



Wet Fermentation of Waste

Dipl.-Ing. (FH) Florian Mix

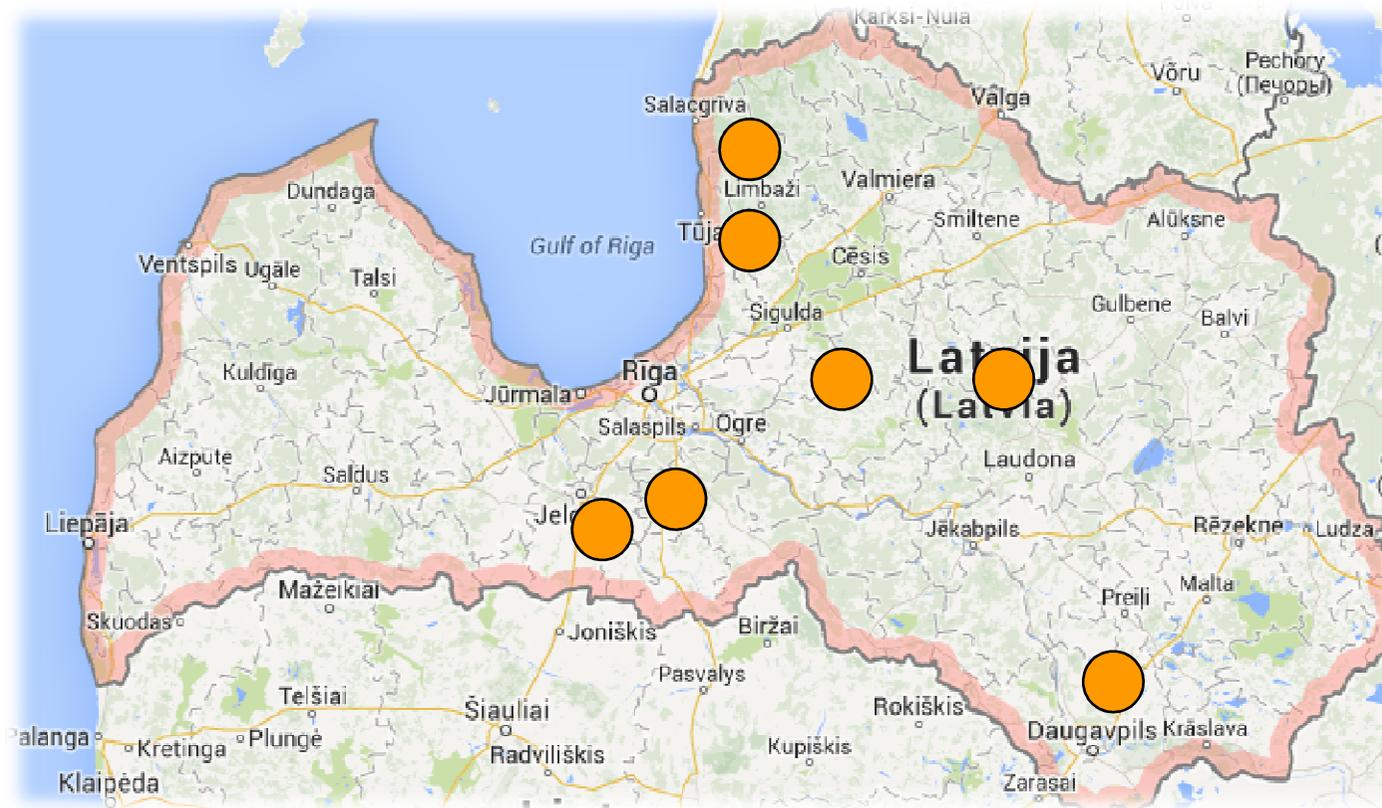


Agenda



1. MT-References Latvia
2. Biodegradable Waste
3. Process for Waste
4. Example Plant UK
5. Example Plant DE

1. MT References Latvia



- 7 Plants in Operation approx. 12 MWeI
- Substrates: Chicken Litter, Cattle Slurry, Whole Crop Silage, Maize Silage, Gras Silage

