

## RE Career Day, October 2017 at University of Oldenburg

by Maria Marcela Fragozo, Colombia & Koen Vanacker, Belgium (EUREC 2017/18)

### Objective of the meeting.

**Provide to all students of PPRE/EUREC of WiSe 17/18 a closer view and orientation regarding to the projection of the career, job expectation and actual developments of Renewable Energy (RE) technologies running of.**

### Context.

- Offered by the Physics Department at the University of Oldenburg since its establishment in 1987, reaching this year a population over 500 students from over 85 countries, the Postgraduate Programme Renewable Energy (PPRE) welcomed this winter semester 33 new professionals (13 European Master in Renewable Energy EUREC / 20 PPRE) keen on becoming members of the sustainable field and generation of clean energy.
- Under the integrate effort of the International Students Advisor & Co-ordinator Edu Knagge, tutors and PPRE staff was possible to perform a fruitful agenda in order to display main topics related with prospective fields of job expectation, researches areas, global vision of Renewable Energy (RE) technology integration and how it is being implemented.



PPRE/EUREC students and Staff WiSe 17/18.

The progress of the career day offered to all first semester students showed a thorough visualization of different sort of projects and research from 9 different companies in Germany, mainly Oldenburg and surroundings, however, pointed as a global understanding as potential perspective of application around the world. The guested companies were:

- DNV-GL, Oldenburg.
- DLR-VE, Inst. f. Networked Energy Systems, Oldenburg.
- OFFIS, Oldenburg.
- Forwind Institute, Oldenburg.
- Energy Meteo Systems (EMS), Oldenburg.
- Innogy SE (RWE subsidiary), Essen.
- KIT, Karlsruhe Institute of Technology, Oldenburg.
- UL International GmbH (DEWI), Wilhelmshaven.
- bwe Energy system, Friesoythe.

Each presentation kept a standard structure giving a brief but significant information of the projects and research running of. The presenters explained with a modest and understandable language the details might be interesting for us according with the academic curriculum of the master.



Presentation moments by RE Professionals.



## Resume per company.

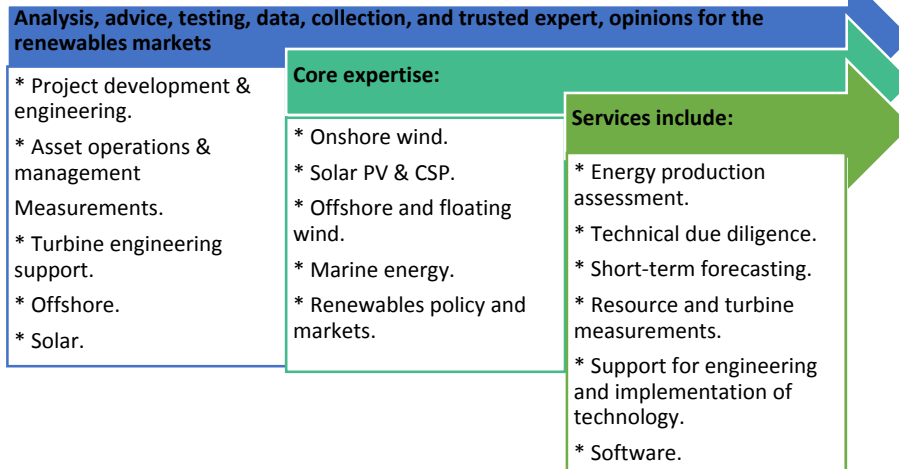
### DNV-GL, Oldenburg:

A global classification, certification, technical assurance and advisory company. Started 150 years ago, it has been spreading of more than 100 countries around the world welcoming more than 13000 employees (actually). DNV-GL hold the main purpose to safeguard life, property and the environment and vision of global impact for a safe and sustainable future.

#### Operating fields:

- Maritime.
- Oil & gas.
- Energy.
- Business Assurance.
- Software.

#### Renewable Energy Business:



#### Careers / Opportunities / Alumni:

This company employ each year students in Oldenburg and Hamburg on an ongoing basis or for internships, thesis projects, etc. The skills required are basically communication and computer programming skills (Digitalization).

All open positions suitable for recent graduates are published at the official web site.

