DAY TWO – THURSDAY 5TH DECEMBER 2013

Theme II – Professional Services: Legal and Financial

Examining the capacity of Lebanese banks and Legal firms to handle the major IOC and contractors’ accounts and provide a complete set of financial and legal services according to international standards.

9:00 Session five – Banking and Insurance Services

A look at the international standards in providing banking and financial services to Service providers in the oil and gas industry, and the capabilities and willingness of Lebanese bankers to contribute to the development of the industry according to international standards.

Session Chairman: Mr. Wissam Al-Zahabi - Board Member - Head of Economic and Financial Department, Petroleum Administration, Lebanon

Speakers
1. Mr. Gavin Greenway, Project Finance Director, Europe Arab Bank
2. Mr. Fadi Assali - CFA, Founder & Co-CEO, CEDRUS Invest Bank
3. Mr. Joe Baddour, Assistant General Manager, BLC Bank
4. Mr. Georges Kabban, Chief Executive Officer, United Insurance Brokers (DIFC) Ltd.

10:30 Coffee Break

11:00 Session six – Legal issues - The service contract

Emphasizing the contracting relationship between IOCs and Service companies, with an overview of the legal and commercial structure of the Service contracts.

Session Chairman: Rayan Kouatly, Managing Director, Kouatly Law Firm

Speakers
1. Dr. Fadi Moghaizel, Senior Partner, Moghaizel Law Firm
3. Me. Omnia Wahid, Senior Legal Counsel, Dana Gas PJSC

Theme III– Market perspective

Fitting Lebanon in the regional “Jigsaw Puzzle” within ever changing markets

12:30 Session seven – Market updates

An update on the latest developments in the local, regional and international oil and gas markets

Session Chairman: Dr. Naji Abi Aad, Energy Economist / Senior Advisor - Petroleb

Speakers
1. Dr. Carole Nakhle, Energy Economist - director, Crystol Energy Ltd.
2. Dr. Christian Panzer, Energy Policy Expert, Vienna University of Technology
Market potential of Lebanon's oil and gas production and implications from international developments

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Content

• The global energy development
• Status quo of regional objectives
  – Political framework conditions
  – Domestic energy resources
• Market linkages and (mutual) interplays
• Lebanon’s energy situation
• Market potentials of Lebanon’s oil and gas industry
Europe

- **20% renewable** energy sources by 2020
- **20% greenhouse gas emission reduction** by 2020
- **20% energy efficiency** measures by 2020
- **Expected continuation** of level of ambition *beyond 2020 and 2030*
- **High import dependence** in coal, oil and gas - 53.5% of its energy in 2011 (83.5% in oil, 64.2% in natural gas and 22% in coal)
- **Renewable energy potential about 45 to 50%** of expected energy demand in 2030
- **Phase out of nuclear** - significant *infrastructure adaption* required
- **Support scheme design** of renewable energy sources *adjusted* in order to cope with volatile characteristics
- Emission Trading Scheme (ETS) almost out of operation - 3.2 to 5 USD/tCO₂
Status quo

Arabic Gulf region

- **Strong power demand increase** - 56% in the last decade due to demographic increase
- **Power generation** in the MENA region largely depends on **fossil fuels**
- **Subsidized energy prices**
- **Large proven resources of domestic oil and natural gas**
- **Only 40%** of Saudi Arabian’s gas resources are **non-associated**
- Expected future **power demand** could **turn some Gulf countries to net importer of natural gas** within the next 20 years
- **Qatar limits its natural gas export by a national referendum**
- Holding **high** renewable electricity generation (**RES**) **potentials**, especially for solar power generation (**CSP**)  
- **Large proven reserves of unconventionals in Saudi Arabia** - 2,000 times the annual natural gas production of 2012
United States and Asia

- **US energy consumption** dominated by **fossil fuels**
- **No common agreement on renewable targets** - national targets
- **Electricity sector 51.5% of coal** in 2000, **44.5%** in 2010 - **natural gas 16%** in 2000, **24.1%** in 2010
- Total **US coal production stabilized** in same period (~1,100 MTS)

- **Nuclear phase out in Japan** (postponed)
- **China** significant energy **demand increase** - 50% from 2004 to 2010
- **Coal dominates electricity sector by 80%** - only limited coal imports
- **Gas demand tripled from 2000 to 2008**, at a very low level
- China’s **gas import dependency** expected to increase to **62 - 73%** in 2030
- China’s shale gas potential equals 70,000 Mtoe (70% of domestic unconventional gas; same quantity as US)
Global natural gas balance

