OLTIN YO'L GTL – THE STRATEGIC OPPORTUNITY
Outline

• An introduction to Uzbekistan
• The business case for OLTIN YO’L GTL
• The project
• Challenges
• Starting as we mean to go on
Uzbekistan
Country size: 447,400 km²
Population: 27,488,000
Capital city: Tashkent (population 2,201,000)
Population density: 61.2/km²
GDP:
- 2009: 32,971,000,000 (current US$)
- 2005: 13,751,000,000 (current US$)
- 2000: 13,759,000,000 (current US$)
GDP growth:
- 2009: 7.0 (annual % at constant 1990 prices)
- 2005: 7.1 (annual % at constant 1990 prices)
- 2000: 4.0 (annual % at constant 1990 prices)

Source: UN data
Cultural context

A vibrant economic future based on a rich cultural heritage
Business context

- 1991 – Uzbekistan becomes independent
- The centralised Soviet system did not suit the development of the economy of Uzbekistan
- Focus of the new state on evolving a socially-orientated market economy and a robust civil society
- A strong private sector has been created providing 75% of employment
- Considerable effort is devoted to supporting the development of the SME sector
- Uzbekistan has always placed a premium on education and a skilled workforce underpins a set of emerging companies across a range of hi-tech sectors including pharmaceuticals and software development
- The growth rate of GDP in Uzbekistan currently exceeds 8% and nearly a million new jobs are created annually
World energy demand

- World economic growth, the expanding population and an increase in the purchasing power of individuals will increase energy demand
- World energy demand is expected to grow in the region of 50% by 2030
- Oil will remain the dominant energy source for the transport section but cannot meet increasing demand indefinitely
- Natural gas is set to play an ever-increasing role if the energy challenge is to be met effectively

**Growing Energy Demand**

<table>
<thead>
<tr>
<th>Year</th>
<th>Million Barrels Oil Equivalent Per Day</th>
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<tbody>
<tr>
<td>2006</td>
<td>200</td>
</tr>
<tr>
<td>2030</td>
<td>350</td>
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Source Data: EIA International energy outlook

**Consumption per capita (B/D)**

- USA
- Europe
- China
- India

3.5 billion people consume less than 0.01 bbl/d

Source Data: Various
In an increasingly competitive energy world, GTL technology allows Uzbekistan to use its domestic gas resources to help meet transport fuel demand and deliver the energy required to sustain economic and social development objectives.
GTL value

• GTL diesel can be used neat or as a blend and can help refiners to:
  • Extend the diesel pool to meet growing demand
  • Enhance crude optimisation options
  • Upgrade lower grade material
  • Enable increased bio-diesel inclusion
  • Increase ultra low sulphur diesel production capacity
  • Enable reformulated diesel blending

• At the retail level, GTL allows differentiation along the following dimensions:
  • Performance – very high cetane, very low aromatics and sulfur
  • Cleanliness
  • Emissions Reductions
GTL emissions profile

Emissions performance of GTL diesel

<table>
<thead>
<tr>
<th></th>
<th>CO</th>
<th>THC</th>
<th>NOx</th>
<th>PM</th>
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<tbody>
<tr>
<td>Refinery Diesel</td>
<td>▼</td>
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<tr>
<td>GTL Diesel</td>
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Emissions performance of GTL diesel relative to refinery diesel
Project context

• GTL technology is a good strategic fit for Uzbekistan’s energy portfolio and future energy needs
• The strategic fit creates a sustainable business case
• Uzbekistan already has a significant energy sector with the associated project development expertise
• The skill base exists in-country to build and operate a GTL facility
• GTL products are aligned with the national objectives of providing high quality energy to sustain economic development and future growth whilst looking for ways to reduce pollution across a wide range of emissions
• Uzbekistan is developing the necessary fiscal and legal frameworks to sustain major international energy ventures and to become a favourable destination for foreign investment
Uzbekistan GTL will be one of the world’s most advanced energy production facilities.

The plant will have approximately 38,000 barrels per day of saleable products.

The product slate will include:
- Diesel
- Kerosene
- Naphtha
- LPG

- Methane rich gas will be supplied by Uzbekneftegaz under a long term supply agreement at commercially competitive prices;
- The kerosene and diesel will be off-taken by NHC “Uzbekneftegaz” under a long term off-take agreement at international linked prices; and
- Maximize project financing – anchored by Multilateral Agencies and Export Credit Agencies.

