Biogas production feasibility in food industry clusters

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Aim of the study

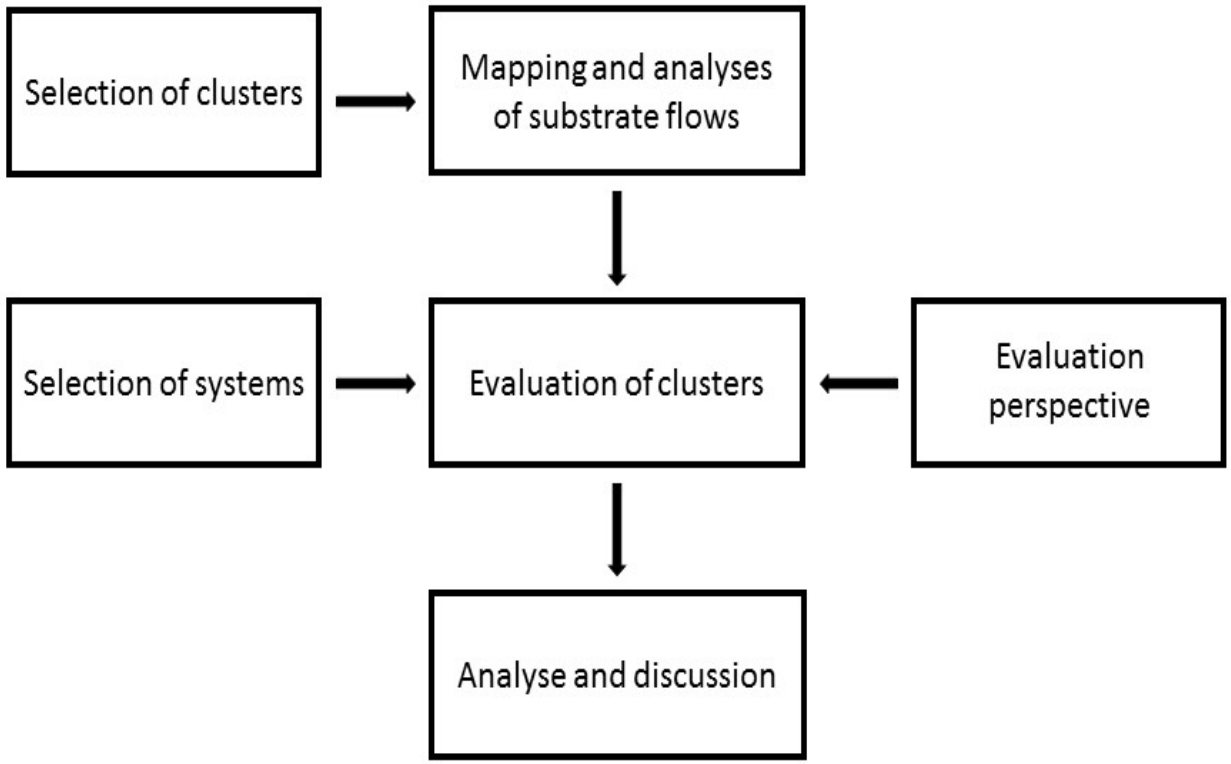
Investigate if biogas production is a good alternative to treat food industry waste, compared to business as usual, and if so, under which circumstances.

This is done by studying five different clusters of food industries in Sweden, all with different prerequisites.

The clusters were analysed from three different perspectives:

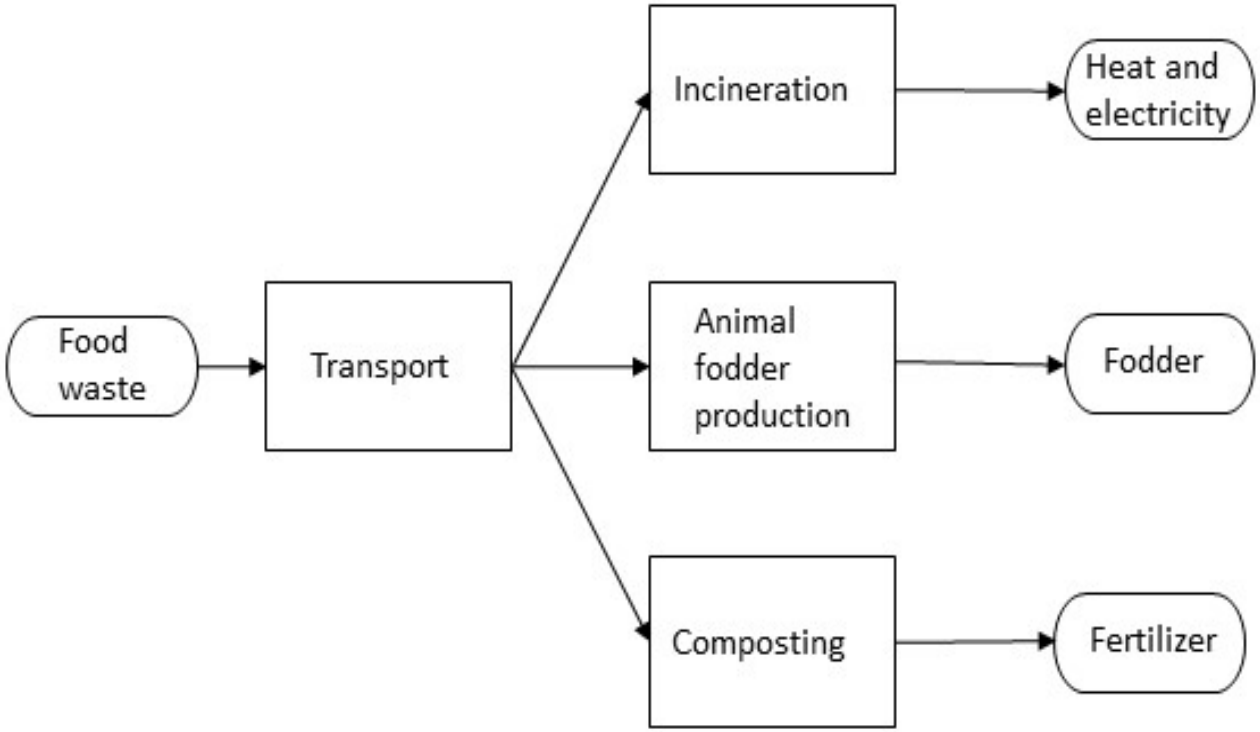
- Economy
- Energy
- Environment
  - Global Warming Potential (GWP)
  - Acidification potential (AP)
  - Eutrophication potential (EP)