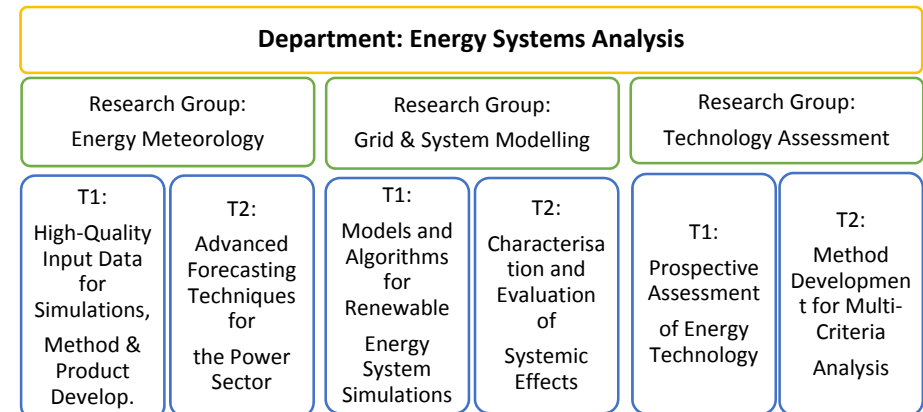
### DLR-VE, Inst. f. Networked Energy Systems, Oldenburg:

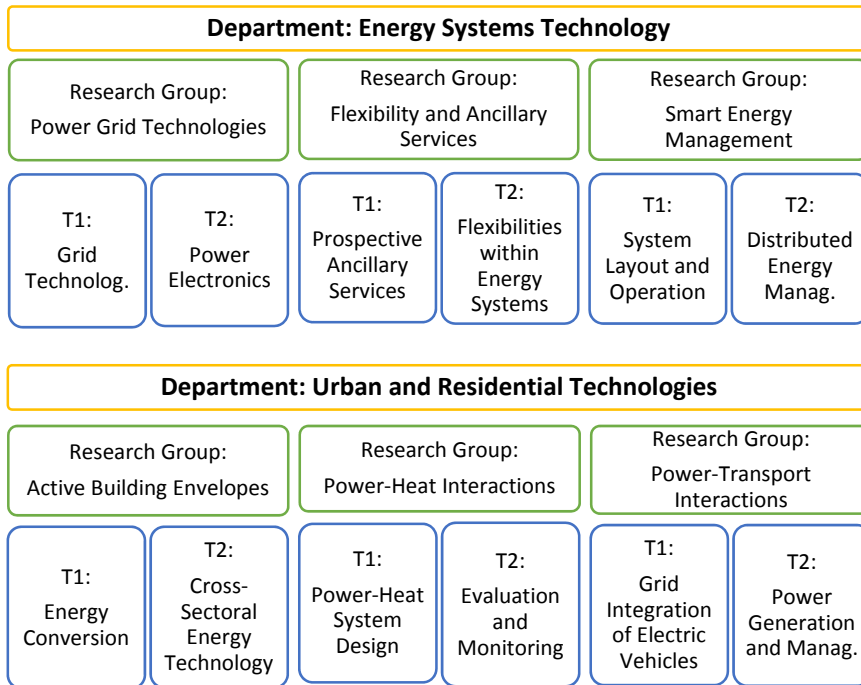
It begun as NEXT ENERGY on 2009 with 3 departments focus on PV, Fuel cells and batteries V2G, leading projects upon individual Grid-connected system. In 2012 expand its research towards projects concerning to high, medium and low voltage.

On November 2016 a decision made by the German parliament provokes a new re-structuration and adoption of the actual name (DLR Energy Research) with the main attention on the grand challenge for today's energy research D3 – Decentralization, Decarbonization, and Digitalization.

#### Operating fields:

Actually, DLR has 3 main departments in line with the direction of the company. Each department manage also 3 research groups working for two projects at the same time. The structure of the recent developments are detailed as follow:





### Careers / Opportunities / Alumni:

All open positions suitable for recent graduates are published at the official web site.

### OFFIS, Oldenburg:

OFFIS, as an associated institute of the Carl von Ossietzky University in Oldenburg, has, since its formation in 1991, converted scientific know-how from computer science into prototypes which are then developed further into marketable products by commercial partners. Hereby, OFFIS provides research and prototype developments for companies and institutions at the highest international level.

