



World Petroleum Council



Challenges and opportunities in global oil and gas finance

Expert workshop hosted by the UK Committee of the World Petroleum Council

World Petroleum Council Expert Workshop: Challenges and opportunities in global oil and gas finance

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Financing Oil and Gas Key issues for international participants

Benjamin Lechuga
Corporate Finance - Energy and Resources

London, Feb 19, 2014

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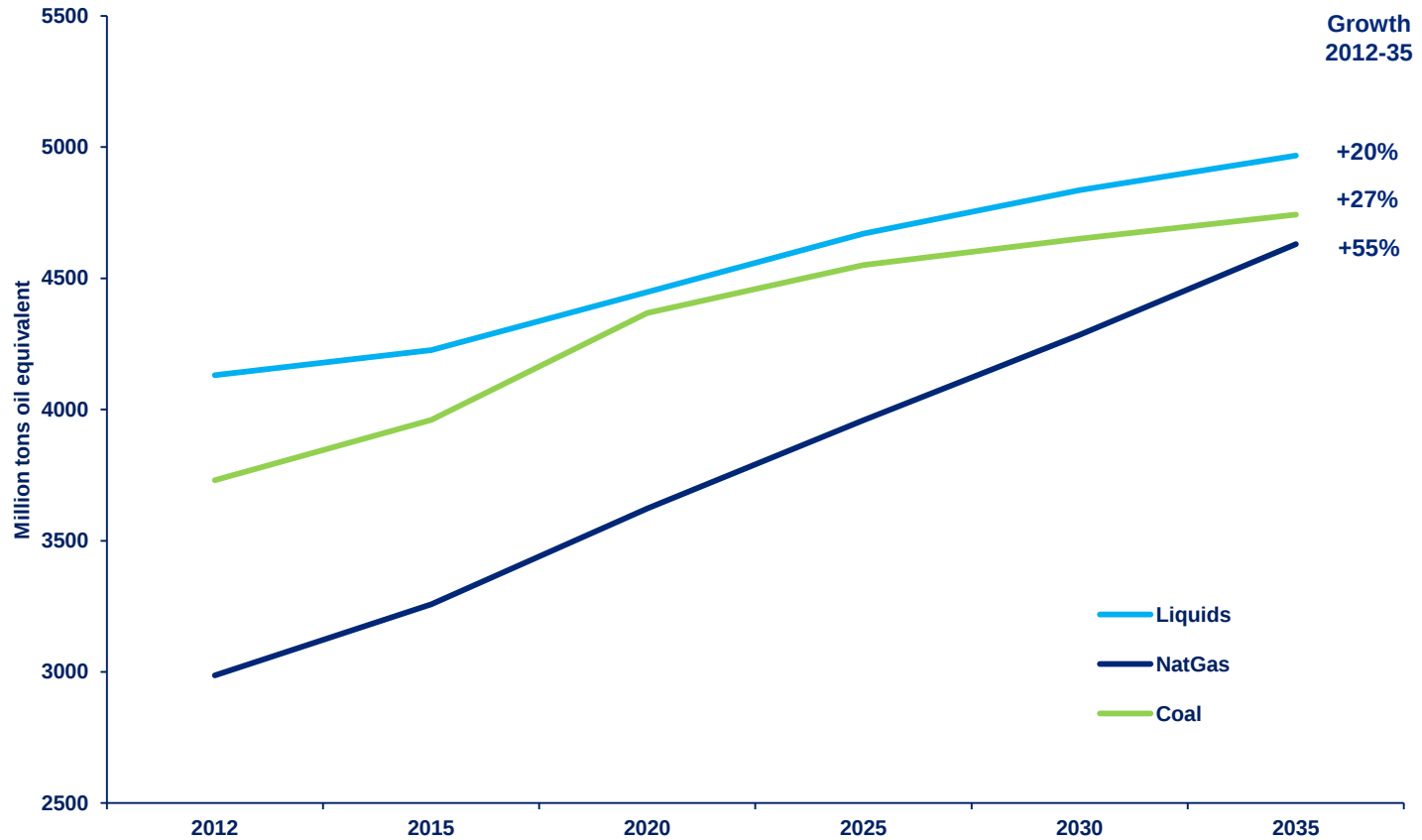


