



# Opportunities and barriers in practice for small-scale biogas plants in a EU country, Belgium

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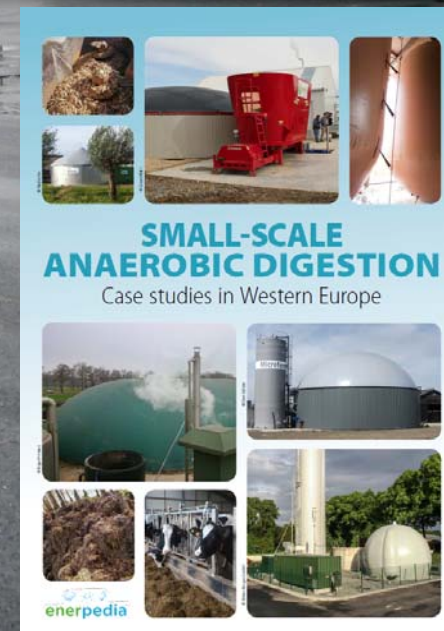
# Biogas-E

*Platform for stimulation of anaerobic digestion in  
Flanders*

# Working group and Platform outreach

- Ad hoc working committee for small scale digestion in Flanders (i.e. not a solo effort of Biogas-E)
- Follows and facilitates evolutions and innovation
- Outreach
  - by organizing platform events
  - brochure(s)

[http://www.biogas-e.be/sites/default/files/attachments/pocketdigestion\\_brochure.pdf](http://www.biogas-e.be/sites/default/files/attachments/pocketdigestion_brochure.pdf)



# Case 1: Dairy manure

- 60-100 dairy cows for 10kWe
- Range: 10 - 44kW
- Monodigestion
- Market boom 2012-2014
- Technology maturation



