



CALL FOR APPLICATIONS
WITH
(FULL SCHOLARSHIP AVAILABLE)
2023 ADMISSIONS INTO INTERNATIONAL MASTER'S PROGRAMME IN ENERGY
AND GREEN HYDROGEN TECHNOLOGY (IMP-EGH) :

SPECIALTY: ECONOMICS/POLICIES/INFRASTRUCTURES AND GREEN HYDROGEN
TECHNOLOGY

1. Background

The West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL), under the sponsorship of the German Federal Ministry of Education and Research (BMBF) is pleased to announce application for its International Master's Programme in Energy and Green Hydrogen (IMP-EGH) in all fifteen (15) ECOWAS countries namely: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

WASCAL is a wholly West African international organization with focus on academic and transdisciplinary research, building graduate-level scientific capacity and serving policy makers in West Africa with science-based advice on adaptation to Climate Change impacts and land use management. It cooperates with many agencies and universities in the region, providing a knowledge platform of excellence for its partners. WASCAL is funded by BMBF, multilateral and bilateral partners and its West African member countries.

The International Master's Programme in Energy and Green Hydrogen (IMP-EGH) is innovative for the West African region and it is designed to prepare the next generation to address the energy challenges of adaptation and resilience to Climate Change in West Africa. The programme's interdisciplinary approach will allow for a better understanding of present-day energy infrastructures in West Africa, their strengths and weaknesses,

energy policies, practices in a changing climate context and the search for sustainable solutions.

Energy is a major issue in the world. More than 80% of the energy comes from fossil fuels, a finite resource unevenly distributed beneath the Earth's surface. Thus, reserves of fossil fuels are progressively decreasing and their continued usage produce harmful pollutants and greenhouse gases (GHGs) associated with global warming and climate change. Furthermore, energy is a basic necessity for human activity, economy and social development.

In its Fourth Assessment Report, the Intergovernmental Panel for Climate Change (IPCC, 2014) has confirmed that climate change is real and Africa is "one of the most vulnerable continents to climate change and climate variability". The continent's vulnerability is exacerbated, by endemic poverty, economical and institutional weakness and limited access of technological and energy infrastructures. Thus, Africa needs more energy for its ongoing development despite the vulnerability to climate change.

Moreover, the region continues to face several critical challenges related to its energy sector such as energy access, energy security and unsustainable use of wood resources. The main challenge remains how to satisfy the increasing energy demand without exacerbating observed social, economic and environmental problems caused by climate change. This international Master's Program in Energy and Green Hydrogen (IMP-EGH), option **ECONOMICS/POLICIES/INFRASTRUCTURES AND GREEN HYDROGEN TECHNOLOGY** led by Université Cheikh Anta Diop (UCAD) of Dakar in Senegal and implemented in collaboration with Julich and Aachen and other renowned African, German, and other international universities and institutions, aims at offering top-ranking students an integrated learning environment to develop skills to be qualified as Renewable Energy and Green Hydrogen specialists.

Therefore, UCAD is launching the second call for application of the International Master's Program in Energy and Green Hydrogen Technologies (IMP-EGH): Option: **Economics/Policies/Infrastructures and Green Hydrogen Technology** for the academic year 2023-2024. The program of the IMP-EGH provides full scholarship to successful candidates from ECOWAS member countries: Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Potential candidates from these countries are invited to submit their applications for selection.

2. Missions

The mission of this programme is to provide training on state-of-the-art tools used in renewable energy, green hydrogen technology and policy (politics and economics) with the view of forming adequate human resources to boost the sector of energy technology and guide policy formulation across the region.

3. Objectives

The main objective of this programme is to prepare and train a new generation of interdisciplinary professionals capable of proposing adapted solutions to ongoing energy crisis. Graduates will, therefore, be well skilled in order to jointly fulfill the following points:

- Demonstrate an understanding of the science related to a changing climate and global warming, knowledge of the impacts of climate change, vulnerability of natural systems and the built environment, and methods for adaptation;
- Develop a comprehension of energy production, delivery, and consumption for both traditional systems and sustainable energy alternatives with special emphasis on energy efficiency, energy management and local available renewable energy;
- Train students on all questions related to the energy transition by mobilizing multidisciplinary analyses but with a prism of the economy;
- Strengthen capacities for an understanding of the issues, constraints and problems faced by the energy sectors in their development and / or evolution;
- Prepare skilled workers for the emerging global hydrogen economy.

