65 years in the Gas Business

We are "GAS PEOPLE"
LPG, LNG, Industrial Gas
Worldwide References

- More than 3,500 plants/larger installations supplied since 1951
- Clients in more than 130 countries
Project Areas - know-how & know-why

**PROJECT SOLUTIONS**
Systems and turnkey

**SERVICE & SPARE PARTS**
After-sales, and facility management

**GAS COMPONENTS**
A one-stop shop for gas equipment
The Kosan Crisplant Group
Around 750 employees plus freelancers/partners worldwide
LNG Bunkering
Methods of LNG Bunkering

Source: ABS, USA
## Advantages & Disadvantages

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Source: SSPA, Sweden
# The 4th Option

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Source: SSPA, Sweden
The "Samsø" Project
The Samsoe Project
Prinsesse Isabella
Tender for the Bunkering facility

- No permanent tank on quay-side
- Maximum bunkering time <15 min
- No permanent staff on shore
- Entire facility has to be moved to Samsoe in less than 5 year
- Green Profil = No Emission
- Turnkey
Source of the LNG

GATE Terminal

Port of Hou
Logistic Supply Chain
Operation
Zero Emission

- As the ferry leaves the remaining liquid in the lines will be vaporized and displaced to the road tanker through the vapour line due to thermal expansion and lower pressure in the road tanker.
- Economizers will lead the gas around the safety valves just a bar below the limited before the valve opens.
- The Global warming from Methane has been estimated to be 25 times greater than CO2.
Bunkering from Multi Trailers
Dual Trailers

2-4 Tank Trailers

Serial or Parallel Connections

Flow rates from 40-240 m3/h
Multi Trailers

4 Tank Trailers
Serial or Parallel Connections
2 Pumps each with 60 m3/h
Flow rates 120 m3/h
Bunkering from Movable Multi Trailers
Movable Multi Trailers (Movable MTTS)

40 - 240 m³/h bunkering flow

Optionally equipped with PBU for fast bunkering

Up to six trailers connected simultaneously
Movable Multi Trailers (Movable MTTS)
Bunkering with Intermediate storage tanks
Intermediate tank on quay

2 x 300 m³ tanks

Pump unit

2 x 65 m³/h pumps

Flow rates from 40-130 m³/h

One truck loading point
Bunkering with Intermediate storage tanks + Multi trailers
Stationary storage tank with Multi Trailer

40 - 320 m³/h bunkering flow

5-450 m³ per bunker operation

Optionally equipped with PBU for fast bunkering

Ideal to achieve high flow and maximum flexibility

Possible to increase capacity and flow rate in phases
LNG Bunkering Solutions Overview
Advantages

► Less fixed assets

► Bunker fast and safe – 200-250 m3/hour

► High volumes of LNG

► No methane emission

► Very low operational costs – no fixed staff