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State of Technology Applied to Natural Gas

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Fostering energy markets, empowering **consumers**.

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Conventional LNG Projects

Gate Terminal - The Netherlands

LNG Projects

- ✓PROVEN TECHNOLOGIES
- ✓CONSERVATIVE INDUSTRY
- ✓LARGE SCALE PROJECTS
- ✓CAPITAL INTENSIVE
- ✓LONG LEAD TIMES
- ✓SAFETY IS ESSENTIAL

TECHNOLOGY REMAINS MOSTLY UNCHANGED

Dunkirk Terminal - France

Sagunto Terminal - Spain

BBG Terminal - Spain

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Where do we see Innovation?

→Virtual Gas Pipelines

→Floating Storage and Regas

→Small Scale

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Virtual Gas Pipeline

Liquefy Gas

- Liquefaction Capacity: 210 tons/day
- Storage Capacity: 3,000 m3

Load it into LNG Trucks

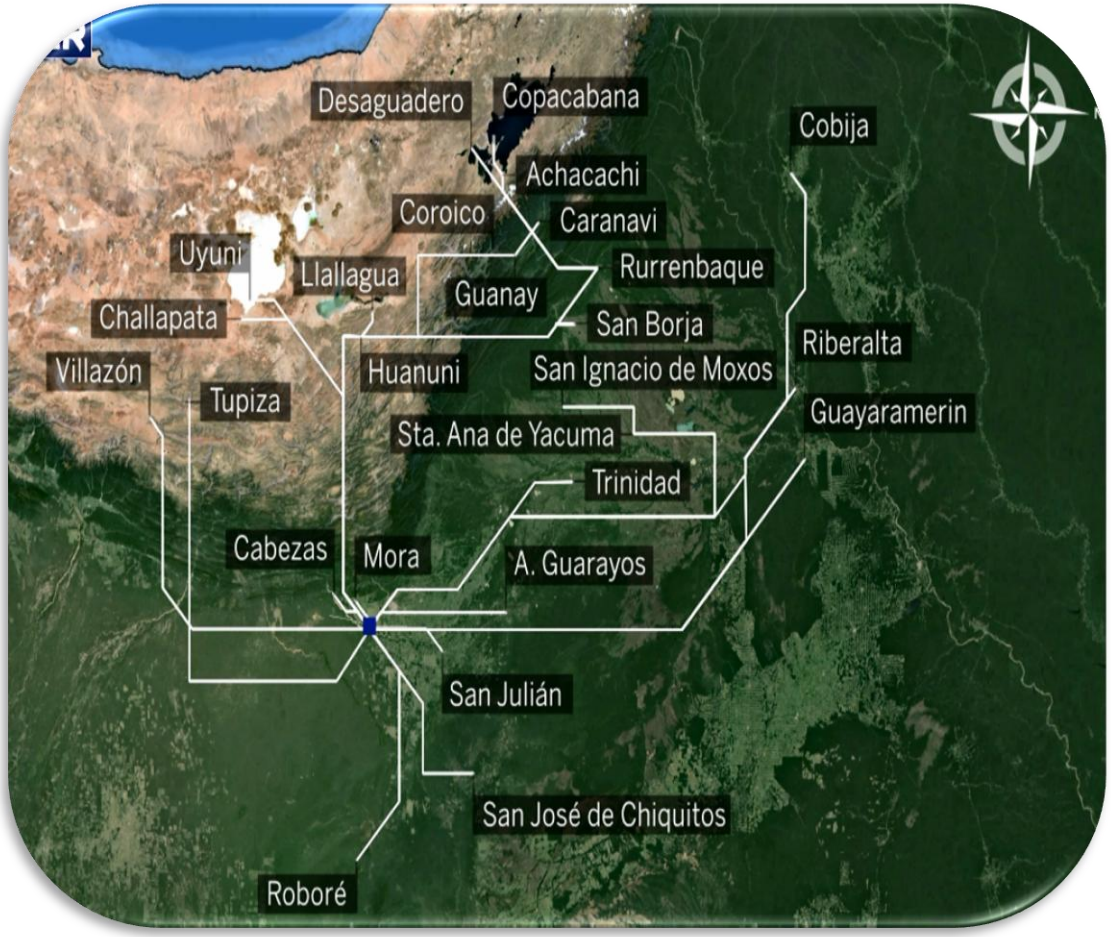
- Operating pressure: 7 barg
- Capacity: 52 m3
- 32 LNG Trucks

Transport it to Remote Locations

- Using existing road infrastructure

Regasify in Satelite Plants

- 33 Satellite Regasification Stations
- Residential, Industrial and Transport consumers



