

Session on "Untapping the full potential of renewable gas" @ European Biogas Association e-Conference

TOWARDS FOSSIL FREE FUELS WITH BIOMETHANE AND AN INTEGRATED GAS INFRASTRUCTURE

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- We develop the Nordic energy market and its gas ecosystem
- We utilize our portfolio to serve our customer with responsible solutions
- We build a bridge towards a carbon neutral society
- We grow the biogas availability in the Nordic market



A RANGE OF PRODUCTS AND SERVICES TO OUR CUSTOMERS — WE HELP THEM REDUCE THEIR CARBON FOOTPRINT



Natural gas (NG) & Liquefied natural gas (LNG)



Compressed (CBG) & Liquefied (LBG) biomethane



Circular economy solutions



Power

Energy market services



- Portfolio Management and Brokering Services
- Balance Services in the Wholesale Physical Electricity Market
- 24-h Control Room Services
- Marketing Analyses
- Reporting Services
- Guarantees of Origin Services for electricity and alternatives



Gasum in short (2019)

REVENUE

€1,128 million

OPERATING PROFIT

€141 million

BALANCE SHEET TOTAL

€1,648 million

INVESTMENTS

€124.4 million

EQUITY RATIO

44.7%





NATURAL GAS & LNG
30 TWh



660 GWh (60 M Nm³)



PERSONNEL **373**



100% Finnish State



 \sim 67 TWh/a

 \sim 57 TWh/a

CO₂ reduction 90% by 2035

OPERATING ENVIRONMENT IN THE NORDIC GAS ECOSYSTEM

- Fast actions are required to achieve environmental targets.
- Demand for low emission solutions is a new standard.
- Some incentives are already in place, right mechanism enables transition.
- Huge market potential with total energy consumption 750 TWh/a
 - → Biomethane serve as an enabler for gas use growth

