Asia’s oil demand dynamics

An opportunity for Latin America?

Platts Crude Oil Markets Asia Conference
Singapore, 18 September 2013

Eduardo Lopez, Market Fundamentals Manager
eduardo.lopez@bg-group.com
Disclaimer

Several statements included in this presentation contain forward-looking information concerning BG Group plc’s strategy, operations, financial performance, growth opportunities or other circumstances in the countries, sectors or markets in which the company operates. By their nature, however, forward-looking statements are uncertain, as they are based on current expectations and assumptions and involve known and unknown risks.

Actual results could therefore differ materially from the guidance given in this presentation, even though BG Group plc believes that the expectations underpinning forward-looking statements are reasonable. For a detailed analysis of the factors that may affect our business, financial performance or operations, please refer at the “Principal risks and uncertainties” included in the BG Group plc Annual Report & Accounts 2012.

Nothing in this presentation should be construed as a profit forecast and no part of this presentation constitutes, or shall be taken to constitute, an invitation or inducement to invest in BG Group plc or any other entity, and must not be relied upon in any way in connection with any investment decision. BG Group plc undertakes no obligation to update any forward-looking statements.

No representation or warranty, express or implied, is or will be made in relation to the accuracy or completeness of the information in this presentation and no responsibility or liability is or will be accepted by BG Group plc or any of its respective subsidiaries, affiliates and associated companies (or by any of their respective officers, employees or agents) in relation to it.

All opinions expressed in this presentation are the sole responsibility of its author.
Agenda

• About BG Group
• Key oil market trends to 2020
• Asian demand outlook
• Latin America: a rising Asian supplier
About BG Group
History

1986
British Gas

1997
BG Plc

1999
BG Group Plc

2000
Lattice

2002
National Grid Transco

2005
National Grid

Centrica

BG GROUP
www.bg-group.com

National Grid
www.nationalgrid.com

Centrica
www.centrica.com
Key indicators

- FTSE top 10 company, listed on the London Stock Exchange
- Market capitalisation: ~$65 billion
- Net 2012 production: 657 kboe/d (~70% gas, 30% oil & liquids)
- Operates in over 20 countries; 5,700 employees
- Large foreign participant in Brazil’s upstream
- World class exploration portfolio
- Significant player in the global LNG industry, notably in Asia
  - Long-term sales into Japan and China
  - Exclusive Singapore provider (up to 3.0 mtpa)
  - Major supplier from the Atlantic Basin
- One of the largest IOC LNG shipping fleets
Global presence
More information

BG Group Annual Report:
http://www.bg-group.com/InvestorRelations/Reports/Pages/Reports.aspx

Presentations:
BG Group in Brazil’s Santos Basin

BG Group Crude Oil Assays

Videos:
BG Group Overview
Running time: 1 minute – no voiceover
http://www.bg-group.com/AboutBG/Profile/Pages/BG-Video.aspx

BG Group fast track development in Brazil’s Santos Basin
Running time: under 3 minutes – with voiceover
http://www.bg-group.com/MediaCentre/Pages/BG-Brazil.aspx
Key oil market trends to 2020
How the global oil market balance may look like in 2020

- On current trends, the outlook suggests that supply will increase slightly faster than demand
- This should allow building a modicum of effective spare capacity, equivalent to about 5% of global demand...
- ...which is historically too low to soften oil prices significantly
  - Real Brent (2011 US$) is likely to hover around $100/bbl in the next several years
Emerging economies...

- GDP growth in emerging countries has vastly exceeded that of advanced economies in the past decade.
- This is likely to continue…
- …lifting real income per capita…
- …and boosting oil demand as it reaches the take-off threshold.
- And yet demand per capita will still lag.
...shift demand dynamics...

- For the first time ever, non-OECD demand > OECD use
- Non-OECD will drive growth, literally and figuratively: transport
- By 2020, the US will remain the world’s largest consumer...
- ...but China will post the largest growth
...while non-OPEC leads supply

- Global supply capacity will rise largely on non-OPEC expansions…
- …with the Americas well ahead of other areas: US, Brazil & Canada
- Crude will be the main driver of both global oil capacity production and growth
Implications 1: more opacity?

- The weight of emerging countries will alter traditional seasonal patterns...
- ...and obscure demand trends given limited data quality
- This will add to supply murkiness – i.e., OPEC’s primary vs. secondary sources can differ by 1.6 mb/d!
- Towards greater price volatility?
Implications 2: OPEC’s role?

• OPEC faces serious challenges ahead
  – How to accommodate rising Iraqi production? Quotas? Flat/falling Saudi output?
  – Lack of leadership: tensions between Iran and Saudi Arabia mean there is still no a new secretary general
  – The tight oil headache: market share erosion in key regions (Asia)? Price war to curb expensive output? Weaker western security commitments in the Gulf?