“A fast knowledge transfer from research into the economy is the crucial foundation for the economic, as well as the social well-being of a country”, under this statement, OFFIS is working on the next research:

<b>Energy Division</b>	Methods and Standards for Smart Grids.
	SESA-Lab as a Test Bed for the Energy Transition.
	Big Data as Prerequisite for Digitalization.
	Digitalization of Energy Economy.
	Smart Cities/Regions.
	SESA-Lab as a Test Bed for the Energy Transition.
	Distributed Flexibility, Plants, Grids and Markets.
	Simulation of Smart Energy Systems.
	mosaik – modular Smart Grid Co-simulation.
	Smart Energy Simulation and Automation Lab.

### Careers / Opportunities / Alumni:

All student keen on the following topics, do not hesitate to visit the official web page and surf into more details:

- System analysis and distributed optimization.
- Architecture Engineering and interoperability.
- Smart Resources Integration.
- Automation, communication and control.
- Multi-domain simulation and Technology assessment.

### Forwind Institute, Oldenburg:

Company member of a Research Alliance of over 600 researchers in 11 locations, around 6 states in Germany formed by DLR (German aerospace), ForWind, IWES Nordwest (Fraunhofer). The mains topics this company works for are splitted in 3 group which manage the development of the next topics:

## TWist

### Turbulence, Wind energy and Stochastics.

- Modeling of turbulent wind field.
- Wind tunnel (simulation of WEC behavior Rotor aerodynamics).
- Interaction of wind and WEC.

## Meteorology

### Energy Meteorology.

- Forecasting
- Simulation of large-scale simulation of atmospheric flow.
- Wind farm modeling .
- Maritime atmospheric boundary layer.

## WESys

### Wind Energy Systems.

- Dynamics of complete WECs (numerical & experimental).
- Control & Monitoring of WECs and wind farms.
- Integrated systems design of WECs.
- LIDAR & wakes .

ForWind, investigate at all possible scales including simulation in computer cluster, stochastic experiment and lab research, and field measurements in situ.

### Careers / Opportunities / Alumni:

All opportunities for internship and job are attended at the offices located at the Wechloy campus.

### Energy Meteo Systems (EMS), Oldenburg:

Since its foundation in 2004, EMS has over 80 employees with different profiles such as meteorologist, software developers, physicist and industrial engineers with the main goal of integrate Renewable Energies into grids and markets.

### Operating fields:

- Meteorology
- Wind and solar power prediction
- Consulting

### Renewable Energy Business:

This company offers services related with wind and solar power forecast, virtual power plants to manage decentralized units and consultancy. EMS currently is forecasting about 120 GW of wind power and 50 GW of solar power.

#### Wind and solar power predictions worldwide

- High accuracy.
- Flexible forecasting service.
- Adapted to local weather
- Conditions Based on combination of Different weather models.
- Continuous re-calibration

#### Virtual Power Plant (VPP)

- Control center for decentralized energy units such as wind.
- Farms, solar plants, CHP units, batteries, controllable loads.
- Platform to manage real-time data, metering data, Production schedules, outage information and market data.
- Remote control of units and portfolios.
- Communication interfaces to many industry standard.

#### Consulting

- Capacity building in wind and solar power forecasting.
- Estimation of power production of roof-top solar plants.
- Forecasting service for wind and solar plants in South Africa (IPPs).
- Delivery of operational wind and solar power forecasts for selected Plants in Central America and Mexico.
- Public private partnership (develoPPP) supported by GIZ.

### Careers / Opportunities / Alumni:

EMS offers a limited vacancies for internships and thesis. Students interested in international projects as Latin America, South-East Asia, Africa in relationship with forecasting, meteorology, time series analysis, statistical evaluations or energy market/virtual power plant to analyze new business models, market impact of RES and optimization strategies for energy trading feel free to look forward.

The main required skill to be part of EMS team are

- Knowledge of Matlab or better python experience
- Self-dependent way of working in a team
- Knowledge on either energy meteorology or energy markets

## Innogy SE (RWE subsidiary), Essen:

It is a leading energy company focus on Europe, anchored in Germany as the most valuable energy utility in Germany MDAX listing (Dec 19th 2016), serving 23M customers across the continent. Making over €46 bn of revenue and welcoming more than 40,000 employees with the goal to enable people to improve their quality of life by using energy more innovatively and strives to address their needs with sustainable products and services.

