

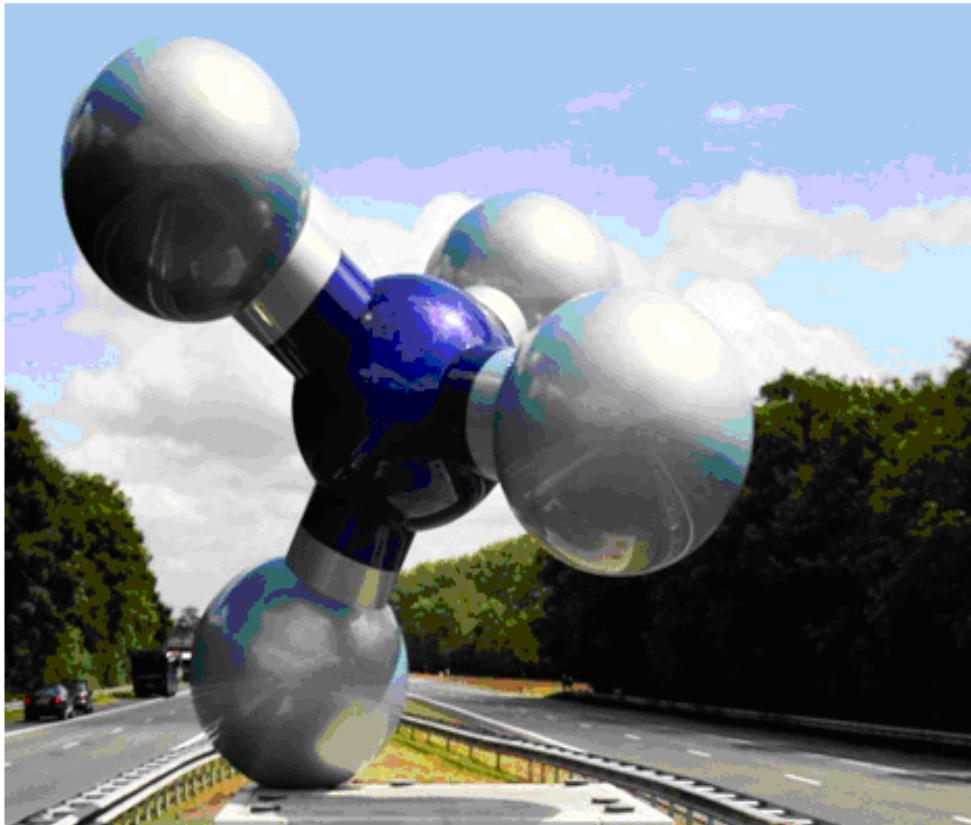
WELCOME



—  
**Dirk van Slooten**  
**Managing Director Vopak LNG**

*Analyst Meeting 3 July 2009*

# Vopak LNG



## The LNG Chain

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Market fundamentals

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Global trading patterns

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Vopak LNG Strategy

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Gate terminal

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Other Projects

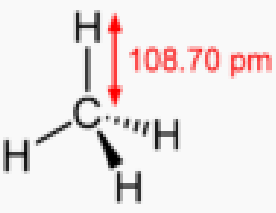
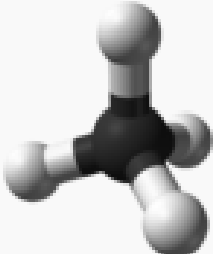
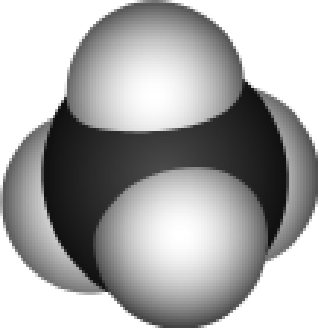
# The LNG industry has a relatively “young history”



The Methane Pioneer, a Converted Bulk Carrier, Transported the World's First LNG Ship Cargo from Lake Charles, USA to Canvey Island, UK in 1964



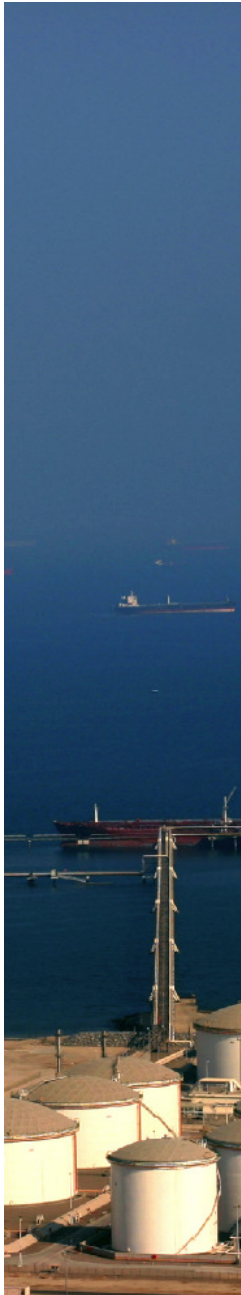
# What is LNG?

Methane	
	
	
Other names	Methyl hydride, Marsh gas, firedamp

## LNG = Liquefied Natural Gas

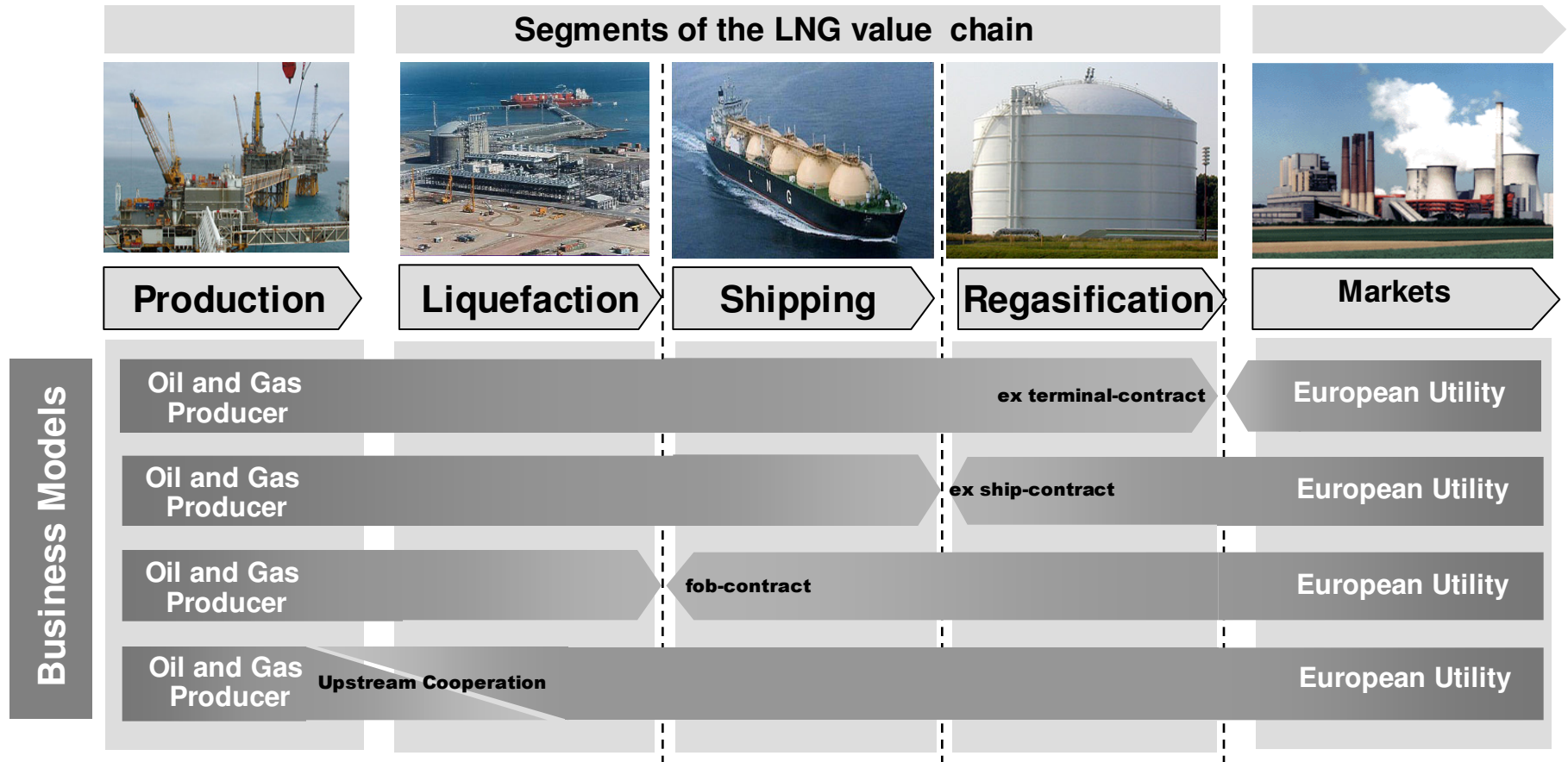
- Cleanest fossil fuel
- Colourless
- No Smell
- - 162 °C
- Liquid (boiling)
- 600 x volume reduction