2010-2011

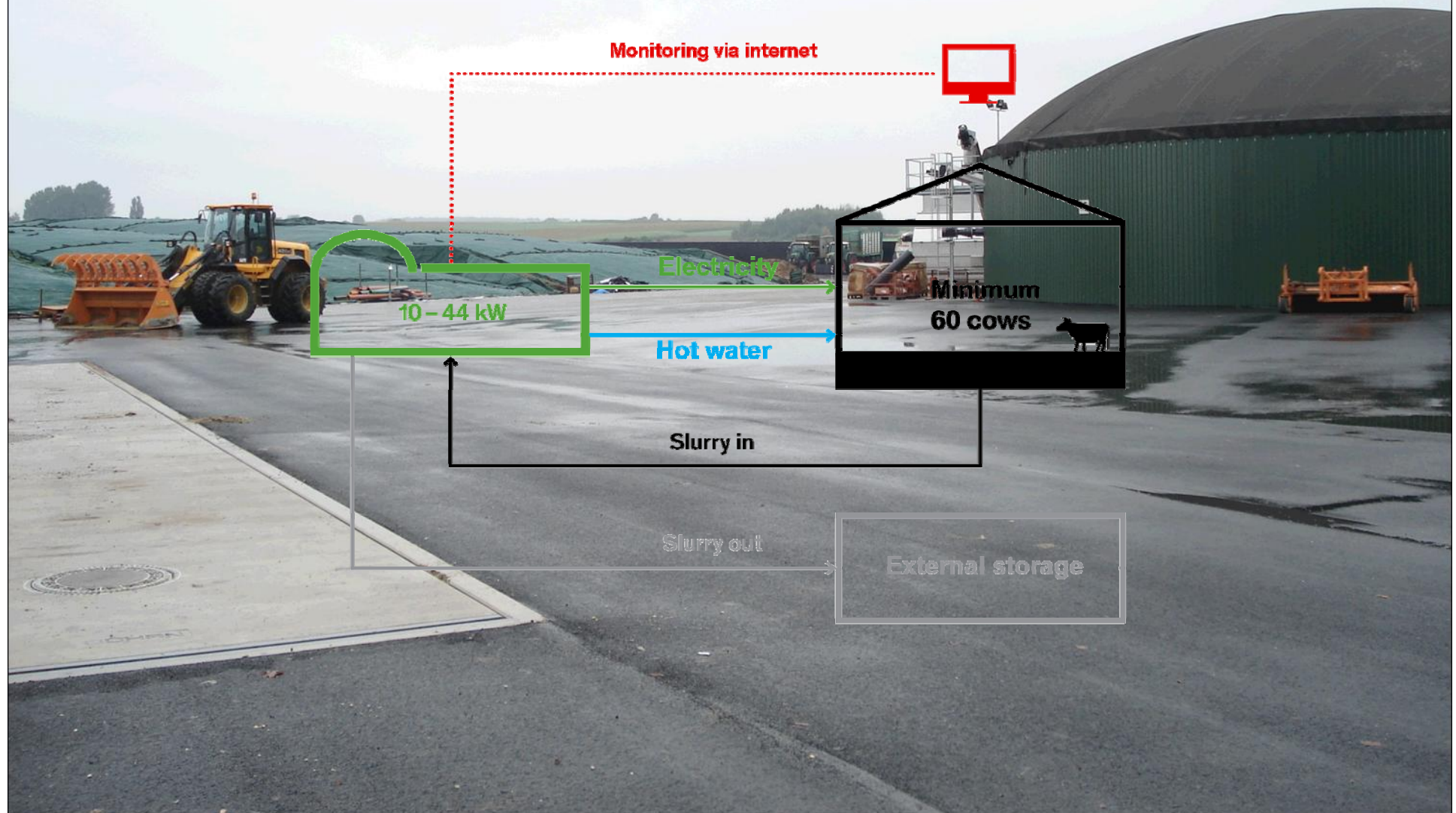


2012-2014



2014-present

# Case 1: Dairy manure



# Case 1: Dairy manure



## Opportunities

- Dairy company profile
- robotic milking
- <10 kWe
- support measures for auxiliary equipment
- digestate handling