Innogy is a 100% RE company keen on produce, distribute, deliver reliably and sustainably, also innovate to get better every day. Its main departments are described in the next chart:

### Renewable Energy Business:

<b>Renewables</b>	Sustainable generation of electricity
<ul style="list-style-type: none"><li>• Expanding Renewable generation capacity with a broad range of technologies and countries</li><li>• Global leader in wind energy and operate more than 3,100 MW of renewable capacity</li></ul>	
<b>Grid and Infrastructure</b>	Efficient distribution of energy
<ul style="list-style-type: none"><li>• Providing access to energy through the No.1 distribution grid<sup>1</sup> in Central Europe</li><li>• Owing strong footprint in European gas and electricity grids</li></ul>	
<b>Retail</b>	Products and services that meet needs
<ul style="list-style-type: none"><li>• Meeting the needs of customers with energy and energy+ products and services</li><li>• Supplying with electricity and gas their strong pan-European customer base.</li></ul>	
<b>Innovation</b>	World's longest super conductor cable <sup>1</sup>
<ul style="list-style-type: none"><li>• Leading operators of charging stations<sup>2</sup></li><li>• System solutions for "Energiewende"</li><li>• Battery applications</li><li>• Flat-rate electricity (pilot)</li><li>• Smart home solutions since 2011</li></ul>	

### Careers / Opportunities / Alumni:

All open positions suitable for recent graduates are published at the official web site.

## KIT, Karlsruhe Institute of Technology, Oldenburg:

It institution conformed for over 9,254 employees, 359 professors and over 24,582 students, located 10 km far away from Oldenburg under its project "Competence E" promote investigation and production of

technology in High energy materials and compact cell designs, Modular battery designs, Optimized production processes and Storage systems design and analysis.

With the cooperation of the others KIT institutes around Germany, they are working on the recent projects:

- Innovative battery pack assembly solution.
- Li-ion cells development and testing.
- 1 MW Solar photovoltaics storage park.
- Wind, PV and Li-ion battery storage.
- Hybrid systems.

### Renewable Energy Business:

KIT offers the following services within the scope of the entire system "energy storage":

- Product design.
- Construction of prototypes.
- System test and validation.
- Integrated technology design.
- Strategy and business consulting.

### Careers / Opportunities / Alumni:

Under the program "Competence E" which can be consider as a place for scientists with practical (industrial) background or graduates with interest in battery storage field, especially Li-Ion, KIT offers some project available for thesis or research purpose.

"Competence E" is also define as a partner for:

- Technological expertise
- Integration expertise
- Economic expertise
- Applicable technological solutions

The main required skill to be part of EMS team are

Hybrid systems developers, based on PV, Battery Storage and Small wind. Battery Management Systems (BMS) developers, in general all



competences related to renewable electrical energy storage using battery technologies (especially Li-Ion).

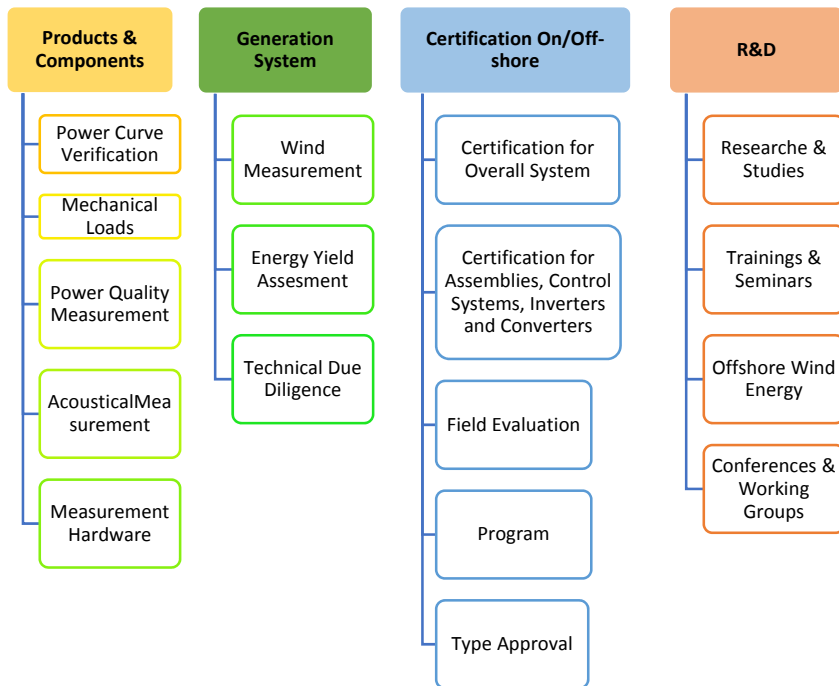
**UL International GmbH (DEWI), Wilhelmshaven:**

UL (Underwriters Laboratories, a premier global independent safety and performance science company, with 120 years of history) and DEWI (German Wind Energy Institute, one of the leading international performance, measurement, efficiency, research and education providers in the field of wind energy for over 25 years).

