

Biogas solutions in the region of Jönköping - Potential for production and market

Aim

To make an estimation of the biogas potential in Jönköping Region, both from a production perspective and from the market side.

Material & methods

Identify the key actors related to: Production, upgrading; distribution, refueling stations and use of biogas.

Estimation of biogas potential: Inventory of substrates (type, quantity availability and location).

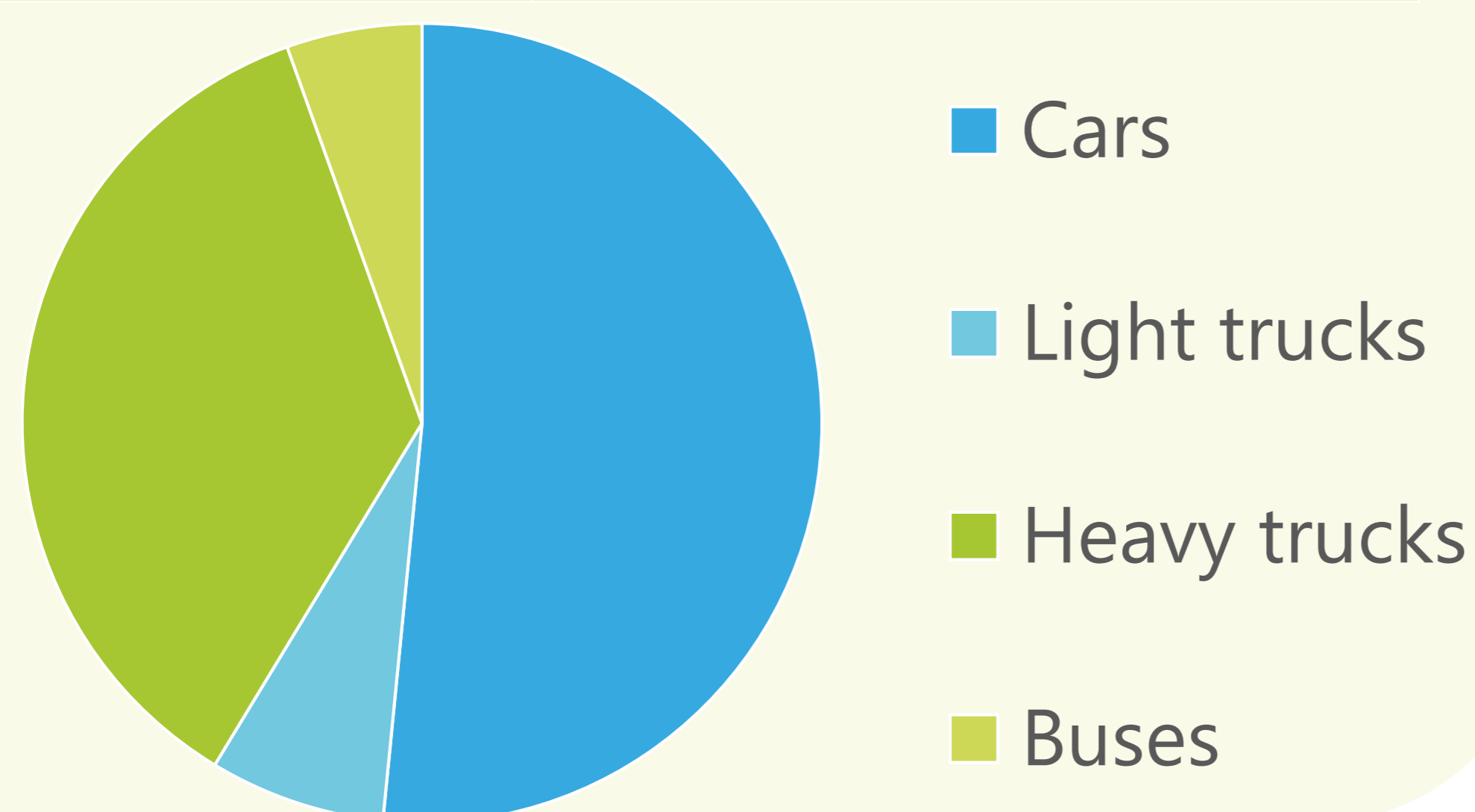
Investigation of potential markets for biogas: public transport, municipally and regionally owned vehicles.

Potential methane production (GWh)

Food waste	16.8 < 28.5
Sewage sludge	? < 25.0
Waste streams from Waggeryd Cell	? < 21.6
Cleaning waters from Arla	?
Manure (solid) cattle	106.5 < 183.8
Manure (solid) sheep	? < 0.5
Manure (solid) pigs	1.0 < 4.2
Manure (solid) chicken	? < 0.6
Manure (liquid)	11.6 < ?
Waste from Gränna's candy production	?

Potential use of biogas

Fuel	Fuel use in 2017(GWh)
Gasoline	1200
Diesel	2500



	Inhabitants (x1000)	Co-digestion plants	WWTP biogas prod.	Collects food waste for biogas	Refueling stations
Jönköping	139				
Värnamo	34				
Nässjö	31				
Gislaved	29				
Vetlanda	27				
Tranås	18				
Eksjö	17				
Vaggeryd	13				
Habo	12				
Sävsjö	11				
Gnosjö	9				
Mullsjö	7				
Aneby	6				

Potential use of digestate

- 80 000 ha of arable lands
- 75 % of arable land is used for ley crops
- 40 000 ha of grazing lands

Suggestion for biogas plant

- Continuous Stirring Tank reactor type;
- Wet codigestion;
- Manure, food waste and sewage sludge as substrates;
- Between Värnamo and Gislaved

Mette Axelsson Bjerg¹, Rubens Perez Calegari^{1,2} and Sofia Dahlgren³

¹ Department of Thematic studies, Environmental Change, Linköping University

² Center of Nuclear Energy in Agriculture, University of São Paulo, Brazil

³ Department of Management and Engineering, Environmental Technology and Management, Linköping University