Global growth in 2012

Annual change, Bcm

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<th>Region</th>
<th>Consumption</th>
<th>Production</th>
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<td>EU</td>
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International gas prices

$/mmBtu

- Average Japanese import price
- UK NBP
- US Henry Hub

Source: Includes data from ICIS Heren Energy and Energy Intelligence Group

BP Statistical Review of World Energy

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Energy prices

Inflation adjusted prices

$2012/boe, monthly

- Oil (Brent)
- Gas basket
- Coal basket

2012 price changes

Annual change, %

- 20%
- 10%
- 0%
- -10%
- -20%
- -30%
- -40%

Source: Includes data from ICIS Heren Energy and Energy Intelligence Group, McCloskey and Platts

BP Statistical Review of World Energy

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Objectives of different world regions

- **Arabic Gulf**
  - Finance national social welfare systems
  - Keep energy prices at reasonable level

- **Asia**
  - Energy security - secure increasing energy demand
  - Develop national energy resources (coal / unconventional gas)

- **North America**
  - Increase industrial competitiveness
  - Develop energy self sufficiency - technology development (learning)
  - Shareholder interests of energy companies (double-digit dividends)

- **Europe**
  - Combat climate change
  - Diversify supply portfolio
Interplay of global energy markets

**EUROPE**
- Nuclear phase out
- RES promotion
- Balancing energy required
- Substitute of nuclear energy

**Russia**
- Gas export via pipelines

**North America**
- Gas supply increases
- Gas demand increases
- Coal demand decreases
- Coal supply stabilizes (shipped)

**ASIA**
- Coal demand stabilizes
- Coal supply stabilizes
- Gas demand increases
- Gas supply increases (shale)

**Australia**
- Coal export
- Conventional Gas export (offshore LNG)

**GULF**
- Gas supply increases (export LNG)
- Gas demand increases (shale)
- Oil exports stabilizes

**Australia**
- Coal export
- Conventional Gas export (offshore LNG)
Qualitative assessment

- **Cost effective** exploitation of *shale gas* - especially in *North America* - 
  *Decreasing gas prices* (Henry Hub) - LNG (partly) links national markets

- **No intention to export** large quantities to other markets (*competitiveness of domestic industry*)

- European energy strategy supported by high *financial incentives*

- Renewable energy (volatile character) requires back-up power

- Large coal investments noticed since coal and CO2 prices are low

- Increasing *gas imports in Japan and China* - stabilize demand for GCC and Russia -
  important income for social welfare system

- **Increasing domestic demand in GCC** - unconventional gas in Saudi Arabia attractive

- *LNG terminals ... linking markets*
  – Enabling flexible and spontaneous allocation of gas resources

- **Unconventional gas** and *LNG transport* systems *impact* currently built and planned
  operation of *gas pipelines* significantly
Lebanon’s energy situation

- Lebanon holds no proven gas reserves
- Hardly any gas infrastructure system ... but ongoing plans
- Power sector: 2 CCGT but not in operation due to gas shortage
- Imports from Syria and Egypt - but too little historical quantities - currently no imports from those countries

- Hydro carbon reserves identified of 336-700 bcm (Lebanon / Levant Basin) - no drilling yet
- No licensing yet - long time delay
- Difficult to attract foreign investors in case of long-term time delays generally still attractive investment frameworks
Lebanon - future potentials

- High expectations of natural gas reserves in Levant Basin within Lebanese sea rights
- Starting the production today implies exploiting by around 2020
- Due to international development oversupply in global gas markets
- Levant Basin difficult technical characteristics - higher costs
- Higher costs would need to compete with established gas exporters

- Option to serve domestic market - requires inland infrastructure
- General oversupply requires other options:
  - GTL
  - Domestic supply for power / petrochemicals / households

- Oil: Limited expectations, otherwise two refineries in Lebanon
Market potentials

How to secure domestic energy demand?

• Short term:
  – Floating LNG terminal (regasification) installed within 15 months
  – Lebanon LNG imports at price level in EU and Asia

• Long term:
  – Licensing of domestic reserves
  – Development of national infrastructure

How to exploit domestic potentials - market for exports?

• Licensing and drilling activities in order to prove domestic resources
• Synergies at Levant Basin with neighboring countries
• LNG terminal (Liquefaction) on Lebanese costs
• Export petrochemicals and other items of higher quality
  (value added chain - inland)
Thank you for your attention!

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