 **Efficient Energy  
Transport**



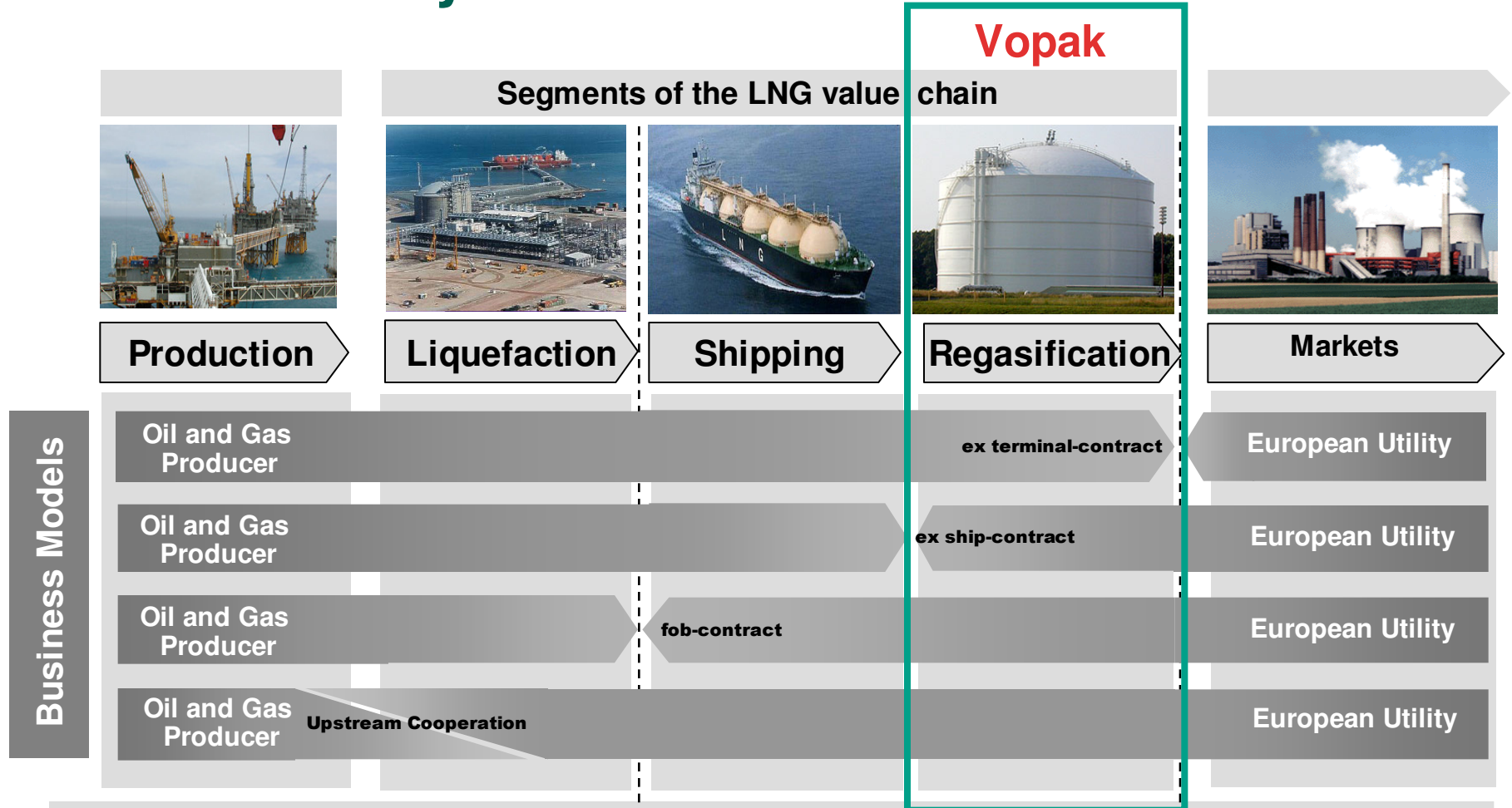


# LNG Delivery Chain: Different Business models



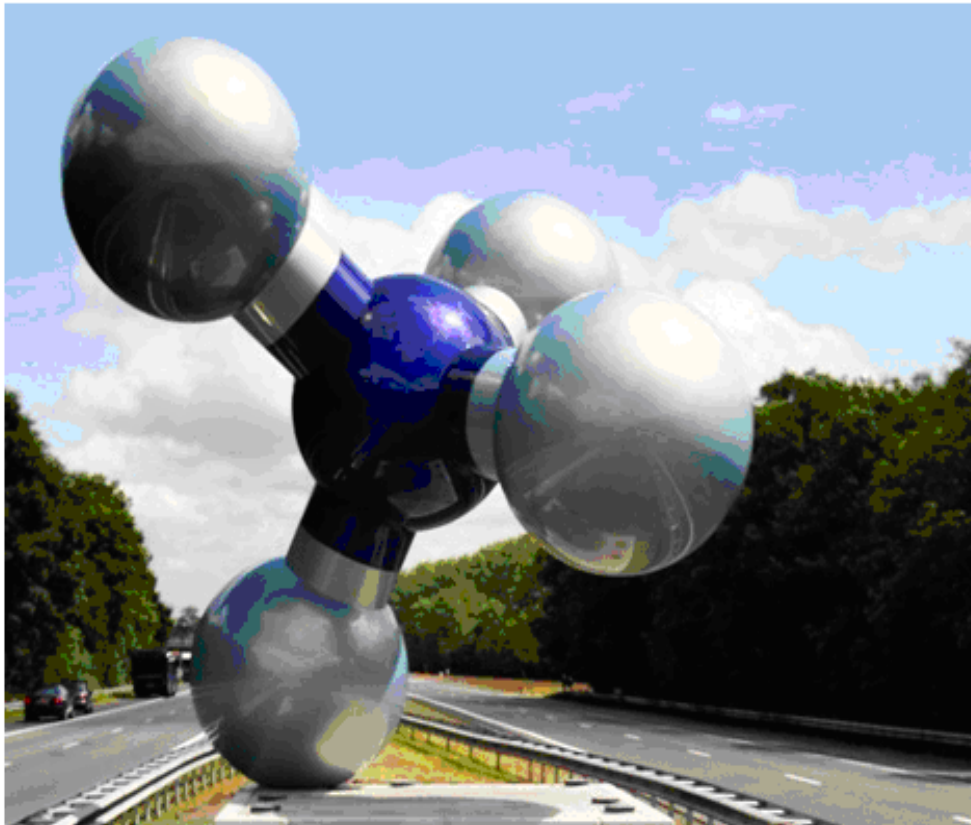
→ Business Models show significant differences in the scope of cooperation between producer and utility

# LNG Delivery Chain: Different Business models



→ Business Models show significant differences in the scope of cooperation between producer and utility

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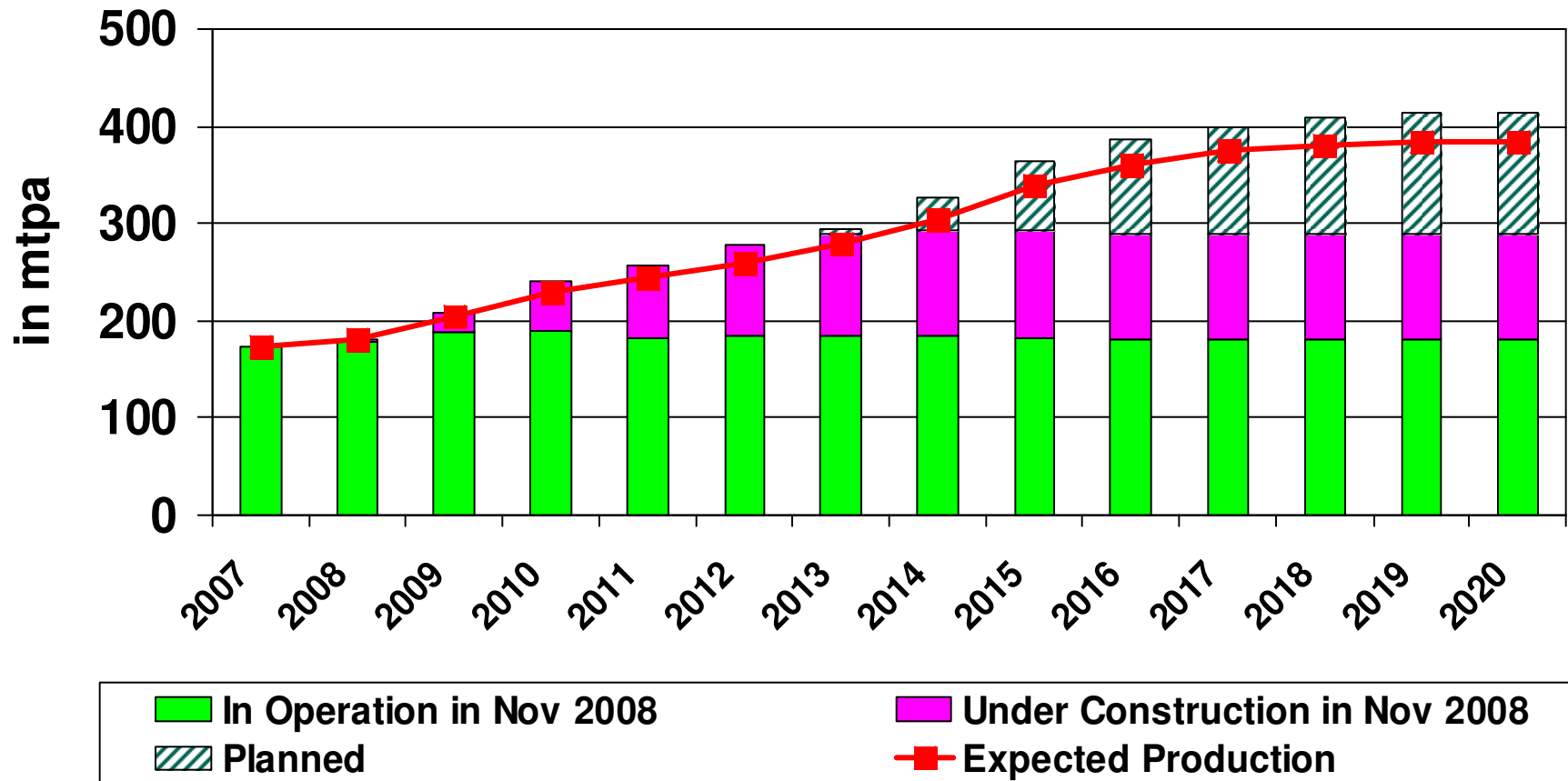
Gate terminal

