



Bioenergy using Industrial
Anaerobic Fermentation

HYGEN BIO REACTOR (HBR) LINE

- High energy generating capacity Process - Bio alternative to Advanced Gasification of solid Biomass
- Small footprint (20MW - 3ha)
- High Conversion rates (95% VS conversion)
- Wide variety of Industrial feedstocks
- Wide degree of solids (3-30%)
- Second stage Acid fermentation to either Methane or Hydrogen
- MAP struvite crystallised from recycled water

FEEDSTOCK MATERIALS

HIGH SOLIDS INDUSTRIAL BY PRODUCTS/ WASTE

- Dairy - whey, cheese, yoghurt, milk
- Beer - SBG, yeast, wort
- Whisky - Draff, Pot Ale
- Sugar - Beet Pulp, Bio Ethanol Stillage (Vinasse)
- Vegetable Oil - POME
- Paper - Mill Sludge
- AD - Digestate
- Landfill - Leachate
- Leaves - Road sweepings

ISLE OF LEWIS/HEBRIDES CO2 CYCLE

- Energy production to harness employment and prosperity
- Grow organic material to serve as energy crop (CO2 absorption)
- Feed crop to HBR fermenter to produce methane (and hydrogen)
- Remove CO2 from biogas and from gas combustion during electricity generation (capture CO2)
- Complete the cycle by using nutrients, CO2 and heat in Xanthella PBR producing micro algae (recycle CO2)
- Feed salmon with micro algae

BSB OBJECTIVES

- Provide and demonstrate a solution to reversing the effects of CO₂ in the environment through large scale CO₂ absorption (growth of new plant vegetation)
- Ferment this feedstock to generate biogas and energy, promoting sustainable economic growth in barren areas
- Prevent any release of CO₂ emissions (from methane combustion) by recycling the CO₂ produced using the Xanthella micro algae growth system to salmon feed