Bergermeer Gas Storage

Experience with storage investment

GIE Annual Conference – Bucharest, 24 October 2008

Bas Froon

Regulatory & Midstream

TAQA Energy

Geographic Expansion and Diversification

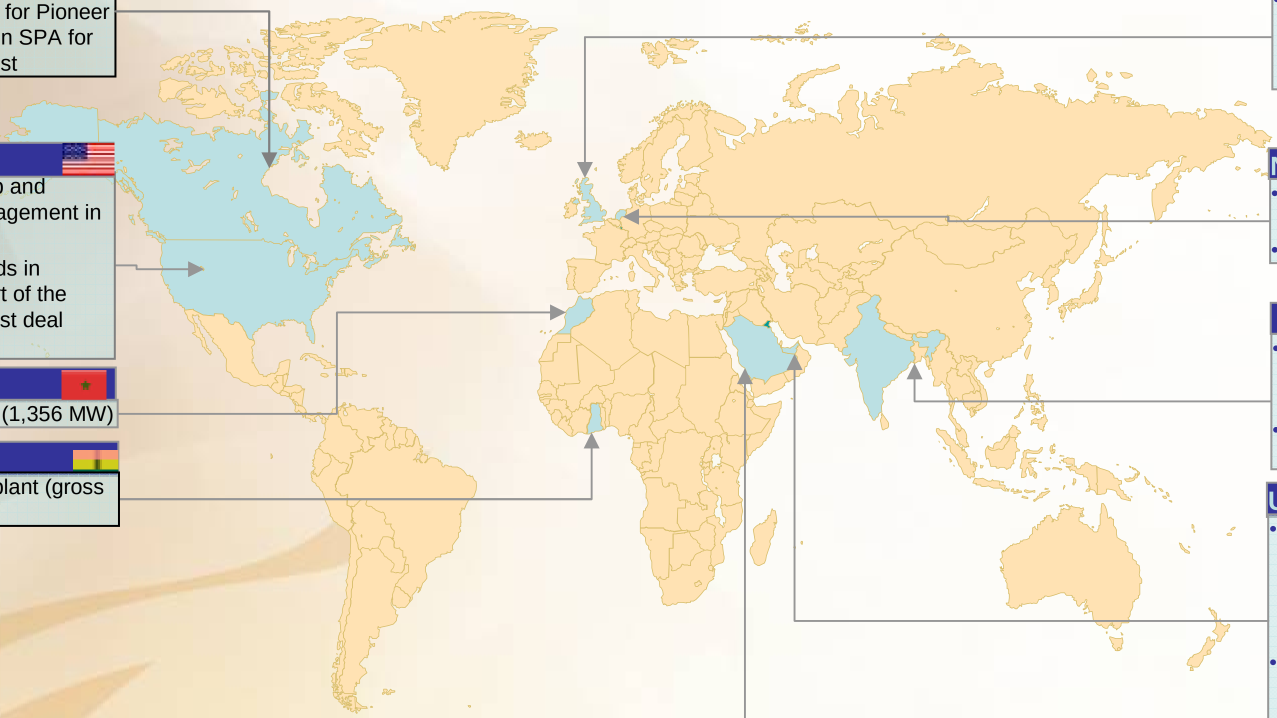
"TAQA plans to build a diversified international portfolio of operations and investments, balanced across stable developed economies and growing emerging markets" ***Peter Barker-Homek, CEO***

Canada
- US$2bn acquisition of Northrock Resources Ltd. followed by US$540mn acquisition for Pioneer Canada and Cnd$5.0bn SPA for PrimeWest Energy Trust

United States
- Power O&M leadership and support functions management in Ann Arbor, MI
- Oil & gas operated fields in continental U.S. as part of the PrimeWest Energy Trust deal (closes in Q1 2008)

Morocco
- Coal-fired power plant (1,356 MW)

Ghana
- Crude oil-fired power plant (gross 224 MW)



United Kingdom
- Oil & gas fields and production assets & pipelines operating in the North Sea; supported by Aberdeen office