## Barriers

- first of a kind
- learning curve
- manure quality
- Market saturation point?
- (Near) Future dairy market circumstances

# Case 2: Piggery farm



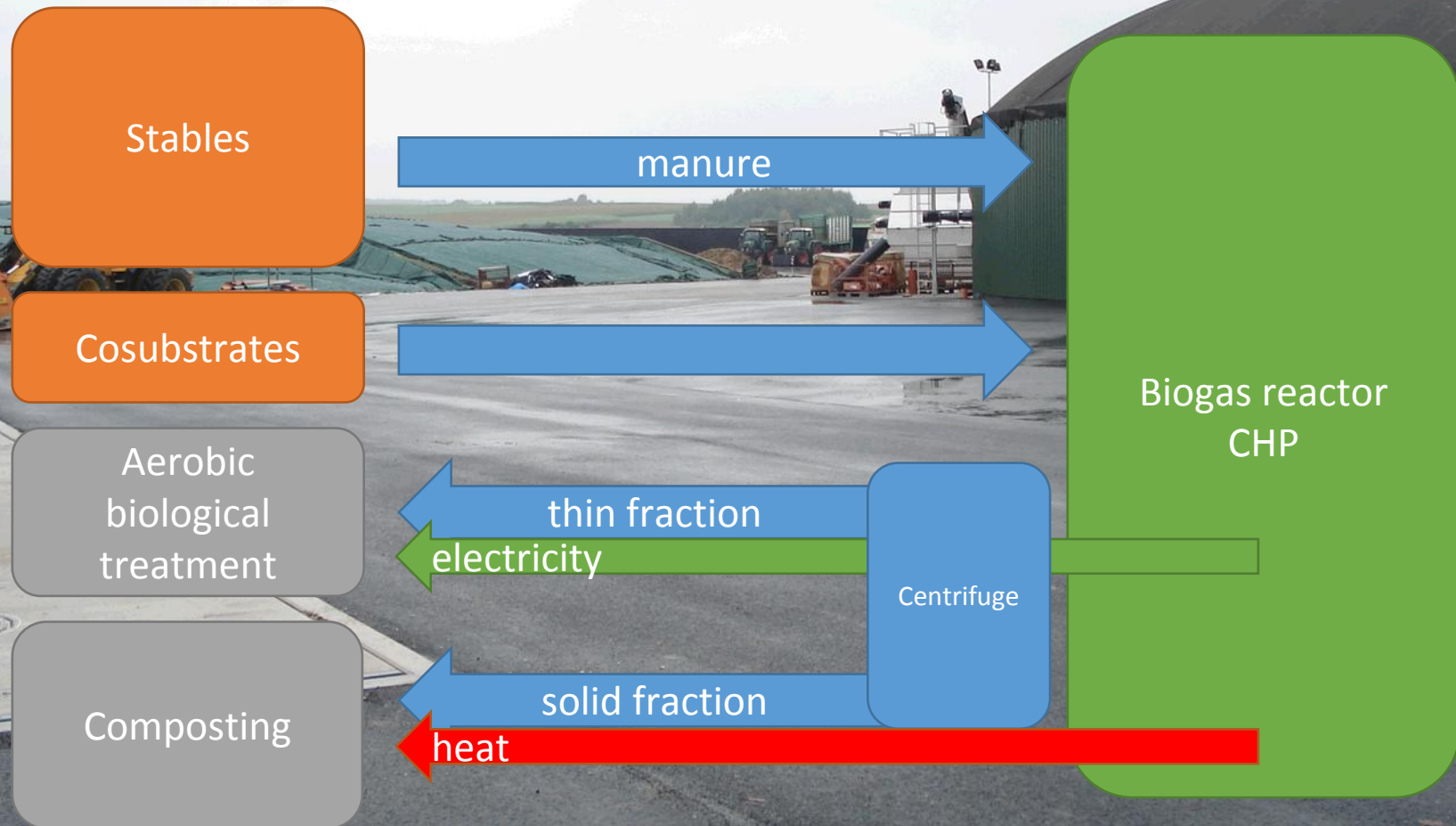
*Demonstration project on rational energy consumption  
Digestion on farmlevel*

