LNG – A Different Approach
The Teesside GasPort Project

Presented to
Winter Outlook Seminar

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Presentation Overview

• Energy Bridge™ Technology
• Genesis of the GasPort Concept
• Teesside GasPort Overview
• Exceptional and Focused Project Team
• Project Design Basis and Functionality
• Project Status
• Project Development Risks
• Next Steps
Energy Bridge™ Regasification Vessels
Natural Gas Delivery in Three Ways

*Energy Bridge™ was primarily designed to access markets unreachable by conventional means...*

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*however, its economics are competitive with a conventional, land-based LNG terminal – with added flexibility benefits*
Energy Bridge™ Regasification Vessels
Natural Gas Delivery in Three Ways
Energy Bridge™ Technology
Dockside Vaporization

Energy Bridge™ ships are equipped with a high pressure gas manifold.

Allows delivery of regasified LNG directly into a gas pipeline installed on the jetty.
Teesside GasPort
Project Layout

- Seal Sands SSSI
- 6.5 km, 24” Delivery Pipeline
- Early Pipe Lay
- Horizontal Directional Drill
- Tie-In
- PX Gas Plant
- NTS
- Excelerate Jetty
- AGI
- 8” Nitrogen Pipeline

Tees River
Teesport
Teesside GasPort
Project Overview

- **Primary project drivers**
  - Be in-service by end December 2006
  - Respond to market price signals
  - Accommodate wide range of LNG specifications

- **Key characteristics**
  - Deliver 400 million cubic feet per day (mmcfld) of natural gas (11.3 million cubic meters per day) with expansion to 600 mmcfld from 2008
  - Provide the ability to accommodate market needs (variable output)
  - Minimize onshore infrastructure and time to market
  - Design as intrinsically safe with no LNG inventory onshore, and reduced planning impact
  - Total development and construction cost of approx. £30 million
Project Team Selection
The Right Team Makes all the Difference

- Excelerate Energy (EE)
  - Project sponsor and developer of GasPort technology

- Gas Strategies
  - Project development support and insight throughout the process

- PD Teesport Limited - Port Authority for the port at Teesside
  - Lessor of jetty lease and easements for the project
  - Invaluable in relation to local project support

- px (TGPP) Limited – operator of the Teesside Gas Processing Plant
  - Provider of O&M and transportation services to EE through existing NTS access point
  - Experienced company with strong relationships in Teesport
Project Team Selection
The Right Team Makes all the Difference

• Murphy Pipelines
  – Provider of pipeline and infrastructure design and construction
  – Respected contractor with extensive experience in building to National Grid specifications

• MouchelParkman GEL
  – Engineering and design contractor providing support for Murphy Pipelines
  – Key part of the team supporting EE throughout the permit application and development process

• BOC Limited
  – Provider of nitrogen supply to the project from existing facilities
  – Capable team that developed a rapid nitrogen solution to accommodate virtually any LNG source in the world
Teesside GasPort Design Basis
Component Summary

Regasification Vessel

Sub-Terminal South Bank

24” (600 mm) Pipeline

Sub-Terminal North Bank

NTS Entry North Bank

- Onshore offloading arm
- Gas blending/heating system
- Pressure control and associated protection systems

- Gas quality monitoring and NTS entry (fiscal) metering system
- Sub terminal pressure/flow control
- Existing px train 1 and train 2
The Excelerate Jetty
A.K.A. The Former Shell Jetty

• Existing jetty structurally sound – requiring refurbishment to bring it up to acceptable standards

• Agreements finalized with PD Teesport for jetty lease, land use, dredging, works license and conservancy dues

• Limited maintenance dredging required to return the ship pocket to its original state (sufficient depth)
A secure ‘Sub-Terminal’ being built on land adjacent to the Excelerate Jetty, containing:

- Flow metering for control and nitrogen blending purposes
- Pressure control / reduction / heating equipment to “step down” from 100 bar ship delivery to NTS pressure (50 to 75 bar)
- Fire and gas safety systems including water deluge
- Site security
px Terminal
Connection to the NTS

• Gas quality measurement and fiscal metering to be located at px facility

• Access to NTS through existing px Network Entry Agreement
  – No new System Entry Point required
  – Around 40MCMD of capacity surplus at Teesside

• New works at px Ltd comprise additional:
  – Gas metering
  – Quality monitoring (to NTS standards)
  – National Grid very helpful re metering

Tie-in point for the 24” gas pipeline adjacent to the px plant site
• BOC’s largest UK Oxygen plant (with Nitrogen as a by-product) is located around 2km from the Excelerate Jetty
• BOC will supply high-pressure nitrogen to the Excelerate Jetty, allowing receipt of a broader range of LNG supplies
• BOC will pump liquid Nitrogen to 105+ bar and then gasify it
• New 8” high pressure N2 pipeline being built – within Murphy Pipelines’ scope
• PD Teesport have consulted with all local stakeholders in relation to LNG vessel movements on the Tees
• Extensive and detailed HAZID
• Liaison with Isle of Grain and Milford Haven parties
Pipeline Routing

Key Issue is Securing Route

- New 24” pipeline will be owned and operated by px under their existing pipeline Safety Case (as applies to their pipeline to the Teesside Power Plant)
  - Excelerate will have rights to this pipeline
- Easement and crossing documents developed and discussions with landowners and operators well advanced
  - To date, all parties behaving in a reasonable manner
  - Most agreements in place – a few follow ups remain on technical issues
- Pipeline and associated infrastructure being built to ‘National Grid’ standards
Current Status

Project On Schedule for Dec. 2006

- Project team working to maintain the December 2006 schedule
- Engineer, Procure, Install, Commission contract in place with Murphy Pipeline’s Ltd
- Design finalised, with most materials on order and approximately £18.5 million invested to date
- Key agreements with PD Ports and BOC for jetty use and nitrogen supply respectively have been finalized
- O&M and related agreements with px being finalised
Project Consents  
Process is Advancing

- Planning application including 281 page Environmental Impact Assessment submitted on 1 June 2006 for the 24” gas and 8” nitrogen pipelines to 2 authorities:
  - Stockton (North side of Tees River)
  - Redcar & Cleveland (South side of Tees River)

- Statutory Consultees:
  - English Nature - complete section next to SPA by November
  - HSE – pipeline safety related issues
  - Environment Agency (EA)

- Timetable
  - All approvals received on August 31, 2006
  - In line with expectations – project proceeding for a December completion with first cargoes in early January
Project Risks
Key Risks Being Managed

• Delayed material deliveries (steel pipeline, metering, etc.)
  – Equipment pre-ordered at risk prior to permissions provide protection

• Delay to completion of pipeline next to SPA (1 Nov schedule)
  – Pre-ordered pipeline allowed installation to commence immediately following planning permission

• Technical difficulties with HDD under Tees
  – HDD is ongoing and all appears well

• Delay to BOC works (scheduled completion 5 December)
  – Nitrogen works are progressing on schedule, also thanks to early commitments

• Wet September to November period hampering construction

• Delay in completion and installation of gas offloading arm
Next Steps

• Ensure successful project implementation in accordance with permissions granted by local authorities
• Focus on material and equipment delivery schedules
• Finalize easement and crossing agreements
• Finalize contracts with px (TGPP) Ltd
• Manage project risks and maintain overall schedule
• Continue coordination with regulators, port authority and port tenants
• Ensure gas delivery by early January 2007