Key trends

Key trends

Energy demand keeps on growing

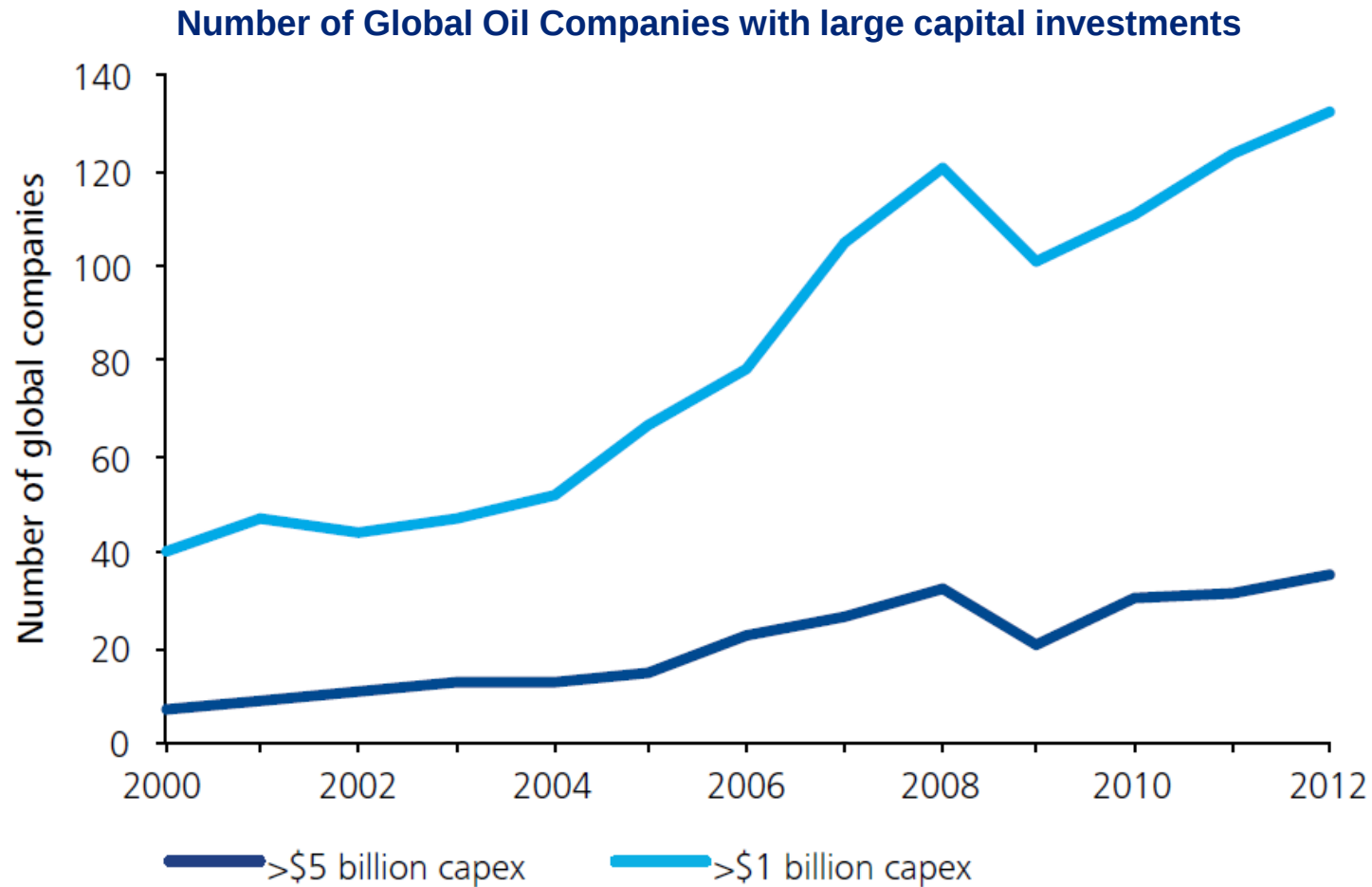
Hydrocarbon consumption evolution



Source: IEA, BP World energy Outlook 2014

Key trends

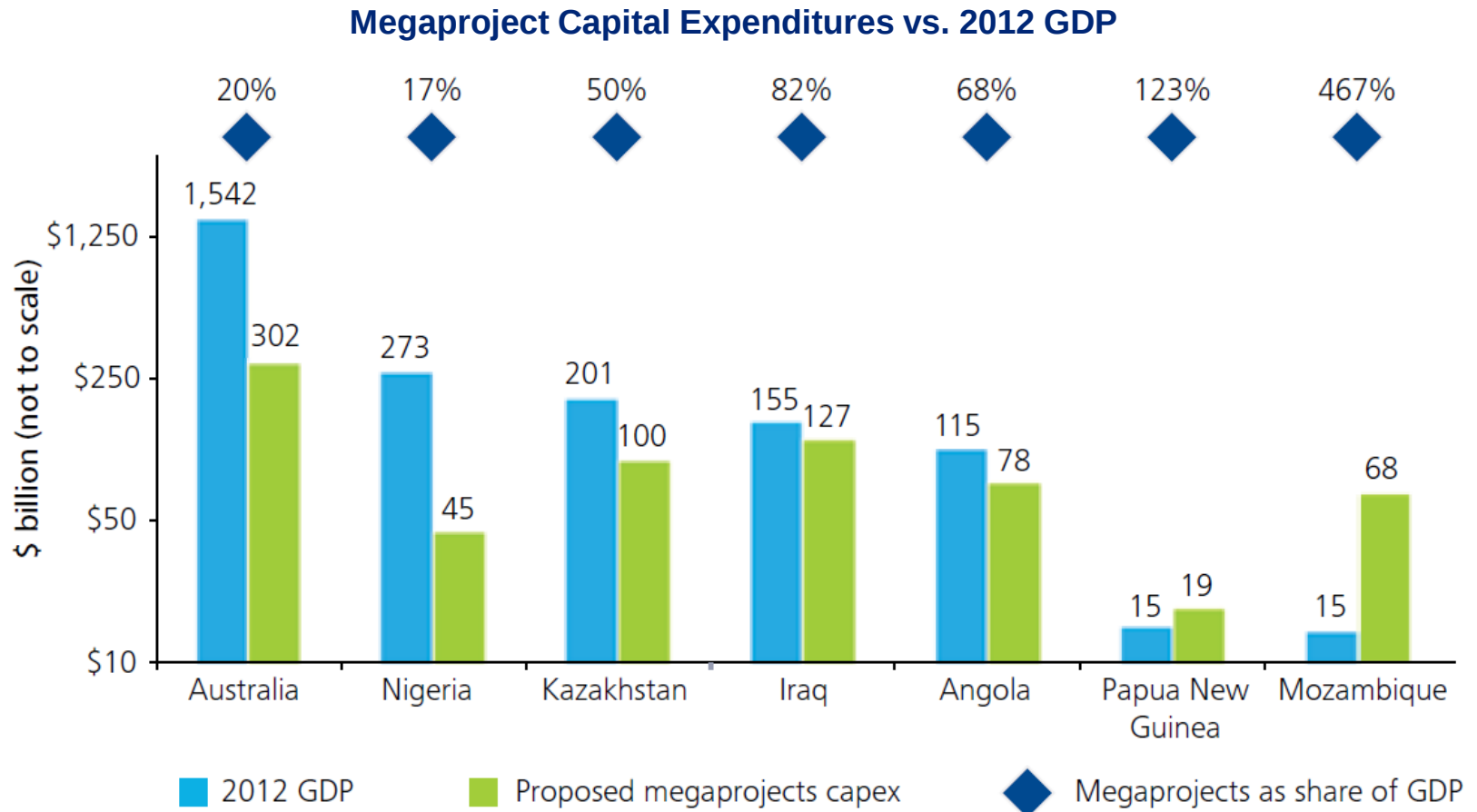
Projects become larger...



Sources: FactSet and Deloitte analysis

Key trends

...much larger...



Note: For Mozambique, data is based on the list of proposed projects as of April 2013. A final investment decision is pending for some projects, which include all 10 LNG trains planned.

Sources: Company reports, Goldman Sachs estimates, IMF World Economic Statistics, World Bank, and Deloitte analysis

Key trends

....and costlier on a unit basis

FINANCIAL TIMES

August 11, 2013 12:17 pm

Oil majors trapped in cycle of spending more but finding less

The Street

Exxon's Kashagan Project Plagued by Cost Overruns

Shell costs double at Sakhalin

theguardian

High costs put \$150b LNG projects at risk

 **thewest.com.au** The West Australian

September 8, 2013 4:00 pm

Exploration: Rising cost of complex projects hits majors

FINANCIAL TIMES

Global Oil & Gas Capital Expenditure Breaks \$1 Trillion Barrier

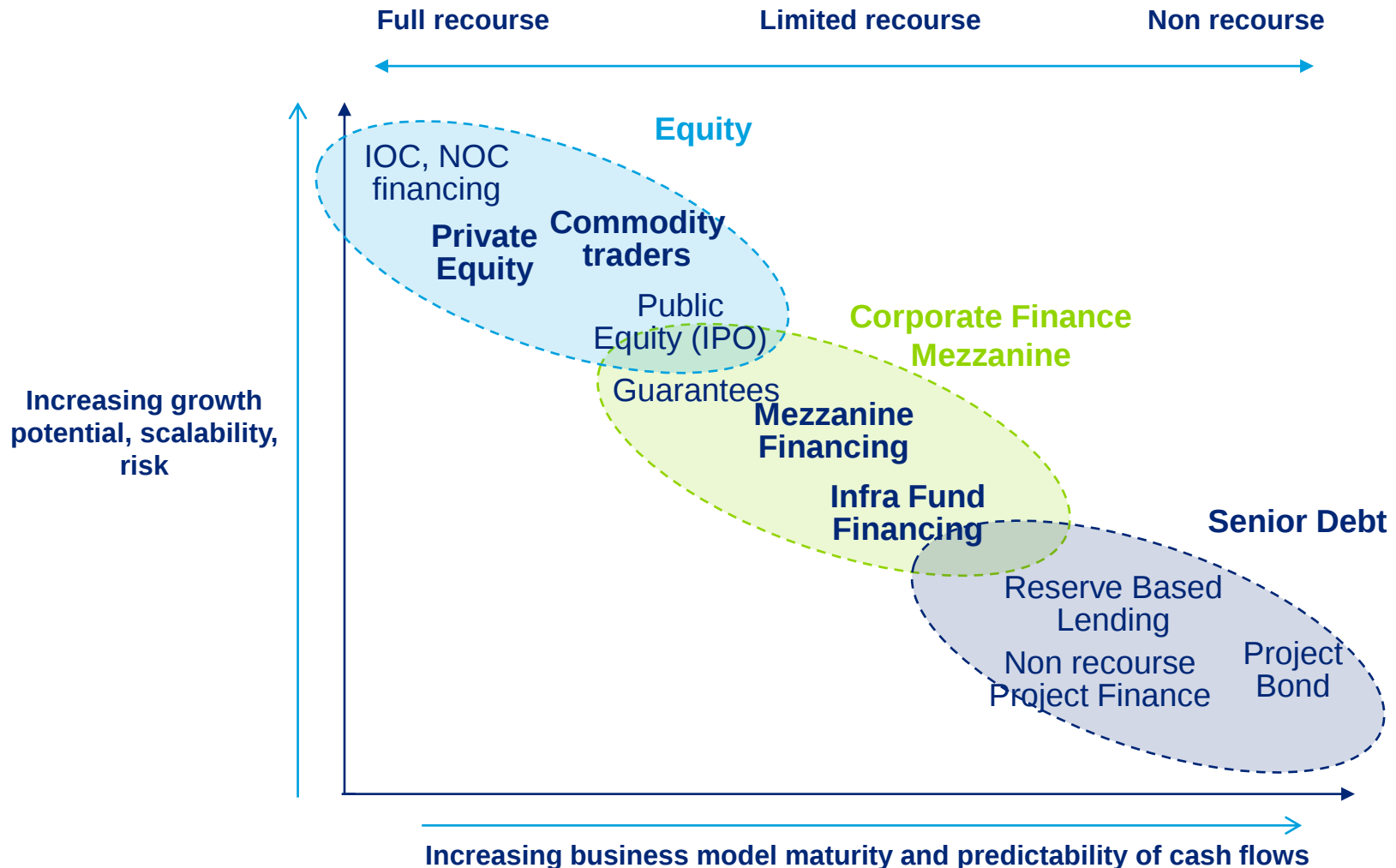
23 Aug 2012

GlobalData»