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Other Projects

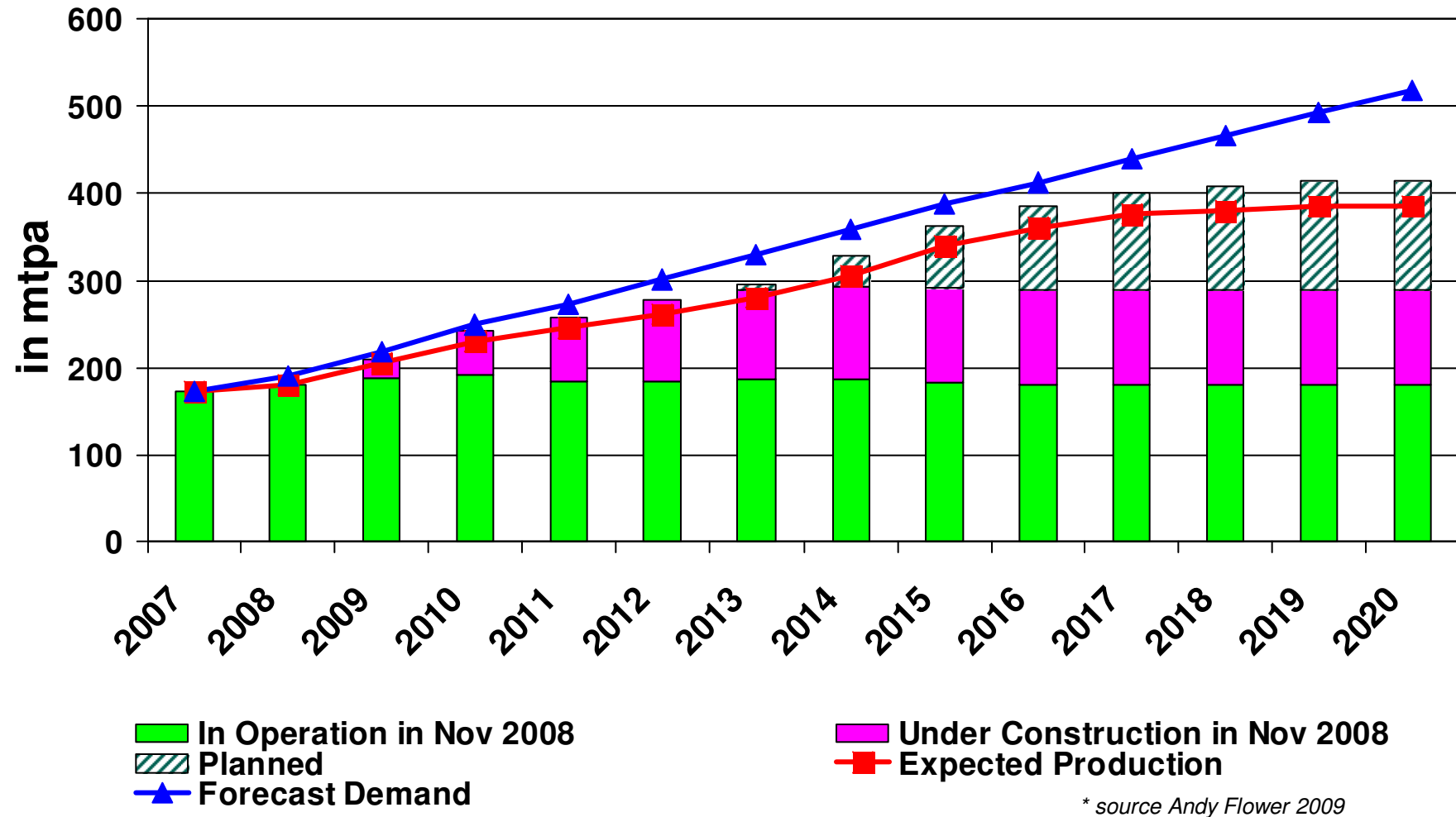
# The industry is growing rapidly

## 2013: 300 MTPA LNG production



\* source Andy Flower 2009

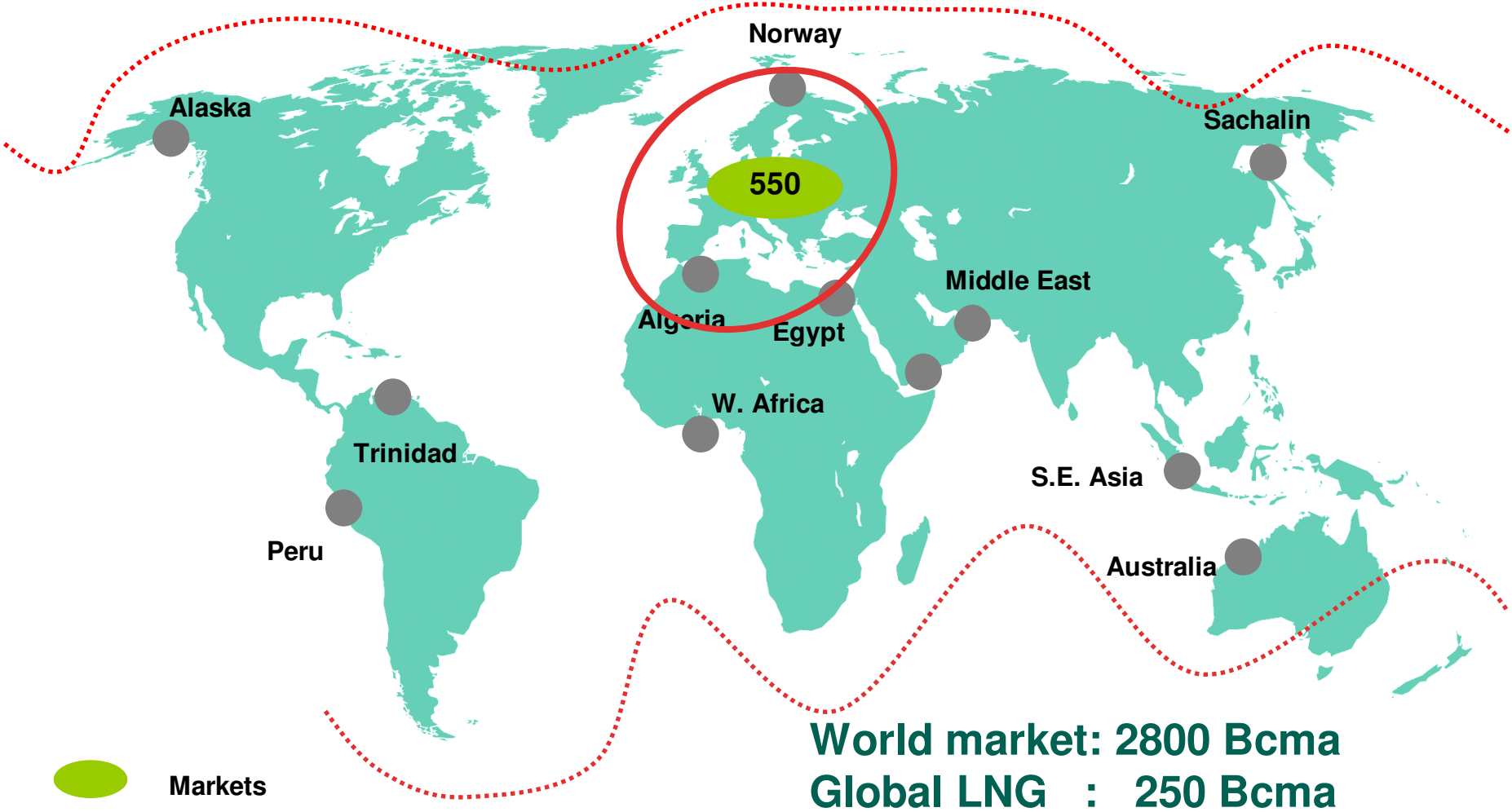
# Demand growing rapidly as well, demand/supply gap in the medium term



\* source Andy Flower 2009



# European market (excl. Russia) 550 Bcma



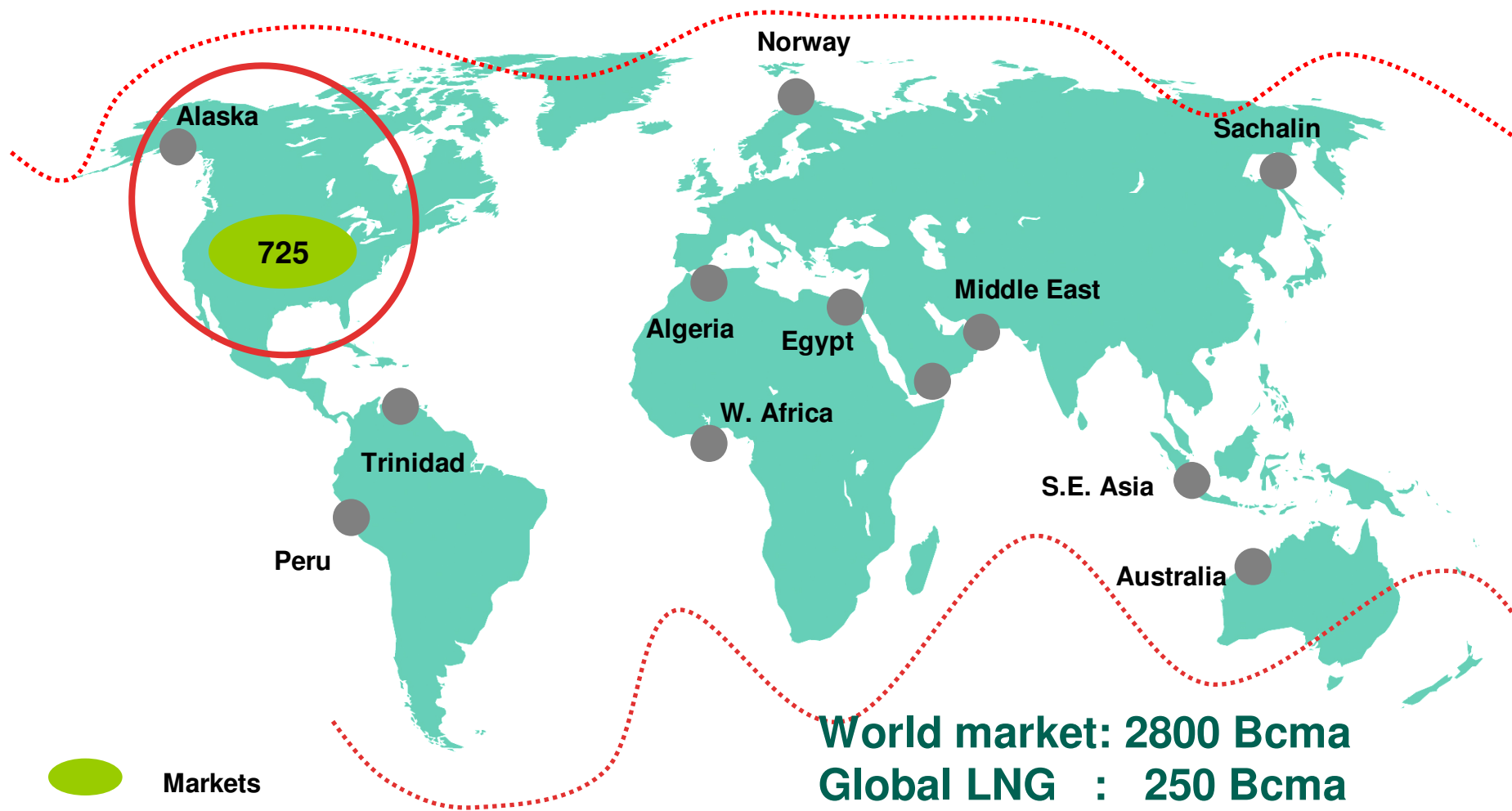


# The European market: Towards an integrated, deep & liquid market

- **Markets are opening-up due to EU- legislation and ownership unbundling (2nd and 3rd gas directive);**
- **Indigenous supply is running out and a demand-supply gap is opening up (UK, Netherlands);**
- **Increased dependence on countries outside EU for security of supply.**

# North America market 725 Bcma

(Shale gas: 70 - 150 Bcma)



