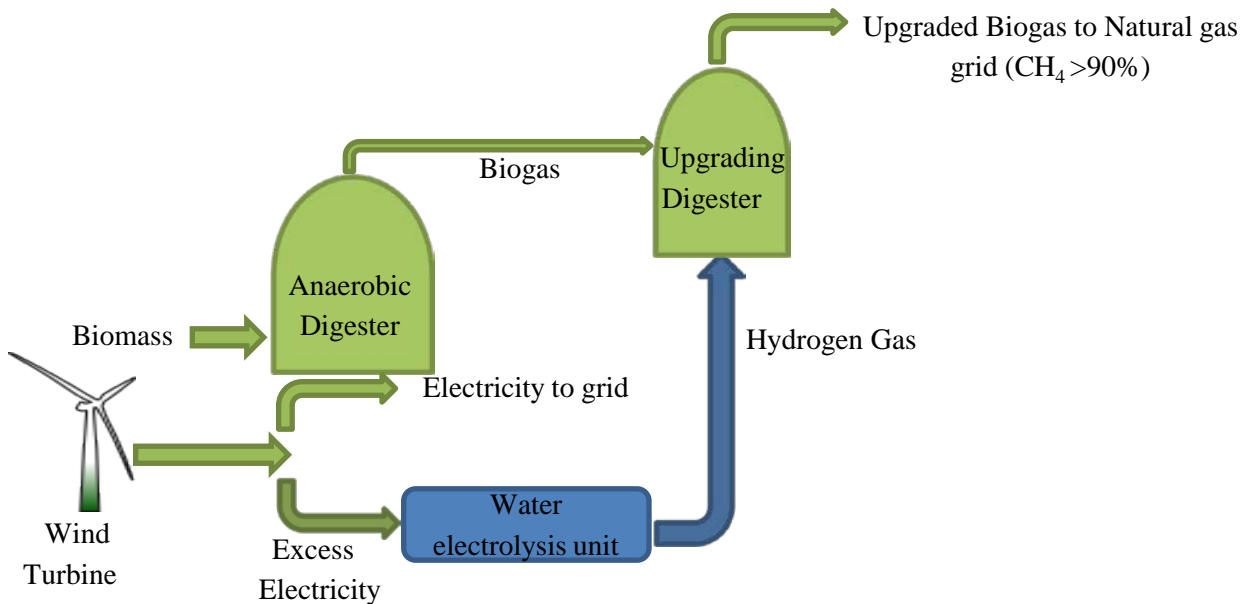


Background

Biogas mainly contains CH_4 (40–75%) and CO_2 (25–60%). Upgrading of biogas to CH_4 content higher than 90% can increase the heating value, and extend the biogas utilization as a renewable energy source. The main advantage of upgrading is to use biogas as alternative to natural gas. An additional advantage is the opportunity to utilize the existing natural gas grid for transporting the upgraded biogas from rural areas, where typically biogas plants are located to urban areas where consumer density is higher.



Project Description

This PhD fellowship is under a Strategic Research Counsel funded project (SYMBIO). It involves investigation of appropriate technologies for optimal injection of hydrogen into an anaerobic digester. The process is very delicate with respect to partial pressure of hydrogen and demands very close control. In this study both methods for optimal distribution of hydrogen and the control of the process will be the object for research.

Objectives of the project

- Identifying potential gas injection technologies and transfer mechanisms on a bacteriological level.
- Documenting results of gas injection efficiencies and transfer characteristics with analytical tools.
- Pilot and full scale testing of gas injection methods.
- Documentation of the overall gas upgrading efficiency.

Project supervisor

Assoc. Prof. Birgir Norddhal