• The emergence of China will also pose geopolitical challenges
  – Will it participate fully in the global oil security regime? Cooperation vs. confrontation?
  – Will it seek new trade routes (Arctic/Panama)?
Asian demand outlook
The Asian demand tide, today...

- Asian demand has risen to 30 mb/d, equivalent to one-third of the world’s total
- This trend has been supported by economic expansion, demographics, urbanisation and subsidies
- The region is now the largest oil consumer in absolute terms – even greater than OECD Americas, which until 2008 had the lion’s share of global demand.

Sources: IEA, BG Group

Asia = OECD Oceania excl. Israel + non-OECD Asia
...and tomorrow

- Asia Pacific will represent roughly two-thirds of global growth over 2012-2020 (+1.3 mb/d per year on average)
- By 2020, demand in Asia will be one-third higher than in OECD Americas
- China alone will account for over one-third of the region’s demand, and one half of growth

Sources: IEA, BG Group
Yet country paths will diverge

- Non-OCED Asia will grow much faster than OECD Asia, expected to stagnate and/or decline
- Saturation vs. pent-up demand, old vs. young, oil vs. other sources
- Japan’s demand should decline by 25%, while China’s will rise four-fold...
- …but not on a per capita basis
Lighter products lead the way…

- Transportation needs will boost demand for light/middle distillates (gasoline + jet fuel/kerosene + gasoil), both worldwide and in Asia.
- Distillates (~56 mb/d in 2012) currently account for 62% of global demand...
- ...and 63% of global growth (~+700 kb/d per year) – rising to 74% by 2020.
- Interfuel substitution (e.g., bunkers) will also provide support.
...driving refining configurations...

- Three regions – Asia Pacific, North America and Europe – will dominate global refining capacity
- Collectively, 68 mb/d of crude distillation (2012-2020 average), equivalent to ~70% of global capacity
- The world’s refining configuration will be increasingly geared towards producing lighter products, in line with demand
• Capacity additions will be largely concentrated in high demand-growth areas – Asia Pacific, Middle East, Latin America and the FSU

• These regions will account for ~92% of global crude distillate capacity growth over 2012-2020
This will shape regional needs...

Net Crude Oil Exports
million barrels per day

North America

Latin America

Europe

Middle East

FSU

Asia

Sources: IHS, BG Group
...and global crude flows

Net Crude Oil Exports
million barrels per day

North America
- Latin America
- Middle East
- Africa
- Europe
- FSU
- Asia

Sources: IHS, BG Group

Main Flows, 2020-2010 Average
Latin America: a rising Asian supplier
An almost perfect match?

- Asia will remain the largest net crude importer through to 2020
  - The bulk of imports will come from the Middle East
  - Latin America comes fourth

- Latin America, by contrast, will be a net exporter
  - Its main customer will be North America…
  - …followed by Asia
Regional net crude imports are – and will continue to be – led by Middle Eastern suppliers
  – Three-quarters of total deliveries

Yet import growth will effectively come from other regions
  – FSU and Latin America
Asian crude imports: what?

- Imports are geared towards light/medium sour crudes…
- …which will remain the refinery feedstock of choice...
- ...but imports of other grades will rise sharply given existing and planned refinery upgrades
  - High Total Acid Number (TAN) crudes
  - Light/medium sweets
The Latin wave…

- Latin American crudes are emerging as viable Asian imports, notably of medium grades
- China, the region’s main consumer, will boost imports
  - Quality in line with local needs and refinery configurations
  - Strategic diversification from other sources – i.e., Russia, Middle East
...and its main aficionado

- China has boosted its purchases of Latin American crudes over the past few years
- Now at about 600 kb/d, these grades are primarily sourced from Brazil and Venezuela
Yet Latin America is not in sync

Latin American producers belong to two distinct groups.

Since the mid-2000s, production has declined and/or stagnated in countries with greater government intervention...

...but has risen in those with an active private sector.
Brazil is set to rule the roost…

- Among the region’s three largest oil producers, Brazil is clearly ahead…
- …both in trend and volumes
  - The country’s gap vs. Mexico and Venezuela will narrow quickly and sharply
  - By 2020 Brazil will be Latin America’s largest producer
…with its huge pre-salt potential…

- A newly prominent basin (Santos)…
- … with new, prolific fields (Lula, Sapinhoá)…
- …will lift production sharply (~4 mb/d by 2020)…
- …of mostly sweet grades (~2/3)
...which will boost crude exports

- Refinery runs will increase to meet oil product demand…
  - New plants: RNEST & COMPERJ
  - ~400 kb/d of new capacity
- …displacing crude imports
- Yet net crude exports may exceed 2 mb/d by 2020, turning Brazil into a major exporter
A taste of pre-salt: Lula crude

- Lula is a medium, sweet crude oil, similar to Angolan grades…
- …with low TAN (0.38), but high nitrogen, typical of Brazilian crudes…
- …and no pour point issues, so heating vessels is not required
Where does Lula stand?