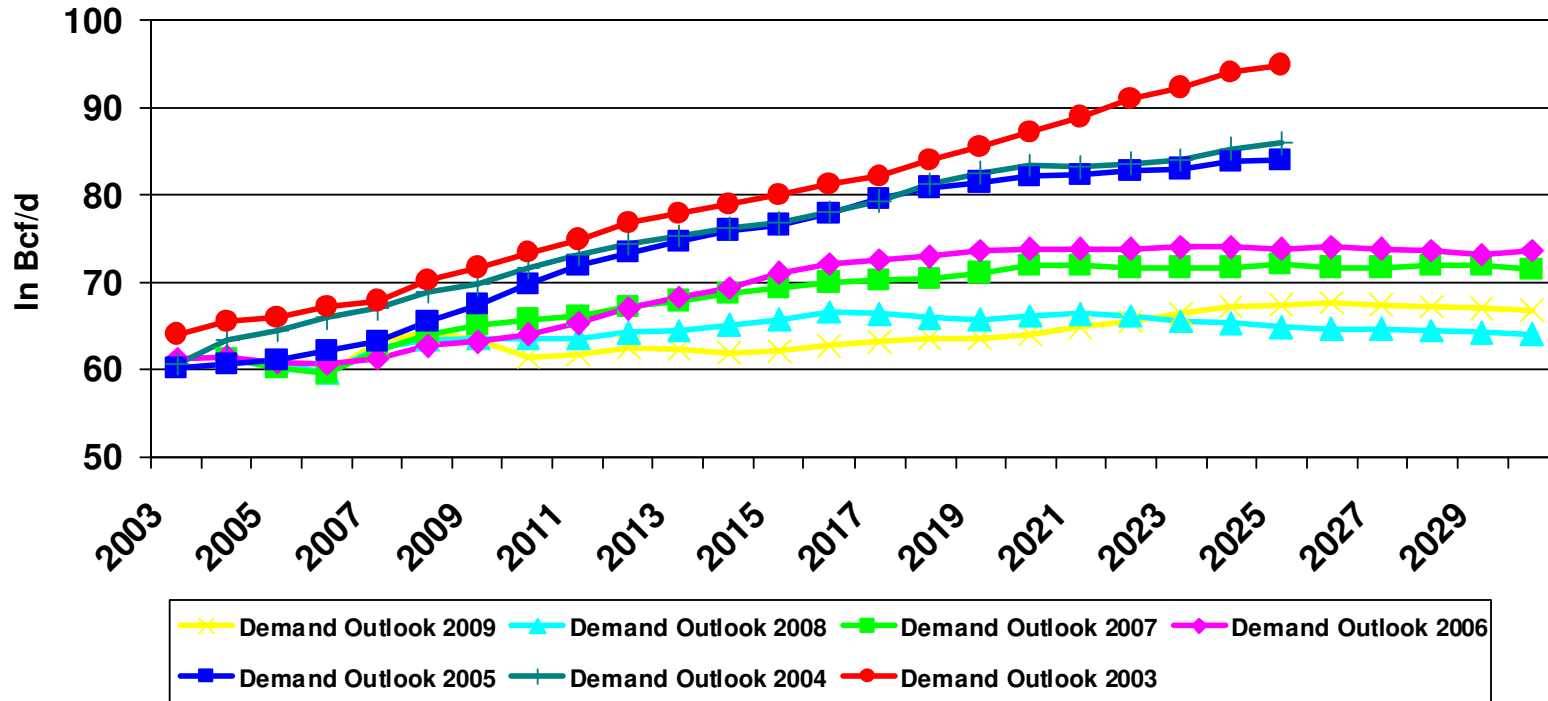
World market: 2800 Bcma

Global LNG : 250 Bcma



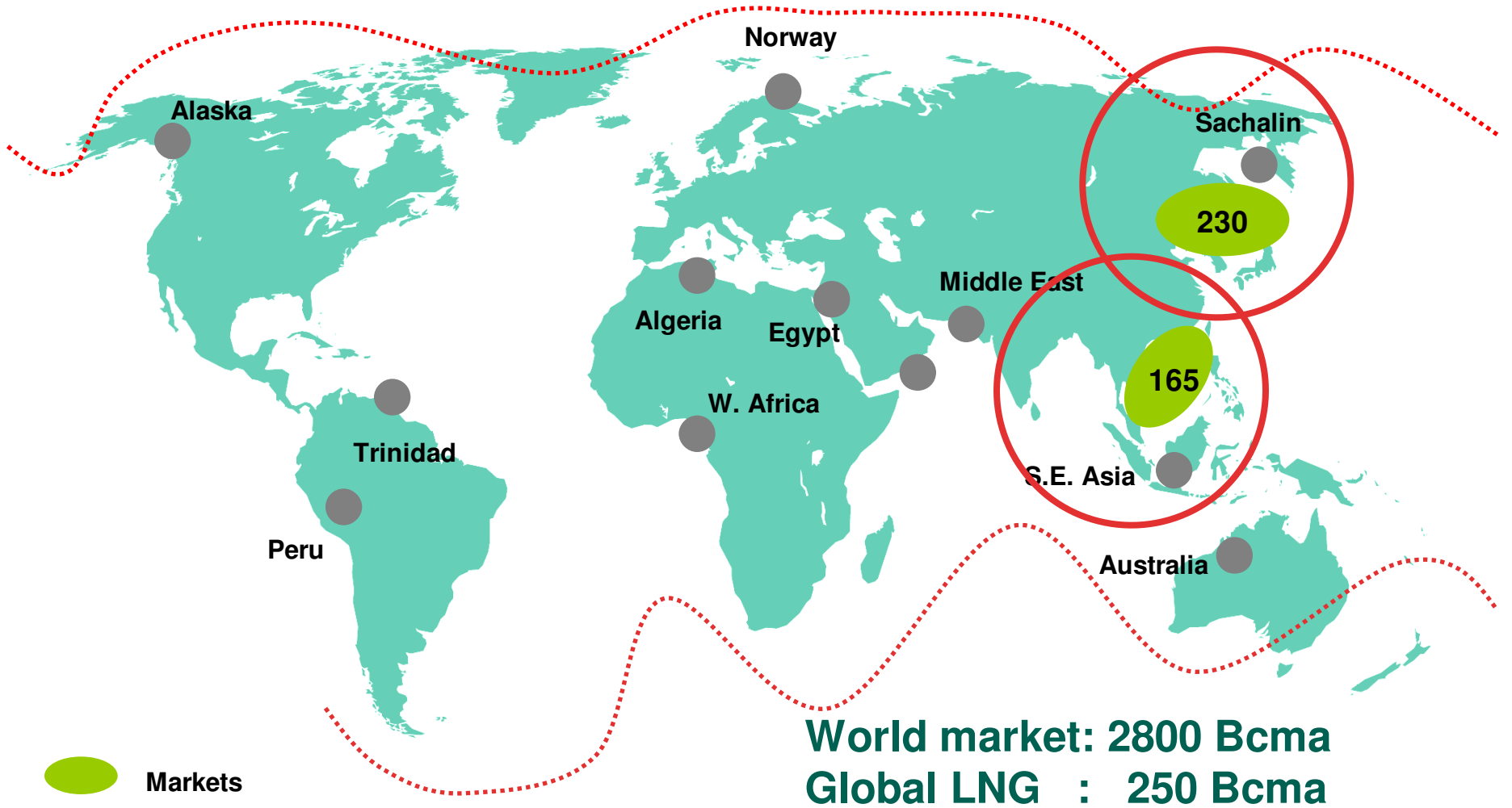
# North-American market: Demand for future LNG growth limited due to large shale gas finds + impact of recession

EIA Energy outlook 2003 – 2009:  
US Natural Gas Demand 2003 - 2030



\* source Andy Flower 2009

# North Asia + Asean market: 230 Bcma + 165 Bcma



**World market: 2800 Bcma**  
**Global LNG : 250 Bcma**





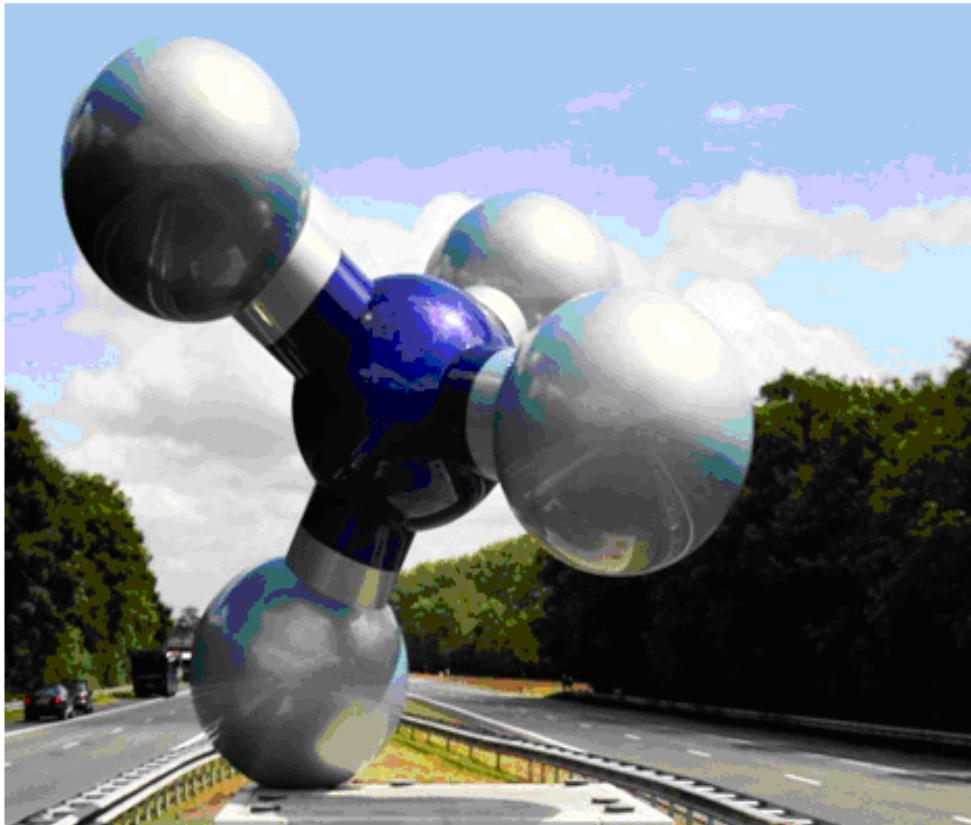


## Asian markets:

### Traditional + very much closed-shop

- The traditional LNG markets, Japan, Korea and Taiwan, dominate this market
- Chinese do not allow foreign access and ownership in LNG terminals;
- Many countries in ASEAN Region provide opportunities due to:
  - decrease of indigenous supplies;
  - close-by LNG liquefaction plants
  - liberal tendency to open up markets

# Vopak LNG



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**Global trading patterns**

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Vopak LNG Strategy

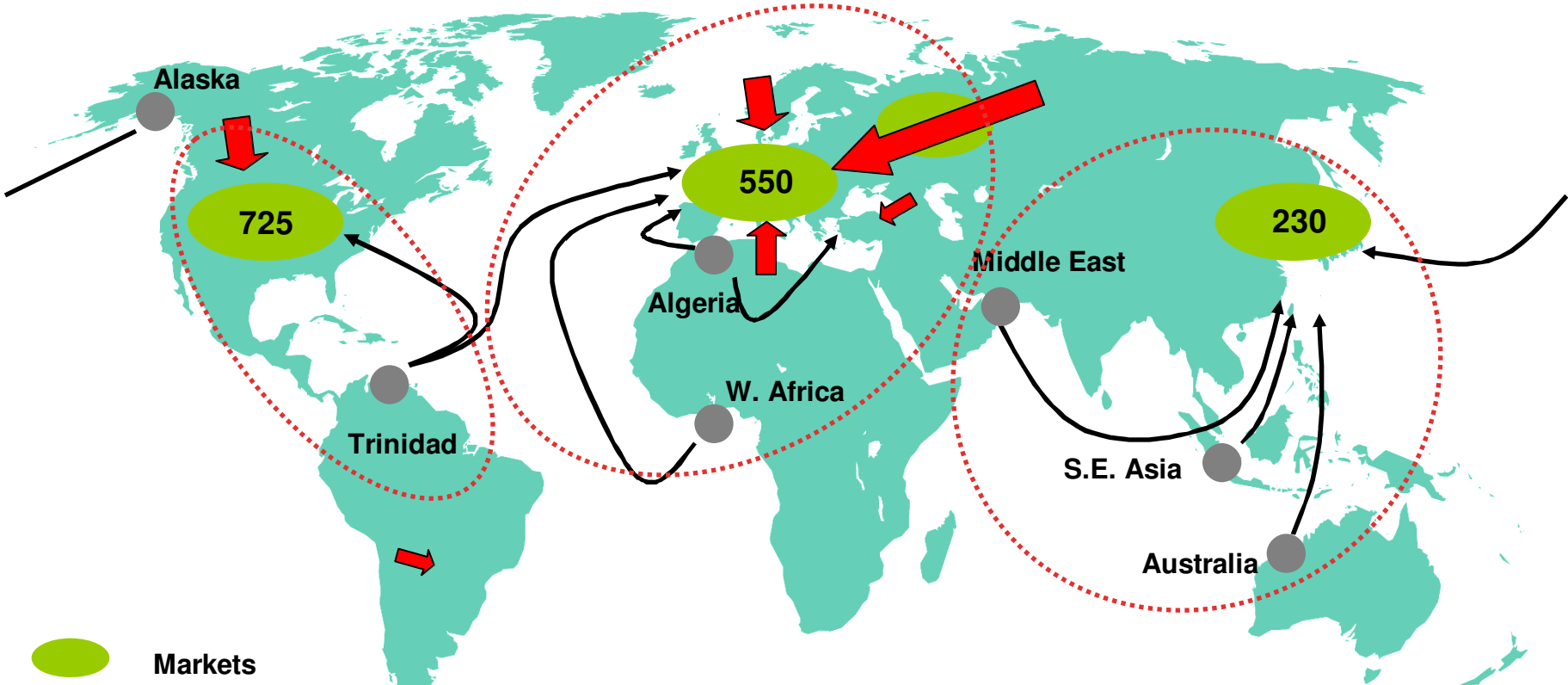
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Gate terminal

