Previsioni dei mercati nei settori: oil & gas, petrolchimico, raffinazione, energia

ovvero

Chi ha spostato il mio formaggio?
STRATEGIE E PREVISIONI DI MERCATO PER LA FILIERA DELL’IMPIANTISTICA INDUSTRIALE

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Main Themes Today

- Continuing growth in energy demand and related investments

- New, unconventional, unaccessible, different, ultra-deepwater...

- Major difficulties
  - Cost explosion
  - Project delays, cost overruns
  - Geopolitics
  - New policies often unclear
    e.g. Local content, permitting, environmental
  - Lower oil prices
  - Lower ROIs
  - New restrictive Capex policies
  - Outsourcing

- Continuing uncertainties, changes, market shifts

Great opportunities, complex markets
Energy demand to increase by ~ 50% in 20 years

Source: BP Energy Outlook 2035
...with a substantial change in the mix
Slowdown in the forecast growth rate

Recently announced lower expectations of global economic growth

- IMF World Economic Outlook (Oct. 2014)
  - 4.0% → 3.8% in 2015

- IEA global oil demand (Oct. 2014)
  - 92.6 → 92.4 Mbd in 2014

The Economist, Summer 2013
The Capex investment expectations continue to be encouraging...

...although some analysts express caution.

Source Company data, Barclays Research (June 2014)
Sudden collapse of oil price

- Reduced expectations of economic growth
- Abundance of oil and gas supply
- Stronger US $
- OPEC’s quest for market share

Sources: EIA (2014)
Some higher cost producers might face difficulties with lower oil prices

Current global liquids production (b/d x 1,000)
Overall, oil & gas reserves are plentiful and increasing

- New conventional finds\(^\circ\)

- Numerous new unconventional sources\(^\circ\)
  - E.g. Shale gas to be produced also outside of the USA

- But many new oil & gas discoveries are more and more:
  - Unconventional
  - Unaccessible
  - Technologically difficult
  - In complex, often hostile environments

\(^\circ\) Illustrated in 2013

Abu Dhabi, UAE – October 2014
Significant discoveries and play openers, 2008–13
Example: deep and ultra-deep waters account for an increasing share of conventional oil and gas discovered
IOC’s, NOC’s and E&C Companies’ current predicament

- More expensive new reserves
- Higher supply and execution costs
- Incredibly more complex projects
- Increasing revenues (at Brent >100$ lbl)
- Lower margins, lower returns
- Tighter capex, cost control discipline
- Quest for improved, new execution approaches
IOC’s Much Lower Returns

Oil company returns have been declining in a high price environment.

Source: IHS Upstream Competition Service

ROCE data include Anadarko, Apache, BG Group, BP, Chevron, ConocoPhillips, Eni, ExxonMobil, Hess, Marathon Oil, Occidental, Repsol, Shell, Statoil, and TOTAL.

Upstream ROCE defined as [Upstream Net Income / Upstream Year-End Net Capitalized Costs].
A major factor: cost explosion

Upstream Capital Costs Index

Source: IHS Energy (August 2014)
Impact on EPC contractors: declining growth rate and margins

EPCs likely to focus on cost reductions and productivity to improve margins

(*) A sample of 21 largest global contractors (US, European, Japanese, Korean)

(°) Forecast
Drama in mega projects execution: increasing cost overruns and delays

500 B US$ incremental cost increase
(from US$1,200 B US$ original estimate to US $1,700 B US$)

on a sample of 365 projects reviewed

Project delivery success is decreasing, especially in industry segments where complexity and risks are considerably higher
Barriers to successful project delivery

- Project costs significantly underestimated
- Inadequate planning
- Poor selection and management of contractors
- Lack of available construction skills
- Bureaucratic barriers, regulatory issues and geopolitical challenges
- Impact of exchange rate fluctuations
- Megaprojects = Megaheadaches?
  - Scale/complexity outgrowing the ability of even the largest oil companies
- Improper contracting schemes?
Trends and impacts on contracting

- IOC can no longer rely on oil and gas price increases to mask many of the consequences of megaproject cost overruns

- Extreme caution in investing:
  - Has Capital spending peaked?
  - IOC - abandoning the most expensive projects?
    High projects mortality after FEED completion, while waiting for FID
    Dropping marginal projects

- Large projects divided into smaller EPC packages in the future
  - Less megaprojects
  - Larger competition on smaller size projects
  - More opportunities for PMCs contractors

- Higher transfer of risks to contractors
  - Lump Sum Turn Key (LSTK) to be re-affirmed
  - Even more onerous clauses in the future?

