPEX) costs formulation.
- Ensure a technological watch in her or his field of competence in order to guarantee the relevance of FEM fields of investigation. S/he will participate in the communication of the Institute's know-how through publications and participation in conferences and symposiums, and will lead internal institute discussions on this topic.

Activities

Particular tasks will be defined within the research projects themselves and could include the following:

- Bibliographic, state-of-the-art research and S&T monitoring on MRE farm optimisation;
- Participation in the gathering, identifying and prioritising of MRE sector needs/actions for farm optimization;
- Participation in the identification and perhaps implementation of numerical models;
- Running of MRE farm optimisation software and performance of sensitivity studies;
- Writing of S&T and commercial reports;
- Identification and submittal of publications to reputable scientific conferences in farm optimisation fields to ensure visibility for the MRE sector;
- Provision of internal advice on cross-program project activities touching on the candidate's area of expertise;
- Participation in the drafting of proposals for research projects by orienting/proposing investigative directions and identifying appropriate technical and industrial partners.

Candidate Profile

You have an advanced degree in general engineering, mechanical engineering, energy engineering or electrical engineering such as an engineering, masters or doctoral degree. You also have a minimum of 2 years of experience in research, consulting or in an industrial context. Knowledge of energy yield (wake modelling, control strategies, metocean, power curves...) and/or electrical engineering / energy transportation, optimisation processes would be desirable; Experience in the (marine renewable) energy, maritime or Oil & Gas fields would be a definite advantage.

You are polyvalent and have a clear capacity to put into action multidisciplinary approaches. You have a clear interest in and the necessary skills for multidisciplinary studies in a mixed industrial/academic environment.

<p>➤ Education:</p> <ul style="list-style-type: none"> ▪ Engineering degree or ▪ Doctoral degree or ▪ Advanced Master's degree in mechanics, energy, general or electrical fields 	<p>➤ Specific skills:</p> <ul style="list-style-type: none"> ▪ Energy yield and LCoE evaluation (uncertainties) ▪ Electrical engineering, energy production chain ▪ Optimisation solutions (with single and/or multiple factors) ▪ Modelling based on multi-physic models (e.g. models based on fluid mechanics (wind, wave, tidal, wake effects...), naval architecture (hydro, mooring, metocean...), electrical engineering...) ▪ MRE at the farm level, broad and systemic approach of the energy production chain ▪ Scientific programming (Python, Matlab, Fortran...)
<p>➤ Professional experience:</p> <ul style="list-style-type: none"> ▪ A minimum of 2 years' experience in research, consulting or engineering in an SME or industrial company dealing with one of the S&T fields previously mentioned. A doctorate applied to industrial fields may be considered as research experience 	<p>➤ Personal qualities:</p> <ul style="list-style-type: none"> ▪ Strict scientific rigor ▪ Spirit of initiative and multidisciplinary interests ▪ Taste for applied (industrial) research ▪ At ease in expression, argumentation and communication in a collaborative context ▪ At ease in writing and speaking English

Practical Information

Starting date, location: Early 2018 (January/February) in Brest, France, for a 7-month temporary contract (renewable).



Final date for applications: January 8th, 2018

Application process: CV and cover letter with your current and required salary, and in the case of a seconding contract with a member of FEM, the corresponding commitment letter, to the following electronic account: contact@ite-fem.org