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Other Projects

# Fundamental changes in the industry; Before 2005: a very transparent trade pattern\*



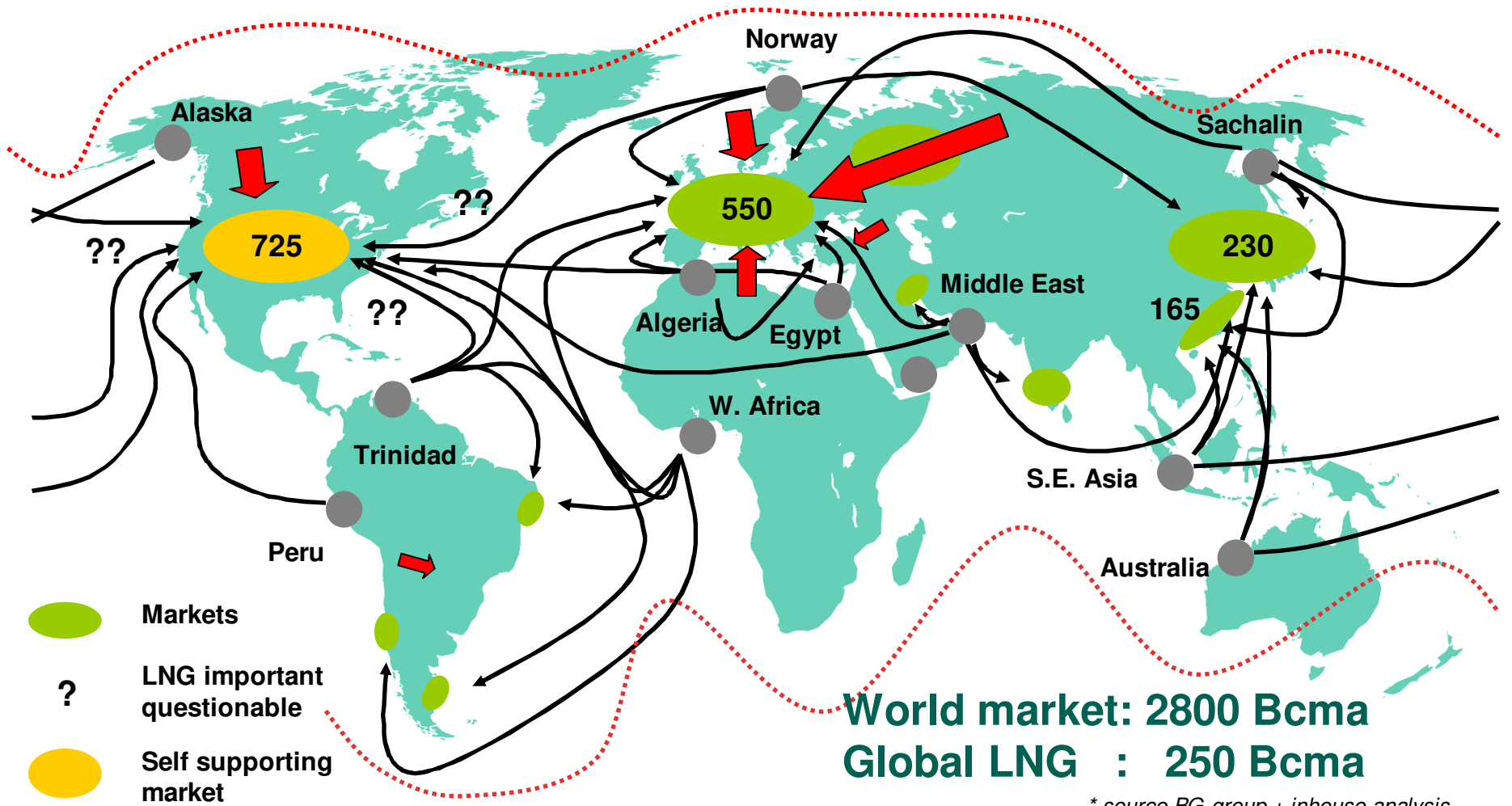
- Markets
- LNG
- Piped gas

**World market: 1800 Bcma**  
**Global LNG : 150 Bcma**

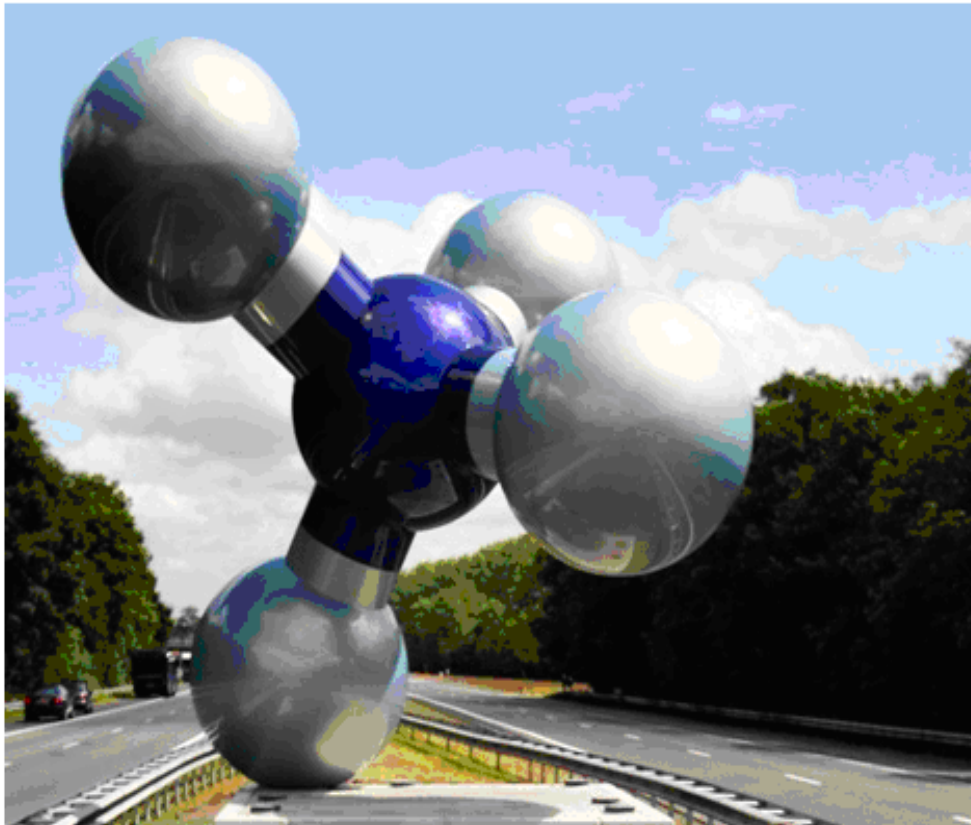
*\* source BG-group + inhouse analysis*



# Fundamental changes in the industry; After 2010: a globalised gas industry\*



# Vopak LNG



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**Vopak LNG Strategy**

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Gate terminal

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Other Projects



# Vopak LNG strategy

## Market

- Demand / Supply gap
- Access to grid for customers
- Able to pay world market LNG prices

## Suitable Location

## Business model

- Independent Operator
- Open Access business model
- Multi customers

## Partner(s)

- Value adding to project
- Local political clout





# Vopak LNG criteria (1)

## Market willing to accept LNG imports

- Gas shortage
- Governmental strategic view (security of supply)
- Energy companies looking for alternative supply
- Regulatory environment

## Suitable Location

- Port environment
- Gasgrid connection
- Permits and Licensees obtainable (Nimby)
- Safe

# Vopak LNG criteria (2)

## Economic Drivers

- Profitable IRR & sufficient cashflow
- Shareholders return
- Bankability

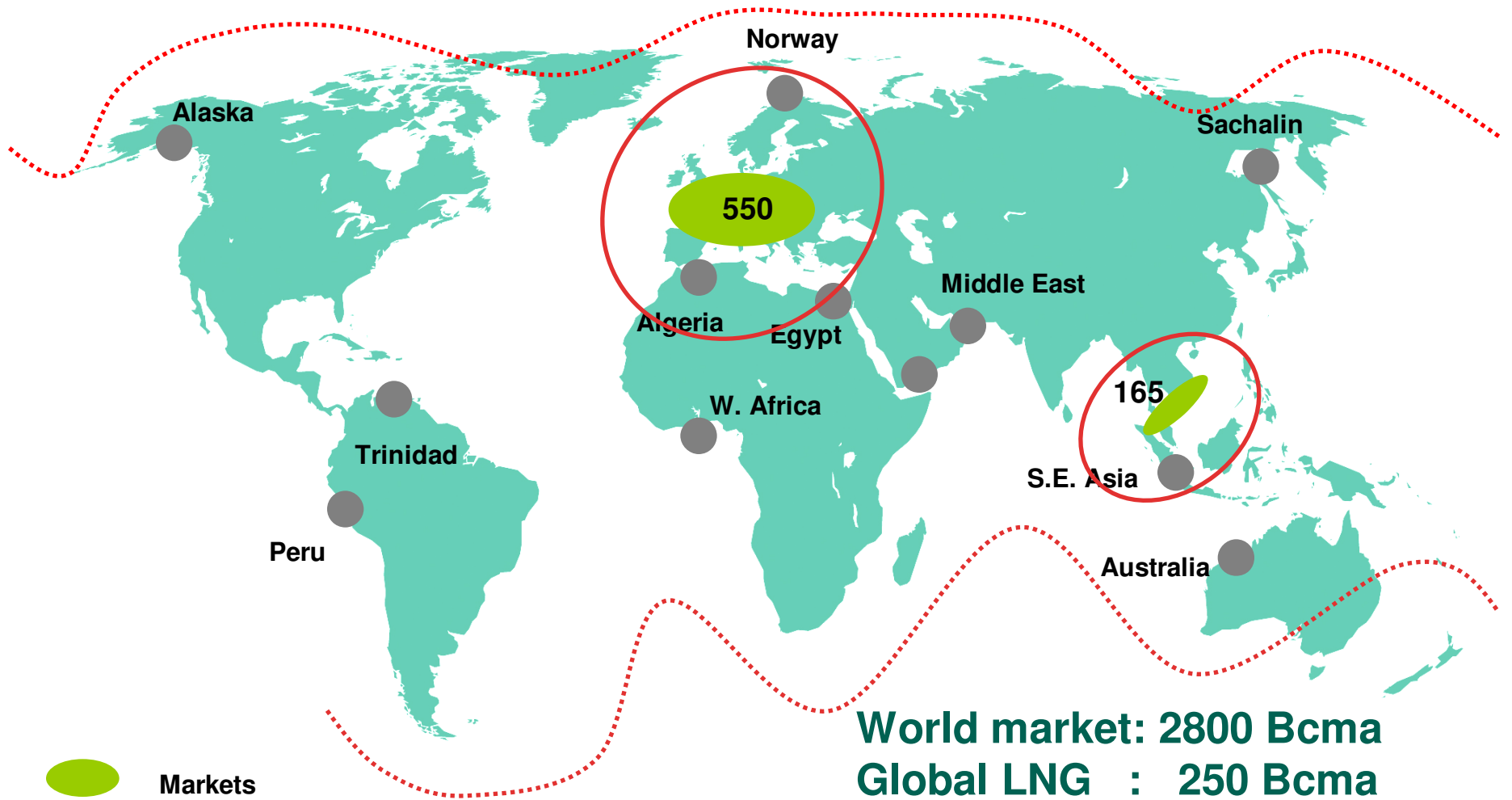
## Credibility of Sponsor

- Partner(ship)
- Quality of staff
- International track record
- Time and money for the development
- Competitors analysis

## Reliable cost estimates



# Our Focus: Europe *plus* Asean markets





# European market areas of interest

-  **North-West Europe**  
Gate terminal (under construction)
-  **Baltic**  
Rostock (feasibility)
-  **South Europe**  
Under investigation
-  **South-East Europe /  
Mediterranean**  
Under investigation





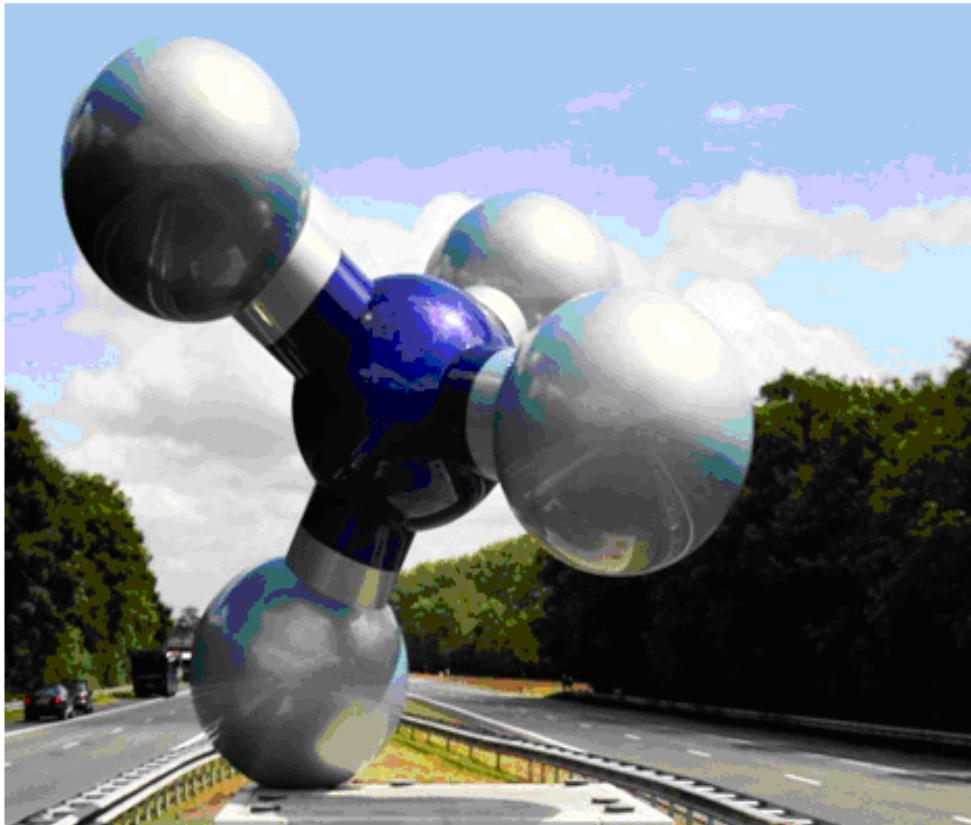


# Key elements for success

## Strict & Structured Project approach:

- **Business case**
- **Project Phases**
- **Stakeholders**
- **Project Team**
- **Risks**
- **Communication**

