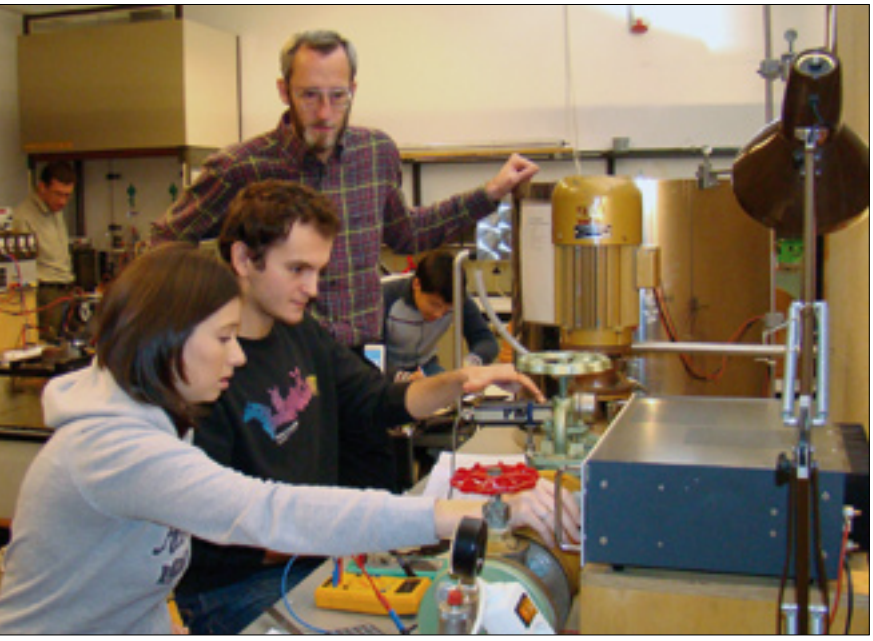
A great diversity of students: Altogether 33 students began their studies of renewables at the University of Oldenburg in October 2007 – 17 of them are PPRE-students, 16 are registered for the EUREC programme.

Photos (4): PPRE

Master of energy

The Postgraduate Programme Renewable Energy (PPRE) at the north German University of Oldenburg is one of the oldest international courses of study in the field of renewable energies. For 20 years, students from all over the world have been learning the theory and practice of the different technologies.



It is already working in the laboratory. Later on, the PPRE students want to make use of their knowledge worldwide.

Jagwe Wycliff does research. In his home country Uganda, he is installing several pyranometers on one of the Lake Victoria islands. Wycliff wants to determine the incoming global solar radiation. There are plans for a PV-driven pumping station to supply the island with running water. In the course of his work, he found out that some of the coastal areas have considerable wind levels. This immediately gave him the idea of also erecting wind power plants, thanks to his studies at the north German University of Oldenburg.

Andrew Peel, on the other hand, is a consultant – he advises representatives of the English construction industry on the topic of passive houses. He also teaches architects and house planners how to reduce the energy requirement of their buildings. »I have just started my new job, so there is still a lot for me to learn. But my learning curve is going steeply upwards,« says Peel. Actually, he is of Canadian origin. Via Oldenburg, he has found his way to the Building Research Establishment (BRE) in Watford, England.

Peel and Wycliff have just finished their studies in Oldenburg successfully, and have thus obtained interdisciplinary knowledge of all the renewable energies. The Postgraduate Programme Renewable Energy (PPRE) was set up at the Carl von Ossietzky University in the North German city of Oldenburg back in 1987. In the 20 years since, around 350 international students have graduated from the course. This master programme is 10 years younger than the field of »alternative energy research«, which was established at Oldenburg University in the late seventies – at a time when this subject was still being laughed at. It was this research department that launched the corresponding course of study. One of its intellectual fathers was Ekkehart Naumann, who, after several years as the director of the course of study, is now installing solar energy systems in Pakistan. In 2005 the German Solar Award in the category »education« was conferred on this master programme. The German Solar Energy Society (DGS) accounted for this decision by pointing out the unique and innovative structure of the programme, which is taught in English.

