Petroleum Investments
Perspectives from an IOC

Christophe de Margerie
President Exploration & Production
Total Vice-President

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Petroleum Investments: Perspectives from an IOC

- A new energy environment

- IOC Strategies: Improve our business model
A common challenge in a worrying geopolitical context: Restore confidence in supplying world oil demand

Source: IEA; TOTAL
A common challenge in a worrying geopolitical context: Restore confidence in supplying world oil demand

Spare production capacity in OPEC countries

Ensure oil prices are sustainable for:

• economies of producing countries
• and consumers
Tight market for Contractors and Services Companies: Costs increases: a Major Issue or the Issue of the Majors?

- Strong increase of raw materials (steel, …)
- High request for services
  - Reduced competition
  - Margins ↑
  - Human resources constrains

- Construction
  - Cost increase mostly since 2003
  - Projects cost: > 50%

- Drilling rigs
  - Steep increase: +200%

- Seismic (offshore 3D)
  - 40-70 000 $/km² vs 20-30 000 $/km² in 2002-03
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IOC’s Strategy…
Share w/NOC’s our experienced technology

Developing new reserves using breakthrough technologies

From Outcrop / Seismic…

… to Pore scale

Modern Analog
Field outcrop

Faults

Sismage™

Image analysis

km

cm / mm

GRIDDED SIMULATION MODELS
... and our current and future R&D efforts

Extra heavy oil:
- Recovery
- Upgrading
- Process integration
- Energy and CO2

Seismic technology
- Acquisition
- Imagery (PSDM...)
- Lithoseismic, 4D

Deeply Buried Reservoirs:
- Reservoir prediction
- High pressure drilling
- High temperature

Mature fields
- EOR
- Debottlenecking
- Water separation

Tight gas
- Volume estimates
- Frac
- Well pattern

Deep water:
- Subsea installations
- Flow assurance
- Qualifications

Reservoir characterization
- Earthmodel
- Upscaling
- Fault description

Gas Solutions
- Sour gas, CO2, H2S process,
- LNG
- Chemical conversion: GTL...

Deepwater:
- Subsea installations
- Flow assurance
- Qualifications
# IOC’s Strategy…
Share w/NOC’s our Risk Management Capability

| SINCOR | PARTNERS | PDVSA | 38 % | TOTAL | 47 % | STATOIL | 15 % |

**Shared Management & Expertise**: OPCO

- **Long term commitment**: 35 year project
- **Local content**: 72%
- **Total staff (current)**: 1100
  - 95% Venezuelan
- **Major long term investment**:
  - Investment: 4.2 B$ (before start-up)
  - Investment (planned): >10 B$ (after start-up)
- **Raw production**: 200 000 b/d (8.5°API) ➔ 180 000 b/d (Zuata Sweet: 32°API)
- **Full upgrading**: Maximum added value in Venezuela

**A great industrial success**
We all face tough new challenges  
… which need to be addressed in common

• Many new challenges …
  ▪ Restore confidence in our common ability to deliver reliable oil productions …
  ▪ …in a worrying geopolitical context
  ▪ New expectations from host countries…(and from consuming countries)
  ▪ Technology and cost issues
  ▪ Tough / increased competition : many newcomers with less experience

• Our answer : Audacity, Excellence and Vision
  ▪ Audacity : Develop the new technologies of the future
  ▪ Excellence : Deliver large Projects within Costs and Schedule
  ▪ Vision : New relationship with Host Countries and NOCs

Go beyond old petroleum practices
IOC’s Strategy…. Go “Beyond old Petroleum” practices

Desalination
Environment
Local Content

Training
Communities

Tailored host country's expectations.
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Confidence based on Mutual Understanding and Respect