# Vopak LNG



The LNG Chain

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Vopak LNG Strategy

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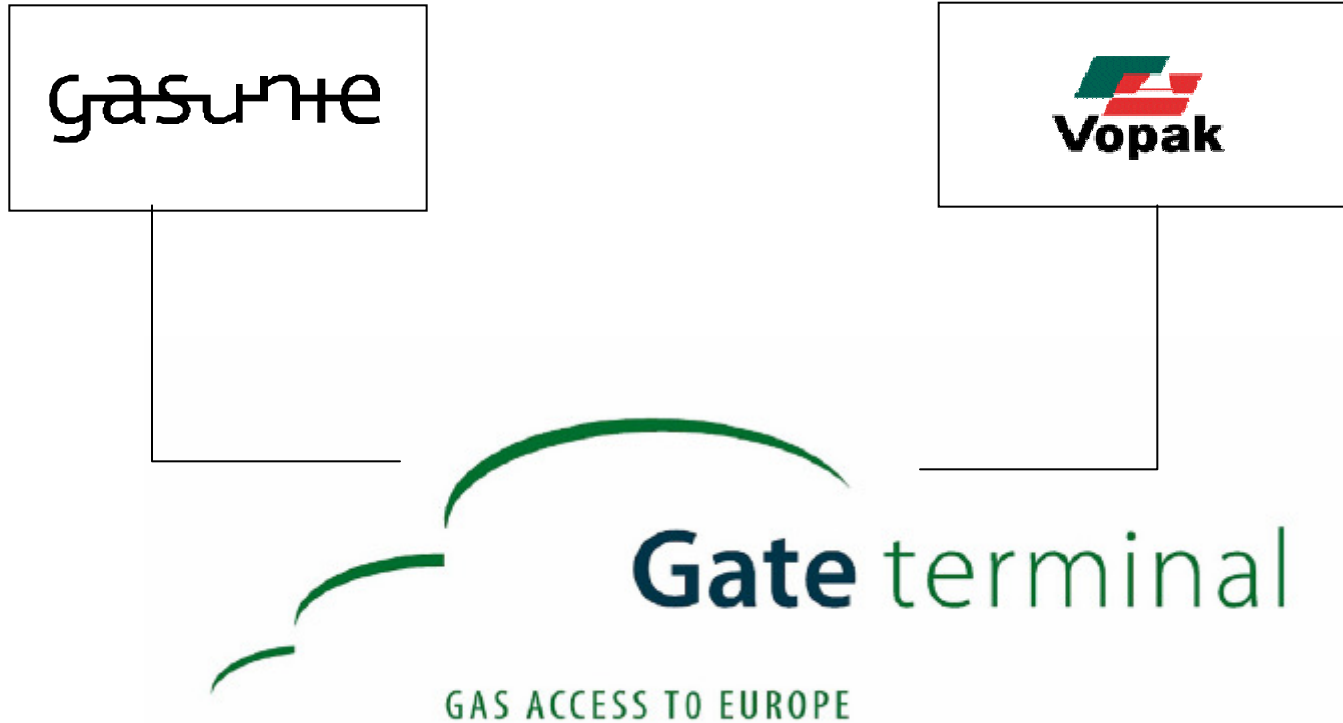
**Gate terminal**

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Other Projects



# The Gate terminal

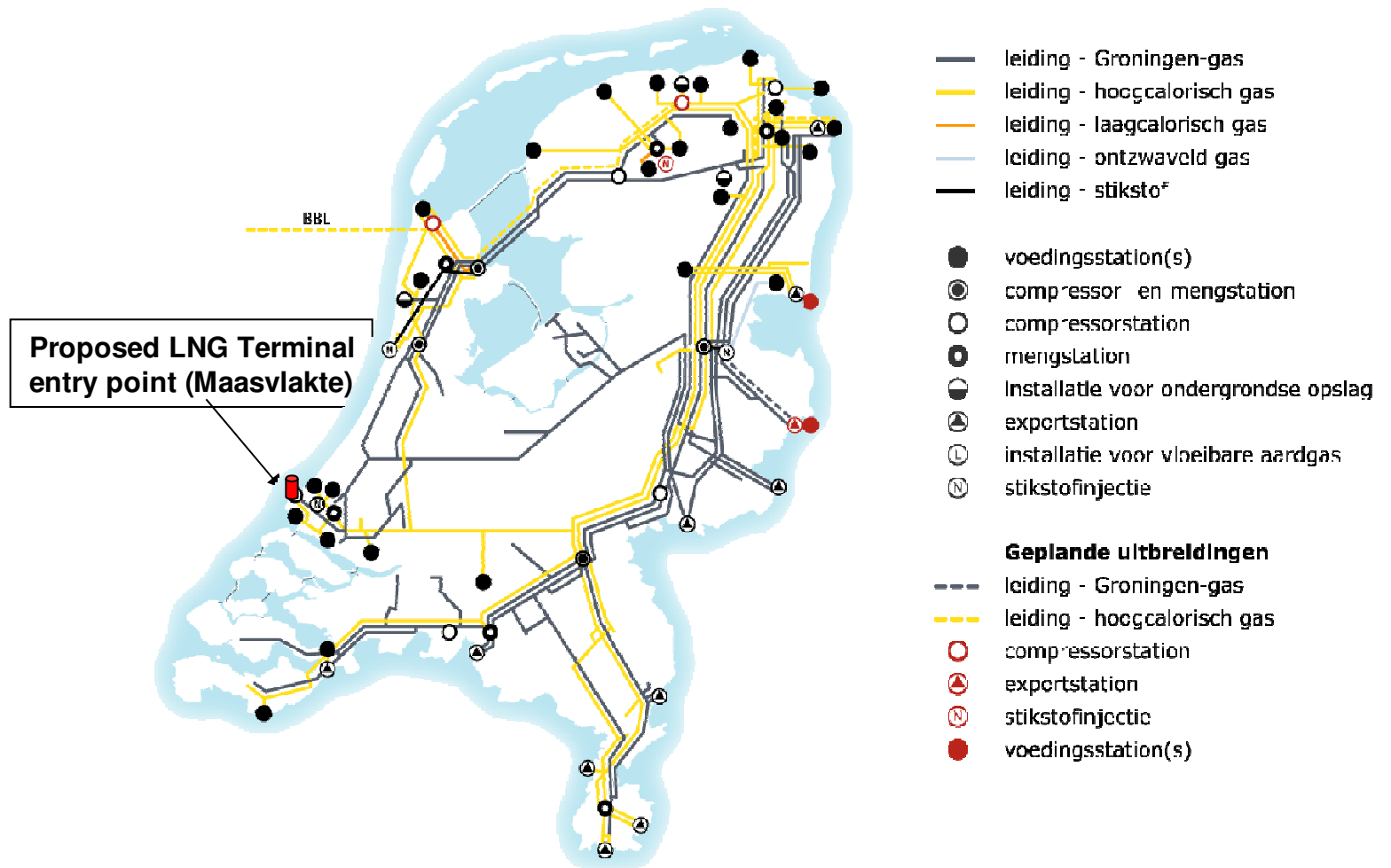
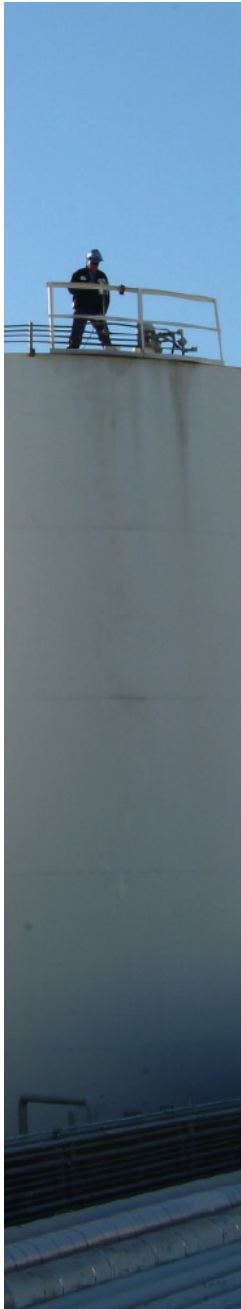




## Gate: Initial and second phase

- Capacity 12 BCM
- 2 jetties, unloading rate 12.500 m<sup>3</sup>/hr
- Vessel capacity up to approx. 265,000 m<sup>3</sup>
- 3 LNG tanks of 180,000 m<sup>3</sup> each
- Send-out approx. 1.7 mln m<sup>3</sup>(n)/hr