- **Goal:** digestion of **own biomass** + **full integration** in the farm
- **Period:** 2012 - 2015
- **Financing:** Vlaams Energie Agentschap (VEA)
- **Lead-partner:** IVACO cvba
- **Partners:**





# Case 2: Piggery farm



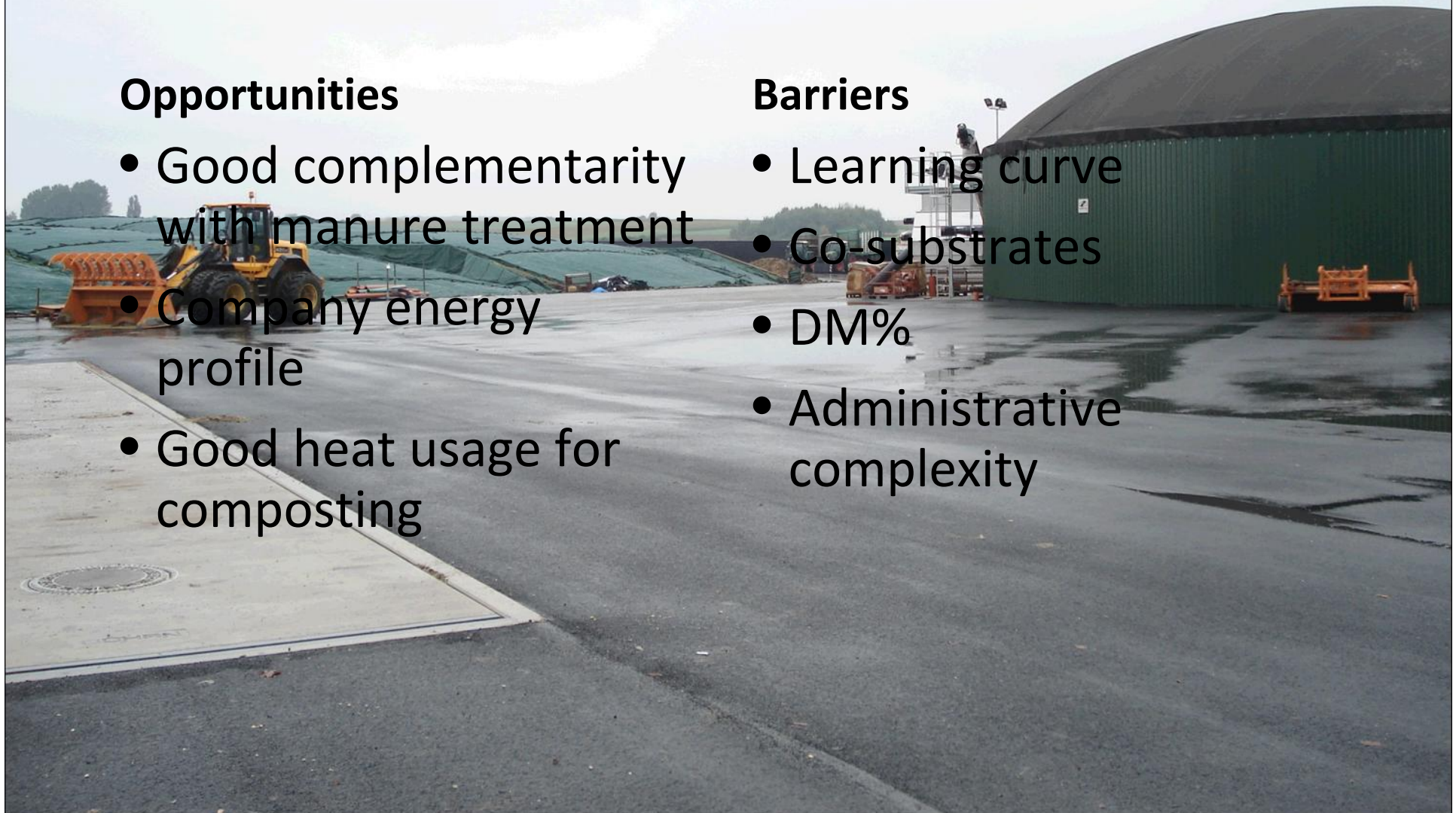
# Case 2: Piggery farm

## Opportunities

- Good complementarity with manure treatment
- Company energy profile
- Good heat usage for composting

## Barriers

- Learning curve
- Co-substrates
- DM%
- Administrative complexity



# Case 3: Chicory farm

- Joluwa at Nivelles
- Mainly forced roots
- 10% maize
- Union peels, paprika, ...
- Hydrolising step
- **HYFAD™**(High Yield Flushing Anaerobic Digester)



# Case 3: Chicory farm

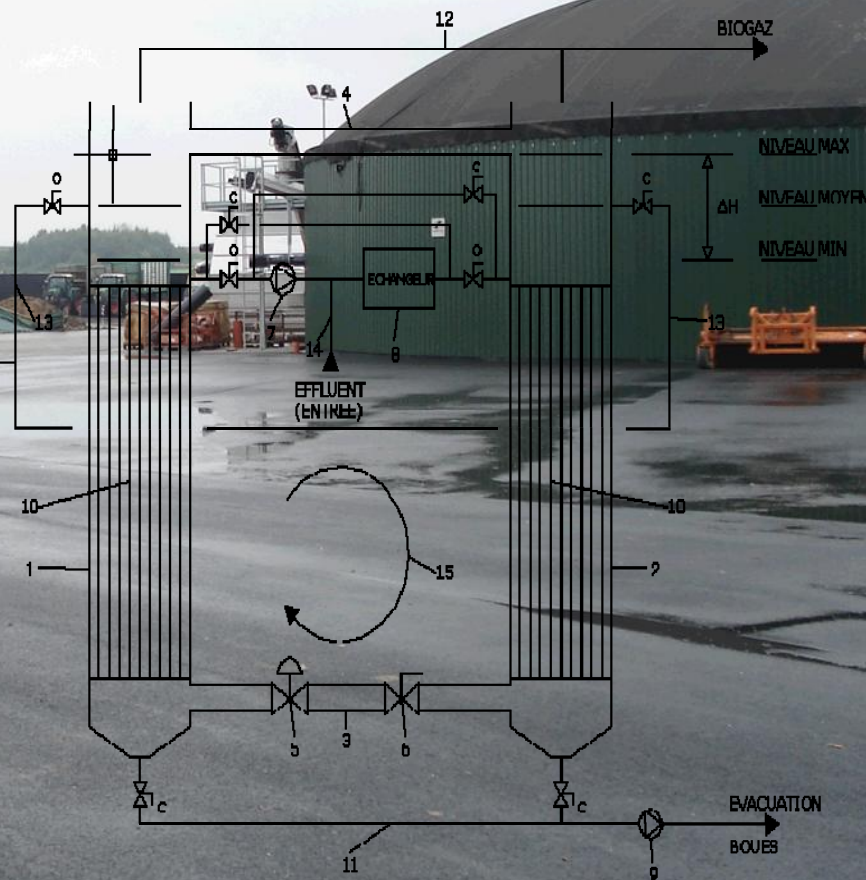


(a) STOCKAGE DE GAZ

(b) STOCKAGE  
L'EFFLUENT

(c) ZONE DE  
TRAITEMENT  
(SUPPORT POUR  
BACTERIES)