The spectrum of financing solutions
has expanded

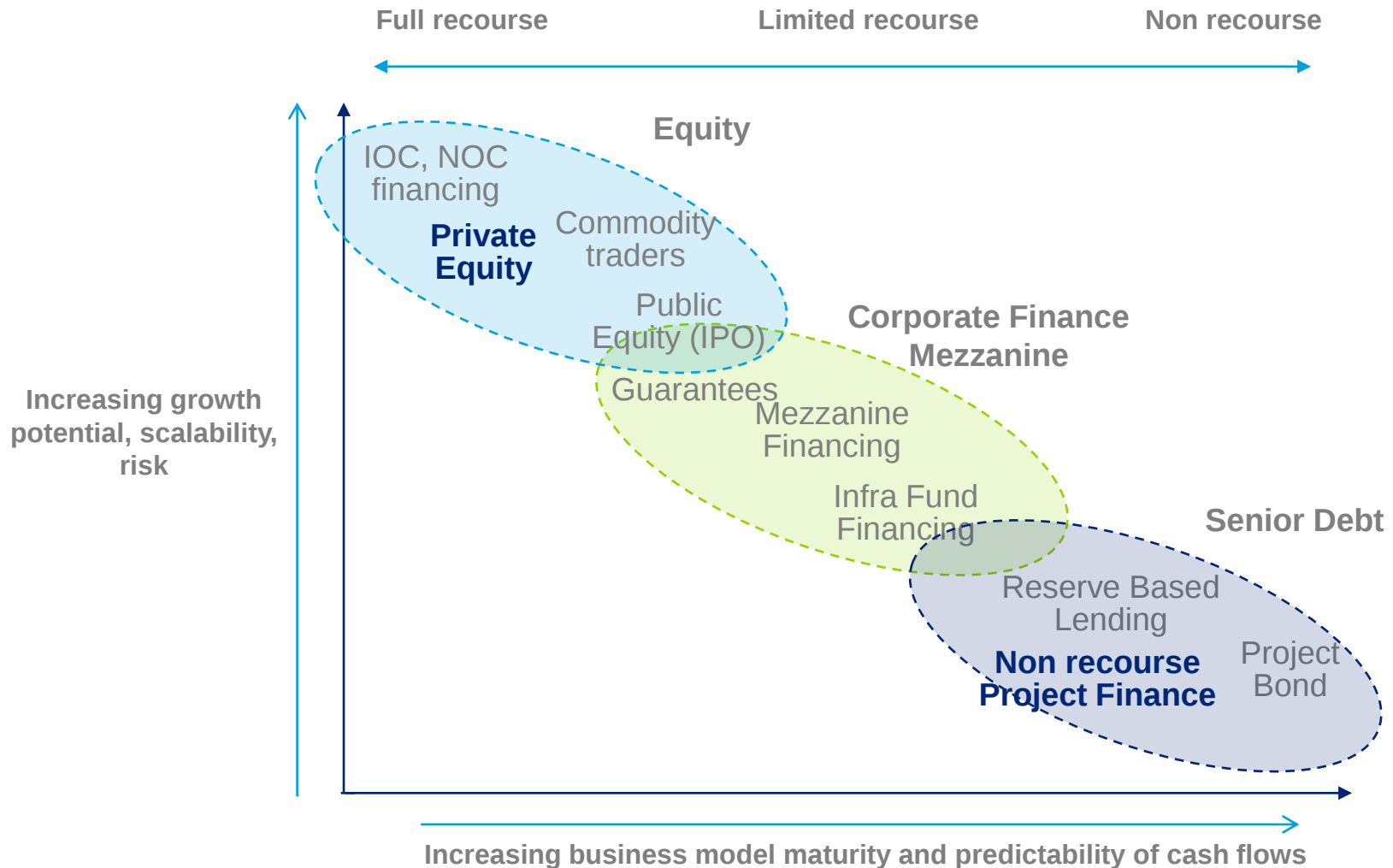
The spectrum of financing solutions has expanded

New sources of finance have started to enter the oil and gas space



The spectrum of financing solutions has expanded

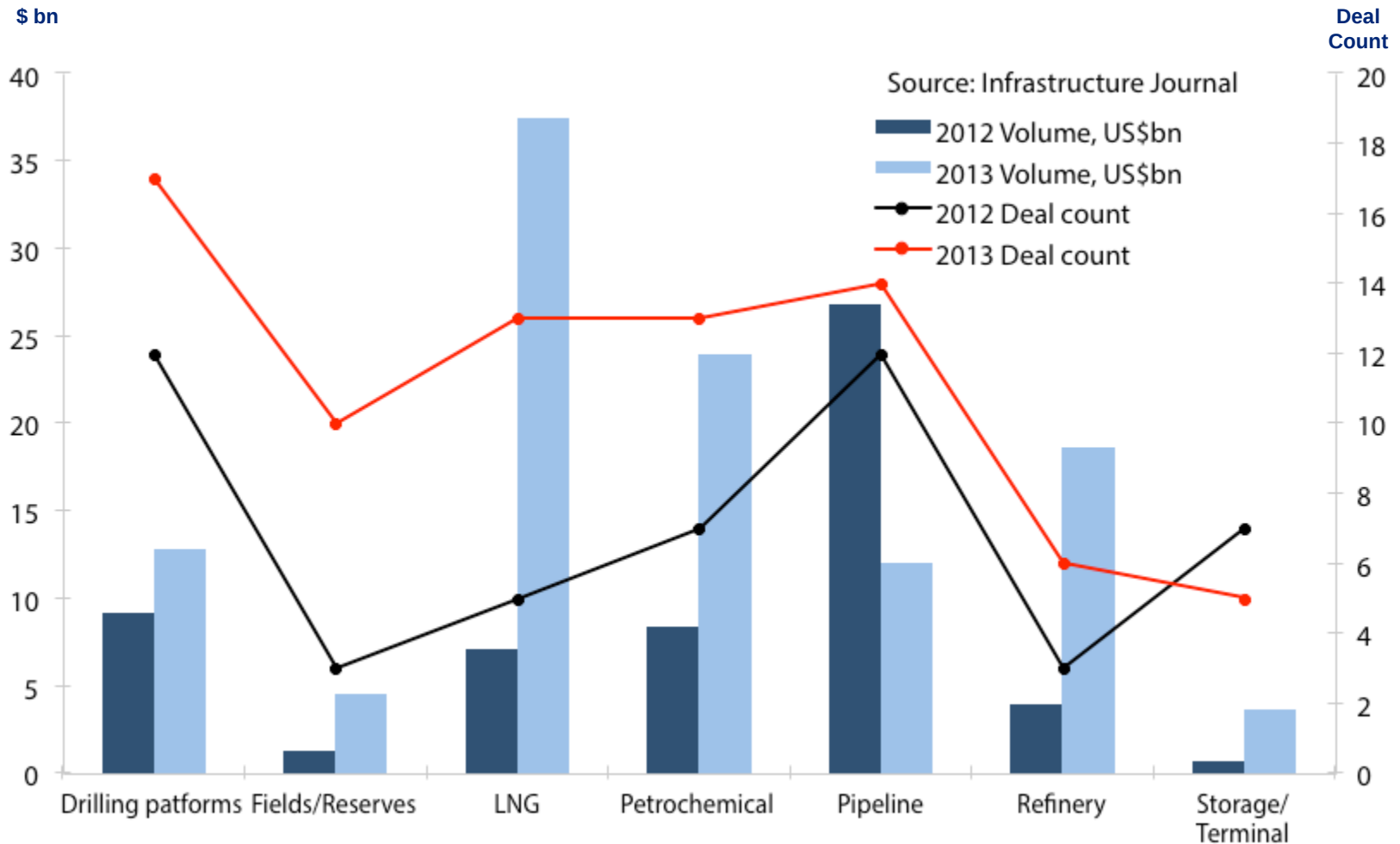
Focus on Project Finance and Private Equity