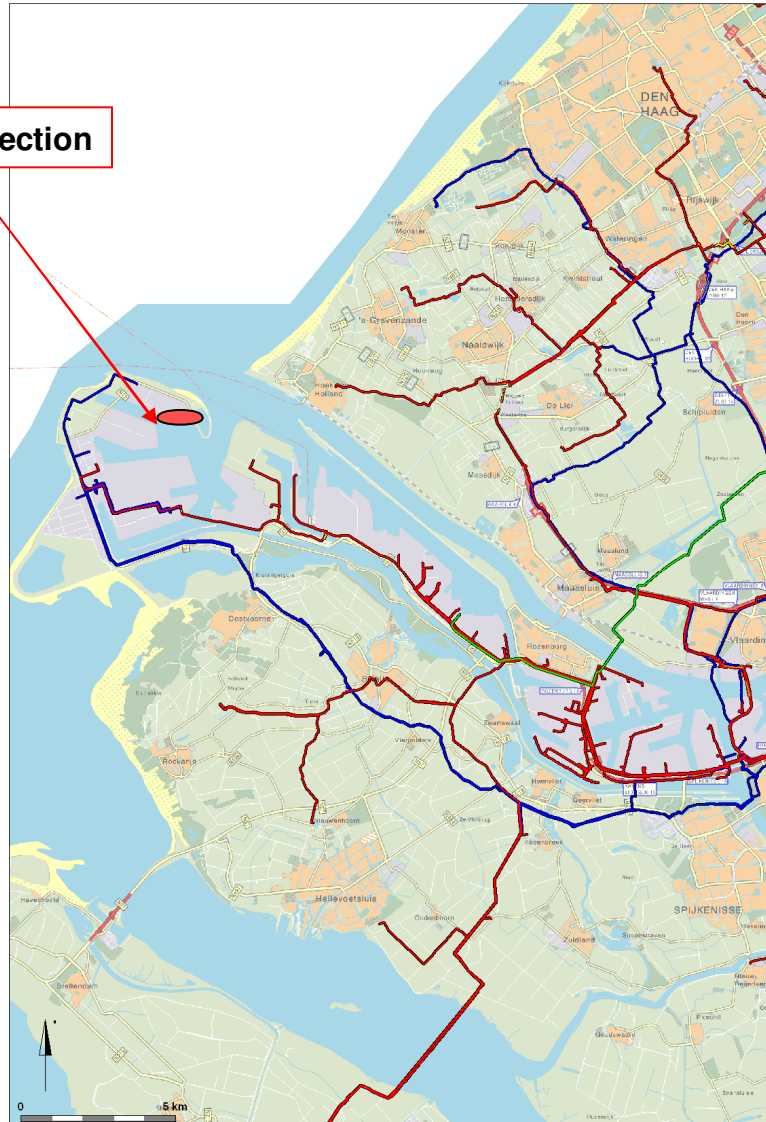
# National Grid in Holland






# GTS – Gas grid in Rotterdam



LNG terminal connection

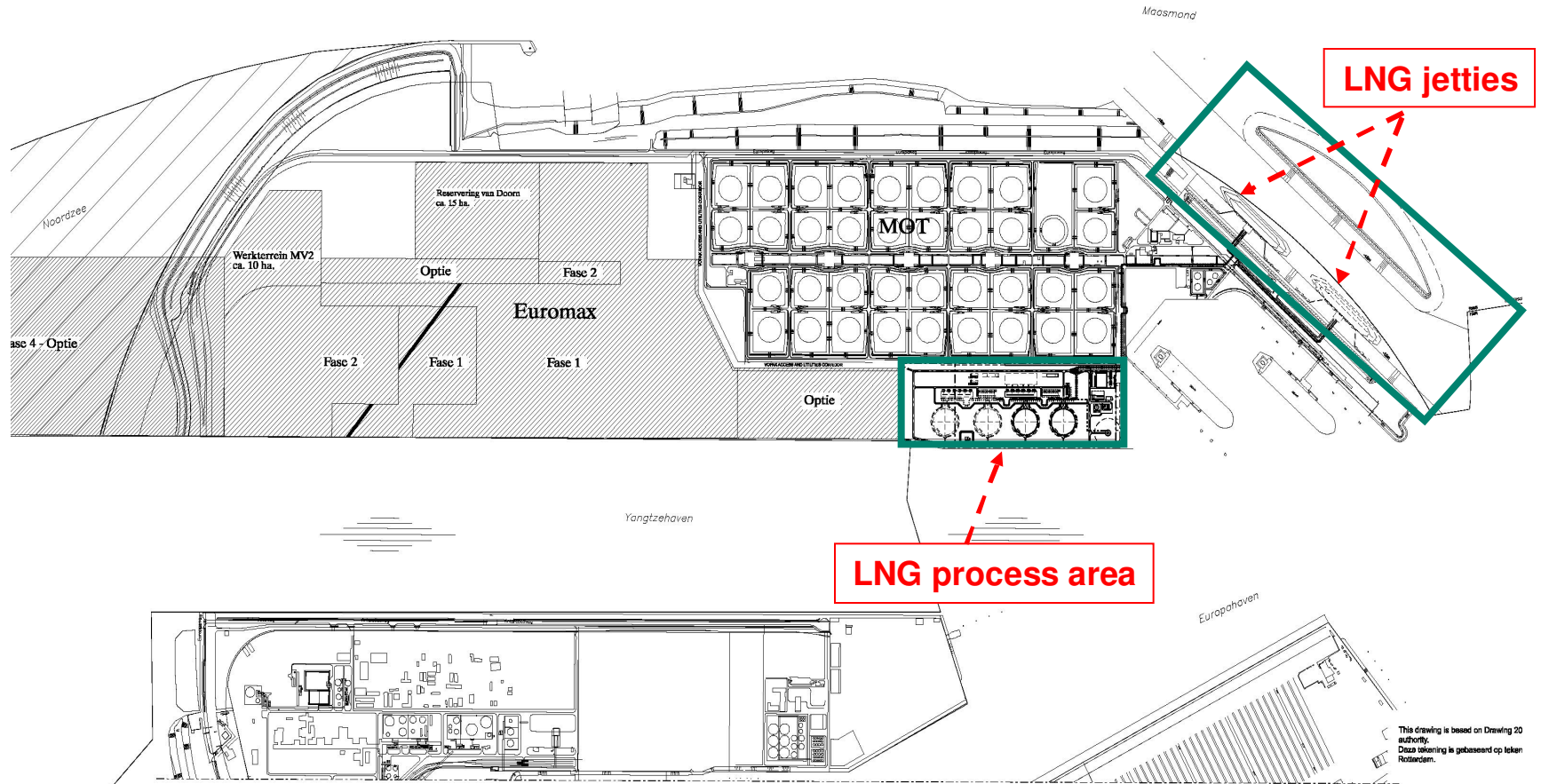


Legend:

-  **HTL grid**  
(high pressure transport)
-  **RTL grid**  
(medium pressure regional transport)
-  **Customer line**  
(low pressure)