Netherlands
- Gas exploration and production assets; gas storage facilities
- Shared services team

India
- Agreement with IFLS for financing and implementation of power projects in India
- Coal-fired power plant (gross 250 MW)

UAE
- Multiple power and water producing facilities servicing Abu Dhabi and Fujairah, and providing more than 85% of water and electricity in Abu Dhabi
- Corporate leadership, support functions management and M&A team

Saudi Arabia
- Natural gas-fired power plant (gross 250 MW)

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Existing Operations

TAQA NW-European Long-term Strategy

- Growth through acquisitions and developments in up - and midstream oil and gas
- Integrate and invest in assets, people and best practices to become best in class operator
- Long term view (>30 yrs): leading E&P Company with strong midstream position
- Use the NW-European base for future expansion in other regions

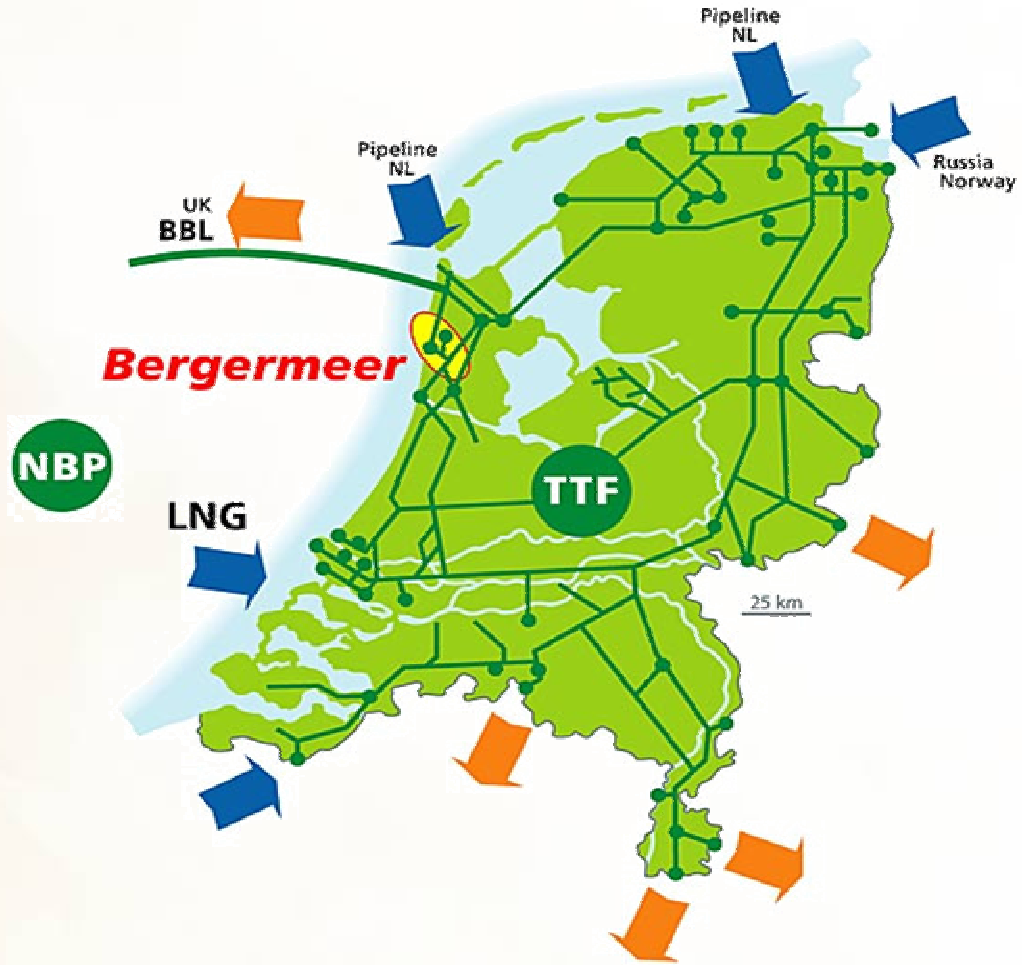
Bergermeer Gas Storage – Why?

