



BIOENERGIAPÄIVÄ 2024

Session3: Kilpailukyky ja bioenergia

”Kilpailukykyä raskaassa liikenteessä kaasuilla”

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21.10.2024 Tampere-talo

Gasum

Kilpailukykyä raskaassa liikenteessä kaasuilla

Gasum ja kaasut

- ✓ Päästöt
- ✓ Taloudellinen kannattavuus
- ✓ Kokonaisuus

Gasum – a nordic gas sector and energy market expert

We offer cleaner energy and services to help our customers to reduce their own carbon footprint as well as that of their customers.

Together with our partners, Gasum promotes development towards a carbon-neutral future on land and at sea.

Our services and solutions are used in maritime, road transport, industry and energy production.



Revenue
€1,456.9 million

Balance sheet total
€1,637.9 million

Personnel
338

Energy products
**Biogas, LBG,
Natural gas, LNG,
Windpower, Power**

Services
**Gas filling station network,
Bunkering services for
maritime transport,
Energy Market Services,
Portfolio Management
Services,
Trading services,
Circular Economy Solutions**



Industry and
energy production



Maritime transport



Road transport



Biogas and
circular economy



Energy market services

We are developing the Nordic gas ecosystem and promoting sustainable development



6 LNG terminals



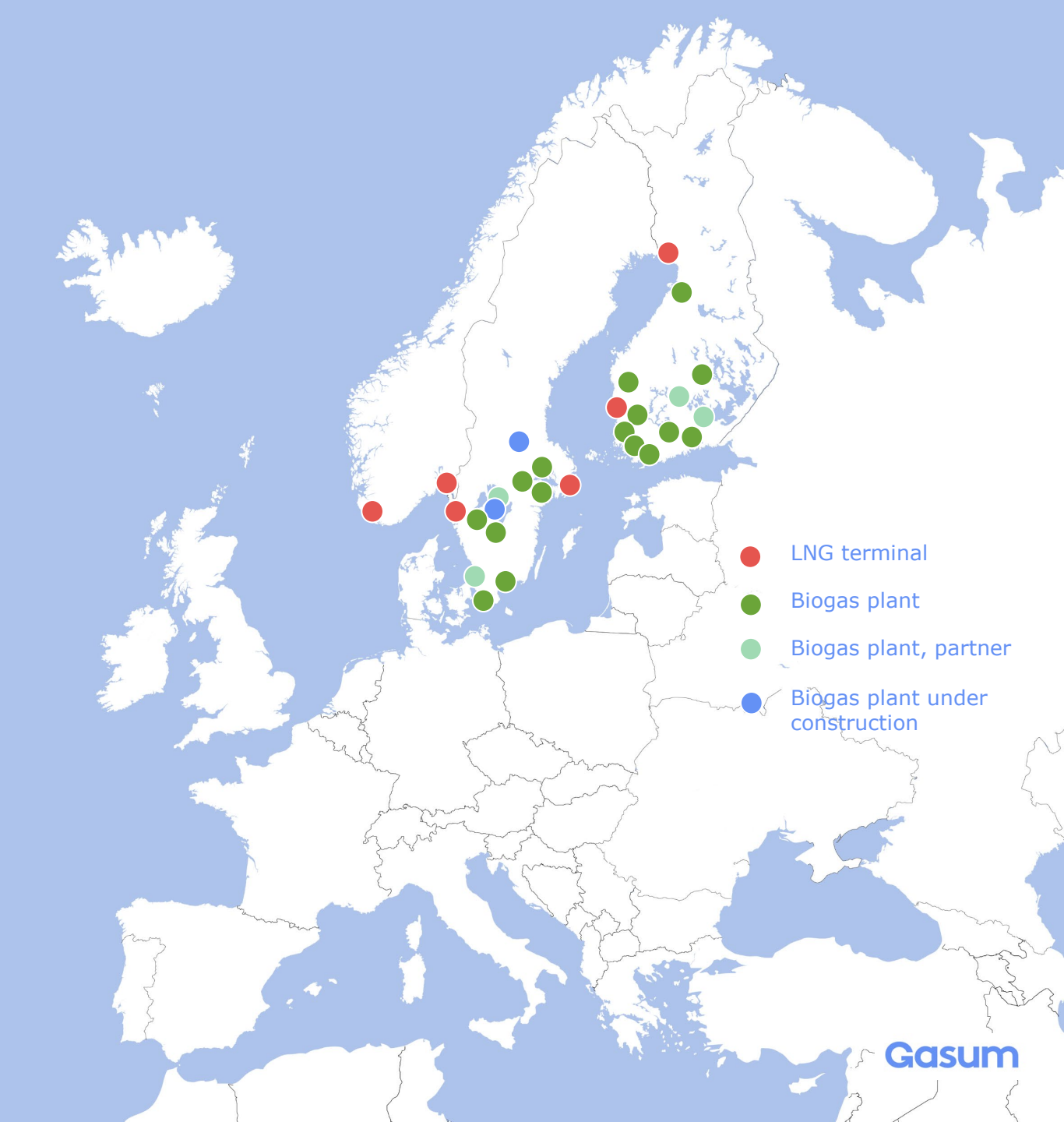
3 LNG bunkering vessels
2 LNG carriers



16 Biogas plants
2 Under construction (Götene, Borlänge)
4 Partner plants

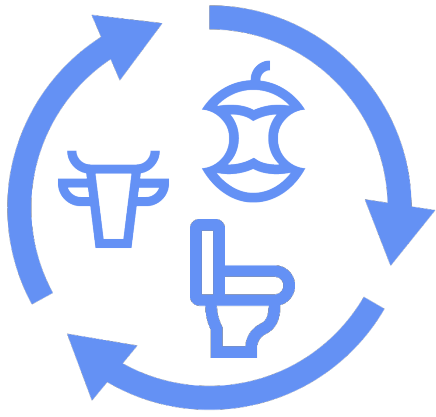


Over 100 gas filling stations



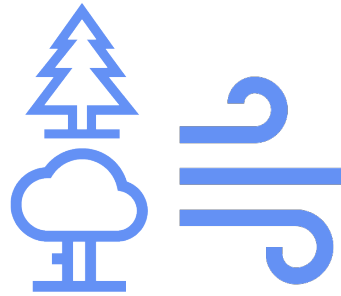
Renewable methane

Sustainable methane can be produced through different processes



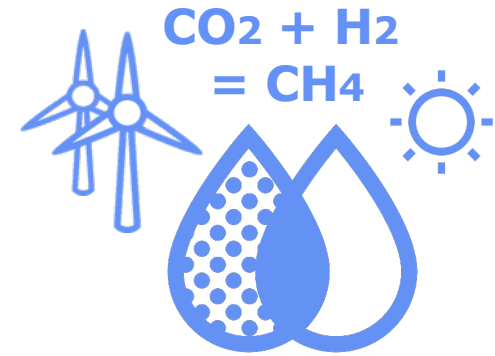
Anaerobic digestion

Traditional biogas production from waste feedstock



Gasification

Dry woody or lignocellulosic biomass and solid waste to methane



Power to Gas process (P2G)