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Conventional FSRU

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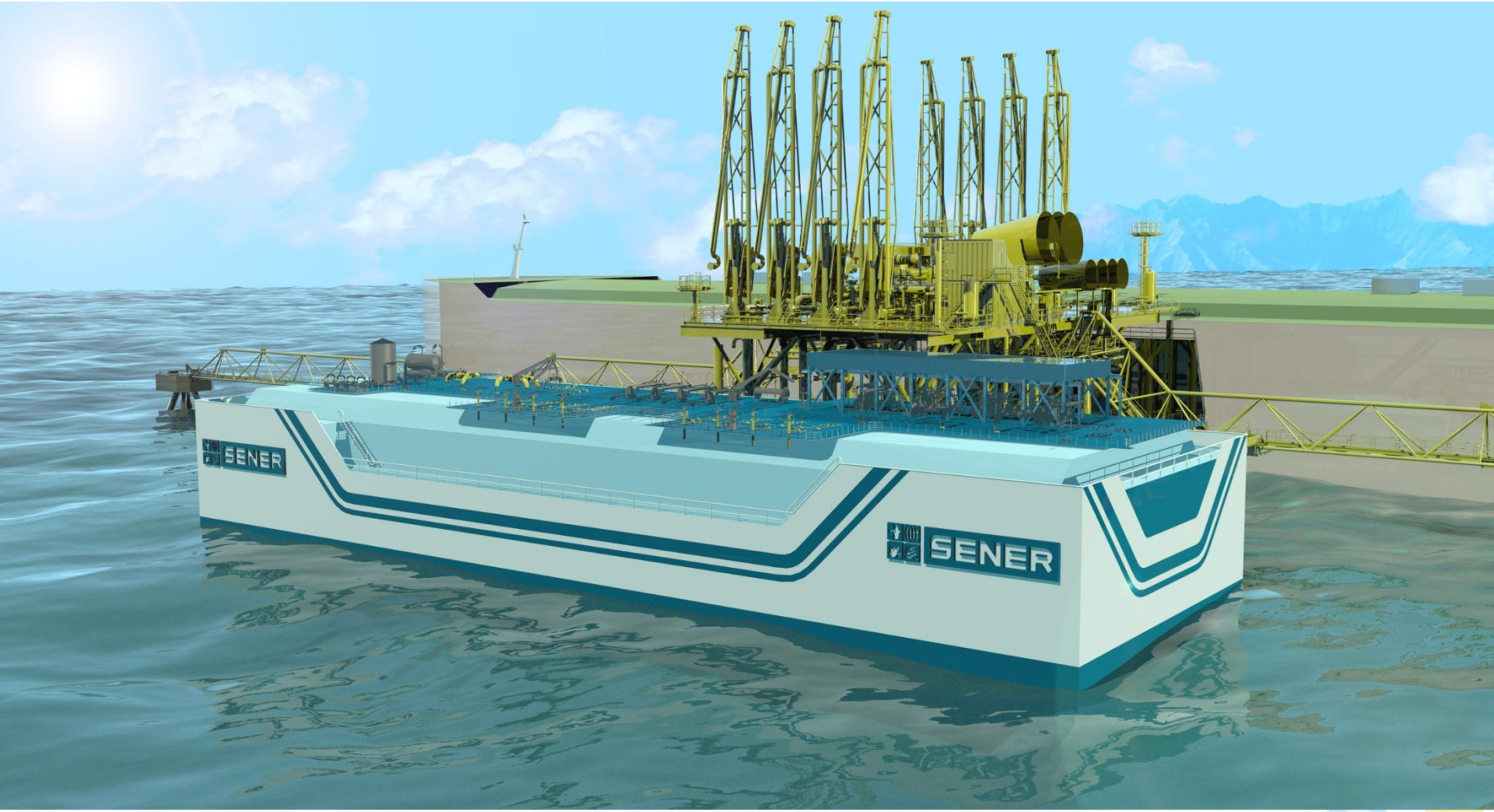
Small Scale FSRU



Small Scale FSRU: Business Case

BUSINESS CASE

Location:

- Remote island or coastal city

Scenario:

- Power consumption of 100 MW
- Currently using costly Diesel / Heavy Fuel Oil
- Cost of Diesel: 25.7 USD/MBTU

➔ 197 MUSD/year in fuel.

Alternative:

- Supply this location with LNG. Store and Regasify on site by means of a small scale FSRU.
- Cost of LNG in Spain: 10.5 USD/MBTU
- Cost of transport in LNG Carrier: 3.8 USD/MBTU
- Cost of O&M for the FSRU: 1.5 USD/MBTU

➔ Total: 15.8 USD/MBTU

➔Yearly savings in Fuel: 85

Caribbean

South East Asia

Thank you for your attention!

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