2. Biodegradable Waste

Kitchen
waste



Food waste
/ Shop
return



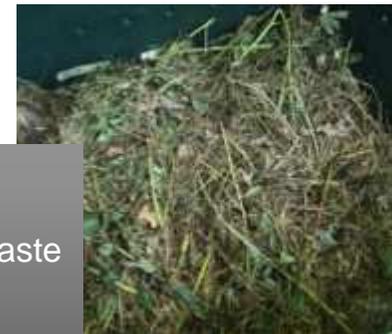
Commercial
waste



Industrial
waste



Yard waste



Kitchen waste

- No plastic bags, no metal and no glass
- Cardboard, newspaper and lawn clipping
- Seasonality effect



Food waste / Shop return

- No glass
- Packing (plastic, metal, cardboard) approx. 10-25%



Commercial waste

- No glass
- Few packing (plastic, metal, cardboard) approx. < 5%



Industrial waste

- No packing (plastic, metal, cardboard)
- No seasonality



Yard waste

- No plastic, no metal
- Minerals (earth, stones) likely



Biodegradable waste for biogas

Kitchen
waste



Food waste
/ Shop
return



Commercial
waste



Industrial
waste



Yard waste



3. Process for waste



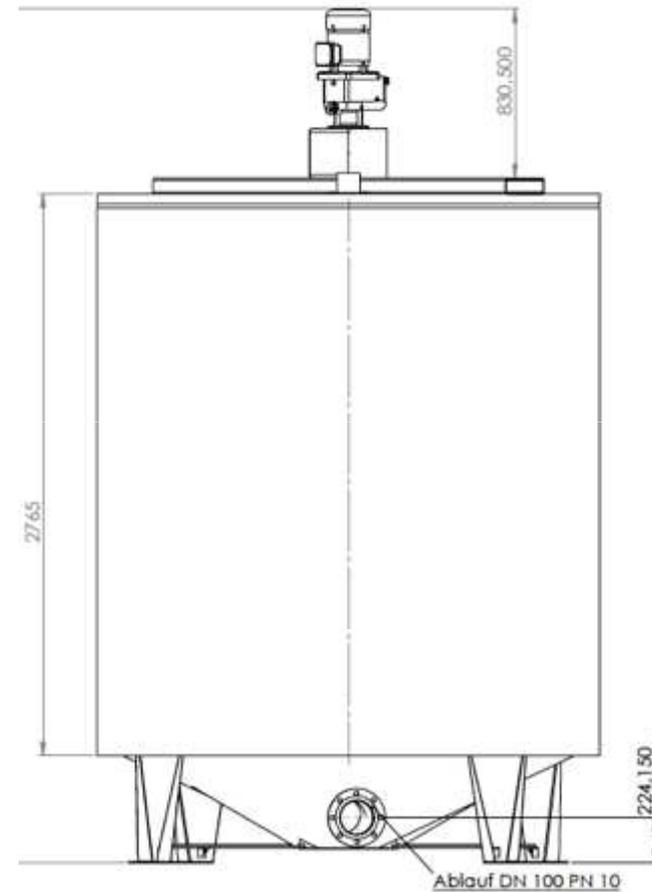
Process for waste - Reception



Process for waste - Preparation



Process for waste - Pasteurisation

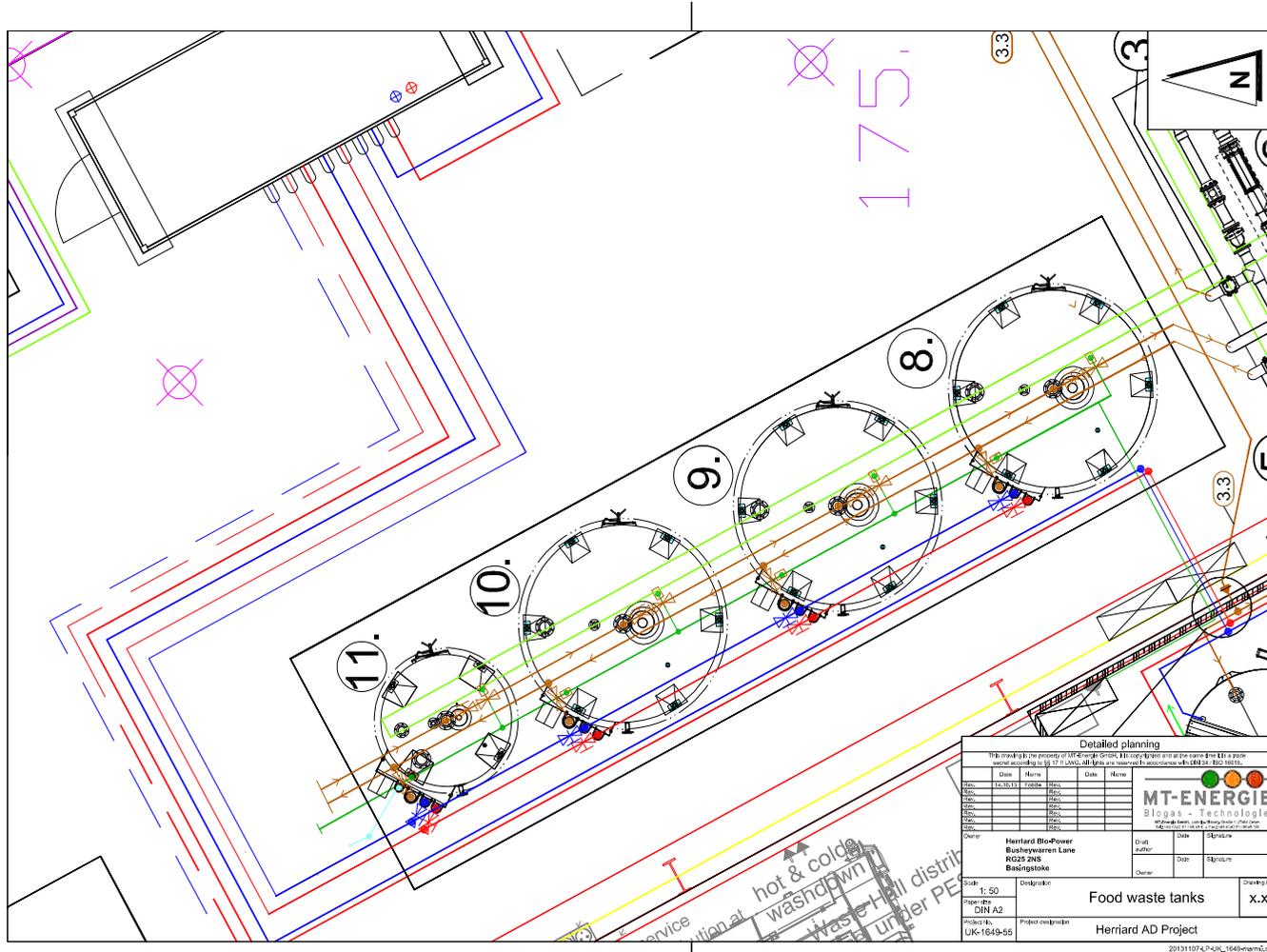


4. Example – Plant 1649 UK

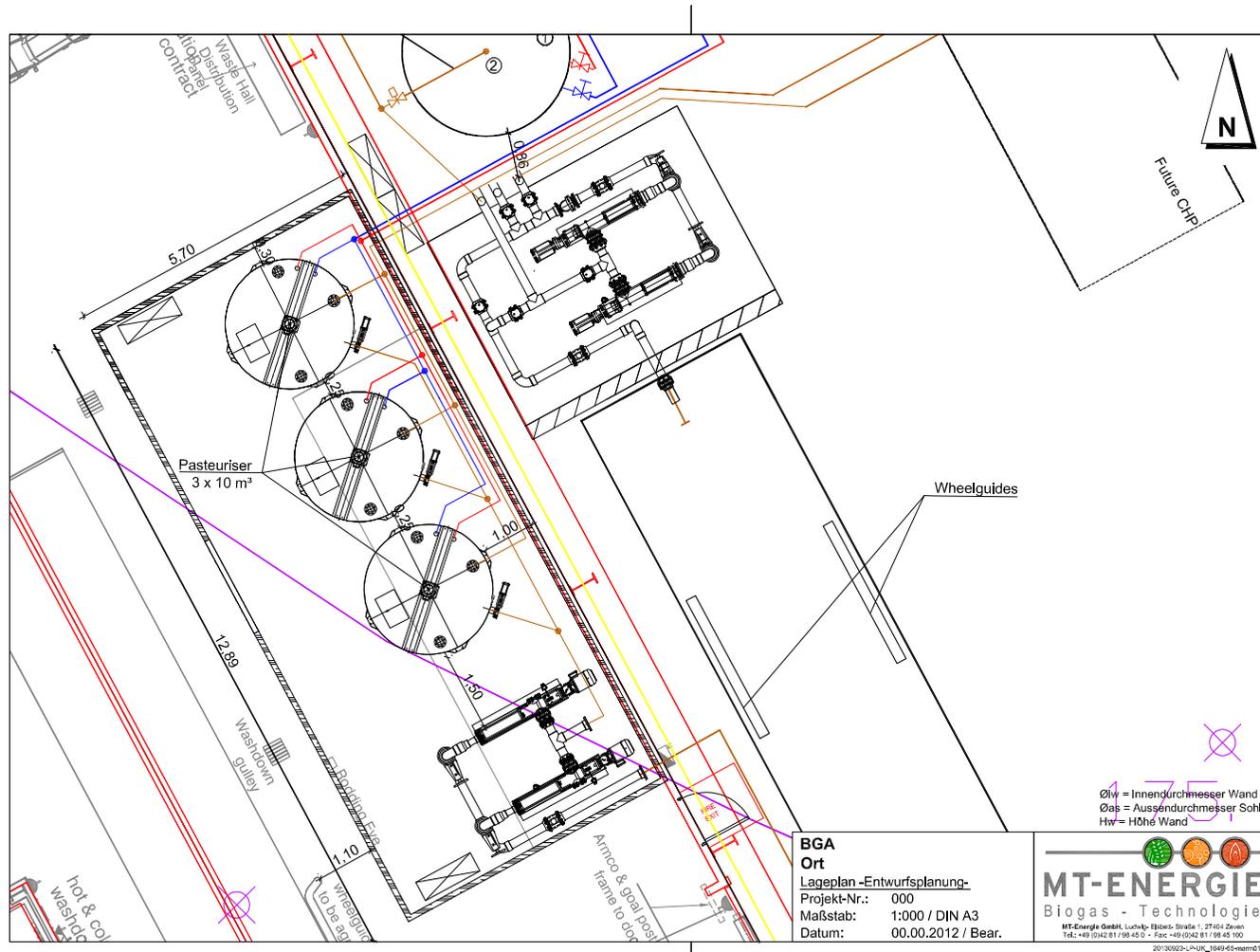
- ca. 100 t/d for 1.2 MW
- Depacking line
- CHP
- Waste Heat Distribution
- Pasteurisation
- Storage and Feeding
- AD Plant
- Digestate separation system



Example – Plant 1649 UK



Example – Plant 1649 UK



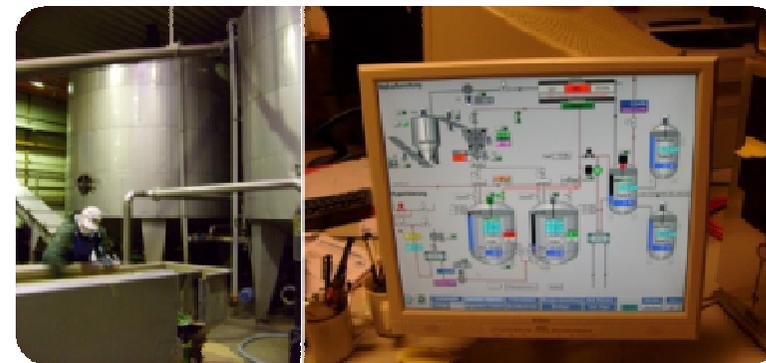
5. Example – Plant 0048 DE

- 100 – 110 t/d for 1.2 – 1.4 MW
- 30% abattoir waste water
- 70% food processing waste:
 - yogurts, ice cream, milk waste, animal feed waste, vegetables, fruits, fruit juice and fruit concentrate, tea, dog food, grain waste
- Retention time: 40 – 50 days
- Solid content: 7,5% (input) / 3,0% (output)



Example – Plant 0048 DE

- Buffer tank ($\varnothing=9\text{m}$) for liquid waste
- Feed-in hopper for solid waste
- Milling machine to separate packing
- Hygenisation 1h @ 70 degree C



Example – Plant 0048 DE

- 3 Fermenters: $\varnothing=14\text{m}$, 22m , 22m , $H=8\text{m}$
- 3 Storage tanks: $\varnothing=30\text{m}$, $H=8\text{m}$
- Biofilter for exhaust air from reception hall
- Water scrubber to pre-treat the biogas for CHP





Thank you for your attention!