The plant will be located next to SGCC, 40 km from Qarshi.
The technology

Haldor-Topsoe
World leader in auto-thermal reforming

Sasol’s Slurry Phase Distillate Process (SPD™ Process)

Sasol:
World leader in Fischer-Tropsch technology

Chevron:
World leader in hydrocracking and catalytic dewaxing technologies

Natural Gas Reforming → Syn-gas → Fischer-Tropsch Conversion → Syn-crude → Product Upgrading → GTL diesel, GTL naphtha, GTL kerosene

CH₄

Natural Gas
Oxygen

Sasol's Slurry Phase Distillate Process (SPD™ Process)
The JV partnership

UZBEKNEFTEGAZ
Established and highly experienced NOC
Extensive in-country operating and business experience, market knowledge and regional presence

SASOL
Acknowledged global leader in synthetic fuel technology and a commercial pioneer of GTL technology
Award-winning GTL project developer with operational experience on two continents

PETRONAS
One of the largest companies in the world with a proven track record in integrated oil and gas operations spanning the entire hydrocarbon value chain
Shurtan gas and chemical complex (SGCC)
Project plot
SGCC support facilities

Railway station

Accommodation
Project benefits

1. In-country beneficiation of natural resources through value-added liquid products, instead of exporting raw natural resources.

2. Domestic resource used to offset imported oil products and to provide a valuable series of finished products for export.

3. Inward investment and the stimulation of significant additional development in ancillary businesses, commerce and infrastructure.

4. Employment benefits: Construction labour requirement: ~ 5,000 to 10,000
   New, sustainable direct jobs: ~ 500 to 800
   Indirect jobs: ~ 2-5 times the number of direct jobs.

5. A slate of high-value energy products, which deliver high performance and reduced emissions and which can be used and distributed using the existing vehicle fleet and infrastructure.
Progress to date

- Pre-Feasibility Study completed - December ‘08
- Heads of Agreement signed - April ‘09
- Joint Venture Agreement signed - July ‘09
- FEED Phase 1 started - August ‘09
- Presidential Decree issued - October ‘09
- Charter and Foundation signed - November ‘09
- Uzbekistan GTL LLC formed and incorporated - December ‘10
- Preliminary feasibility completed - September ‘11
- Gas Supply Purchase, Product Off-take and License Agreements signed -September ‘11
- Investment Agreement signed and second Presidential Decree issued - September ‘11
- FEED Phase 2 started - October ‘11
- Project branded OLTIN YO’L GTL – July ’12
- Supporting infrastructure construction started – July ‘12
Challenges

1. Uzbekistan is a double-landlocked country, one of only two in the world
   • Logistics need to be squared away
   • Construction strategy needs to be well planned and executed
   • Markets need to be well understood

2. Site conditions are demanding
   • Temperatures over 40°C
   • Winds of 35-40 kmh
   • Regular dust storms
   • SHE plan must be mindful of very real risks from heat exhaustion and poisonous snakes

3. Adapting Uzbekistan’s business processes for significant inward investment is still a work in progress though the government has taken ownership and is giving leadership. The progress made to date has been impressive, there is constant engagement and dialogue, and there is a very serious commitment to becoming an international investment destination of choice.
Challenges

A dust storm photographed from approximately the same location
1. To date the project has made steady, milestone-based progress.

2. We understand the engineering challenges involved in developing a world-scale GTL facility in a double land-locked location.

3. The commercial model for GTL in Uzbekistan is for the monetisation of domestic assets for a largely domestic market. This is an entirely sustainable and robust approach which has been talked about for a decade but it requires a different mindset to the export-orientated approach of ORYX GTL.

4. In focusing on developing the project, we have not forgotten to also focus on developing the Joint Venture as an enduring commercial partnership and as an important asset for Uzbekistan.
Project and partnership

Developing the project:
Support infrastructure under construction

Developing the Joint Venture:
Brand launch
• Brand developed during FEED to strengthen the team identity
• Requirement was for a name culturally rooted in the heritage of Uzbekistan but capable of telling the technology and high quality transport fuels story of GTL
• Oltin Yo’l means ‘Golden Road’ in Uzbek and refers to the ancient trade routes which pass through the country

By choosing to brand the project so prominently and at an earlier stage than some other GTL projects, the Joint Venture partners are making a clear statement of belief in the future of the project, based on the achievements so far
And finally...

We intend our project to be:

1. World class
2. On time
3. Safe

Practice makes perfect, so we have spent the summer on-site practicing the construction of OLTIN YO’L GTL