- But also insistence on paid offers for large projects
More stringent local content contractual constraints

Typical requirements in almost 30% of the contracts over the last 4 years:

- Minimum % (20% up to 65% in certain cases) to be spent locally
- Local suppliers/sub-contractors to be certified and favoured
- Failure to meet the national content implies termination for default
- Client indemnification for damages due to Contractor’s failure to meet its local content obligations

Irrespective of the contractual obligations:

- Local firms a must for their knowledge of local laws, rules, permitting etc.
- JVs with local firms: a plus for an effective commercial penetration
- Maieutic role of the EPC Contractor to promote cooperation between traditional suppliers/subcontractors and the local ones
例：强制局部内容策略：巴西

平均局部内容承诺

Source: IHS Energy Global Deepwater & Growth Play Service
With the aim of reducing CAPEX

- More flexibility to accept alternative Vendors (e.g. Chinese) from the Clients under Contractor’s full responsibility
- Contractors more encouraged than in the past to propose technical alternatives
- Selection of project technologies made by the Clients in almost 90% of cases
- Ownership of technology agreements with technology providers allowed

+ Procurement capabilities in low cost market (particularly in China)
+ Ability to propose solutions via design optimization/value engineering to minimize Capex.
+ In house technologies or collaboration agreements with technology providers.
The changing dynamics of upstream R&D

- **E&P Firms***: US-based public oil & gas companies and the US-based subsidiaries of public foreign oil & gas companies that had at least 1% of US oil or gas production or reserves; sources: Department of Energy, EIA, IHS CERA analysis.
- **Oilfield Services Firms**: Leading oilfield equipment & service firms (24 firms examined); sources: Annual Reports, IHS CERA analysis.
- **Oil Price***: U.S. Crude Oil Imported Acquisition Cost by Refiners; sources: Department of Energy, EIA, IHS CERA analysis.
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Upstream oil & gas
North America and Asia & Australia to lead the way in E&P Capital spending

**Upstream 2013**

North America: 23%
Asia & Australia: 15%
Traditional IOC Majors (Int'l Spending): 4%
North American Indipendents (Int'l Spending): 6%
Middle East: 11%
India, Asia & Australia: 6%
Latin America: 6%
Russia: 18%
Africa: 7%
Europe: 4%
Other: 3%

Source: Barclays (June 2014)

**Onshore Upstream 2013**

Offshore: 26%
Onshore: 74%

Source: Barclays (June 2014)
Growing importance of offshore and deepwater

Global deepwater oil and gas production (MMboe/d)

Source: DCube by Rystad Energy (2014)
Global deepwater capital expenditure 2014-2020 (USD billion)

Top 15 countries

Source: DCube by Rystad Energy
Example: Brazil’s growing oil production

Source: IHS Energy Global Deepwater & Growth Play Service (2014)
Example: deepwater acreage in the Mexican Gulf of Mexico

- Resource potential barely tested: drilled only 51 exploration wells in deep water (vs. 1,085 in USA).
- 28 billion boe found in the US deepwater GOM
  1.3 billion boe in deep waters of Mexico—so far.
- PEMEX holds over 142,000 km² deepwater license areas
  - Almost 50% more than the total licensed area in the US deepwater GOM.

Source: IHS Energy Insight Upstream Strategies Service (2014)
Europe will need gas imports to compensate declining indigenous supply
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MILANO, 30 OTTOBRE 2014

20° CONVEGNO SEZIONE COMPONENTISTICA D’IMPIANTO ANIMP
Global liquefaction capacity set to increase strongly from 2015–16
LNG supply competition is increasing
Growing and diversifying supply potential

- LNG supply competition is increasing
- Growing and diversifying supply potential
- Total Projects: 1,074 mt
  - Existing, 288 mt
  - Under Construction, 128 mt
  - Potential, 685 mt*
LNG liquefaction plants cost escalation (US $)

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Refining prospects

- Overall, a very positive growth perspective
  - + 1.2%/y global demand growth
  - + 1.2 MBPD capacity growth in 2014
  - Light transportation fuels
    - Middle distillates
    - Gasoline
    - Heavy Fuel Oil

- More stringent fuel quality standards leading to more investments
  - Virtually everywhere, although with differences
  - Uncertain timing of the International Maritime Organization’s bunker fuel 0.5% limit implementation

- Production becoming global – *world class* refineries to replace older obsolete plants

- Major impact of rapidly growing new US tight oil production
Refined product demand growth

Global Demand Growth by Product (2012-2035)
(million b/d; annual % growth)

- Gasoline: 0.78%
- Naphtha: 0.91%
- JetFuel/Kero: 0.96%
- Middle Distillate Heavy Fuel Oil: 1.84%
- LPG: 1.49%
- Other Products: 1.57%

Regional refining perspective

Regional Refined Product Demand Growth (2012-2035) (million b/d; annual % growth)

Petrochemicals: major changes behind the scenes

Crude oil and US natural gas prices taking different paths

- Crude oil, Brent (Left scale, dollars/barrel)
- Natural gas, Henry Hub (Right scale, US dollars/million Btu)
New petrochemicals capacity 2010-2020

Proximity to demand centers and low cost feed stocks
Basic chemicals: regional capacity and growth
Unconventionals drive olefins growth

PDH and CTO/MTO becoming significant olefins contributors
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Power generation is a huge proportion of total energy demand

Source: BP Energy Outlook 2035
Net 70% production capacity addition in 20 years

Source: IEA 2013
Investment drivers: 1-Higher power demand mostly in developing countries

Source: IEA Nov. 2013
Change of mix in OECD countries, coal-led growth in non-OECD

Source: IEA 2013
Investment drivers: 2-Replacement of old capacity
China to lead the investment wave, but many developed markets to follow

Source: IEA Nov.2013
Major change in future power investment patterns
Conclusions

- Investment growth to continue, but more cautiously
  - In volume
  - In spending patterns

- Shifting and somewhat unpredictable global markets

- Growing importance of unconventionals, deep and ultra-deepwaters, difficult locations

- Higher tech areas to dominate IOC’s and “Western” EPC’s worlds

Many opportunities ahead, with a series of contradictions