

Production of Advanced Gaseous Biomethane transport fuel in an integrated circular bioenergy system

In Ireland, approximately 40% of total energy consumption is associated with transport (mainly fueled by petrol and diesel); this has contributed to significant greenhouse gas emissions and impacted negatively on urban air quality. Compared to electricity and heat, transport is the least decarbonized sector in Ireland. Ireland has a target to achieve 10% renewable transport by 2020, but the technological strategy is not certain as yet.

Anaerobic digestion (AD) is a viable technology to produce biogas (60% biomethane and 40% carbon dioxide), whilst treating wastes and residues; In an Irish context grass silage is an excellent source of biogas. Integrating power to gas (P2G) with AD offers an innovative means to upgrade biogas to green gas (97% biomethane), whilst supporting intermittent renewable electricity and producing advanced renewable transport fuel.

This project will evaluate a future integrated bioenergy system, including the concepts of cascading bioenergy and circular bioeconomy. The system will produce advanced gaseous transport biomethane from a wide array of second and third generation biomass (such as grass silage, food waste, and seaweed).

Quick Facts

Start: March 2019

End: March 2022

Funded By

Environmental Protection Agency Ireland (EPA)

Researchers:

Benteng Wu, Dr Richen Lin, Prof Alan Dobson, Prof Jerry D Murphy

Contact Us

Email: richen.lin@ucc.ie