• When modelling 67 key crude assays along a normal distribution curve...

• ...Lula posts a slightly lower gravity than three quarters of all existing crudes (global average: 33.5°)...

• ...but a much lower sulphur content (global average: 0.79%)
Brazilian crudes feature high distillate yields…

Refining Yields, Selected Crudes

<table>
<thead>
<tr>
<th>Crude</th>
<th>Gasoline</th>
<th>Middle distillates</th>
<th>VGO</th>
<th>VTBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lula</td>
<td>16%</td>
<td>29%</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td>Sapinhoa</td>
<td>17%</td>
<td>27%</td>
<td>31%</td>
<td>24%</td>
</tr>
<tr>
<td>Iara</td>
<td>12%</td>
<td>27%</td>
<td>31%</td>
<td>29%</td>
</tr>
<tr>
<td>Carioca</td>
<td>10%</td>
<td>18%</td>
<td>33%</td>
<td>38%</td>
</tr>
<tr>
<td>Cabinda</td>
<td>18%</td>
<td>30%</td>
<td>30%</td>
<td>24%</td>
</tr>
<tr>
<td>Hungo</td>
<td>18%</td>
<td>30%</td>
<td>30%</td>
<td>22%</td>
</tr>
<tr>
<td>Dalia</td>
<td>7%</td>
<td>32%</td>
<td>35%</td>
<td>25%</td>
</tr>
<tr>
<td>Kuito</td>
<td>10%</td>
<td>28%</td>
<td>32%</td>
<td>29%</td>
</tr>
</tbody>
</table>

API: 29.3, 29.5, 25.9, 23.9, 32.7, 29.0, 23.1, 22.1

Sulfur (%): 0.362, 0.376, 0.417, 0.569, 0.130, 0.640, 0.490, 0.740

Sources: BG Group, Haverly Systems, Platts
...which will be handy amid a looming gasoil imbalance

- Global bunker demand will continue to rise before peaking in the early 2020s
  - Fall in 2015 (from 1% to 0.1% sulphur in ECAs) – and again in 2025 (0.5% global cap)
  - The OECD, where ECAs are currently in place, will shift to gasoil – may reach two-thirds in 2025?
- Post 2025, more gasoil, fuel efficiency, scrubbing, LNG… or a bit of all?
Distillate-rich grades premia are likely to rise further

- The bunker-driven, emerging gasoil imbalance suggests that distillate-rich crudes are likely to command a higher price premium than today…
- …as marginal refineries with limited hydrotreatment capacity will seek low-sulphur, light/medium grades
- Typical distillate-rich crudes include Azeri Light, Cabinda or Oseberg… and several of the new Brazilian pre-salt grades

Distillate-Rich Crude Streams Differentials to Dated Brent

Source: Platts
Conclusions
What has changed in the global oil market?

• Demand
  – Global economic crisis & sluggish recovery
  – Emergence of non-OECD countries
  – Efficiency improvements, switch to gas, stringent environmental regulations

• Supply
  – Pre-salt, tight oil
  – Iraq, Africa

• Geopolitics
  – Middle East upheaval, the Iranian question, China’s emergence
  – OPEC’s internal tensions

• Prices
  – Moderate effective spare capacity, equivalent to about 5% of global demand
  – Real Brent (2011 US$) to hoover around $100/bbl
The Asian tide

- The region will account for two-thirds of the world’s oil product demand growth over 2012-2020

- Transportation needs will steer demand towards the light/middle portion of the barrel

- Refining capacity in the region will increase sharply to accommodate demand growth, sourcing oil mostly from abroad

- Latin America will become an important Asian crude supplier
  - Total Brazilian production is set to double by 2020, driven by pre-salt production, surpassing Mexico and Venezuela
  - The main importer will be China

- Distillate-rich, low sulphur crudes – such as Brazil’s pre-salt grades – will be increasingly sought
  - Stringent international environmental regulations for bunker fuels
  - Expected surge of marine gasoil demand from 2015
But all forecasts are usually wrong

• There are risks we can anticipate…
  – The pace of **global economic recovery** – QE, inflation, OECD stagnation?
  – The evolution of **oil prices** – volatility, demand destruction vs. suppression?
  – The prevalence/phase out of **subsidies** – pace of demand growth?
  – The promotion of **efficiency** policies – SUVs or small cars?
  – The extent of **interfuel substitution** – nuclear generation, ECAs?
  – The adoption of alternative **transport technologies** – EVs, hydrogen, gas?
  – **Production disruptions**, either man-made or natural – war, accidents, hurricanes?
  – Rising **costs** – local content rules, bottlenecks, expensive inputs?
  – **Fiscal terms** evolution – more stringent rules in key areas?

• …and others that we can’t
  – Mexico’s opening? African pre-salt? Arctic?
  – Revolutionary/disruptive technologies?
  – Major geopolitical upheavals?
Thank you