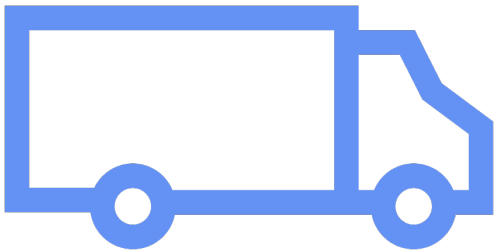
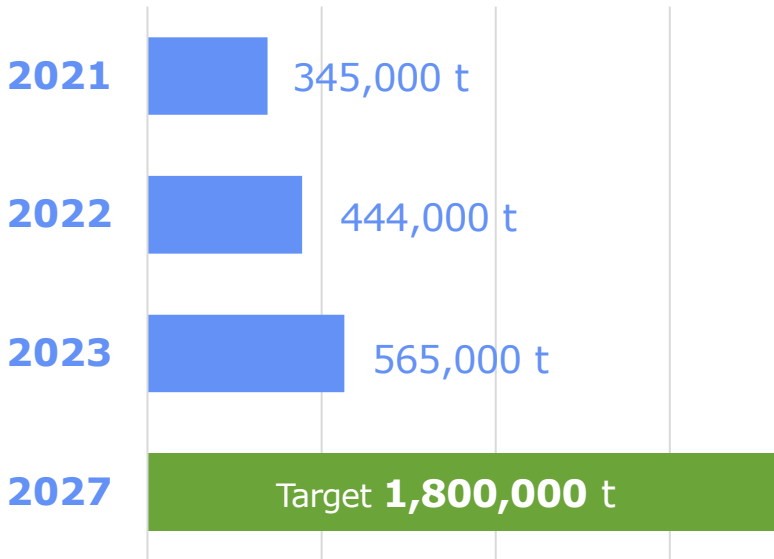
Methanation of green hydrogen using bio-CO₂

Gasum's Biogas 2023 in numbers:

565,000 tons

of CO2eq emission savings for our customers with biogas. This equals the carbon footprint of about **70,000** average EU citizens.

Our goal is to reach a cumulative reduction of **1.8 million tons** of carbon dioxide emissions by 2027.



Nearly **1 million tons** of different types of waste (biowaste, manure, sewage sludge) managed through biogas production process.

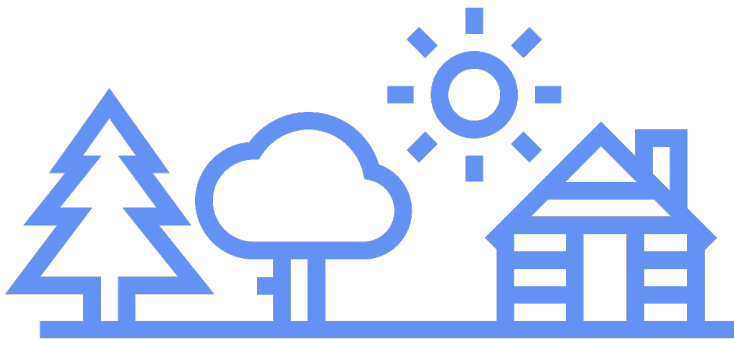
That's **20,000 truckloads** of waste.

At the same time, we produced **918,000 tons** of recycled nutrients.

1.7 TWh

of biogas delivered to customers including **761 GWh** of Gasum's own production. That's **65,700** times around the globe in a gas-powered car or **170,000** homes heated for a year.

Our goal is to deliver a total of **7 TWh** renewable gas to our customers by 2027.



Gas facts in logistics



CNG=Compressed natural gas
CBG=Compressed biogas
LNG=Liquified natural gas
LBG=Liquified biogas

CNG/LNG=Fossil
Emissions savings compared to diesel: over **20%**

CBG/LBG=Renewable
Emissions savings compared to diesel: up to **90%**

CNG
More suitable for distances up to **500 km**



LNG
Truck operating range from **750 km up to 1400 km**

BIOGAS

Gasum increases the availability of biogas in the Nordic market:
Fuel for **17.500** trucks on a yearly basis (7 TWh) by 2027



Traffic biogas promotes circular economy: fuel made from e.g. sewage sludge, biowaste, manure, etc. and valuable nutrients spread back to fields



All of the biogas and LBG sold by Gasum **meets the sustainability criteria** set by the EU Renewable Energy Directive



TRANSPORT

Gas vehicles can haul **loads up to 73 tons** (max hp of trucks 500)

Gas vehicles help **to improve local air quality:** low NO_x and PM (particulate matter)

Fuel saving (vs. diesel and HVO) between **10-30%**, depending on setup, results in low TCO