Work process

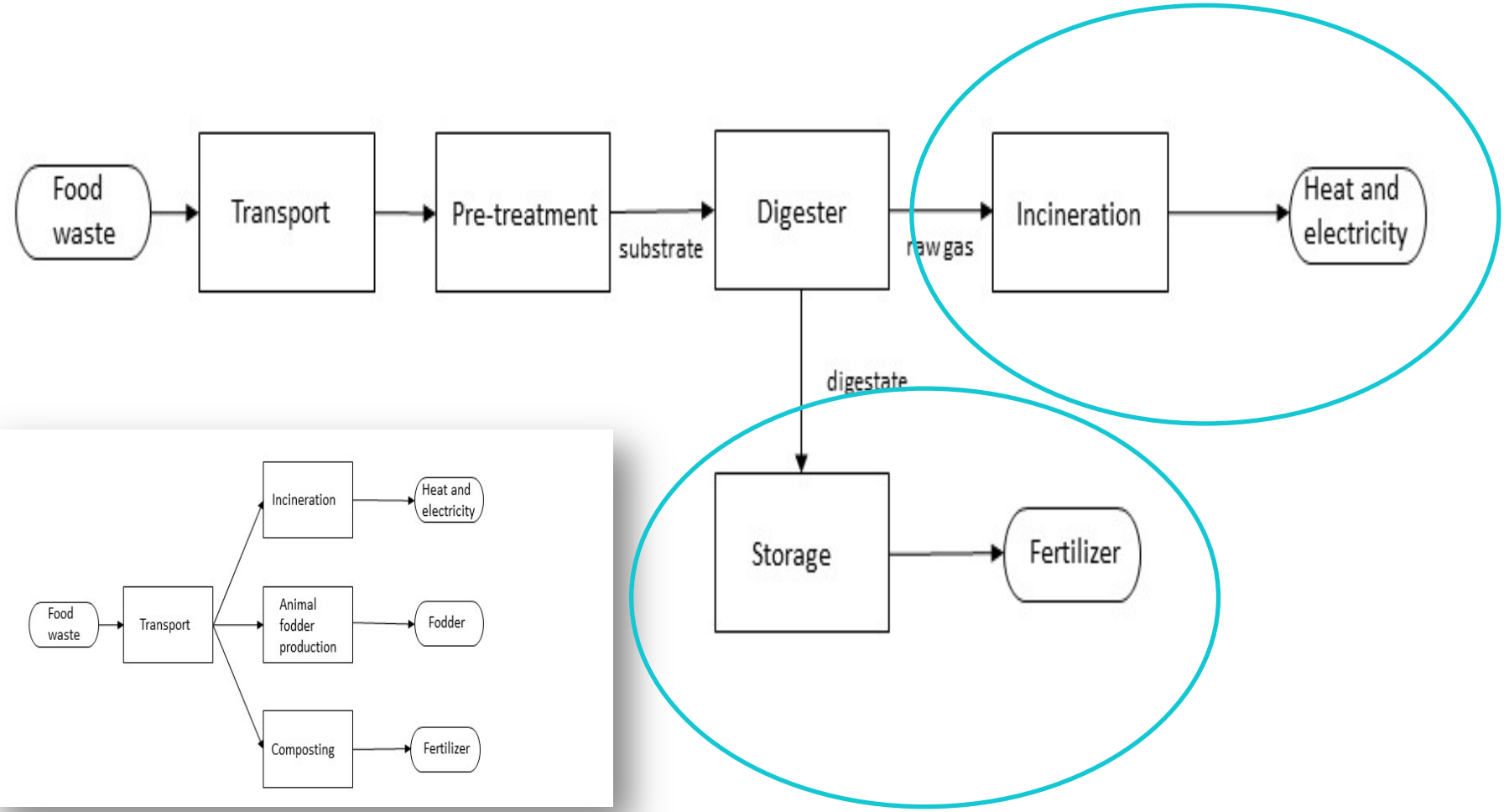


1. Mapping all food companies in Sweden
2. Mapping biogas plants
3. Selecting clusters (5)
4. Mapping substrate flows
5. Selecting evaluation perspectives (3)
6. Selecting systems (3)
7. Evaluation of clusters

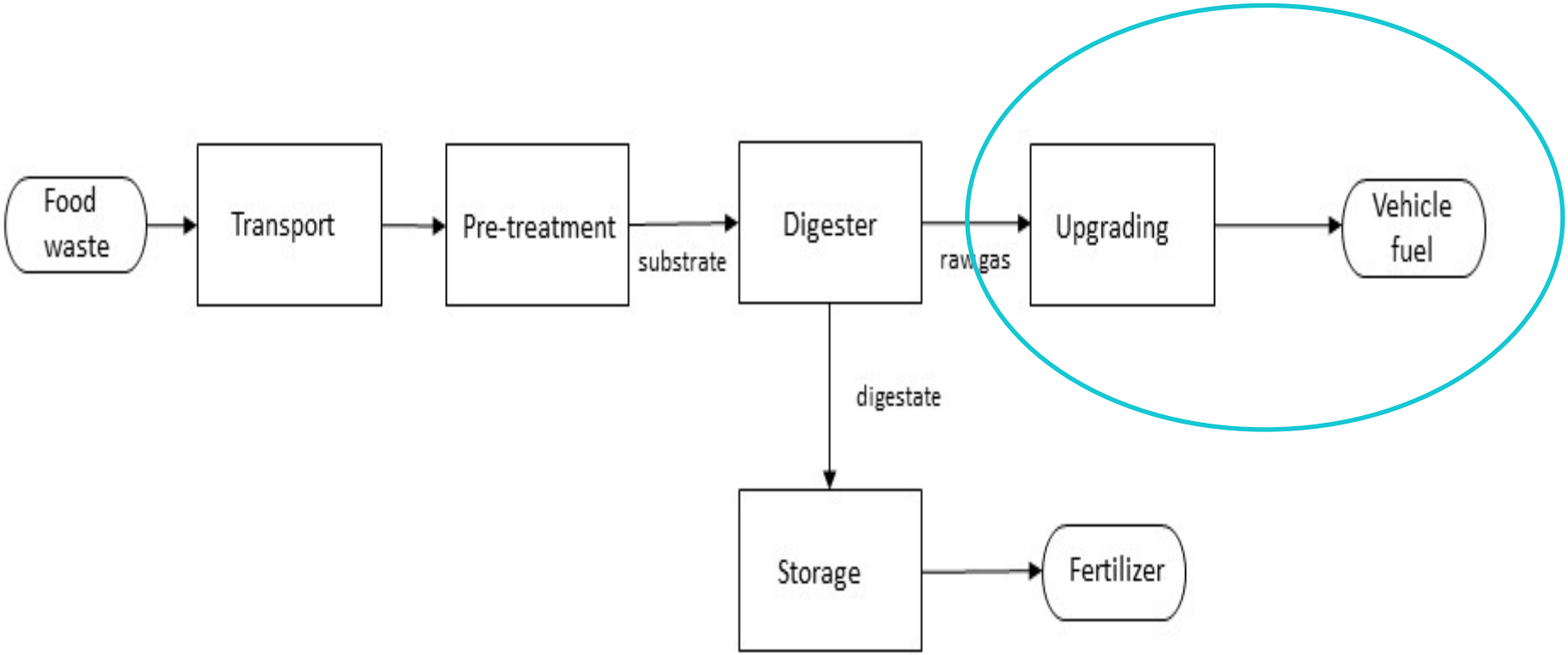
System BAU


Food waste
Transport
Incineration
Animal fodder production
Composting
Heat and electricity
Fodder
Fertilizer