~140 TWh/a ~86 TWh/a

 CO_2 reduction -70% by 2030

CO₂ reduction -70% by 2030

~180 TWh/a

~45 TWh/a

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Industry ~390 TWh/a

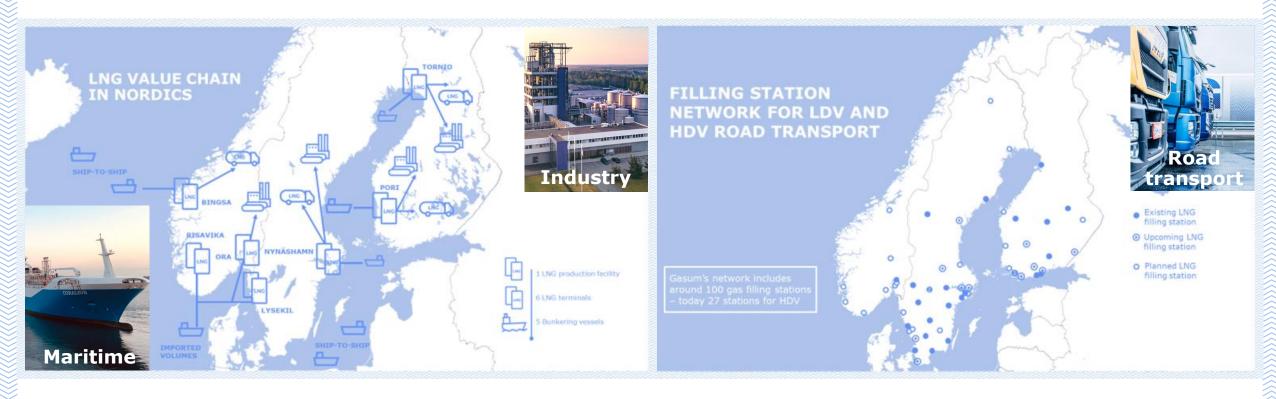


Road transport ~ 190 TWh/a



Maritime ~ 160 TWh/a

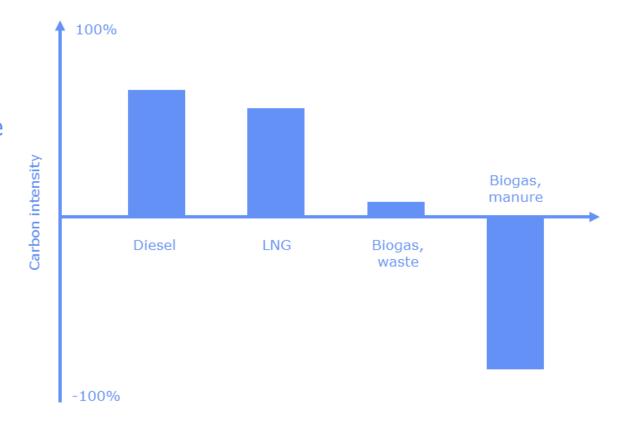
INFRASTRUCTURE TO SUPPORT GROWTH IN SELECTED SEGMENTS



- LNG infrastructure and availability will serve as a basis for the biomethane growth
- LDV and HDV filling station network expanding rapidly throughout Nordics
- Industry and Maritime sectors demanding credible biomethane available

UNIQUE OFFERING - EVEN MORE THAN 100% EMISSION REDUCTION

- Gas has been recognized in the current and future regulatory regimes, which support gas market's further development in the road transport sector. Especially the role of biogas is highlighted.
- Biomethane has the unique quality of providing even negative CO2 emission reductions according to the regulatory regimes (REDII) in the road transport sector.



OUR PRODUCTION NETWORK TO SUPPORT BIOGAS AVAILABILITY



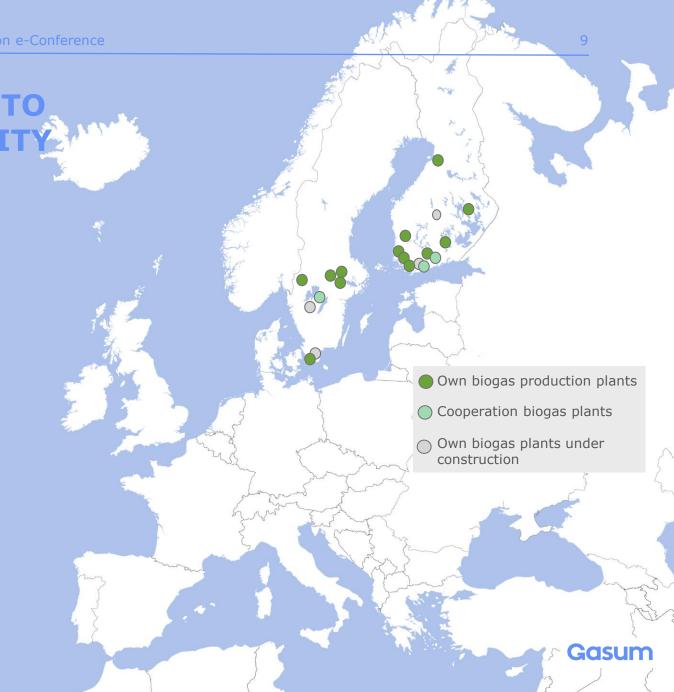
13 Biogas plants



3 Cooperation biogas plants



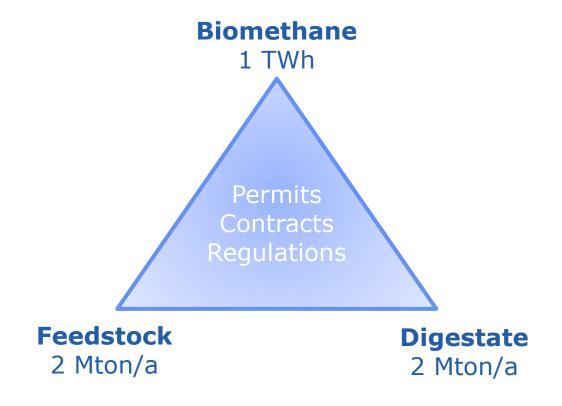
4 Biogas plants under construction



OUR OPERATING ENVIRONMENT - "THE BIOGAS REFINERY"