(d) DECANTATION



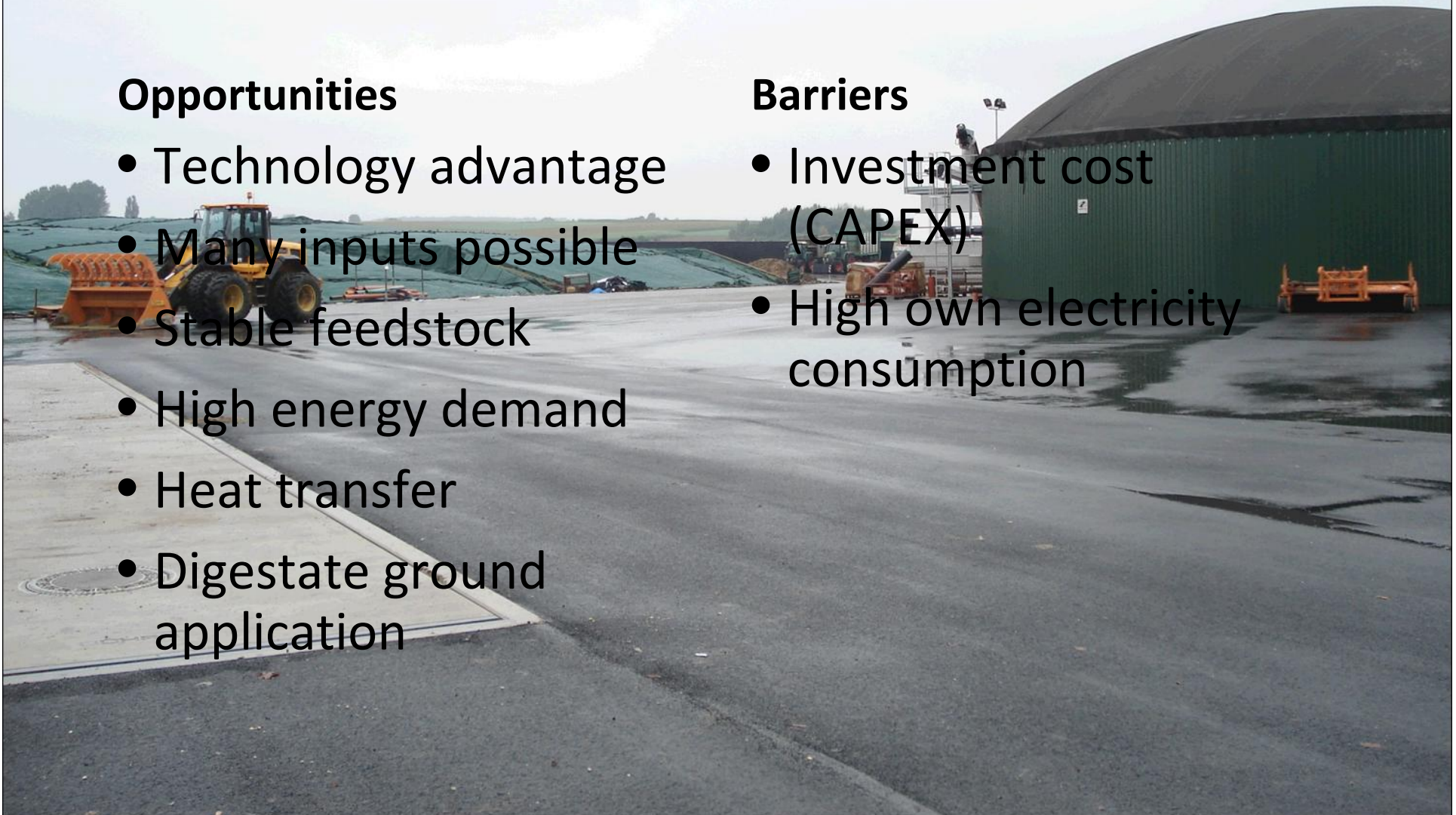
# Case 3: Chicory farm

## Opportunities

- Technology advantage
- Many inputs possible
- Stable feedstock
- High energy demand
- Heat transfer
- Digestate ground application