Renewable education at work: Jagwe Wycliff from Uganda, one of the former PPRE students, installed several pyranometers to determine the global solar radiation in his home country.

In 1987, the first six international students became familiar with environment-friendly energy technologies in Oldenburg. Twenty years later, the PPRE, offering the degree Master of Science (MSc), is one of the oldest and most acknowledged courses of study worldwide in the field of renewable energies. Meanwhile, several other universities around the globe offer similar study courses (see table on page 102). It includes English-language postgraduate study programmes that are open to applicants from all over the world and that cover the whole range of regenerative energies.

Of teaching and learning

This is also the case in Oldenburg. Wind energy, energy meteorology and photovoltaics are some of the core subjects of the course. But the students also spend time on other renewable energy sources such as geothermal energy in Kenya or biofuel made from the tropical jatropha nut. The students are supposed to get to know every form of renewable energy.

In the latest round of admission, 20 lucky students were selected from 170 applicants for admission to the PPRE in Oldenburg in 2007. A successfully completed degree, high motivation, visions for the future, good references and preferably some professional experience in development cooperation or in the field of energy issues are necessary in order to have a chance of obtaining one of the much sought-after places. In Oldenburg, the students learn about renewable energies over a period of 16 months, first in theory, then in practice. Parallel to mugging up on the physical basics of the different energy sources, they put their skills to the test in the laboratory. From the second semester onwards, things get more practical, with experiments, projects and simulation workshops – applied technology becomes the focus. In addition, companies are visited and internships in the industry or in research institutions are completed.

In the future it is planned to give aspects of social science greater consideration as well, since practice has shown that projects are often insufficiently adapted to the local social structures and traditions. What use is a solar cooker if meals are only prepared in the evening? In such cases, it is also no help that the students were able to test their cooking skills at a solar lunch in Oldenburg. The consideration of social conditions »is particularly important if one is active in quasi pre-industrial structures of society,« Michael Golba is convinced. The physicist, together with the scientific assistant Konrad Blum, directs the MSc programme. »So far, it has not been common for an engineer to deal with the structure of the society for which, and in which, he is working,« says Golba. Therefore, the challenge is »to synchronise the electricity supply with the social structure«.

Great diversity of students

Over the past 20 years, the University of Oldenburg has welcomed students from over 70 countries. »For most of them, the international context is the highlight of the programme,« says Edu Knagge, the PPRE coordinator. »They sit right next to each other here for 60 hours a week. The intercultural exchange is an impor-

