





School of Mechanical Engineering

RENEWABLE ENERGY AND WASTE MANAGEMENT INNOVATION FOR FUTURE YIELD (RENEWIFY)



RENEWIFY
Renewable Energy and Waste Management Innovation for Future Yield

[Bioenergy & Biomass Conversion]
[Green Hydrogen | Waste-to-Energy]
[e-Mobility | Net-Zero Technologies]

ABOUT Renewify

Renewify is a multidisciplinary research group advancing renewable and sustainable energy technologies. Our mission is to tackle global energy and environmental challenges through innovations in bioenergy, green hydrogen, waste-to-energy systems, and electric mobility. Aligned with Malaysia's National Energy Transition Roadmap and global decarbonization goals, we collaborate across academia and industry to deliver impactful, scalable solutions for a sustainable future.

RESEARCH CONTRIBUTIONS & IMPACT



INTERNATIONAL UNIVERSITIES COLLABORATION:
MoU signing between USM and Qingdao DaNeng and Shandong University, China on H2 Energy Research Collaboration



ERASMUS+ Global Collaboration
Partners include universities from Italy, the UK, Türkiye, Thailand, China, and Malaysia, including UPM and Northumbria.



INDUSTRIAL COLLABORATION:
In collaboration with Focus Applied Technologies, NI Hsin EV Tech and Dongguan Tailing EV Co on battery system advancements.



NATIONAL INITIATIVES
Air-cooled dynamometer for electric two-wheelers

PRODUCT INNOVATION & COMMERCIALIZATION

- Quran Combustion System
- Biomass Pellet System Prototypes
- Dynamometer System for EV Testing
- Slaughter Restraining Machine for Cattle (SRMC)

RESEARCH TEAM

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FUTURE RESEARCH DIRECTION

Renewify is advancing AI-integrated hybrid microgrids and scaling acoustic hydrogen production for industrial use. The team promotes circular hydrogen models using biomass and strengthens global collaboration through ERASMUS+ and MoUs with partners in Türkiye, China, and Malaysia, focusing on solar and hydrogen systems.



Product Commercialization - Quran Combustion System (Mesin Pelupusan Quran)



Product Commercialization - Slaughter Restraining Machine for Cattle (SRMC)



Research Project Collaboration with Industry (Kawan Engineering Sdn Bhd) on 200Kg/hr Biomass Power Plant & Flameless Combustion



RUTrans Grant Project on Treatment of POME via ERS and Thermal Analysis of POME pellets via Carbonization & Gasification Processes - Collaboration with School of Industrial Technology and School of Social Science, USM



International Grant Project (ERASMUS) on Enhancement of Renewable & Sustainable Energy Module in Teaching & Research - Collaboration with Univ. of eCampus Telematica Italy, Northumbria Univ. UK, Cukurova Univ. Türkiye, Chiang Mai & Naresuan Univ. Thailand, Beijing Technology Univ & Lanzhou Univ. China and UPM Malaysia.