1. Clear demand for more seasonal storage in the near future for NW-Europe

2. Excellent physical, geographical and technical conditions

3. Fits within the Dutch ambition to become the NW-European Gas Roundabout

4. Complements TAQA's existing midstream portfolio



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Bergermeer Gas Storage: development scenario

- Seasonal storage for high calorific gas
- Ability to provide flexible, quick and multi-cycle services
- Flexible design: building the market needs

Example only	**Empty**	**Full**
Deliverability (mcm/d)	35	57
Injectivity (mcm/d)	42	34
Working volume (bcm)	3.3	
Cushion gas (bcm)	5.8	
Number of wells	14 – 20	
Expected Start of Commercial Operations	2013	

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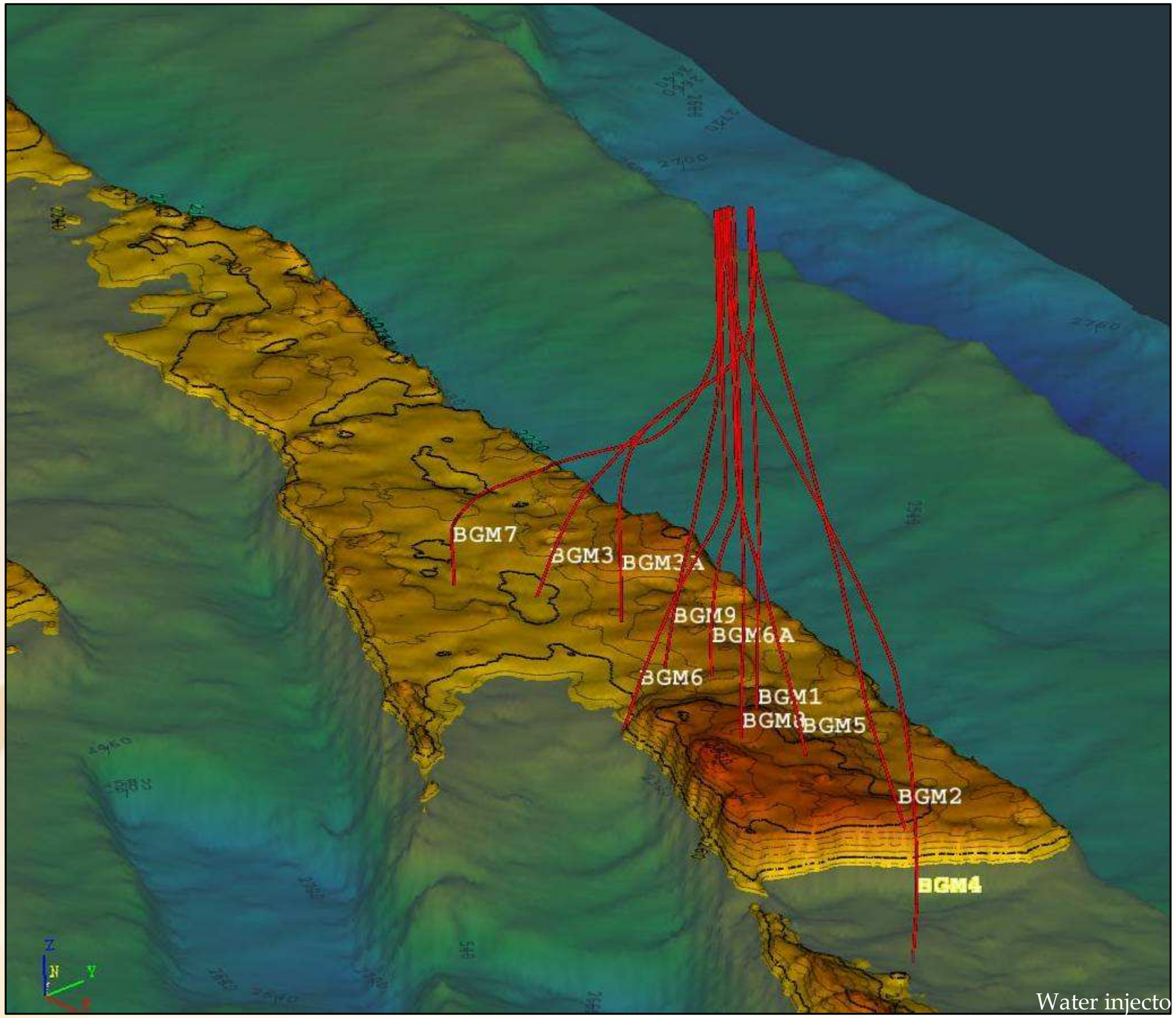
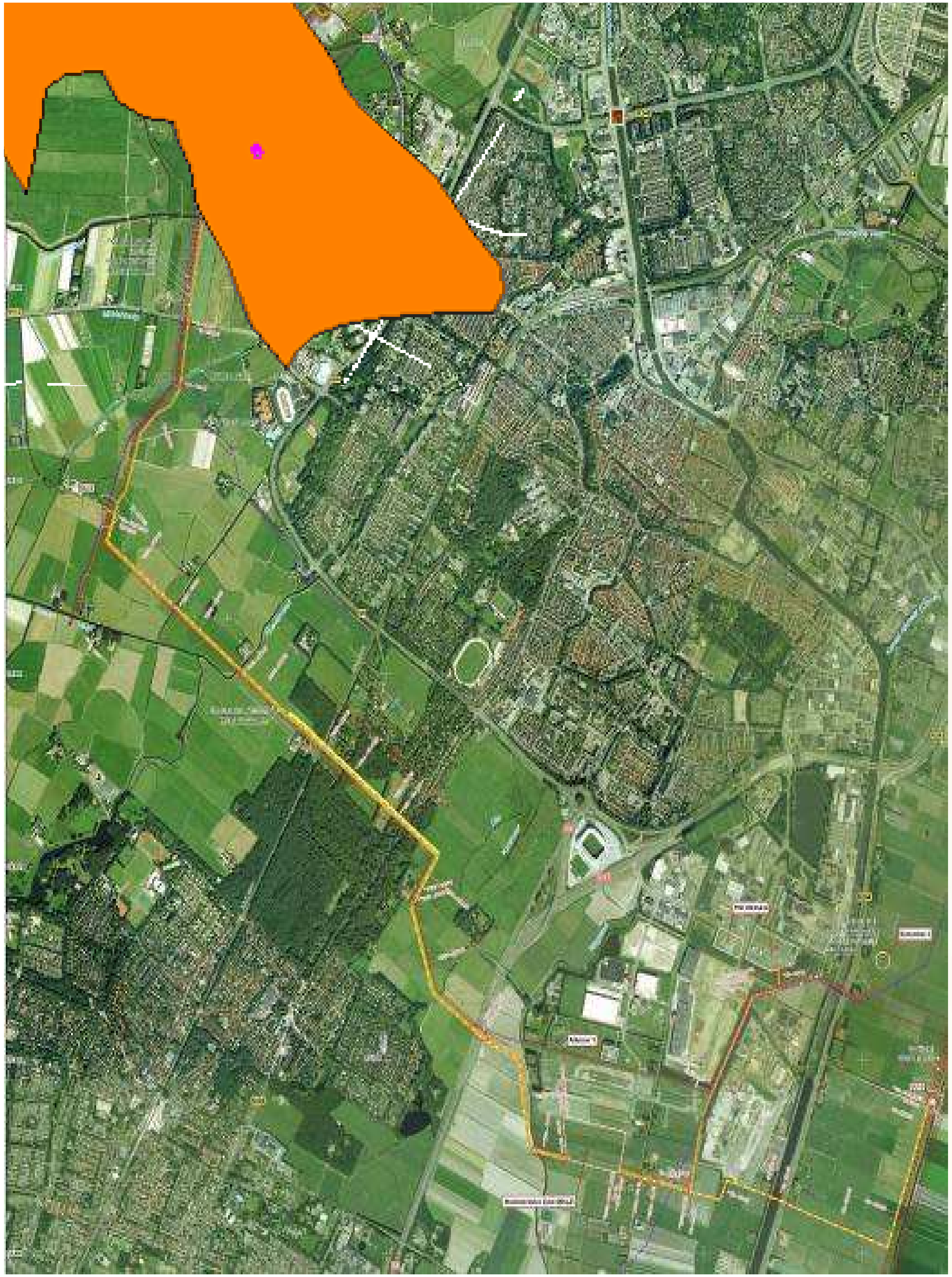
Bergermeer: excellent reservoir quality

