TCW Energy & Infrastructure Group
2010 IPAA Private Capital for Energy Conference
February 25, 2010
Houston, Texas
TCW Energy & Infrastructure Group ("EIG")

- Among the leading institutional providers of capital to the energy sector globally
  - Singular focus on energy and energy-related infrastructure
  - Broad offering of capital to industry (senior debt through equity)
  - Total capital solution providers

- Global investment platform
  - Global investment focus (invested in 32 countries; 6 continents)
  - 36 investment professionals
  - Operate from Houston, New York, Los Angeles, Washington D.C., London and Sydney
  - Team recently transitioned to joint venture relationship with TCW

- 28-year track record in energy, E&P Specialists
  - 14 funds, 250+ portfolio investments
  - 4 full time Petroleum Engineers
  - Raising our 15th fund

- Active Investor
  - Invested over $10 billion in energy globally since inception
  - Over $6.5 Billion since 2001
  - Over $3.3 Billion invested in 2008 – 2009
A track record hard to match

*Funds that target all portions of the balance sheet*

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Committed Capital</th>
<th>Initial Closing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Debt &amp; Royalty Fund I 4</td>
<td>$100,000,000</td>
<td>1982</td>
</tr>
<tr>
<td>2. Debt &amp; Royalty Fund II 4</td>
<td>293,000,000</td>
<td>1986</td>
</tr>
<tr>
<td>3. Cogeneration &amp; Infrastructure Fund 5</td>
<td>1,147,000,000</td>
<td>1987</td>
</tr>
<tr>
<td>4. Oil &amp; Gas Equity Fund 4</td>
<td>78,000,000</td>
<td>1988</td>
</tr>
<tr>
<td>5. Debt &amp; Royalty Fund III 4</td>
<td>208,000,000</td>
<td>1989</td>
</tr>
<tr>
<td>6. Debt &amp; Royalty Fund IV 4</td>
<td>308,000,000</td>
<td>1993</td>
</tr>
<tr>
<td>7. Debt &amp; Royalty Fund V 4</td>
<td>600,000,000</td>
<td>1994</td>
</tr>
<tr>
<td>8. Debt &amp; Royalty Fund VI 4</td>
<td>278,000,000</td>
<td>1997</td>
</tr>
<tr>
<td>9. Global Project Fund 4,6</td>
<td>500,000,000</td>
<td>2001</td>
</tr>
<tr>
<td>10. Energy Fund X 5,7</td>
<td>734,000,000</td>
<td>2003</td>
</tr>
<tr>
<td>11. Global Project Fund II 6</td>
<td>700,000,000</td>
<td>2004</td>
</tr>
<tr>
<td>12. Global Project Fund III 6</td>
<td>1,534,000,000</td>
<td>2005</td>
</tr>
<tr>
<td>13. European Clean Energy Fund 5</td>
<td>507,000,000</td>
<td>2006</td>
</tr>
<tr>
<td>14. Energy Fund XIV 5,8</td>
<td>2,569,123,000</td>
<td>2006</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$9,556,123,000</strong></td>
<td></td>
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</table>
100% Energy; > 50% E&P
Nearly $10 Billion Invested in Energy Since 1982
Invested in 32 Countries
What have we been doing lately?

- Latest Fund (Energy XIV) is invested ~50% in Upstream and 20% in Midstream
- 25% outside of US
Energy companies and assets and related infrastructure

- Our roots are firmly in the upstream E&P space, but we play anywhere in the energy space
Institutional Investors and International E&P

- **From 2003 to 2007, institutional investors flocked to E&P private equity**
  - Sector specific E&P PE invested mostly or exclusively in US
  - Non sector specific funds also allocated heavily to US E&P
  - International E&P left mainly to generic PE or public exchanges
  - Resulted in US assets being bid up and many weak management teams being funded
  - **Institutions reassessing their investments in the sector**
    - Does E&P PE generates “alpha” or simply expensive “beta”
    - Just a commodity play?
    - Less appetite for illiquid investments
    - Radically paring down GPs
    - Lots of interest in “other” energy - Infrastructure and Renewables e.g.

- **Nervousness about North American Gas**
  - Not sure if shale gas is a game changer or not
  - Bearish sentiment should help attract capital to non-US opportunities

- **Oil relatively more attractive**
  - Many “Peak Oil” theorists remain
  - Denominated in US Dollars
  - Know proven reserve are expensive to produce or in bad zip codes
Institutional Investors and International E&P

- **International E&P often perceived to be the riskiest part of a risky industry**
  - Best technical opportunities often in bad zip codes
  - Resource nationalism
  - Currency risk
  - Political risk
  - Less well bore diversity, higher well costs
  - Less infrastructure, thinner physical commodity markets
  - Illiquid
Resource Nationalism

- International Oil Companies ("IOCs") have full access to only ~7% of the world’s oil reserves.
- National Oil Companies ("NOCs") operate as an extension of the government (e.g. Saudi Aramco, Pemex, PDVSA), or as autonomous entities that concurrently support government objectives (e.g. Petrobras, Statoil).
  - Activities of NOCs are frequently inefficient and/or not market-oriented.
- NOCs produce the majority of the world’s oil and hold most of the world’s proven reserves.
- IOCs are increasingly relegated to exploring in high-risk areas in order to secure reserves.
- IOCs have until recently focused on leveraging their technical, organizational, and financial capabilities on low risk projects.
  - Exxon’s investment activity provides an example.
- Iraq auction of development rights in Dec 2009 highlighted differences between IOCs, NOCs.
- Credit crunch has improved the opportunities available to IOCs.