4. Job opportunities

This Master's programme will offer students to hold the following jobs:

- Renewable energy project developer
- Strategic advisor within an energy company
- Business engineer in a company offering integrated energy services
- Engineer / economist in a company in the energy sector, a government agency or an international organization
- Expert in energy-related environmental issues with national or international institutions

5. Eligibility criteria

International Master's Programme in Energy and Green Hydrogen (IMP-EGH) is open to students:

- from partner countries in West Africa (Benin, Burkina Faso, Cape Verde, Côte d’Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.);
- with a minimum background of a B.Sc. degree or equivalent in scientific discipline or in engineering. Candidates with technical strengths in physics, chemistry, electrical, mechanical engineering or equivalent are required. In addition, having a background in economic and statistic will be an asset;
- having a good English proficiency.

Female candidates are highly encouraged to apply

6. Outline of the programme

The International Master’s Programme in Energy and Green Hydrogen is a well-structured programme consisting of three (3) semesters of taught courses, laboratory activities, field visits and interaction with stakeholders and semester four (4) intended for student field work, thesis research, final write up and defense.

6.1 Training

The training includes courses divided into semesters as follows:

Semesters	Courses
Semester 1 in Niger	Physics of solids and fluids
	Semi-conductor, electrical and electronic engineering
	Thermodynamics
	Electrochemistry
	Atmospheric sciences
	Climate Change and sustainable development
Semester 2 in Niger	Conventional energy and energy security
	Renewable Energy
	Green Hydrogen
	Photovoltaics

	Energy systems and infrastructures
	Energy policy and market
Semester 3 in Senegal	Cost Management of Value Chains
	Research Methods for Master Thesis
	Energy system economics
	Public Economics
	Sustainable Energy Technologies for Development
	Sustainability Assessment Methods and Tools for energy and emerging technologies
	Planning for 100% Renewable Energy Systems
	Participatory Modeling for Capacity Building and Agency
Semester 4	<ul style="list-style-type: none"> • Internship in Germany (4-6 months) • Master thesis defense in Senegal

6.2 Research

Phase I: Writing and validation of the research project

Phase II: Field study

Phase III: Internship in Germany

Phase IV: Final writing of the Master Thesis

Phase V: Master Thesis defense and graduation at UCAD

7. Working Language

English

8. Application procedures

- Form duly filled, scanned, and sent to required address

- Curriculum Vitae signed with information about relevant experience and professional training
- Cover letter
- Two (2) reference letters, one of whom should preferably be from the undergraduate lecturer in the equivalent science discipline or in engineering; preferably one letter from an academic and one from a former employer precise availability of the candidate for the period of master's programme. Reference letters must be written in English or French and must be signed / stamped
- Photocopy of passport or national identification card
- Fee paying proof (award, scholarship, etc.)
- Certified copies of diplomas and transcripts (Baccalaureate to Bachelor)

9. Selection procedures

- Only short-listed candidates will be notified for interviews
- Interviews will be done in English by a committee

A scholarship letter will be sent to the selected candidate by WASCAL Headquarters.

10. Duration

Duration of the IMP-EGH is up to 28 months including 4 months' language training in English proficiency for Francophones and French proficiency for Anglophones. During the course work phase, students will be required to develop a detailed research program (proposal) (including budget). The proposal plan should be completed and validated by the student's principal advisor and the MRP Director.

11. Scholarship and research support

- Scholarship: 350 Euros per month
- Accommodation provided up to 100 Euros
- Research Budget
- Travel ticket for language courses in Cape Coast or Lomé

- Travel Ticket to Germany
- Tuition

Applications must be submitted to master.energie.wascal@ucad.edu.sn and copy cbd.hydrogen@wascal.org

Start date of Call for application: February 20th, 2023

Deadline for applications: March 31th, 2023