Project Finance

Project Finance

Project Financing is driven by infrastructure asset development



Oil and Gas Project Finance Volumes (2012-13)

Project Finance

Trade-off between finance-ability and flexibility (operational/ expansion)

Requirements / Key Issues

Detailed project definition and risk management

- Clear risk allocation to the parties who can best manage them
- Stakeholder robustness (Sponsors, countries, subcontractors, offtakers)
- Stable operating cash flows
- Mature technology

Maximise sources of financing

- Construction, sourcing strategy
- Countries involvement
- Pre-completion sponsors' support
- Security package
- Adequate and stable returns to meet debt service coverage ratios

Benefits

- Improve partnering options
- Reduce capital at risk
- Boost shareholder economics
- Rigid process ensures solid project

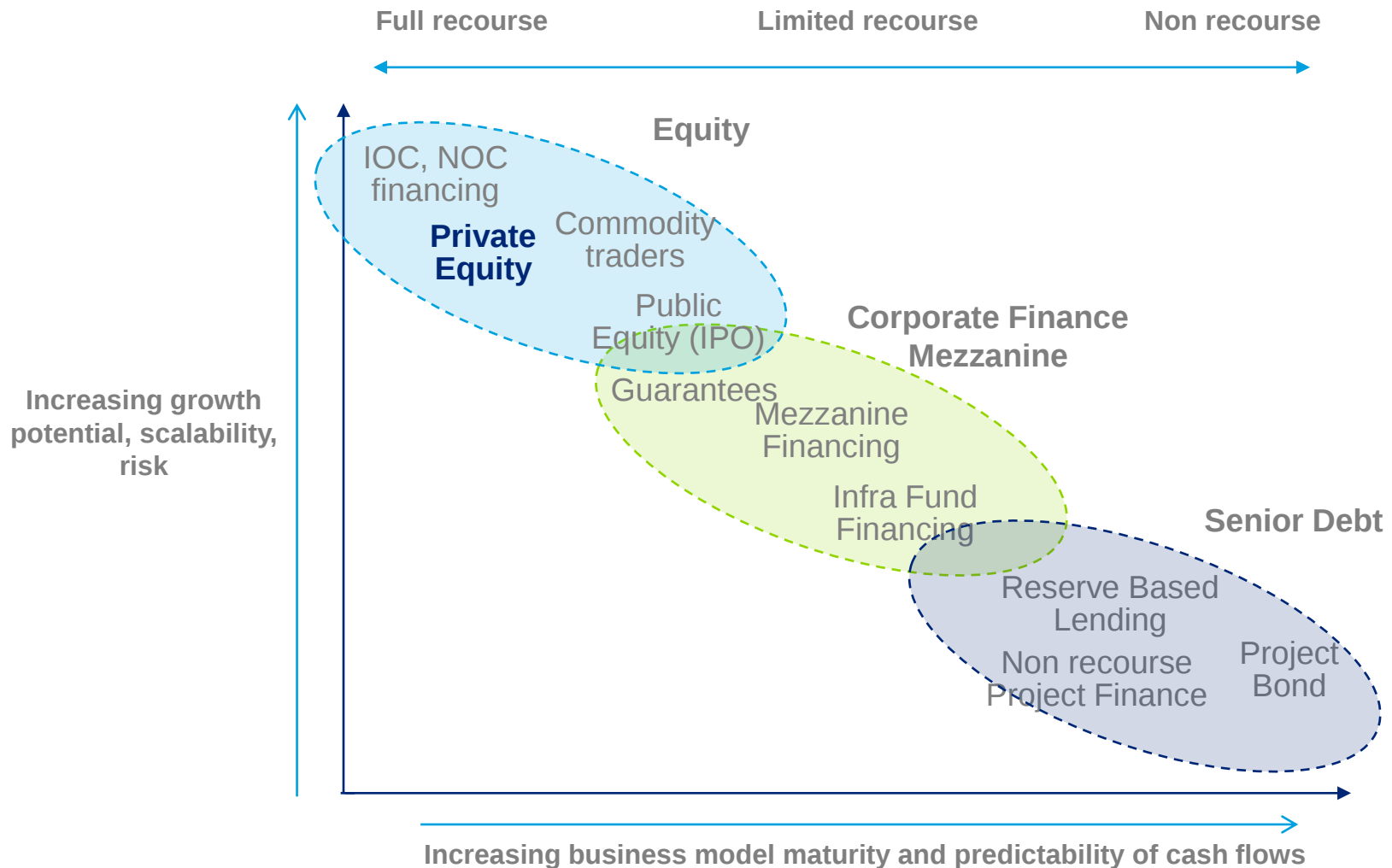
Costs

- Debt Service and Arrangement/commitment fees
- Lengthy and expensive structuring process
- Limits on operational and ownership flexibility
- Rigid cash distribution
- Shareholders truly residual claimants