Numerous **logistics buyers** promote gas powered vehicles: e.g. Lidl, Coop, McDonald's, Carlsberg, HKScan, Valio, Arla and more

Numerous **transport companies** have chosen gas vehicles: DSV, Bring, Postnord, Posti, Frode Laursen, DHL and more



Truck manufacturers:

LNG/LBG: Scania-Volvo-Iveco
CNG/CBG: Scania, Volvo, Iveco, Renault* *excluding Sweden



GAS FILLING STATION NETWORK

Gasum has over 100 stations in the Nordics:
SWE
FIN
NOR



European gas station network is expanding rapidly:
+4100 CNG stations
+700 LNG stations



Biogas is the future's fuel available now

Current fuel/energy comparison of long-haul transport

- IN PROGRESS
- ON TRACK
- CHALLENGES

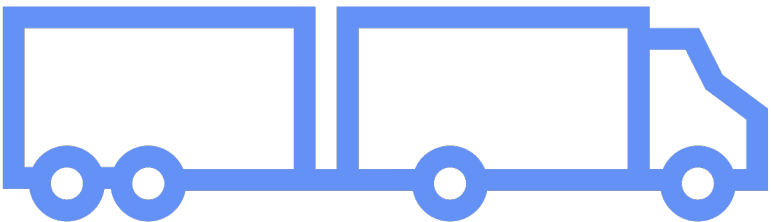
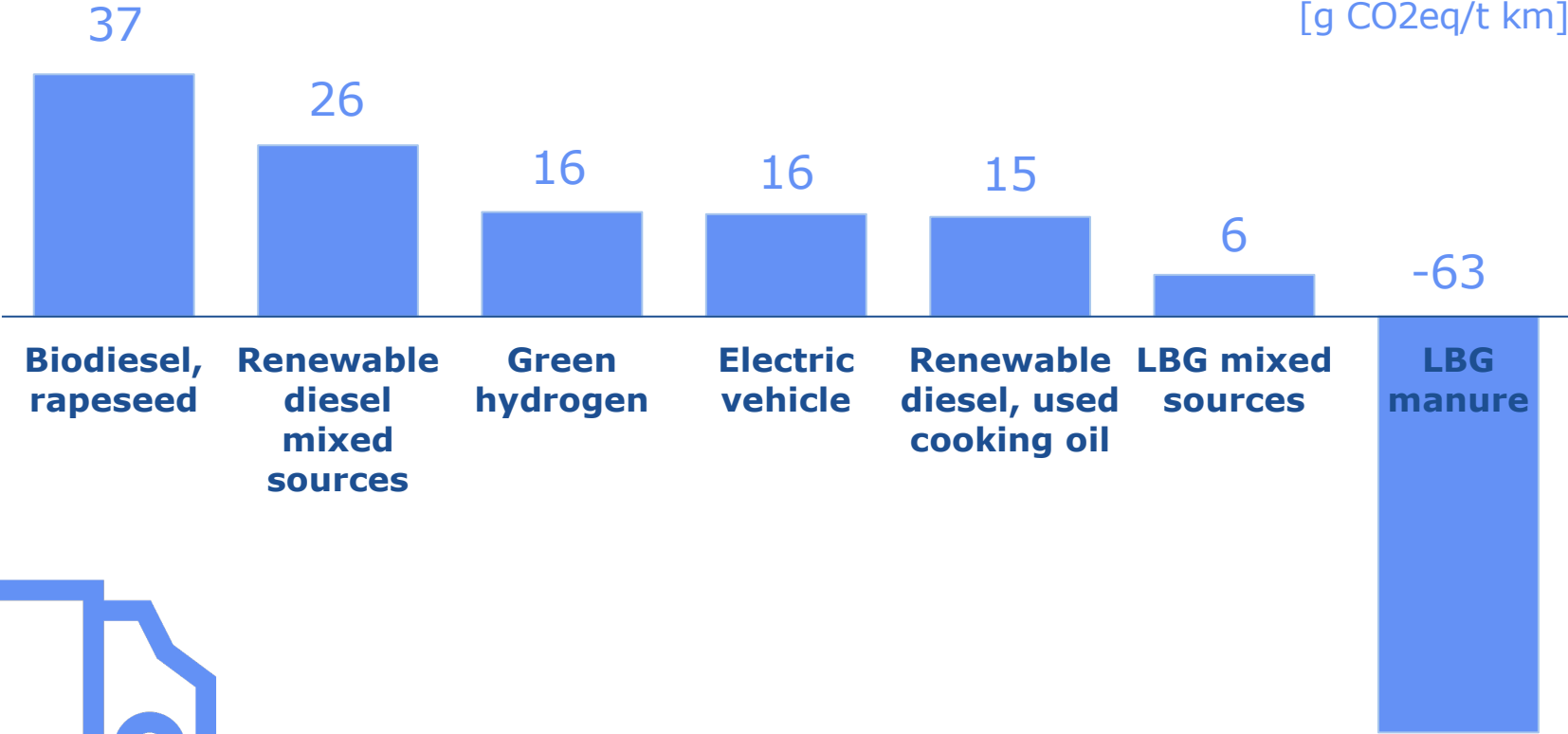
	Biogas	HVO	Electric vehicles	Hydrogen
Total cost of ownership	●	●	● High vehicle cost	● High vehicle and fuel cost
Price of fuel / energy	●	● Over +10 c/l vs diesel	●	● High/still unknown
Filling time of vehicle	●	●	● Min. tens of minutes	● ~15 minutes?
Availability	●	● ~3% of diesel can be converted	●	● Green hydrogen not available yet
Infrastructure	●	●	● Network not available for HDV's	● Network not available for HDV's
Truck model range	●	●	● +16t vehicle range limited	● +16t vehicle range limited
Cost of vehicles	●	●	● 2 to 3X vs. diesel model	● 3X vs. diesel model?
Local Emissions	●	● Requires aftertreatment systems	●	●
CO ₂ emissions (WtoW)	● Manure biogas	●	●	●
Hazards / risks of technology	●	●	●	● Hydrogen is highly volatile
Energy intake / range	●	●	● Requires large amount of batteries	● Fuel requires a lot of space