System CHP

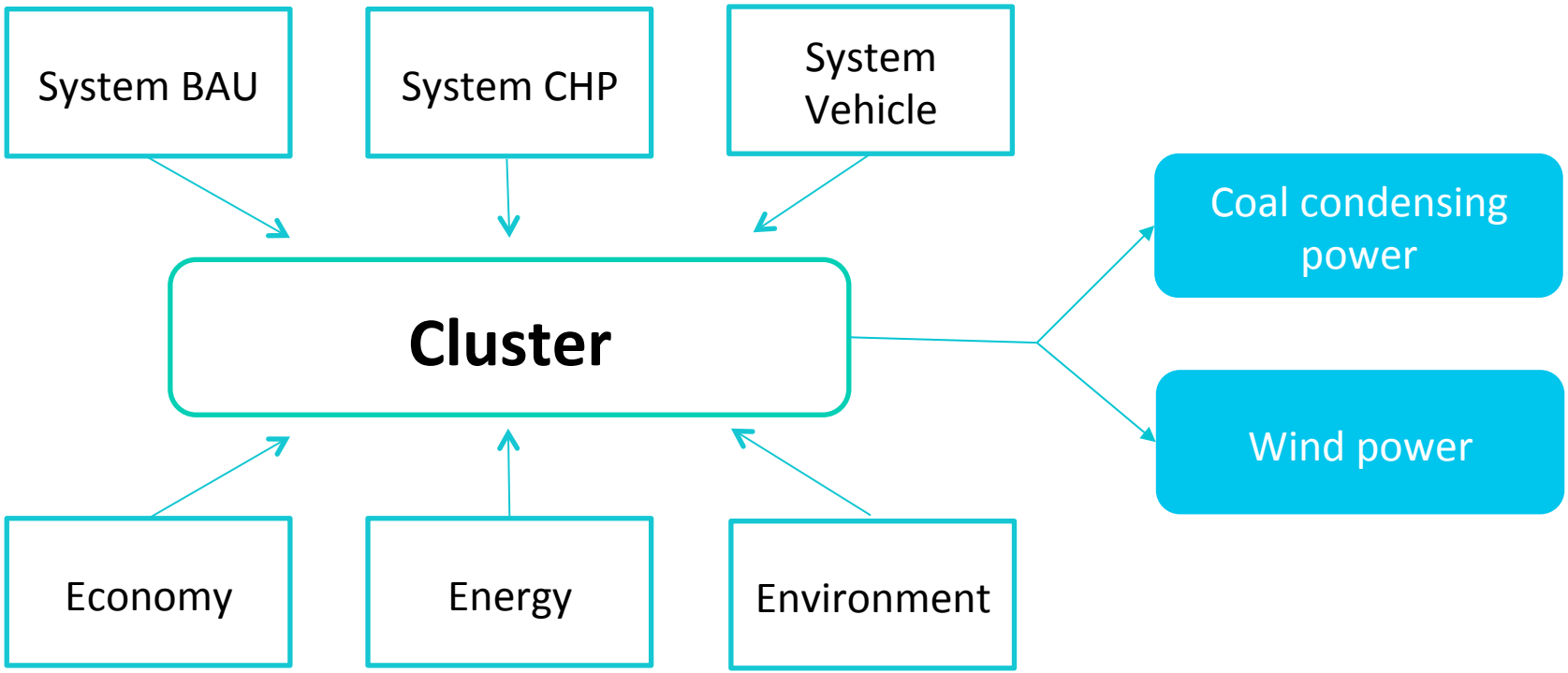

Food waste
Transport
Pre-treatment
substrate
Digester
raw gas
Incineration
Heat and electricity
digestate
Storage
Fertilizer
Food waste
Transport
Incineration
Heat and electricity
Animal fodder production
Fodder
Composting
Fertilizer