Private Equity

Private Equity

Private Equity in oil and gas

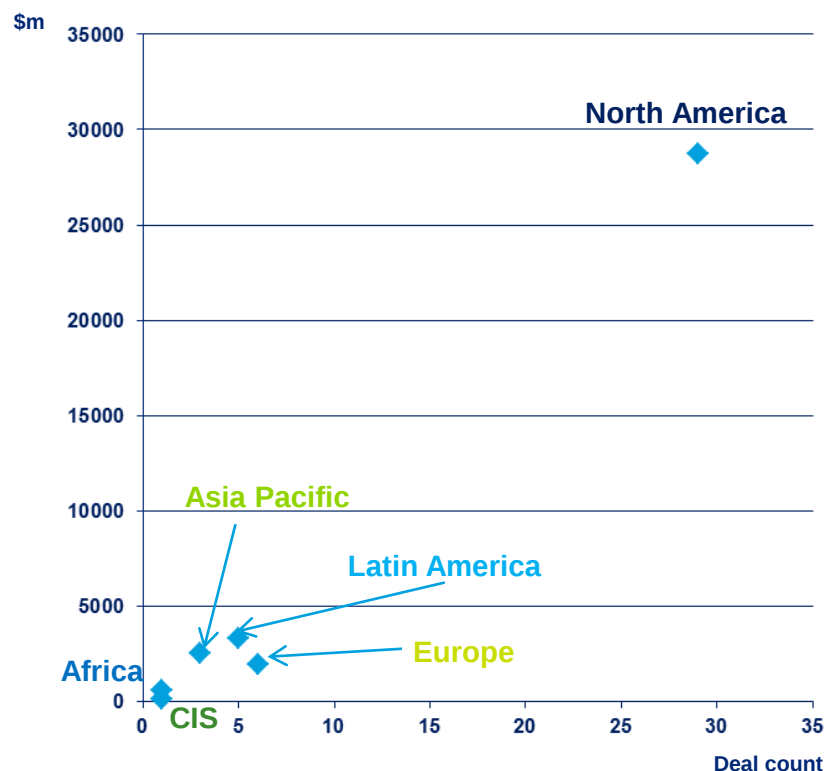


Private Equity

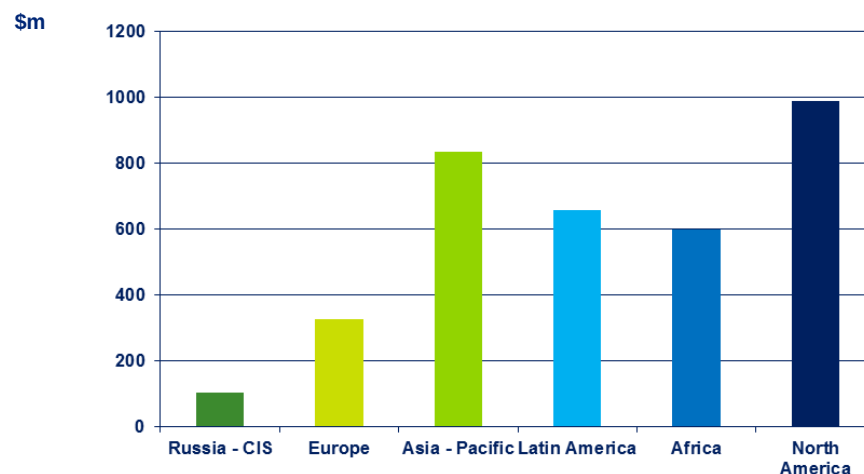
PE investors are able to provide large lines of equity for upstream projects

Large upstream PE deals between 2009-2013 (deals > \$100m)

Cumulative investment vs. Deal counts



Average Deal Size



	Deals (#)	Deal Values (\$m)	Average size (\$m)
Russia - CIS	1	105	105
Europe	6	1,969	328
Asia - Pacific	3	2,511	837
Latin America	5	3,287	657
Africa	1	600	600
North America	29	28,726	991

Source: MergerMarket

Private Equity

Trade off between predictability of funding and public market alternative

Key Issues / Requirements

- Exceptional management quality
- Robust business plan
- Ability to deliver the plan
- Growth strategy
- Scalability over 5-10 years
- Risk management
- Governance and alignment of interest between shareholders and management via equity incentives

Benefits

- Predictability of funding/ liquidity
- Experienced investors and board
- Entrepreneurial spirit
- Rapid decision making to capture opportunities

Costs

- Normally more expensive than other form of financing
- Expected IRR > 20%
- Active investments can lead to more frequent reporting and interaction with shareholder

Conclusions



Questions

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Approaches to Project Finance in Africa

Fathima Hussain, Director,
Oil & Gas Corporate Finance

February 2014

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2. O&G in Africa
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4. Market Outlook

1. Introduction to SCB in Africa

SCB is a Leading Bank in Africa With a Long Established Presence

Pan-African On-the-Ground Presence

1

The Leading M&A Advisor in Africa

- Ranked #1 M&A advisor in Africa over the last three years⁽¹⁾

2

Ability to Deploy Balance Sheet

- Capacity and appetite for large financing in local currency and USD

3

Making Africa accessible to our clients

- Present in 16 of African countries with > 280 branches
- Long standing banking relationships with nearly all (>6,500) major African corporates and families

4

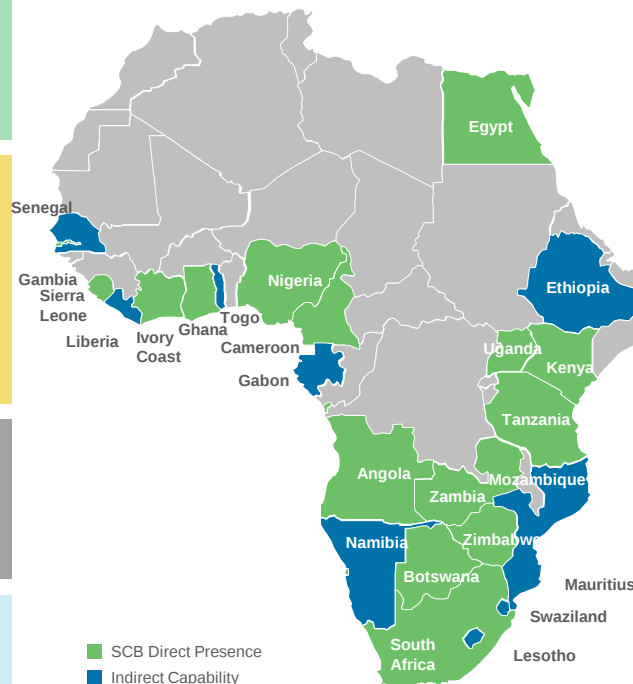
Leveraging our Global Network

- Ability to identify investment opportunities using our presence in 70 countries internationally

5

Full Spectrum of Strategic Solutions to Assist in Transaction Execution

- Ability to provide tailored FX, interest rate and commodity products in all major currencies and markets
- Provide overall management of the transaction settlement process



Selected Accolades

2012



- Best flow house in Africa
- Financial Adviser of the Year Sub-Saharan Africa
- Best MEA Petrochemical Deal of the Year ERC
- Best bank for liquidity management in Africa
- Best supply chain finance provider

2011



- Best Investment Bank in Africa
- Best Project Finance House Africa
- Best Bank in Africa
- Best Bank for Liquidity Management in Africa
- Best Project Finance House in EMEA