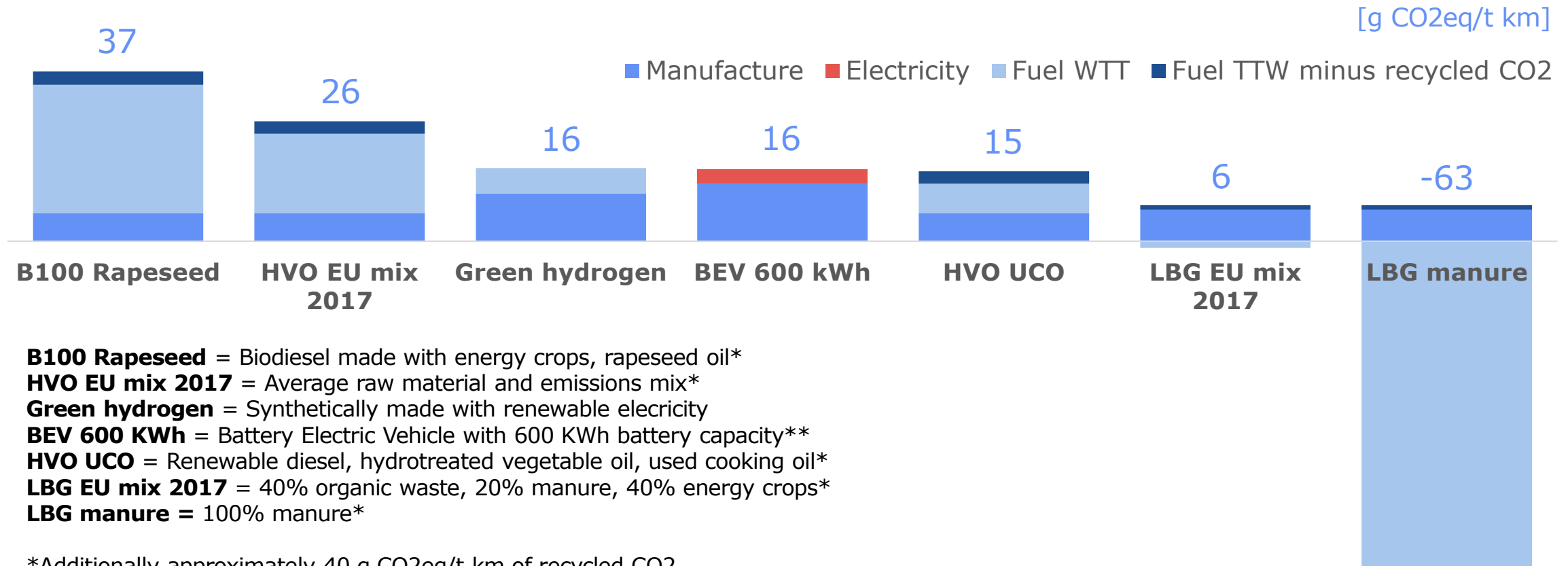
Disclaimer: Technologies and value chains and market conditions develop constantly, this represents one perspective (Q2-2023)