System Vehicle

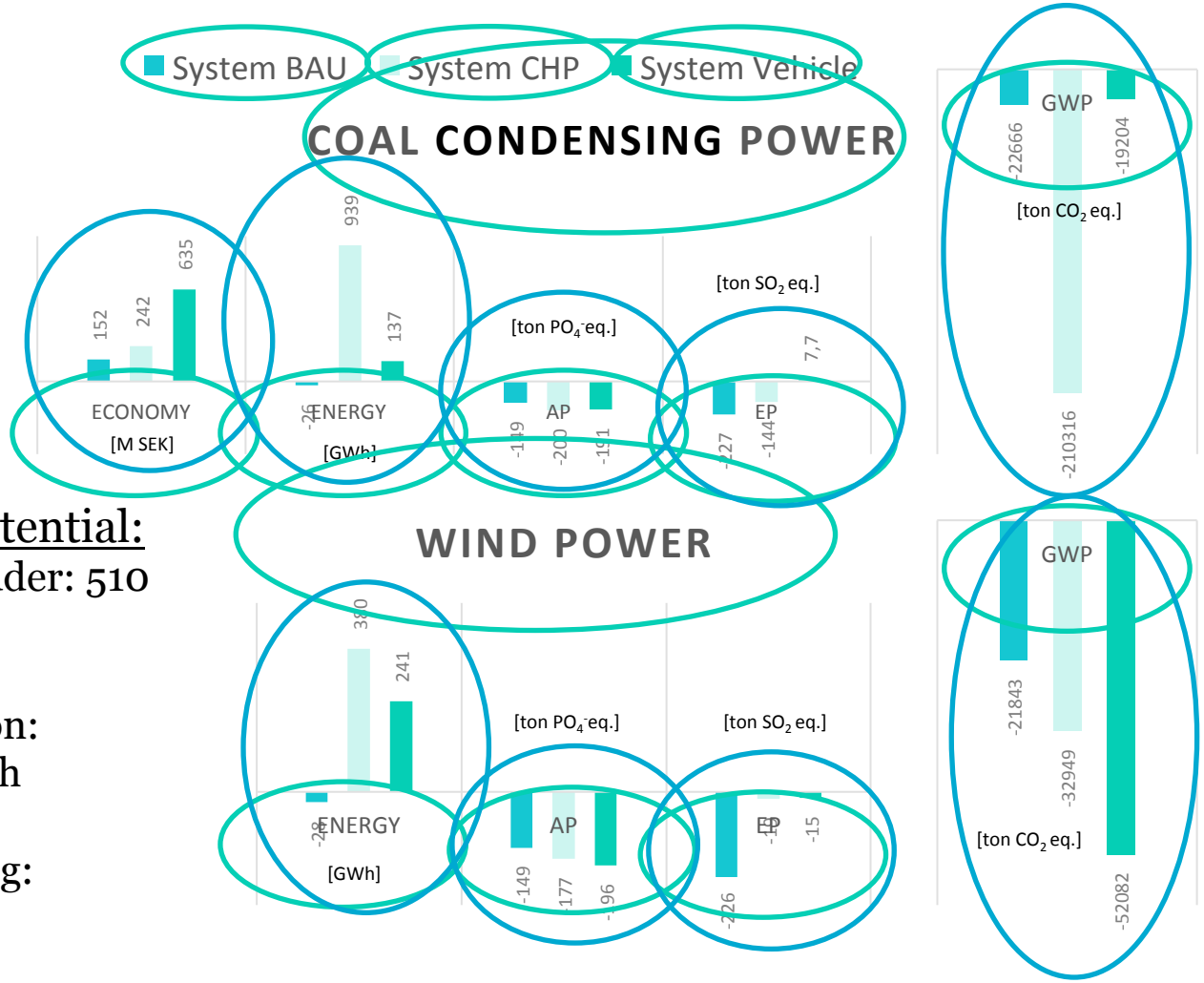


The study

The results



Cluster A

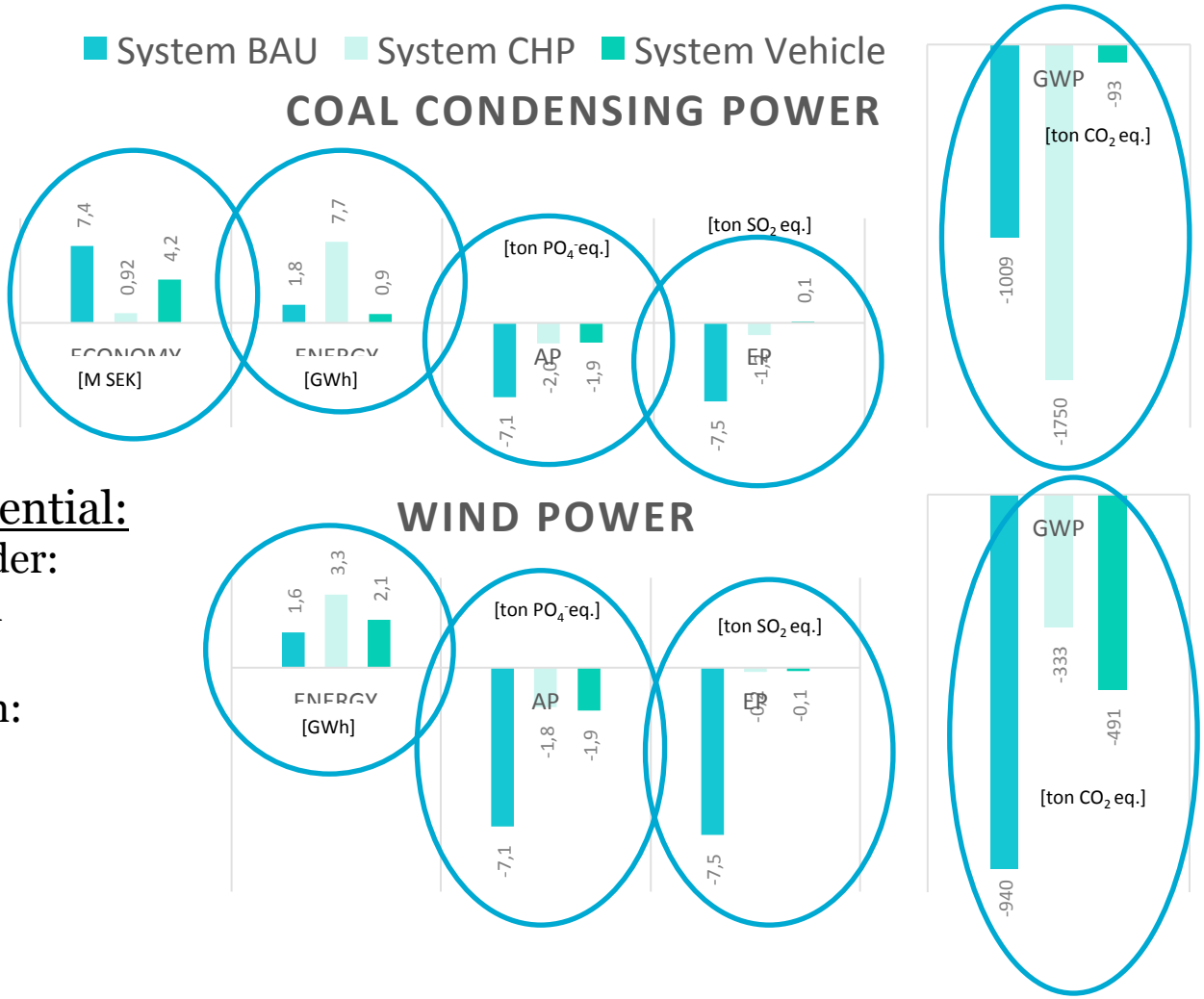


<u>Biogas potential:</u>
Animal fodder: 510 000 MWh

Incineration:
2 800 MWh

Composting:
51 MWh

Cluster B

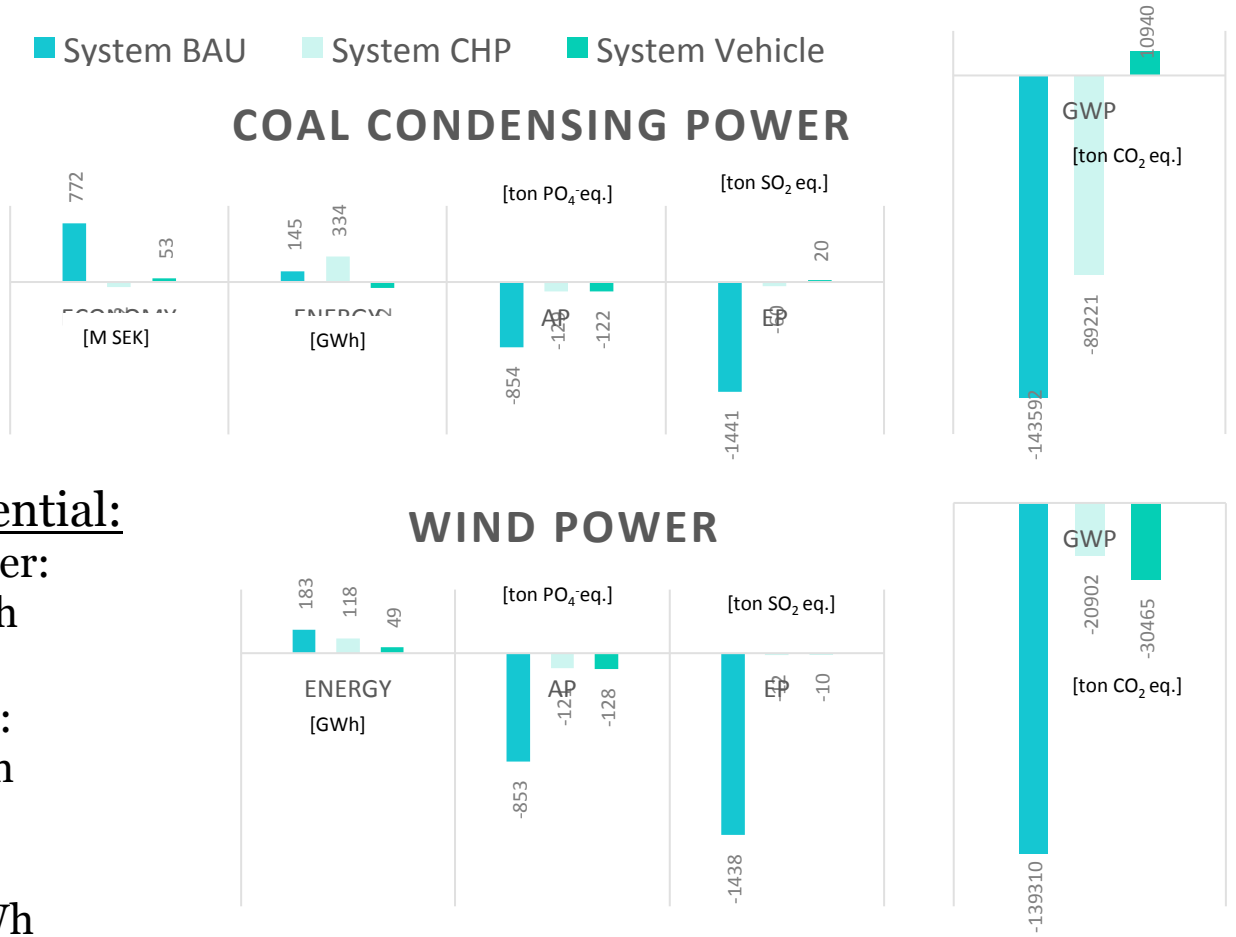


<u>Biogas potential:</u>
Animal fodder:
3 900 MWh

Incineration:
240 MWh

Fertilizer:
120 MWh

Cluster C

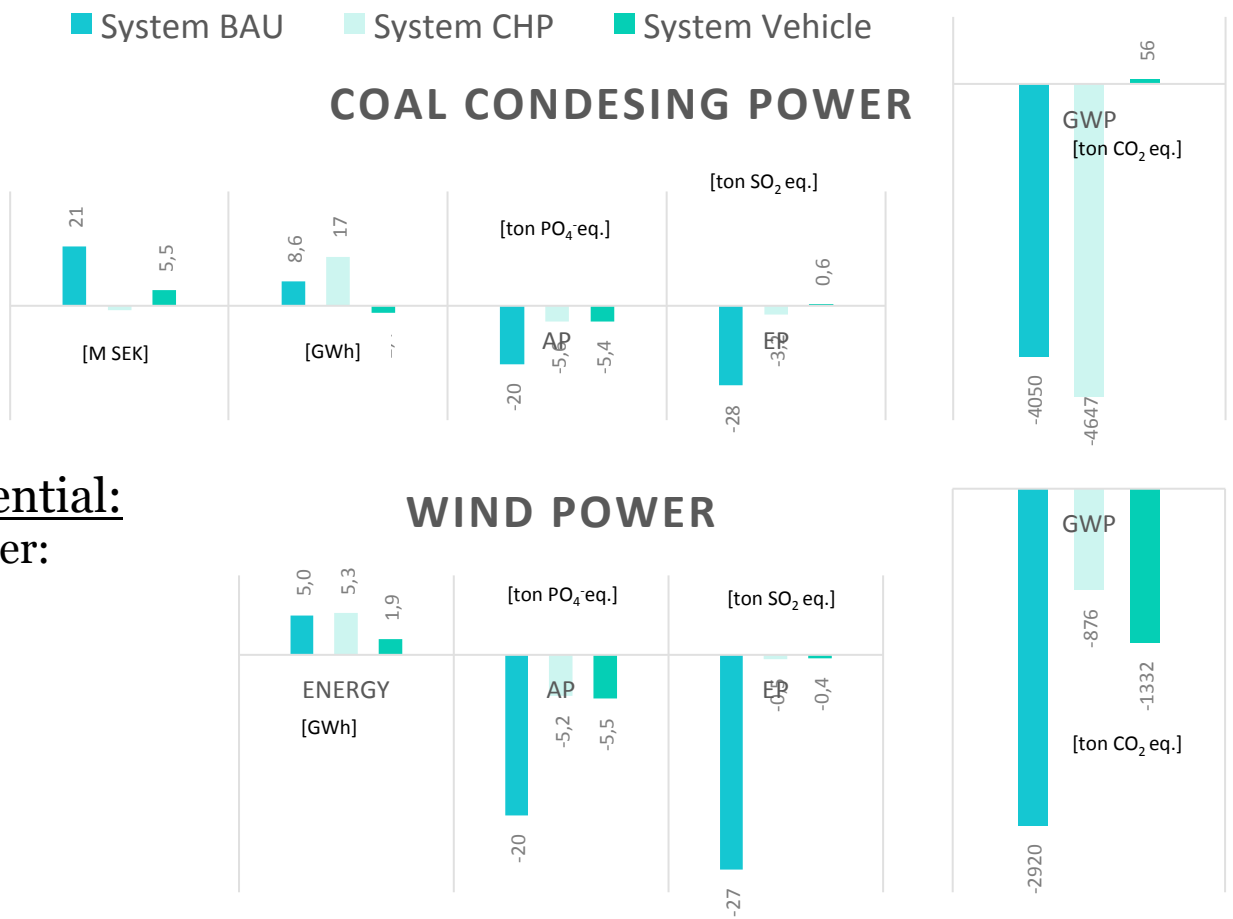


<u>Biogas potential:</u>