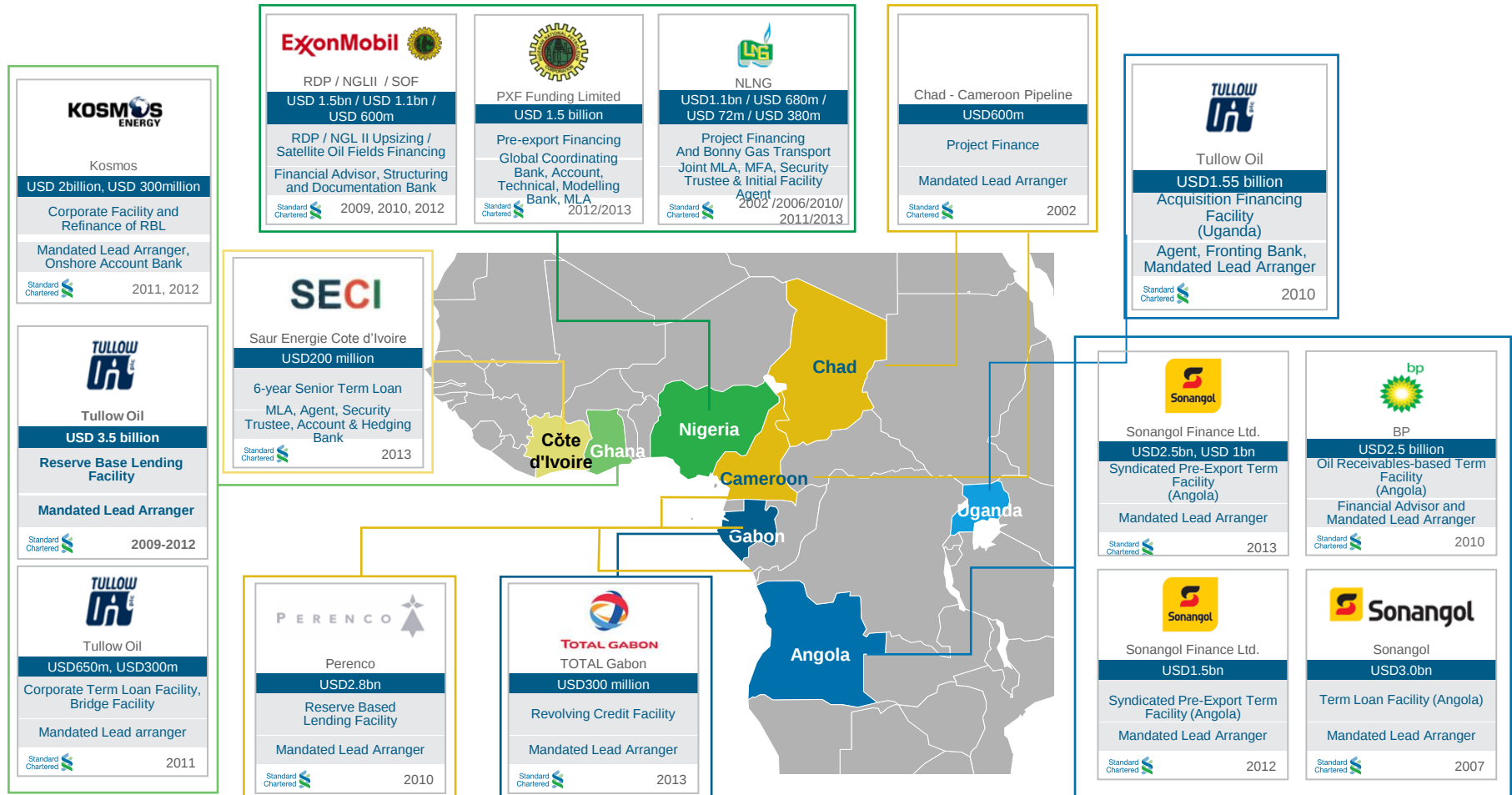
2010



- Global Bank of the Year
- Best Bank in Africa
- Best Project Finance House in Africa
- Best FX bank in Africa
- Deal of the year – Bharti Zain
- Best M&A deal in EMEA - Bharti Zain
- Deal of the Year Kosmos Energy
- Best Emerging Market Bank in Africa

...With Strong Credentials in Upstream Africa

SCB is a strong player in Africa Upstream Oil and Gas, driven by core presence and a strong balance sheet that is open for lending



2. O&G in Africa

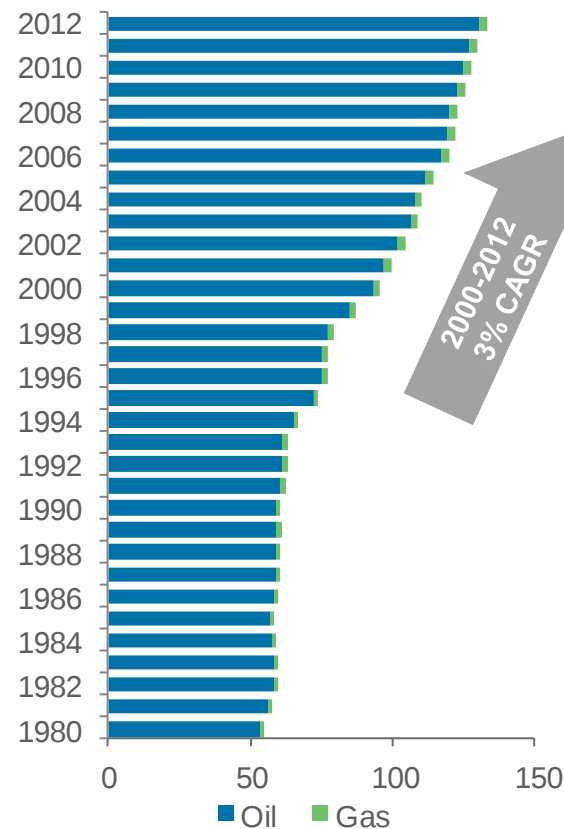
Oil & Gas Investments in Africa

- Africa represents more than 10% of the world's oil and gas reserves, and 10% of the world's production
- The large production basin in the Gulf of Guinea is of strategic importance to the European market, as well as the Asian market
- European refiners have been a traditional importer of West African Crude
- With the mega gas discoveries in East Africa, the region is strategically well placed to serve the Asian gas markets
- More recently Asia has become increasingly exposed to the region
 - China is the largest importer of Angolan Crude oil
 - Angola is serving almost 15% of Chinese demand

Strong Reserves and Growing in Strategic Importance

African Oil and Gas Proved Reserves 1980 – 2012

('000 Mmboe)



Source: BP Statistical Review - 2013

African Oil and Gas Proved Reserves

As at end 2012

Country	Oil ('000 mmbbls)	Gas (tcf)	Total (billion boe)
Algeria	12.2	4.5	13.0
Angola	12.7	-	12.7
Chad	1.5	-	1.5
Rep. of Congo (Brazzaville)	1.6	-	1.6
Egypt	4.3	2.0	4.7
Equatorial Guinea	1.7	-	1.7
Gabon	2.0	-	2.0
Libya	48.0	1.5	48.3
Nigeria	37.2	5.2	38.2
South Sudan	3.5	-	3.5
Sudan	1.5	-	1.5
Tunisia	0.4	-	0.4
Other Africa	3.7	1.3	3.9
Total Africa	130.3	14.5	133.0

Note: "-" Less than 50 million boe

Key Trends in Africa Oil & Gas

- Resources generally, and oil and gas specifically, have played an important role in African growth
- Nineteen African countries are significant producers of oil and/or gas, and the revenues from higher prices and the investment that new discoveries are attracting have made a key contribution to growth
- While the majority of reserves and production remaining concentrated in six countries
 - Nigeria, Libya, Algeria, Angola (oil), Sudan (oil) and Egypt (gas)
- There have been significant new discoveries in
 - West Africa: Ghana, Pre-Salt
 - And East Africa: Tanzania, Mozambique and Uganda,

3 Key Basins: West Africa, North Africa and East Africa

North Africa

- Key impact of Arab spring on investment
- Libya and Egypt recovering from the shock
- New Exploration Basins such as Morocco and Mauritania?

Items	Key trends (Generating Opportunities)	
Status	Maturing Basins	●
M&A	Govt Consent can delay processes	●
Size	Important diversity of opportunities	●
Financing	Arab Spring has affected liquidity	●

East Africa

- The game changer
- Still largely unexplored
- Moz/ Tanzania: the new gas frontier

Items	Key trends (Generating Opportunities)	
Status	Early Stage Emerging Basin	●
M&A	Aggressive competition (Cove, Eni, Ophir...)	●
Size	From one well onshore to large offshore blocs	●
Financing	Appetite growing steadily	●