LBG trucks: cleanest logistics solution available today – and tomorrow

Total life cycle assessment of greenhouse gas emissions from heavy duty vehicles



LBG trucks: cleanest logistics solution available today – and tomorrow



B100 Rapeseed = Biodiesel made with energy crops, rapeseed oil*

HVO EU mix 2017 = Average raw material and emissions mix*

Green hydrogen = Synthetically made with renewable electricity

BEV 600 kWh = Battery Electric Vehicle with 600 kWh battery capacity**

HVO UCO = Renewable diesel, hydrotreated vegetable oil, used cooking oil*

LBG EU mix 2017 = 40% organic waste, 20% manure, 40% energy crops*

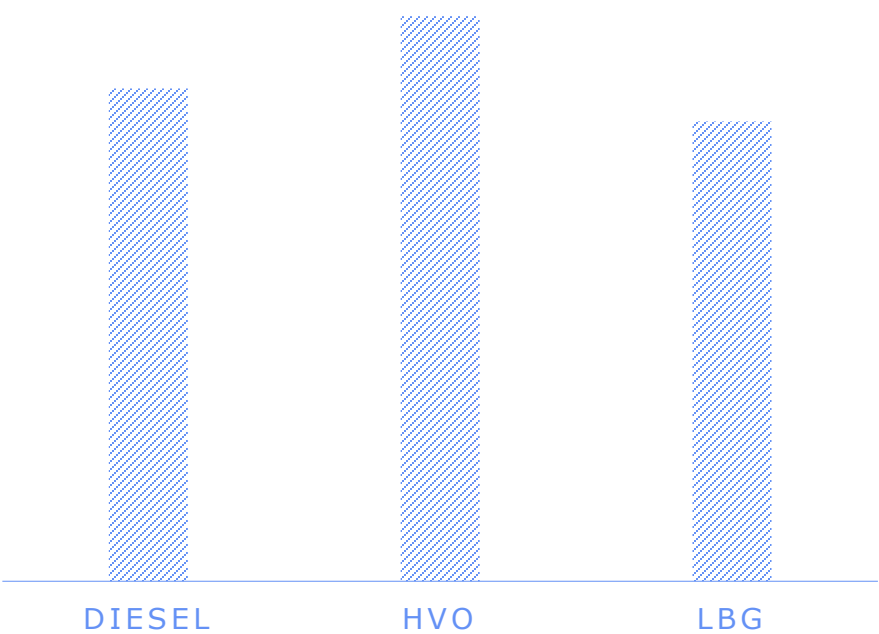
LBG manure = 100% manure*

*Additionally approximately 40 g CO₂eq/t km of recycled CO₂

**Electricity calculated with Swedish annual average CO₂ emissions from electricity production 40g CO₂eq / kWh

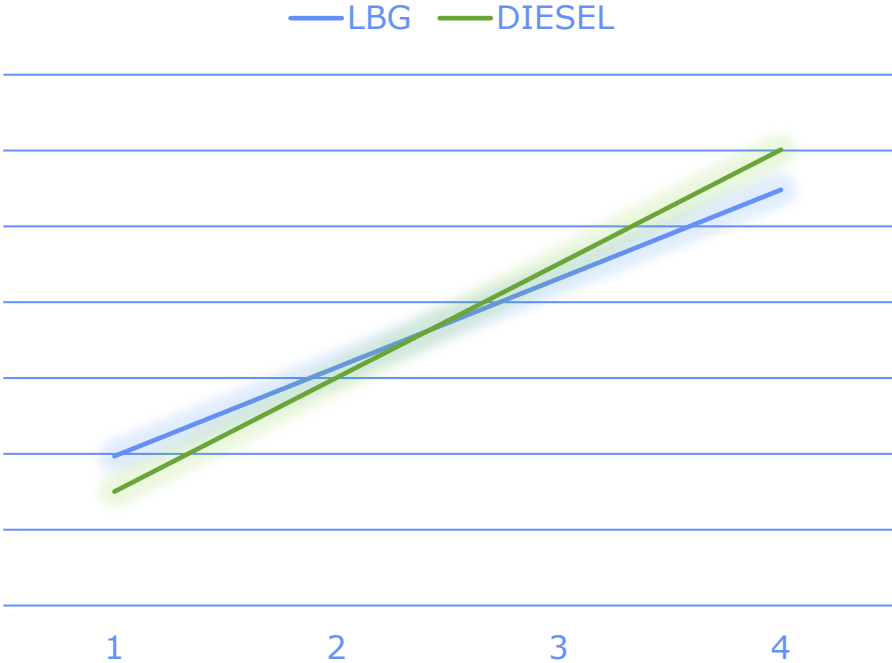
Clean and cost-effective heavy duty vehicle fuels

FUEL COSTS WHEN
COMPARING LBG TO DIESEL
AND TO HVO-DIESEL



Over 20%
savings
compared to HVO

TCO BREAK-EVEN POINT AT 140
000 KILOMETERS PER YEAR



Disclaimer: TCO calculation shall be done separately to each individual customer case – great variation in conditions


