

Faculty of Science and Engineering

Profile report: Tenure Track Assistant Professor with Education Profile 'Integrated Land Use and Ecosystem Services'

(NL: 'Integratie van Landgebruik en Ecosysteem-diensten').

- Discipline: Energy & Sustainability
- Level: Tenure-track assistant professor
- Fte: 0,8-1,0 fte

1. Scientific discipline

Intensified agriculture and crop production as well as intensified cattle-farming comes with serious challenges for the environment: increased nitrogen pollution and greenhouse gas emissions, increased use of fresh water and a decrease of biodiversity.

The integration of land use with ecosystem services such as agriculture or water management is therefore a central topic in the field of Energy and Environmental Sciences. This position focuses in particular on societal and socio-economic aspects of environment use and of the energy transition.

2. Vacancy

This position is opened by the Board of the Faculty (*PT/gl/21/00239*) and will be embedded in the institute ESRIG, base unit IREES. The criteria and conditions pertaining to the position are described in the document '[Assistant professor with an education profile](#)'.

3. Selection committee (BAC)

- 1) Prof. Dr. H.A.J.Meijer – Scientific Director ESRIG (M)
- 2) Prof. Dr. K. Hubacek – Chair of IREES (M)
- 3) Prof. Dr. E.J. Stamhuis – Education Director of ESRIG (Chair of BAC)(M)
- 4) Dr. R. Dolfing (Curriculum Developer & Teacher Trainer in FSE)(F)
- 5) Dr. M. Van Rijssel (chair of the FSE-SSE group)(F)
- 6) Prof.dr. M.A.J. Huijbregts, director IWWR, Radboud University Nijmegen(M)
- 7) Student Member (EES-MSc)(F/M)

- 8) HR-advisor – A.M. van der Woude

4. Area of expertise

In the Energy & Environmental Sciences MSc programme (EES-MSc), a broad range of subjects with regard to both the technical as well as the societal aspects of energy and environment are included in the curriculum. The aim of the programme is to provide students with both a balanced expertise as well as a balanced view on present day challenges in the areas of energy transition and environmental, social and economic impacts. Additionally, the students are allowed to specialize and adapt toward a specific field of expertise, without losing sight of the bigger picture. Passing on such a diversity of knowledge and skills, however, is often faced with didactic challenges.

Our recent curriculum review emphasized the need for teaching that explicitly illuminates societal and socio-economic aspects of environment use and of the energy transition. Sustainable development is based on the interactions of the ecological and societal spheres,

requiring insights from a range of fields and perspectives contributing to the quest for more sustainable development. Sustainable development therefore requires alignment of societal and ecological spheres but also improved science-society interactions. This need for better integration of the various scientific disciplines and recognition of normative and ethical dimensions of sustainability has found its way into international frameworks such as the United Nations Framework Convention on Climate Change and the Sustainable Development Goals. This understanding has also been reflected in funding calls at the EU and the national level requiring interdisciplinary approaches that commensurate with the complexity of the topic as well as inclusion of societal stakeholders and public participation. These aspects are strongly in line with the expertise and interests of IREES and will be leading in the scientific research of new staff.

Our curriculum review also revealed the necessity of strengthening the staff-section that can teach about societal and socio-economic subjects. Because public debate as well as politics and media almost continuously give often widely diverging opinions and potential solutions, a modern way of teaching, including debate and opinion-forming is regarded essential. These days also business/financial aspects play a major role in acceptance or rejection of new energy developments, and therefore new ways to engage the public on climate and energy issues and to encourage society towards low-carbon behaviors are required.

The MSc-EES programme attracts about 50 % foreign students, often from developing countries, where water management and non-sustainable land use are serious and even vital problems. These issues, being integrated land use, interferences with renewable energy production, nature-inclusive agriculture, crop-choice, water use and nitrogen-balance, also play a key role in the Dutch society and in national political discussions, but often with different emphasis compared to e.g. developing countries. The issues therefore lend themselves ideally for an International Classroom, which is a key educational concept within FSE. Because the subjects and their relative importance in these discussions can change quickly, non-conventional modern teaching methods incl. guided self-orientation are of key importance to make sure that we supply our students with the right basic knowledge, but also make sure that they themselves are able to stay updated and can take leading roles in such discussions.

