



Institute of New Energy Systems (InES)

The Institute of New Energy Systems (InES) is one out of three institutes for applied research at Technische Hochschule Ingolstadt (THI). The research activities of InES are focusing on the following fields of research: Bio-Energy Technology, Energy Systems Technology, Geothermal Energy, Networking & International Projects and Solar Energy Technology. Six professors and about 30 researchers and Ph.D. students carry out applied research projects in the field of renewable energy technologies. Bachelor and master students will find excellent career opportunities at the InES.

Master Thesis

Feasibility study of biogas production for dairy farmers in Morocco (Fes-Meknes region)

Research project and background:

As part of the international research activities at the *Institute of new Energy Systems* (InES), the project AMBER – **Accelerate Morocco's Biogas Sector: A Higher Education-Industry Partnership**- aims to promote the adoption of biogas technology in Morocco. The region of Fes-Meknes is one of the leading regions in terms of agriculture and therefore has large amounts of agricultural waste which can be used to produce biogas. AMBER seeks to develop the necessary expertise for a thriving biogas sector through development of curricula and applied research in collaboration with academia and industry players in Morocco.

Objective of the thesis:

This thesis project aims at evaluating the feasibility of biogas production using agricultural residue with a special focus on livestock manure from dairy farms and dairy cooperatives. In the first step, tools and approaches for evaluating the feasibility of biogas plants are investigated followed by an estimation of biogas yields based on the available feedstock.

Tasks:

- Literature research and evaluation of approaches and tools for evaluating the feasibility of small-scale biogas plants
- Evaluation of the quantities of available feedstock
- Estimation of biogas yields and evaluation of possible use cases
- Evaluating the feasibility of biogas production by individual farmers and cooperatives

Target Group:

- Students of the study disciplines:
 - Energy Technology and Renewable Energy Systems
 - Industrial and Mechanical Engineering
- Very good English skills
- Interest and willingness to deal with the local conditions in Morocco
- Programming skills in MATLAB

We offer:

- Insights into an international collaborative research project in the field of renewable energies
- Integration into our young and dynamic research group 'Industrial Energy Systems'
- Flexible working hours

Period: Summer/Winter semester 2023, 3-6 months

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