- High porosity and permeability
- Inter dune and dune sands
- GIIP = 16.8 bcm
- 9 wells





Birds-eye View

- Project Status October 2008
  - Planning Stage since April
  - 74,000 man hours
  - FID Year end
- EIA & Permitting
  - Authorities
  - Stakeholder communication
- FEED Engineering
  - Facilities
  - Pipeline
  - Drilling
- Commercial
  - Capacity
  - Cushion Gas

Bergermeer gas Storage - Timeline

Technical

2008 | 2009 | 2010 | 2011 | 2012 | 2013

- **April (2008)**: Front End Engineering Design (“FEED”) contract award
- **Oct. (2008)**: Environmental Impact Assessment (“EIA”) complete
- **Q4 (2009)**: Permits in place. Start of construction Bergermeer Well Site
- **January (2010)**: Start construction Boekelermeer
- **May (2010)**: Start pipeline installation
- **March (2011)**: Compressors arrive on site
- **May (2011)**: Compressors operational for injection

Commercial

2008 | 2009 | 2010 | 2011 | 2012 | 2013

- **Oct. (2008)**: Execution of Cushion Gas Supply Term Sheets by the CGS and the SSO
- **Dec. (2008)**: Final Investment Decision
- **October (2010)**: 1st stage cushion gas injection complete
- **October (2011)**: 2nd stage cushion gas injection complete
- **October (2012)**: 3rd stage cushion gas injection complete
- **April (2013)**: Start commercial operations

Planning and Permitting

- National coordination is needed to avoid unnecessary delays due to:
  - No specialist skills at local municipalities
  - ‘Not in my backyard’ mentality
  - No sense of urgency
  - Limited consideration for ‘national importance’
- National government should be the ‘director’ for these projects with the power to make decisions

Changed Approach: from Auction to Swap

- Original Commercial Assumptions
  - Marketing efforts Open Season showed interest for 2x BGS capacity
  - Standardized sale of capacity in consultation with market/Regulator (TPA)
  - Construction risk, completion risk, future market price risk, regulatory risk and market fundamental risk for capacity takers
  - Lack of (attractive) alternatives to finance cushion gas
  - Indication of market interest in SWAP cushion gas for capacity or equity
- Cancel capacity auction for CG swap
  - Only long term capacity through swap
  - Short term capacity auction 2012
  - Secure cushion gas through a commercial arrangement prior to FID

Bergermeer Well-Site 2008

Bergermeer Well-Site 2013

Gas Treatment & Compression Facilities 2008

Gas Treatment & Compression Facilities 2013

Conclusions

- BGS is a great opportunity for the market to be developed
- Project on track & major progress has been made
- Current market struggling to provide the right investment signals in time. Alternative CG financing essential (swap for capacity)
- Focus to improve investment climate for large scale storage:
  - Planning & Permitting
  - Treatment of cushion gas
- Experienced and highly motivated team is looking forward to have BGS operational in 2013!

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Contact?

Jan Willem van Hoogstraten
Project Director
janwillem.vanhoogstraten@taqa.eu

Ingeborg Kuyvenhoven
Commercial Lead
Ingeborg.kuyvenhoven@taqa.eu

Bas Froon
Regulatory & Midstream
bas.froon@taqa.eu