Zeebrugge LNG terminal: creating opportunities in the LNG value chain
Pieterjan Renier – 21 September 2011

#01 Fluxys in a nutshell
#02 Zeebrugge LNG terminal: market driven development
#03 And how we keep on carving out its future
OVERVIEW OF ACTIVITIES

Transmission
- Fluxys N.V.
- For Belgian market: 19 bcm/y
- Cross-border: 95 bcm/y LT booked
- 80 traders
- 62 bcm/y net traded (2010)

Storage
- Fluxys SA.
- 700 mm workable volume

LNG terminalling
- Fluxys Europe
- 6.7 mty throughput

Regulated activities
- 100% open access
- Tariffs approved by regulator
- Commercial conditions approved by regulator

Hub services
- (Spot market)

Transmission & LNG terminalling outside Belgium
- Operational support services for shippers

OUR VISION: PLAY A KEY ROLE IN DEVELOPING THE INTEGRATING NW EUROPEAN GAS MARKET

- GOAL: provide suppliers with an efficient system to move natural gas flexibly from any border point in the NW European gas market to their customers
- STRATEGY
  > Develop new infrastructure in Belgium to contribute to liquidity and security of supply
  > Cooperate with other TSOs outside Belgium and co-invest in new projects or take stakes in existing infrastructure
KEY ROLE OF THE ZEEBRUGGE AREA

Interconnector pipeline to United Kingdom
Zeepipe from Norwegian gas fields

INTERCONNECTOR TERMINAL 1998
ZEEBRUGGE HUB SPOT MARKET: PIPE GAS & LNG 1998

Zeebrugge area: overall capacity of about 48 bcm/y = 10% of border capacity needed to supply Europe

ZEEBRUGGE HUB: ONE OF THE LEADING SPOT GAS MARKETS IN MAINLAND EUROPE

- 80 active traders
- 2008-2011: several all-time highs in average daily net traded volume
- 2010: net traded volume of 62 bcm = 3.5 times yearly consumption Belgium

Physical throughput
Net traded volume
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1975
LNG SUPPLY CONTRACT
SONATRACH/DISTRIGAS
1978: CONSTRUCTION of PENINSULA for the LNG terminal

Commissioning 1987
2004-2008
First capacity enhancement
+3.3 mt/y

LNG TERMINAL 24 YEARS IN OPERATION

- Reception of >1,200 LNG carriers
- LNG carriers from 7,500 to 266,000 m³ LNG
- About 70 different ships received
- Throughput capacity: 6.7 mt/y – 110 slots
- Storage capacity: 380,000 m³ LNG
- Send-out capacity: 1,700,000 m³(n)/h
CARGO MOVEMENTS SINCE 2007

- 2007: 2 mt unloaded, 0.3 mt loaded
- 2008: 2.2 mt unloaded, 0.3 mt loaded
- 2009: 4.8 mt unloaded, 0.2 mt loaded
- 2010: 4.6 mt unloaded, 0.3 mt loaded

In the first half of 2011, 41 cargo's were unloaded, amounting to 2.7 mt of LNG.

QUALITY OF LNG

- Depending on source, however, most LNG ships are coming from Qatar
- Typical LNG quality:
  - 0.1 - 0.3% nitrogen
  - 93 - 93.2% methane
  - 6.6 - 6.7% ethane
  - 0.03 - 0.17% propane
  - 0.006 - 0.015% i-C4H10
  - 0.008 - 0.015% n-C4H10
  - 0.0008% i-C5H12
  - 0.0005% n-C5H12
  - density: 440 kg/m³ @ -160°C and 100 mbarg
  - GHV: 42 000 kJ/m³(n)
  - Wobbe: 54 500 kJ/m³(n)
LONG TERM CONTRACTUAL SITUATION

3 Long term capacity contracts

<table>
<thead>
<tr>
<th>Shipper</th>
<th>Duration (years)</th>
<th>Quantity (mt)</th>
<th>Slots</th>
<th>As from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qatar Petroleum / ExxonMobil</td>
<td>20</td>
<td>3.3</td>
<td>55</td>
<td>01/04/2008</td>
</tr>
<tr>
<td>Distrigas</td>
<td>20</td>
<td>2.0</td>
<td>33</td>
<td>01/04/2007</td>
</tr>
<tr>
<td>GDF SUEZ</td>
<td>15</td>
<td>1.4</td>
<td>22</td>
<td>01/10/2008</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>6.7 mt</strong></td>
<td><strong>110</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Full assignment from QP/ExxonMobil to EDFT until end of 2011
- Agreement between GDF SUEZ and ConocoPhillips

COMBINING LONG-TERM AGREEMENTS WITH SPOT DELIVERIES

- **Primary market**
  - If scheduling of slots by primary shippers leaves sufficient spacing: extra slots created on the primary market and published
  - First half of 2011: 12 extra slots created (16 in 2010)

- **Secondary market**
  - Any slot not to be used by primary shippers: made available on the secondary market and published
  - First half of 2011: 16 slots made available (20 in 2010)
LT TARIFFS: ATTRACTIVE PRICE LEVEL

Slot price benchmark 2010

<table>
<thead>
<tr>
<th>Slot</th>
<th>750 443 €/Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Schend Out Capacity</td>
<td>1.95 €/kWh/h/yr</td>
</tr>
<tr>
<td>Additional Storage</td>
<td>96.39 €/m³ LNG/y</td>
</tr>
</tbody>
</table>

All tariffs are indexed at 35% of CPI, with base index of July 2003 (112.59)