Gas and Gasum; easy and effortless to use



- State of the art stations designed also for longer vehicles
 - Rapid filling process (equivalent to diesel filling times)
- Customer service available 24/7
- Driver app and portal services help our customers with their everyday operations
- Training material (e-learning, videos, etc.) available for the first fillings
 - >even at the station
- All our heavy-duty vehicle filling stations offer biogas

Green Shipping on Demand, Green Corridors are here!

[Varaa matka](#) [Viking Line Cargo](#) [Hae työtä](#) [Lehdistöhuone](#) [Kestävä matkailu](#) [Sijoittajat](#) [Konserni](#) [Etsi](#)




Liitteet & linkit

- 📎 Viking Line Cargo
- 📎 Itämeren ensimmäinen vihreä rahtikäytävä on nyt auki PDF

Itämeren ensimmäinen vihreä rahtikäytävä on nyt auki - Felix-ketsuppi kulkee Suomeen 90 prosenttia pienemmillä päästöillä


18 syyskuu 2024 10:00

[FELIX](#) [Tuotteemme](#) [Reseptit](#) [Street Kitchen](#) [Tarinamme](#) [Vastuullisuus](#) [Ota yhteyttä](#) [Felix & suorituspainettomuus](#) [f](#) [y](#) [i](#)



Ensimmäinen vihreä rahtikäytävä Itämerellä avattu - Felix-ketsuppi kulkee nyt Suomeen 90 prosenttia pienemmillä päästöillä