Country	Institution	Programme name	Objective	Target group	Duration	Mode	Fees (Euro)	Website
Europe	EUREC Agency, 8 R&D institutions / universities	EUREC Master	RE technology	engineers and natural scientists with experience in the energy sector	16 months	on-campus, three different locations	6,500 (EU), 10,000 (internat.)	*www.master.eurec.be*
Germany	Aachen University of Applied Sciences, Jülich Campus: Department of Energy Technology	Master of Science in Energy Systems	new energy technologies, energy efficiency, solar technology, photovoltaics, fuel cells, advanced power plant technolgy	Bachelor of Science/Bachelor of Engineering/Dipl-Ing./Dipl.-Ing. (FH) degree or equivalent in mechanical engineering, electrical engineering or chemical engineering	24 months	on-campus	154 (social and student contribution – amount is determined each semester) + 500 (tuition)	*www.juelich.fh-aachen.de / www.fh-aachen.de/ energysystemsmast.html*
Germany	Flensburg University	Sustainable Energy Systems and Management (SESAM)	technology and management of RE	engineers, natural scientists and economists with experience in the energy sector	18 months	on-campus	7,500	*www.uni-flensburg.de/sesam*
Germany	University of Oldenburg	PPRE: Postgraduate Programme Renewable Energy (MSc)	RE – principles, systems, economy	engineers and natural scientists with experience in the energy sector	18 months full-time	on-campus	3,000	*www.ppre.de*
Great Britain	Loughborough University	Renewable Energy System Technology (REST)	RE systems and technology, policy	engineers or physicians or equivalent qualification	12 months full-time, 26 months part-time	on-campus or distance learning	5,270 (EU), 16,650 (internat.)	*www.lboro.ac.uk/crest/ education.html*
Great Britain	University of Reading	RE: Technology and Sustainability	RE and environment	graduates with numerate science-base d degrees such as engineering, agricultural engineering, physics, environmental science	12 months full-time	on-campus	4,873 (EU), 12,256 (internat.)	*www.rdg.ac.uk/energy*
Sweden	KTH Stockholm	SEE – Sustainable Energy Engineering	sustainable energy engineering – specialisation in RE	mechanical engineers, applied physicians, other related	24 months	on-campus or distance learning	0	*www.energy.kth.se/index.asp?pnr=15&ID=222&lang=0#Practical%20Information*
Australia	Murdoch University	MSc in Renewable Energy	RE systems, sustainable energy policy and economics	engineers, scientists, environmental scientists and policy analysts	24 months	on-campus or distance learning	21,800	*www.eepe.murdoch.edu.au/ Curriculum/courses/Master_ of_Science_in_Renewable_ Energy*
Thailand	Asian Institute of Technology (AIT)	Energy field of study (MSc)	technology, planning and management in the energy field with respect to environment and climate change	students with bachelor in the related field	24 months	on-campus	13,023	*www.serd.ait.ac.th/ep/ep.html*

Table: English-language Master of Science (MSc) study programmes worldwide in the field of renewable energies

Source: University of Oldenburg/own research

Deeply symbolic site: The »Energy Laboratory«, a low-energy house built in 1980 that is supplied by regenerative energies, is the central PPRE venue.

tant aspect – and the contacts thus established continue to have an effect on everyday working life.«

Most of the students have already held qualified positions abroad – and usually they return to these or to even higher qualified posts. Worldwide, the alumni work in responsible positions – in politics or companies, in research or teaching. »It is not only about small-is-beautiful projects any more,« says Golba. »Unlike 20 years ago, renewable energies today are no longer a niche technology.«

Originally, the PPRE primarily addressed participants from Africa, Asia and South America, but meanwhile an increasingly western or worldwide orientation has emerged. It is not the aim of the study programme to recruit specialised staff from abroad to work in Germany. On the contrary, the graduates are supposed to accelerate the growth of renewable energies all over the world. Their job prospects are good. None of the graduates from the last five years has remained without a job, reports Knagge. Things looked different for Knagge himself back in 1991: »After graduating, I occasionally also applied internationally, but I didn't exactly run through open doors.«

In an international comparison, the current study fee of € 3,000 for the promising study programme is rather cheap. Since the students mostly do not come from the richest regions, the German Academic Exchange Service (DAAD) helps with grants – so do other support institutions, and in many cases also the local governments.

A network like a spider's web

Maintaining an active alumni network is a trademark of the Oldenburg philosophy. Approximately 80 to 85 % of all the PPRE graduates are active in the network. The annual newsletter, now comprising 80 pages, offers much more than one might expect. Apart from news from Oldenburg, the careers of the graduates are followed closely. Thus, the network has also turned into a job and contact platform. In different regions of the world, there are regular regional alumni meetings.

The network also functions for technical issues. A discussion list based on e-mail makes this possible – a question from a former student from Mongolia in Asia is answered by a tip from Patagonia in South America. After all, it can become quite cold in both regions. The topics that are debated include insulation technology as well as thermal use of solar energy. The network also helps Jagwe Wycliff to cope with any trouble his inverters cause him.

Be it in England or in Uganda, be it the energy minister of Madagascar or the project coordinator of a United Nations climate programme in Albania – the PPRE produces the most diverse professionals and brings together the most different personalities. But there is one thing that all the students have in common: They want to ensure a sustainable and clean energy supply around the globe – Peel in England and Wycliff in Uganda.

Katharina Garus