Additional Schend Out Capacity 1.95 €/kWh/h/yr
Additional Storage 96.39 €/m³ LNG/y

TAKING DESTINATION FLEXIBILITY TO ANOTHER LEVEL:
SINCE AUGUST 2008 LOADING OF LNG SHIPS

Tariff:
- berthing right = 130 294 €
- 75 000 € + 0.1 €/(MWh loaded)
- 544 €/h for gassing-up and cooling down
LNG SHIP LOADING SERVICE A SUCCESS

- Until now 19 ships have berthed for loading
- Loading service used by multiple shippers
- Flurry of destinations

Source: public information

ZEEBRUGGE SECOND JETTY: CREATING SMALL SCALE LNG OPPORTUNITIES

- Successful trial loading of 7 500 m³ LNG vessel Coral Methane at existing jetty in 2010
- LNG loading slots for 3 500 m³ LNG to 217 000 m³ LNG vessels
TAKE DESTINATION FLEXIBILITY TO ANOTHER LEVEL:  
LAUNCH TRUCK LOADING SERVICE IN 2010

- Capacity of 4000 trucks per year
- Current destinations
  - UK (on ferries departing from Zeebrugge)
  - Continental Europe (Germany, …)

SERVICES AND PRICING

- Truck services offered by Fluxys LNG:
  - LNG Truck Approval Service Charge: €3,264 per LNG truck approval
  - LNG Truck Loading Service Charge: €512.20 per loaded LNG truck
  - Cool Down Service Charge: €2,176 per cool down

- LNG can be bought from all shippers active at the terminal:
  - Shippers with long term contracts: GDF Suez, EDF Trading and Distrigas ENI
  - Other shippers on the moment they have LNG at the terminal
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OPEN SEASON SECOND CAPACITY ENHANCEMENT

- Exploratory phase Open Season initiated late 2007
- Non-binding interest by multiple shippers for a variety of services
- Starting from wide spectrum of demand: outline of capacity enhancement
  - Phase 1 – Second jetty for unloading and loading (~ 2014): investment decision taken
  - Phase 2 – Additional capacity (~ 2016):
    > Up to 160,000 m³ LNG storage
    > Up to 450,000 m³(n)/h send-out
CURRENTLY BINDING PHASE OPEN SEASON

- Offer:
  - Additional throughput capacity of 2-3 bcm/y
  - 70 additional berthing rights for loading of (small) LNG ships with a lower scheduling priority.
  - Acceptance of LNG carriers from 3,500 m³ LNG to Q-max
  - Capacity subscription: period up to 20 years

INDICATIVE TIMETABLE BINDING PHASE OPEN SEASON

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch</td>
<td>03 Feb 2011</td>
</tr>
<tr>
<td>Confirmation of interest</td>
<td>11 Mar 2011</td>
</tr>
<tr>
<td>Contractual documentation</td>
<td>15 July 2011</td>
</tr>
<tr>
<td>Binding requests end allocation of capacities</td>
<td>27 Oct 2011</td>
</tr>
</tbody>
</table>

- Fluxys LNG makes services offer available
- Fluxys LNG makes available contractual documentation
- Approval of contractual documents by CREG
- Participating companies to submit binding capacity requests, Fluxys LNG to allocate capacities

For more information:
NON-BINDING INTEREST

<table>
<thead>
<tr>
<th></th>
<th>Availability</th>
<th>Total indicative requests</th>
<th>Average requested period (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slots (#/y)</td>
<td>40</td>
<td>133 to 167</td>
<td>13,3</td>
</tr>
<tr>
<td>Additional storage (m³ LNG/y)</td>
<td>90 000</td>
<td>262 000 to 372 000</td>
<td>15,6</td>
</tr>
<tr>
<td>Additional send-out (m³/n/h/y)</td>
<td>100 000</td>
<td>920 000 to 1 100 000</td>
<td>14,8</td>
</tr>
<tr>
<td>Loading slots (#/y)</td>
<td>70</td>
<td>215 to 225</td>
<td>12,4</td>
</tr>
</tbody>
</table>

INDICATIVE TARIFF PROPOSAL

- Existing tariffs for existing and new capacities
- New tariff for loading services

<table>
<thead>
<tr>
<th>Service</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unloading slot</td>
<td>750 433 €</td>
</tr>
<tr>
<td>&gt; Berthing right</td>
<td>130 294 €</td>
</tr>
<tr>
<td>&gt; Basic storage</td>
<td>313 682 €</td>
</tr>
<tr>
<td>&gt; Basic send-out</td>
<td>306 467 €</td>
</tr>
<tr>
<td>Additional storage</td>
<td>96.39 €/m³ LNG/y</td>
</tr>
<tr>
<td>Additional send-out</td>
<td>1.95 €/(kWh/h)/y</td>
</tr>
<tr>
<td>Additional berthing</td>
<td>75 000 €</td>
</tr>
<tr>
<td>&gt; Variable loading fee</td>
<td>0.18 €/MWh loaded</td>
</tr>
</tbody>
</table>

Tariffs base 2003, indexed at 35% of Belgian consumer price index.
CONCLUSIONS

- Zeebrugge LNG terminal: track record of successfully anticipating new market conditions and opportunities
  - Open access facility with throughput capacity doubled during first capacity enhancement
  - Introduction of ship and truck loading services to increase destination flexibility
- Second capacity enhancement:
  - Loading of small scale LNG vessels
  - Attractive LT tariffs