West Africa

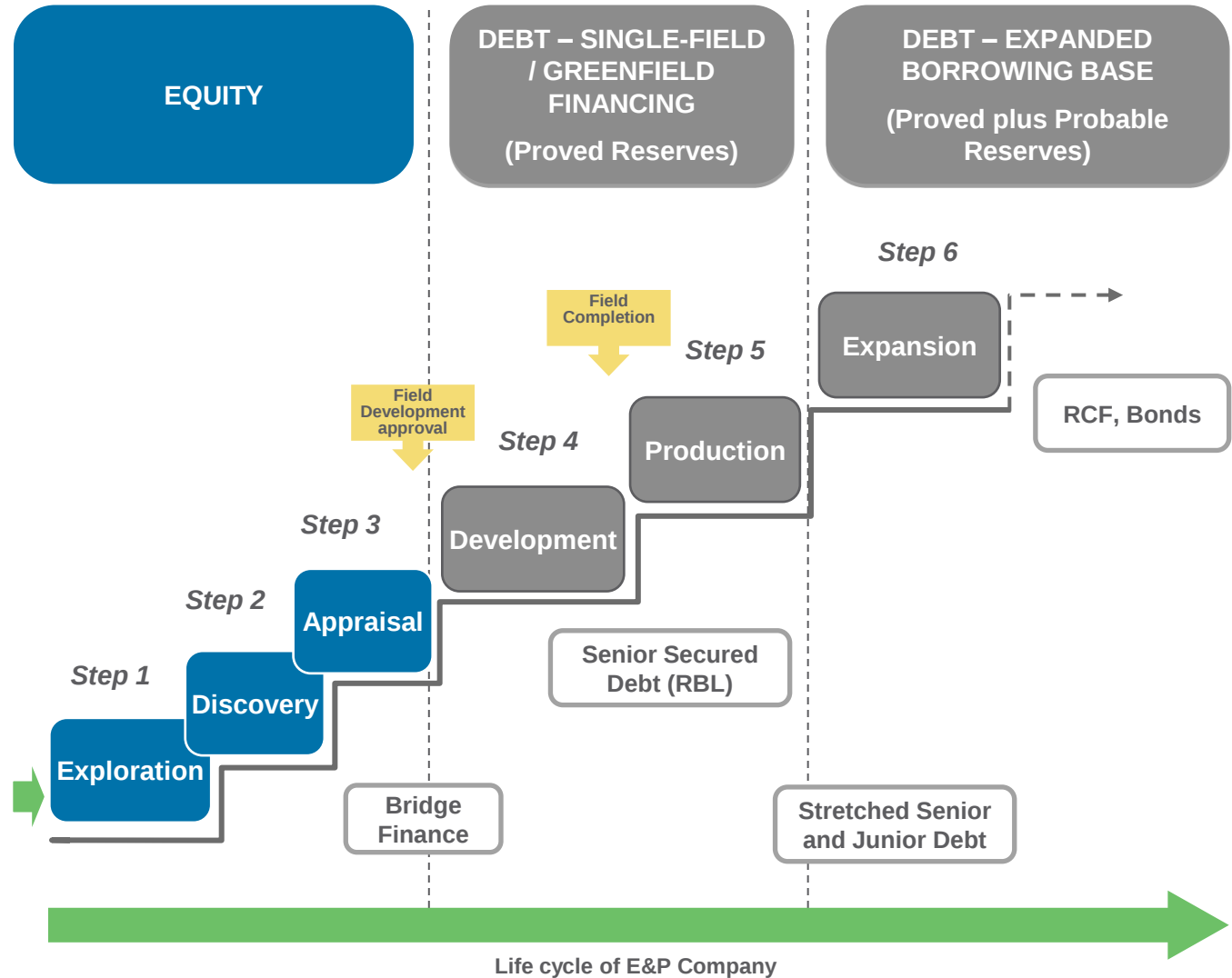
- Oil Majors optimising their portfolio
- Nigeria: growing indigenous players
- Strong China investments
- Pre-Salt Exploration potential game changer

Items	Key trends (Generating Opportunities)	
Status	Mature Basins	●
M&A	Oil Majors optimising portfolio	●
Size	Large offshore assets	●
Financing	Large appetite and local liquidity	●

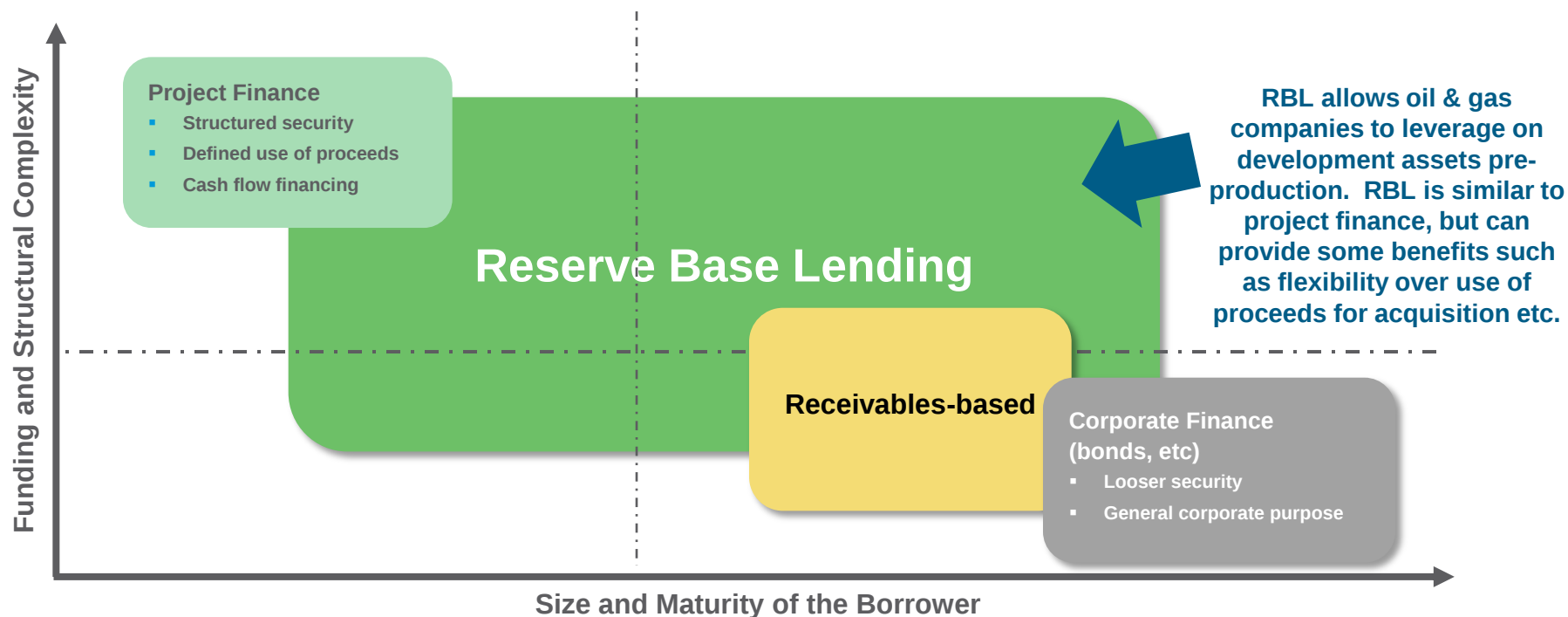
3. Debt Financing O&G Investments in Africa

Field Development and Financing Life Cycle

- Typically, the risky exploration phase requires equity funding
- Non-producing single field developments can be financed with RBL, assessing debt capacity against Proved Reserves
- Expanded Borrowing Base often contains a mix of producing and developing fields, with debt capacity potentially enhanced by risked Proved plus Probable Reserves of producing fields with demonstrated track record. Borrowing Base Fields can straddle multiple basins and fiscal regimes



Customizing Solutions across the Debt Financing Spectrum



Bridge / RBL	RBL	Receivables	Bond
 Kosmos Energy USD1.25 billion Bridge structure leading to Reserve Base Lending Facility (Ghana) Global Coordinator, Facility Agent, and Co-Technical Bank Standard Chartered 2009-2010	 Tullow Oil USD 3.0 billion Reserve Base Lending Facility and Corporate Facility (Multiple African Countries) Financial Advisor and Mandated Lead Arranger Standard Chartered 2009-2012	 BP USD4.75 billion Oil Receivables-based Term Facility (Angola, Azerbaijan) Book Runner and Initial Mandated Lead Arranger Standard Chartered 2010	 BP Capital Markets Plc EUR2.0 Billion 3.10% Fixed Rate Notes due 2014 3.83% Fixed Rate Notes due 2017 Joint Lead Manager & Bookrunner Standard Chartered 2010

Types of Borrowers

Independents

- Largest user of reserve based lending facilities
- Typically use RBL structures for development financing, and as portfolios grow, as the baseline financing tool for general corporate purposes

NOCs

- In Africa, Sonangol and NNPC have used crude receivable/ forward sale arrangements to fund their share of development capex, or general corporate purposes.