5. Embedding: institute (and base unit)

The position will be embedded in the Energy & Sustainability Research Institute Groningen (ESRIG) and will be part of is the base-unit IREES: Integrated Research on Energy, Environment & Society. Within IREES the research lines on 'Societal Aspects of the Energy Transition' and 'Integrated Land Use and Ecosystem Services' are the main working areas, with emphasis on the societal and socio-economic aspects of these areas. IREES offers the opportunity to perform independent research on one of the themes mentioned or on topics where these meet, as well as intensive collaboration with colleagues working on similar topics. Furthermore, there will be ample opportunity to increase didactic background knowledge if not present yet.

6. Local and (inter)national position

Research on the interface of science, technology, environment and society: Sustainability and Energy are two of the main themes of the UG. In addition, Innovation, Responsibility, and Interdisciplinarity are recognized as key issues for the UG. IREES and its

predecessors have a long and fruitful tradition in cooperation with groups from other faculties of the UG, such as Law, Economics and Business, Public Health, Philosophy, Arts, and Behavioral & Social Sciences, giving IREES a unique position because of its focus on science-society interactions as well as on environment, integrated land use and ecosystem services. Depending on a candidate's specific expertise, collaboration with some of these groups is foreseen, but also collaboration with UG-Campus Fryslan and the European centre of excellence on sustainable water technology WETSUS is very well possible. Furthermore, the start of the university-wide school for energy and climate will facilitate such collaborations even further.

With regard to international collaboration, international platforms such as the UN Framework on Climate Change and the International Panel on Climate Change can serve as partners and as inspirators. On a smaller scale also collaboration from IREES scientists with scientific partners or organizations in particular (developing) countries that suffer from water management problems and associated agricultural issues have shown to be fruitful in the past and can be so again now and in the future.

7. Expected contributions to teaching

The candidate is expected to illuminate societal and socio-economic aspects of e.g. the energy transition we are currently facing, in particular on agricultural and water management topics. The innovative educational aspects and the courage to drastically modernize our teaching in these areas are key aspects of this position. Two courses that are now core element of the EES MSc curriculum on the subjects of Society and Sustainability as well as on Sustainable Use of Ecosystems are waiting for a thorough overhaul, on content but moreover on educational methodology. Since we are in the process of curriculum renovation, modernization of other core or elective courses is very welcome too.

Furthermore, the candidate should also supervise MSc research projects on EES-related topics in connection with her/his research within IREES.

In addition, given the current and post-covid mix of online and in-person teaching and project supervision, expertise in flipped classrooms and other blended approaches can considerably help with adopting to fast ongoing changes in education. The candidate is expected to apply for teaching grants to either further develop teaching skills, or set up new ways of teaching within EES.

8. Expected contributions to research

With regard to setting up his/her own research line (30 % of time) it can be in either one of the areas of the energy transition and/or agricultural and water management or in an expertise field where they meet. Societal and socio-economic research subjects derived from recent global or national discussions with regard to a sustainable planet can be taken on and be further focused towards more specific subjects. The Green Deal of the European Commission, and associated funding opportunities with regard to the energy transition and climate mitigation will provide a wide range of opportunities for the new post with regard to water management, land use, energy transition and stakeholder involvement. The candidate is expected to co-supervise PhD students active in her/his research line, and where appropriate, become co-PI in grant applications.

9. Expected contributions to the organization

The candidate is expected to have an active interest and to provide a positive contribution to the management and organizational tasks of the institute. At the level of FSE, the candidate will contribute to the organization of the faculty, for example by participating in

working groups and committees in the area of education. The candidate will participate in relevant national and international organizations.