...become a family company with the aim of develop 100% wind energy research and support of the industry.

As a global brand UL/DEWI Combine technical expertise with many years of in-depth industry experience, offers global, one-stop wind energy services to turbine manufacturers, component manufacturers, project developers, utilities and other companies within the sector. UL/DEWI currently operates two wind test sites in Wilhelmshaven, Germany and at the West Texas AM University, USA.

**Renewable Energy Business:**



**Careers / Opportunities / Alumni:**

UL/DEWI offer to their customers a huge benefit from their in-depth knowledge based on the DEWI Group's participation in a number of state-of-the-art research projects, most notably FINO1 and RAVE – Research at Alpha VEntus, as well as their research into on-/offshore noise emission and acceptance.

All student interested in wind energy will have the opportunity to participate or become part of:

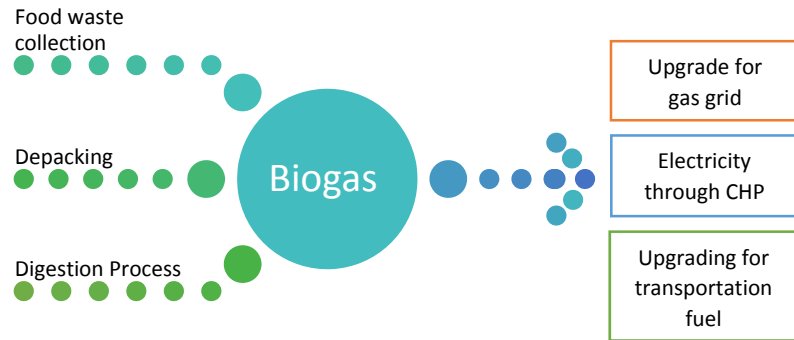
- Research & Studies: Participation in on/off-shore state-of-the-art research projects.
- Scientific Papers: Research & development results presented at international conferences and magazines.
- Professional Training: Educational in-house or public trainings and seminars
- DEWI Magazine: Providing insight into the state of the wind industry and news from the DEWI Group.
- Latest statistics of the German and international wind energy market.
- DEWEK Conference: The world's leading wind energy technology conference.

**Best Way to Energy, bwe, Energie Systeme :**

An European leader company with 17 years of experience in the design, planning and construction of biogas power plants with more than 400 installed plants in countries like UK, Spain, Hungary, Italy, Turkey and another's.

This company shows all the possible benefits of the Biogas plants as electric energy generation, thermal energy, bio-fertilizer and also the importance of a good source separation showing a successful case in Colombia where the organic part of the waste has been reduced from 56% to 16.5% since 2007 to 2014 because is having a use.

The company have developed the "AD plant" technology which is compose as follow:



### Careers / Opportunities / Alumni:

we have always opportunities for students and now the company have two specific projects:

- The develop of a final prototype of a Patent
- A vacant for an Electronic Engineer with German language skills (B2) the work in the company projects.

### To sum up!....

The PPRE/EUREC career day was really well organized allowing the students have great informative session, as they said “The presentations were punctual and the coffee break timings were well placed to ask questions to peers or speakers”...

It was one of many moments where the vibrant and exciting life of renewable energy jobs and futures are put on display. The career day helps affirming our choices to study in the field and justifies our choices by portraying engineering in renewables as a field where the outlooks is bright and promising.

Most of the speakers had a similar background with PPRE/EUREC or in renewable energy but it was especially their motivation to talk to a curious public to deliver not only the company’s message but also taking the time to share personal tips that showed the students the altruistic side of the renewable energy field. It is not an easy feat to sweep away the heart and minds of a critical public by talking about science.

The intent of the career day was to provide students not only with a positive outlook on a career but was there also to help with deciding on an internship and master thesis. With the participation of speakers from research centers and private companies, helps to think about which choice the students have to take first. Doing academic research or being part of an existing company to develop a certain product of service.

Finally the career day was also a networking event for students and speakers. Getting to know the people who work in the industry, sharing ideas, future cooperation’s and off course for some immediately asking **“when and how do I start !?”**