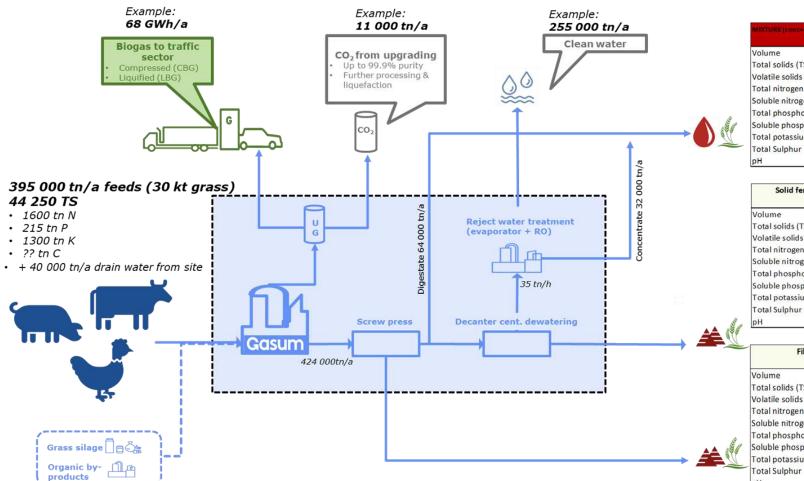
Optimize of our operations with certain feedstock types to maximize overall efficiency

- 1. <u>Separated organic waste from MSW</u>→ Digestate to incineration
- Traditional biowaste → Digestate as biofertilizer & refined nutrients for industry use
- 3. <u>Agricultural crop and manure</u> → Biofertilizer, ecologically certified



AGRO AND MANURE "REFINERY"

4.9.2020



MIXTURE (concedig)		
Volume	(tn/a)	96 103
Total solids (TS)	(%)	11,0 %
Volatile solids (VS/TS)	(%)	79 %
Total nitrogen	(kg/tn)	10,2
Soluble nitrogen	(kg/tn)	7,0
Total phosphorus	(kg/tn)	0,5
Soluble phosphorus	(kg/tn)	0,2
Total potassium	(kg/tn)	8,7
Total Sulphur	(kg/tn)	9,8
рН		6,0

Solid fertilizer		
	unit	
Volume	(tn/a)	31 278
Total solids (TS)	(%)	30 %
Volatile solids (VS/TS)	(%)	73 %
Total nitrogen	(kg/tn)	8,2
Soluble nitrogen	(kg/tn)	2,0
Total phosphorus	(kg/tn)	1,9
Soluble phosphorus	(kg/tn)	0,14
Total potassium	(kg/tn)	2,4
Total Sulphur	(kg/tn)	0,18
рН		8,3

Fibers (from screw press)				
unit				
Volume	(tn/a)	43 950		
Total solids (TS)	(%)	35 %		
Volatile solids (VS/TS)	(%)	75 %		
Total nitrogen	(kg/tn)	7,3		
Soluble nitrogen	(kg/tn)	1,9		
Total phosphorus	(kg/tn)	2,4		
Soluble phosphorus	(kg/tn)	0,2		
Total potassium	(kg/tn)	8,9		
Total Sulphur	(kg/tn)	2,4		
pН	100min 100 V	8,0		

Gasum

SUMMARY OF OUR GROWTH PILLARS

- 1. We continue to develop the gas infrastructure
- 2. We continue to expand our own biomethane production
- We continue to access biomethane through partners
- → Secure biomethane availability to our customers in a sustainable way





WIE CAS