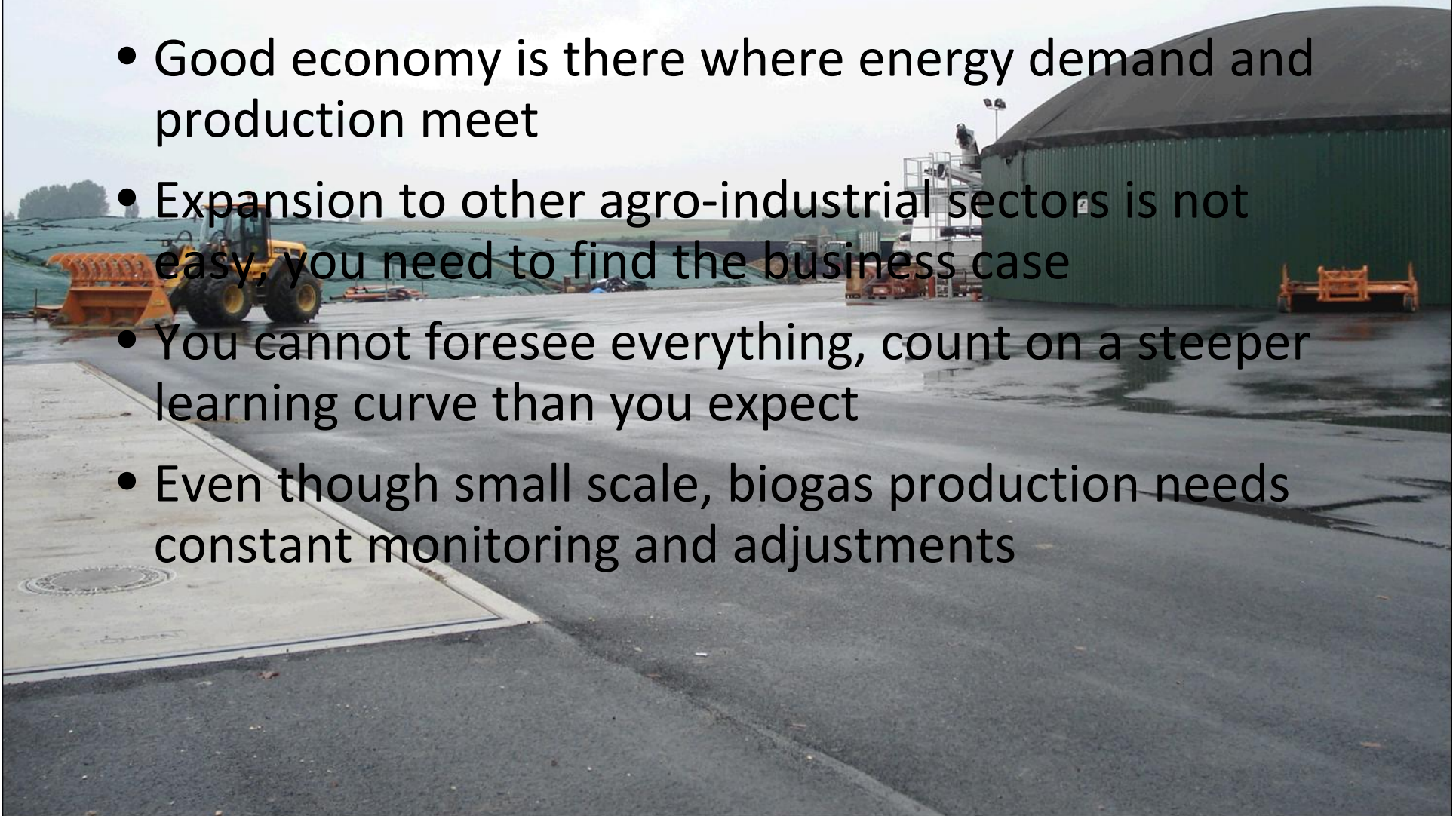
## Barriers

- Investment cost (CAPEX)
- High own electricity consumption



# Concluding remarks

- Good economy is there where energy demand and production meet
- Expansion to other agro-industrial sectors is not easy, you need to find the business case
- You cannot foresee everything, count on a steeper learning curve than you expect
- Even though small scale, biogas production needs constant monitoring and adjustments





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