

Shropshire Energy (UK) Ltd



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Technical Advisor

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Introduction

- 2.4 MW plant in Littleport, Cambridgeshire
- Supplies hot water and electricity to mushroom farm
- Commissioned August 2013
- Predominantly energy crop fed, but also use waste vegetables and chicken manure



Operation Details

- Plant runs on 100 tonnes maize, 10 tonnes rye and 10 tonnes vegetables (onions, radishes, potatoes etc.)
- Fed into 2 primary digesters
- Transferred into 2 secondary digesters
- Retention time of 60 days



Operation Details



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Operation Details

- Substrate is pasteurised post-digestion
- Heated up to 70°C for 1 hour
- Processed through a screw press and separated into fibre and liquor
- Produces approximately 10 tonnes fibre and 70m³ liquor
- PAS110 certified





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Recent Site Developments

- 600 kW generator
- Increase inputs to 134 tonnes maize, 10 tonnes rye, 6 tonnes onions and 6 tonnes chicken manure
- Outputs will increase to 16 tonnes per day fibre and 95 m³ per day liquor



ORC Units

- 5 units installed on site
- Utilise waste heat from exhaust
- Produce 22 kW each
- Organic Rankine Cycle
- Same principle as a fridge



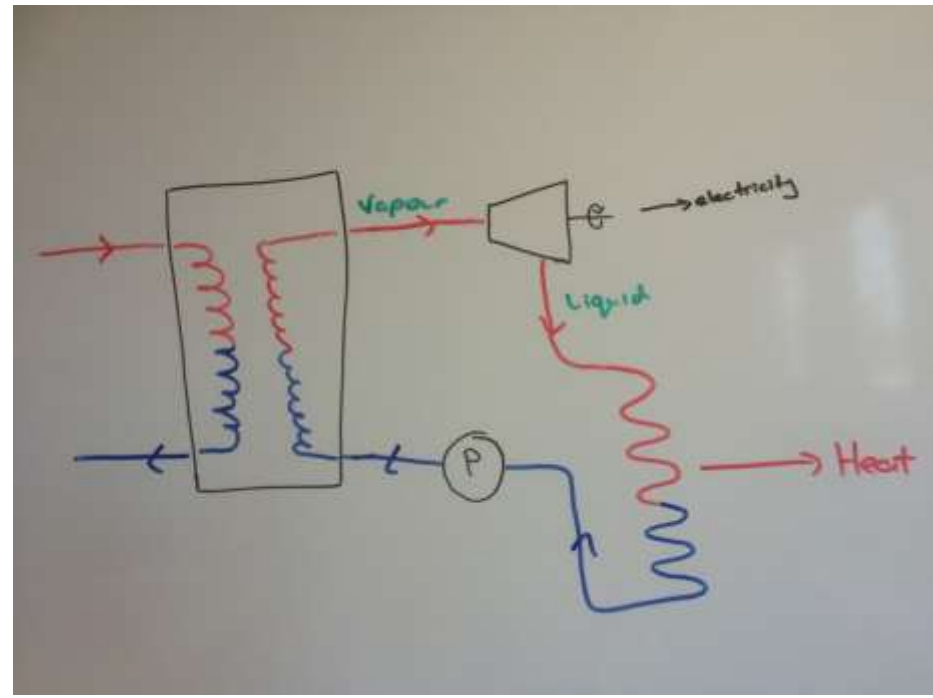
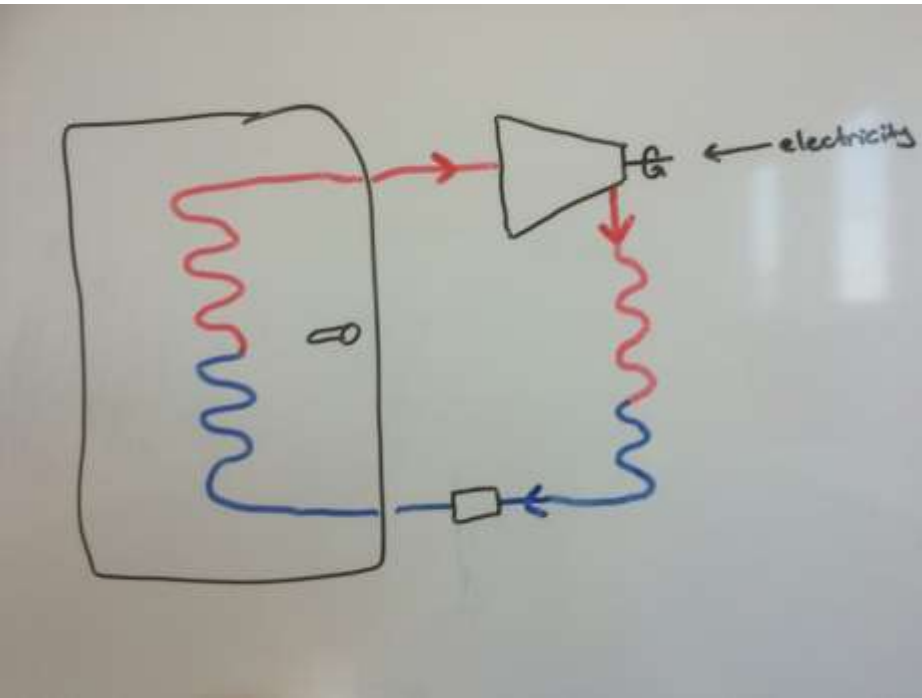
ORC Units



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ORC Units



Challenges

- Mostly mechanical
- Engine piston pickup
- Pump failure
- Feedstock quality
- Feedstock consistency
- Floating layer
- Digestate disposal



Expectations from Science

- Simple - better biomethane
- Higher methane content means lower biogas usage
- Better yields means lower input costs