Animal fodder:
85 000 MWh

Incineration:
18 000 MWh

Fertilizer:
167 000 MWh

Cluster D

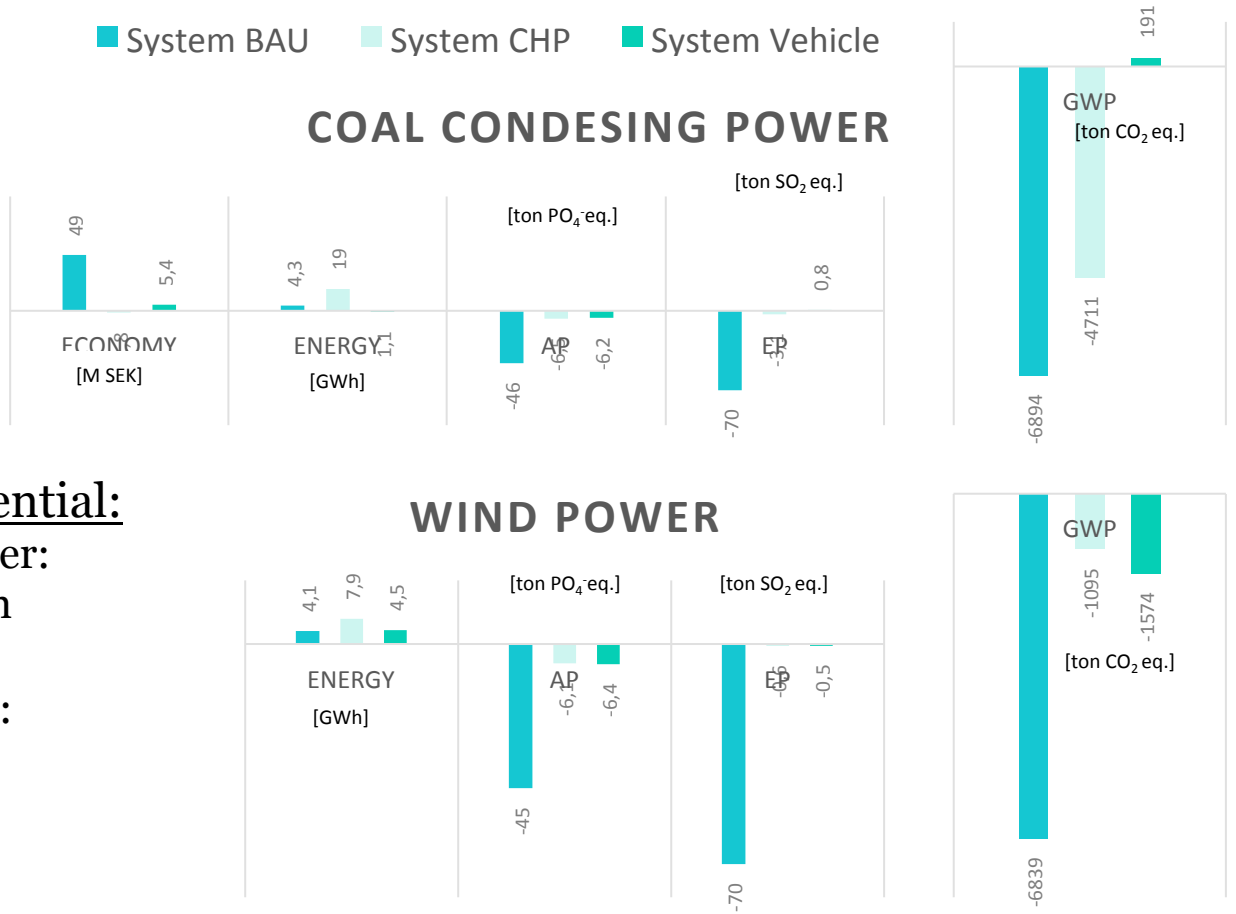


Biogas potential:

Animal fodder:
8 600 MWh

Fertilizer:
3 900 MWh

Cluster E



<u>Biogas potential:</u>
Animal fodder:
13 000 MWh

Incineration:
160 MWh

Conclusions

- Biogas in Cluster A
- BAU in other clusters
- Perspective
- System

Thank you for listening!

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