### World Oil Production, 2008

<table>
<thead>
<tr>
<th>Region</th>
<th>Production (in million bpd)</th>
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</thead>
<tbody>
<tr>
<td>OPEC</td>
<td>36.7</td>
</tr>
<tr>
<td>OECD</td>
<td>18.4</td>
</tr>
<tr>
<td>EU</td>
<td>2.2</td>
</tr>
<tr>
<td>Non-OPEC</td>
<td>32.3</td>
</tr>
<tr>
<td>Former Soviet Union</td>
<td>12.8</td>
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### World Proved Oil Reserves, 2008

<table>
<thead>
<tr>
<th>Region</th>
<th>Reserves (in %)</th>
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<tbody>
<tr>
<td>OPEC</td>
<td>70.6%</td>
</tr>
<tr>
<td>Non-OPEC</td>
<td>12.9%</td>
</tr>
<tr>
<td>Former Soviet Union</td>
<td>9.4%</td>
</tr>
<tr>
<td>OECD</td>
<td>6.6%</td>
</tr>
<tr>
<td>EU</td>
<td>0.5%</td>
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</table>

Source: BP Statistical Review - 2009
Oil markets – Investment of 5.9 trillion to 2030

- **Demand:**
  
  - Global oil consumption is ~84 million barrels per day, with OECD at 54% and US 22% of total
  
  - Strong linkage to GDP growth
  
  - Rapid urbanization and industrialization in Asia. China has ~27 vehicles per 1000 people, US has 780. Vehicle ownership strongly linked to personal income
  
  - Demand side response to price rise and carbon will drive fuel efficiency gains

- **Supply:**
  
  - Cheap oil is hard to find. Of ~70,000 oil fields globally, 20 super giant fields have produced 25% of total supply. 16 of those, which have been in production for decades, are significantly past their peak.
  
  - 2009 saw reserve replacement fall below production, at 88%. Finding and development costs soared 66% to $25.50/bbl
  
  - Marginal production increasingly coming from deep water or unconventional sources (eg oil sands)

Source: BP Statistical Review - 2009
Gas markets – investment of $220 billion per annum required

**Demand:**

- Global consumption is ~3 trillion cubic metres. US, W. Europe, Russia and M. East account for ~64% of total.
- Driven by regional market dynamics and strong linkage to GDP growth (industrial production and household incomes) and price (inter-fuel competition and weather)
- IEA forecasts demand to 2015 to grow at 2.5%pa. Over 45% of demand will be from gas fired generation and 1/3rd of demand growth is in Asia
- Geographical mis-match between load centres and resource endowment

**Supply:**

- Over half of global resources located in Russia, Qatar and Iran. Global resource able to meet demand at current levels for over 130 years, excluding unconventional sources
- Unconventional proven reserves now account for 4% of reserve base. Technology driven boom in resource base
- Inter-regional trade (LNG) forecast to grow faster than demand, however capacity utilisation of liquefaction facilities to decline. Driven by lag in investment cycle and rise of unconventional supplies.
- Around 200bcm of LNG capacity required to 2030 and currently Australia alone has 100bcm of projects planned.

Source: IEA World Energy Outlook 2009, EIG
Non-US Equity Investments in E&P

- **We have been an active equity investor in non-US E&P since the early 1990s**
  - Equatorial Guinea
  - UK North Sea
  - Australia (offshore and CSM)
  - Latin America (Peru / Bolivia / Brazil / Argentina)
  - Canada (Conventional / CBM / Tar Sands)

- **We are selective in what non-US equity investments we’ll make, but we will play for the right opportunity**
  - Growth capital as opposed to start up capital
  - Don’t sell hunting licenses
  - Existing assets / development like risk
  - Strong management team with demonstrated track record
  - Local partner preferred
  - Clear plan of execution and exit
  - Clearly mitigated political risk, currency risk
  - International resource plays
  - Small listed companies
## Thematic Investments and Recent Examples

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Current Dynamic</th>
<th>EIG Portfolio/Pipeline Examples*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy-related Infrastructure</td>
<td>• Pipelines, gathering systems, compression, processing and rigs for energy companies looking for growth capital or to recycle capital currently tied-up on their balance sheet</td>
<td>epic energy, Piñon, SandRidge</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>• Wind, geothermal, solar and biofuels primarily in the US and Europe in response to the implementation of carbon regimes</td>
<td>Invenergy, ABENGOA SOLAR</td>
</tr>
<tr>
<td>Recapitalization of Mature Assets</td>
<td>• Operating assets with significant existing cash flow as a source of liquidity for large energy companies in a credit constrained environment</td>
<td>Cheniere, Piñon, SandRidge</td>
</tr>
<tr>
<td>Oil versus Gas</td>
<td>• Onshore and offshore primary and tertiary oil recovery plays recognizing the relative value of oil versus gas on a BTU equivalent basis in the current market</td>
<td>Anadarko, Nations Petroleum</td>
</tr>
<tr>
<td>China/Asia Energy Demands</td>
<td>• Enhanced activity in existing EIG Austral-Asian platform recognizing continuing resource nationalism and demand for energy and resources</td>
<td>Coogee Resources, Moly Mines</td>
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</tbody>
</table>
TCW Energy & Infrastructure Group
Unmatched Record in E&P

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