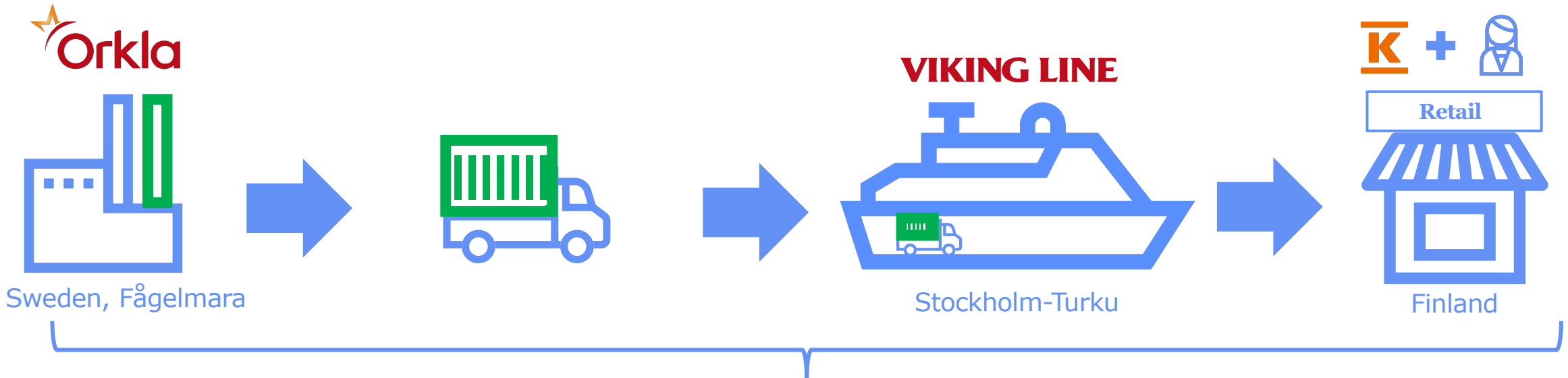
Ruotsin Fägelmarassa valmistettava Felix-ketsuppi on kulkenut heinäkuun 2024 alusta lähtien Suomeen vihreän biopolttoaineen voimin. Kuljetusketju alkaa Pohjoismaiden suurimmasta ketsuppitehtaasta, josta kuljetusyhtiö Scandic Transin rekat suuntaavat kohti Viking Linen terminaalialueen Tukholman Stadsgårdenissa. Rekat ylittävät Saaristomeren ilmastovisaiden Viking Gloryn ja Viking Gracen kyydissä ja vievät Turussa lastinsa Orklan logistiikkakeskukseen.



Biopolttoaineen ansiosta 683 kilometrin pituisen kuljetusketjun hiilidioksidipäästöt vähenevät 90 prosenttia verrattuna fossiilisten polttoaineiden käyttöön. Scandic Trans tankkaa rekkoihinsa vetykäsitellystä kasviöljystä valmistettua biopolttoainetta (HVO eli Hydrotreated Vegetable Oil), ja Viking Line ostaa Gasumilta kuljetuksen kulutuksen verran jätteistä valmistettua biopolttoainetta (LBG eli Liquefied Biogas). Yhtä kuljetusta kohti hiilidioksidipäästöt tippuvat 1 512 kilogrammasta 102 kilogrammaan. Vuodessa päästövähennys on yhteensä noin 190 tonnia.

Yhteistyössä on voimaa – etenkin vastuullisuusteissa!

Clean, fossil free value chains; Industry, Traffic and Maritime



Fulfilment of the customer demand for cleanest possible production and transportation of the bought goods. (Scope 3) ->Green Shipping on Demand

Impact: True green logistics and manufacturing

Ability to differentiate among competitors by offering sustainably transported goods

Customer satisfaction

More information



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An aerial photograph of a multi-lane bridge crossing a wide river. A blue semi-truck is driving on the bridge, and a small boat is visible in the water above it. The sky is blue with scattered white clouds, and their reflection is visible in the calm water. The riverbanks are lined with green trees and vegetation.

Gasum

CLEANER ENERGY