# Gate terminal next to MOT at Maasvlakte



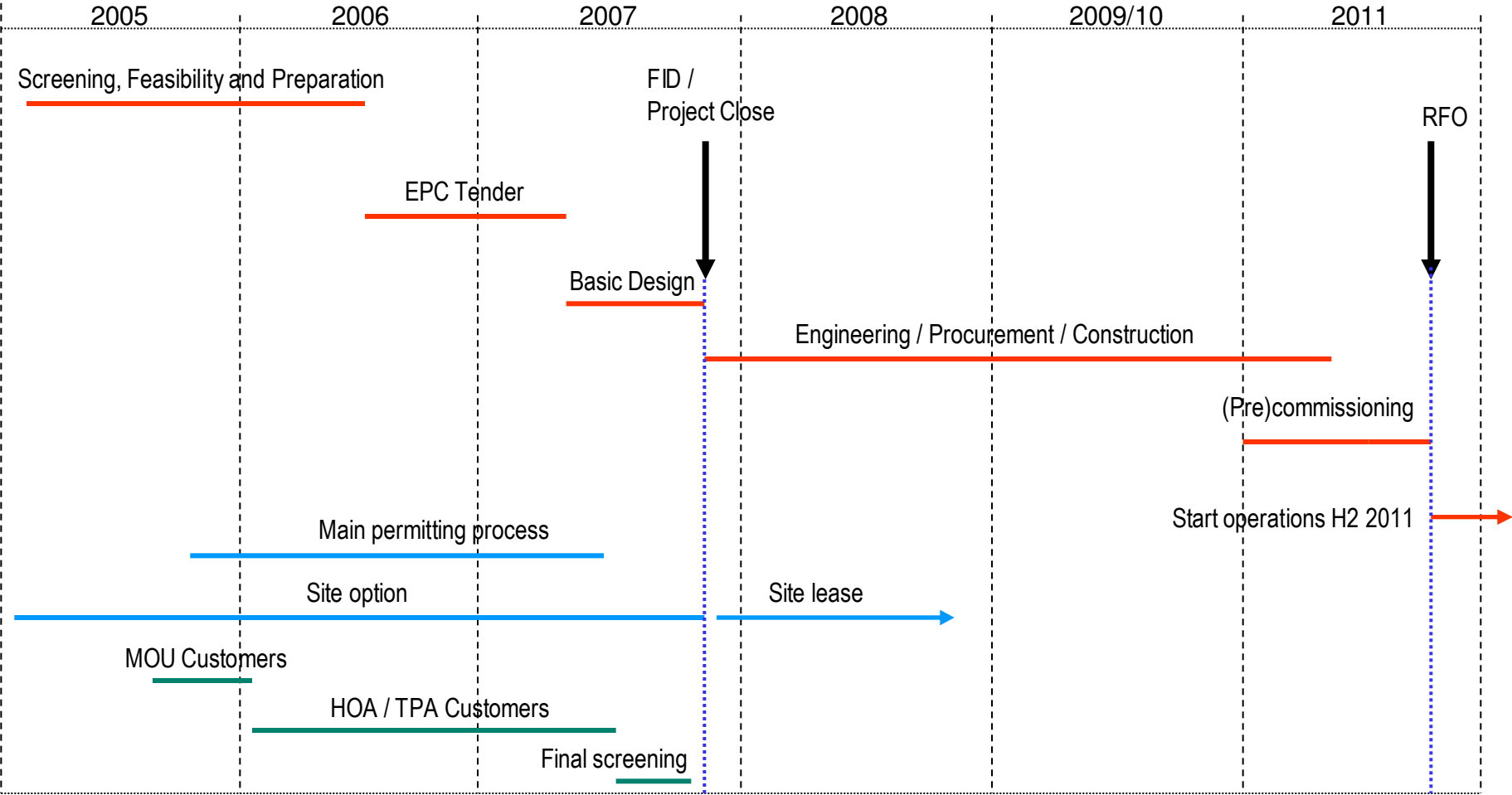


# Gate terminal: the location



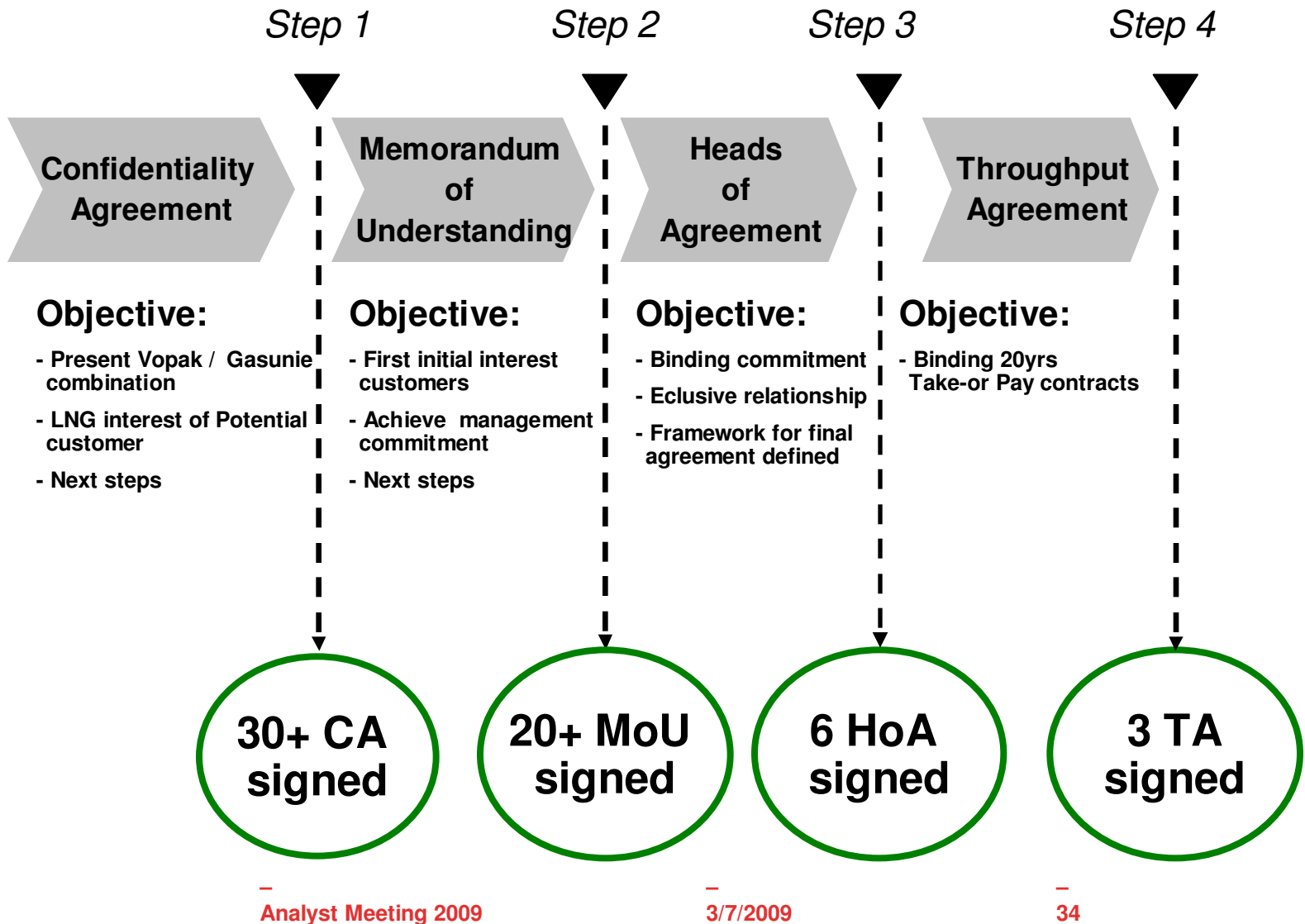
© Port of Rotterdam

# Gate terminal – Overall timing





# Customer contract process





## Multiple-customers using Gate terminal

**DONG Energy, Denmark**  
3bcm    5% equity stake

**DONG**  
energy

**EconGas, Austria**  
3bcm

**ECONGAS**

**OMV Gas International**  
5% equity stake

**OMV**

**Essent, the Netherlands**  
3bcm    5% equity stake

**-essent**

**EON Ruhrgas, Germany**  
3bcm    5% equity stake

**e-on** | Ruhrgas





## Site Development: February 2008 Gate terminal site with pre-load



## Site development: Gate terminal work in progress





## Site development LNG-tank construction





# Tank March 2009





# Tank March 2009





# Construction April 2009





# Construction April 2009





# Tanks May 2009





# Tank 1- Airlift Roof, June 2009



# Tank 1- Airlift Roof, June 2009

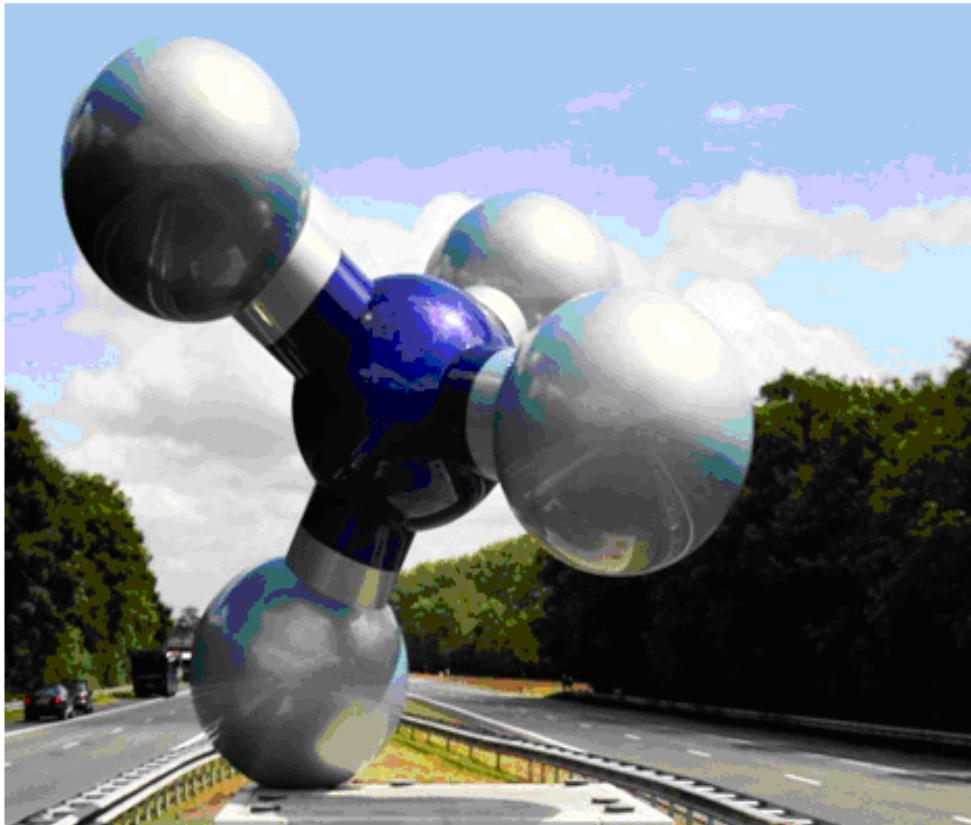




# View from Hoek van Holland



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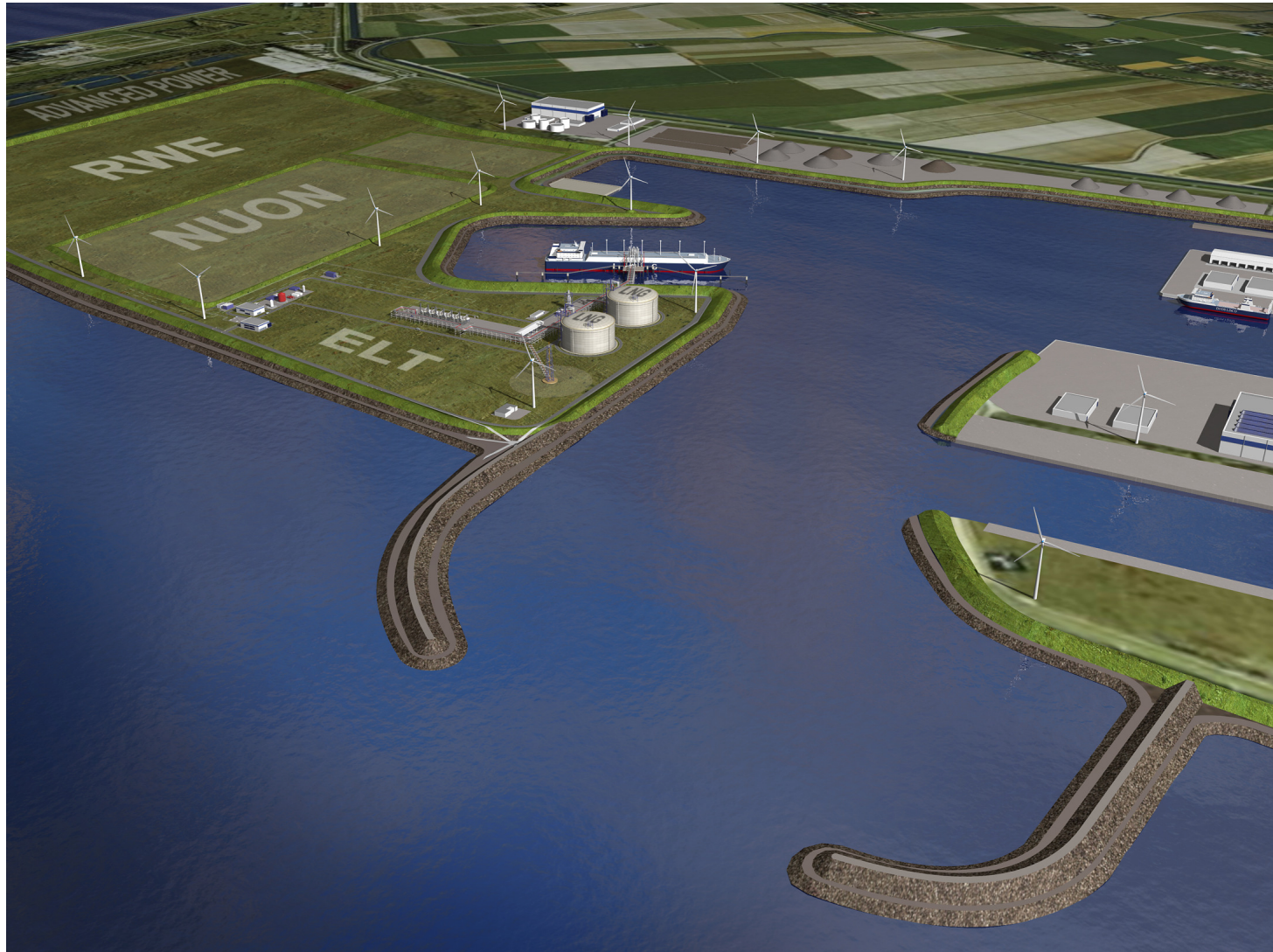
Gate terminal

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Other Projects



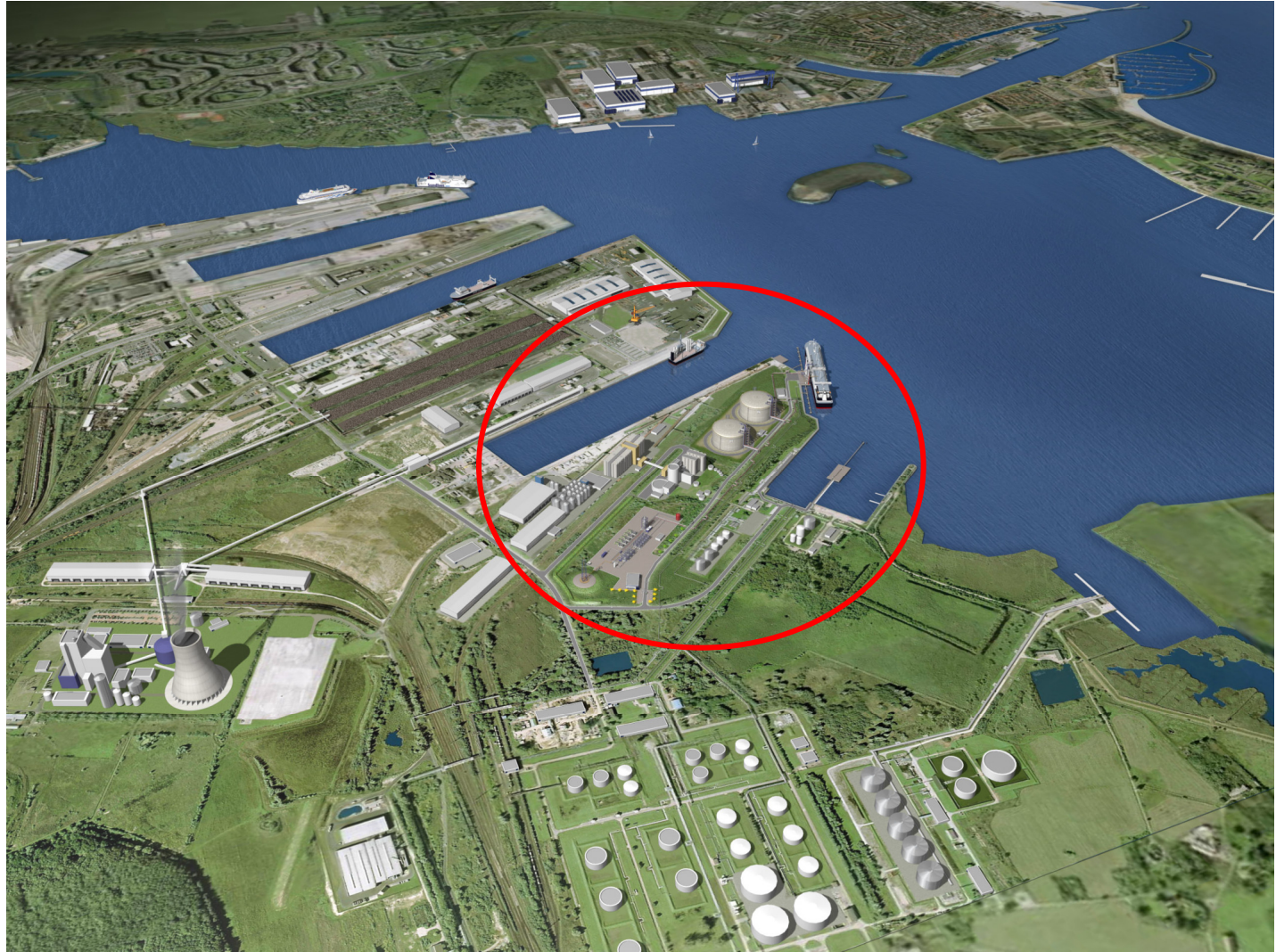
# Eemshaven Air view







## Rostock Air view



THANK YOU



- [www.vopak.com](http://www.vopak.com)