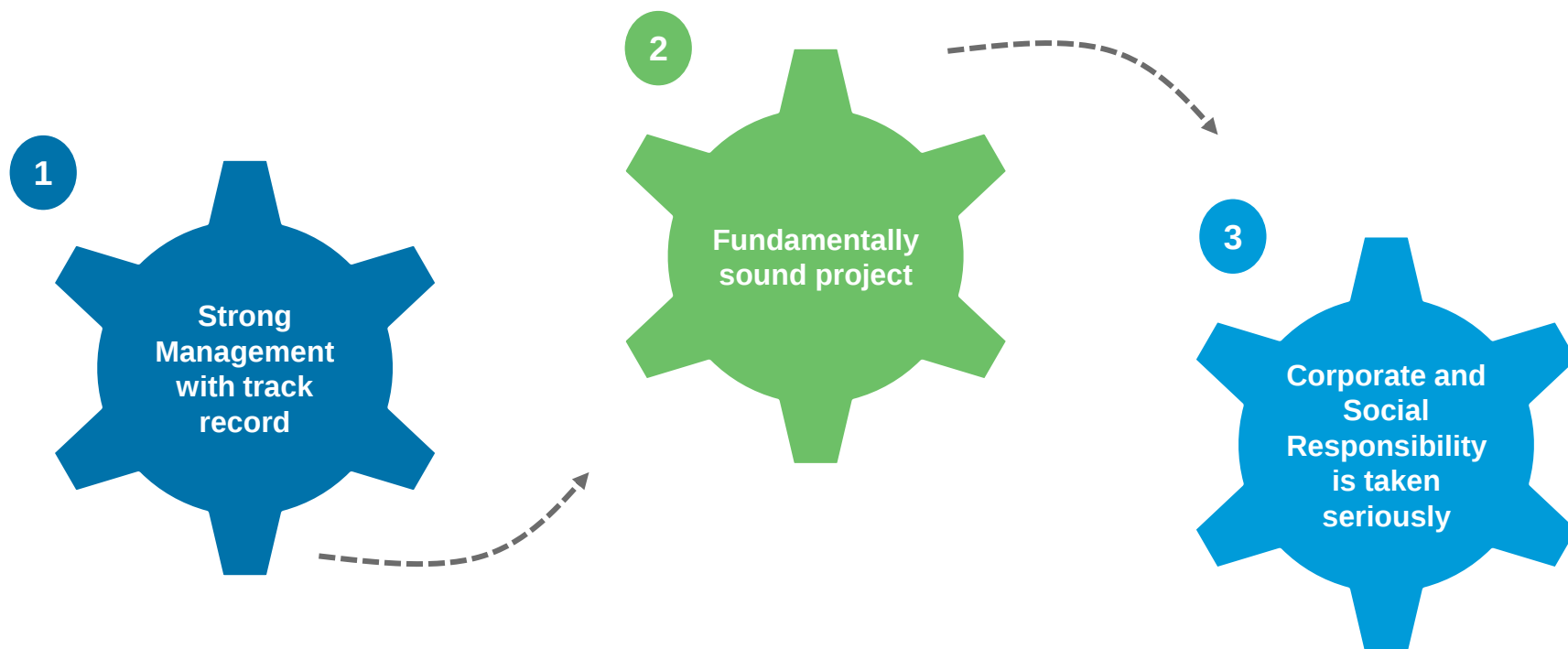
Indigenous Companies

- Increasing users of RBL to fund both acquisition and development of assets,
- Prevalent in Nigeria as part of IOCs divestment process and GoN marginal field initiative

Majors

- Limited users due to existing financial capacity – typically to enable a weaker partners to raise finance.
- Often will co-lend into the PF structure to offset financing costs

What lenders look for in prospective borrowers



Lender Risk Considerations

Category	Definition
Country	- Country risks cover a wide spectrum including Regulatory, Political, Economic, Security etc. - A key focus area for Africa financings.
Sponsor	Risk that sponsors are not aligned or capable of contributing to development due to a lack of commitment, technical expertise, or financial resources
Construction	Risk that project will experience significant cost overruns or delays, reducing anticipated cash flow. Sub-categories include Construction, Project Management, and Technology
Operation	Risk that project faces frequent disruptions and higher costs, resulting in, lower output and costly delays
Supply	Risk that supply of essential raw materials, labour, and ancillary infrastructure required will become expensive and irregular
Reserve	Risk that uncertainty in estimating quantity and quality of hydrocarbon reserves will result in lower than expected project cash flows
Offtake	Risk that production is not sold at an acceptable price and paid for by a creditworthy offtaker
ESHS	Risk of non-compliance with domestic and international laws and industry best practices guidelines, including the Equator Principles

Challenges of Financing 'Domestic Projects'

- 1 Offshore export-driven upstream projects with creditworthy offtakers are easiest to finance – externalises country risks to greatest extent
- 2 Onshore oil projects being financed too but risk consideration given to 'above-ground' risks.
- 3 Gas developments which are sold into the domestic market present challenges around creditworthiness of gas buyer
- 4 The greatest funding needs across Africa relate to domestic energy & infrastructure projects:
 - Typically capex-intensive and requiring significant long-term funding sources to make financing viable
 - Downstream development in nascent stage and offtaker often a state-owned entity
- 5 Challenge is to assemble a financing package and structure to mitigate country or offtaker risks..
 - DFI involvement essential for 'halo' effect
 - ECAs
 - Strong Sponsors
 - Govt support , ideally secured

4. Market Outlook

African Market Trends

Africa attracts liquidities	▪ Banks continue to look to the emerging markets, especially in Africa ▪ The US and Japanese banks do have cheap USD, however generally risk adverse and prefer to mitigate perceived political risk via ECA or structured transactions ▪ The Chinese Banks continue to lend but only to commodity related transactions where they prefer a link with the physical commodity offtake ▪ Large Nigerian banks shown themselves as strong investors, however the market needs to be mindful about their limits on individual borrower
DFI and ECA demonstrating commitment	▪ The ECA's and DFIs are increasingly providing support for larger transactions. ▪ They are particularly providing longer term liquidity on project related deals and we also seeing the DFI's lending longer tenors to financial institutions ▪ DFI's are becoming more flexible and commercial and work well alongside with commercial banks
Development of the Syndicated Market	▪ Regional Syndication markets are developing in West, East and Southern Africa and will increase over time ▪ In Nigeria the local banks are very active in the syndications market. They and North African banks are now being seen to lend pan-Africa ▪ The challenges for those banks are tenor of corporate transactions; the attraction is pricing ▪ Middle Eastern banks remain very selective and prefer financials institutions ▪ The availability and integrity of information, particularly on corporate governance and financials are slowly improving ▪ Liquidity levels expected to grow as Africa credit perceptions improve. Margin squeeze is expected to continue in 2014 ▪ Onshore assets sell off by oil majors will help drive loan volumes as bidders seek financing

Africa O&G Debt Market Overview

Syndicated Loans Market

Key Market Themes

1.	FY2013 Sub-Saharan Africa loan volumes closed at US\$35.3bn, down almost 30% from FY2012 (US\$49.8bn) but higher than 2010 (US\$32.7bn) and 2011 (US\$34.6bn).
2.	South African, UK, Nigerian and French banks are most active lenders. Chinese lenders have scaled back in 2013
3.	Nigeria, South Africa, Angola and Ghana still dominate the regional loan market volumes
4.	Spreads are a mixed picture. Over 100 bppa reductions for large 'flow' corporate and FI loans, flat for other corporates, up to 200bppa increase for sovereigns
5.	Oil & Gas sector dominated the borrower groups in 2013 compared to Sovereigns in 2012
6.	Project Financings and general corporate purposes continue to be more prevalent than refinancing

Large syndicated African O&G financings in 2013

Borrower	SCB Role	Amount	Tenor
Perenco Petroleum Ltd	SCB acted as MLA, Bookrunner and Documentation Bank for the USD 1 bn & GBP 600mm financing	USD 1,000mm and GBP 600mm	6 years 8 years
Nigeria National Petroleum Corporation	SCB arranged a Trade Finance Facility for NNPC. The lender group included European and African lenders	USD 1,500mm	6 years
Dangote Industries Ltd	SCB acted as the Co-ordinator and MLA for a USD 3.5 billion financing for Dangote Industries Ltd. Funds will be used to partially fund a new refinery in Nigeria. Funding provided by a range of local and international banks.	USD 3,500mm	7 years
Sonangol	SCB underwrote, funded and syndicated a USD 2,500 million 5 year financing for Sonangol. The financing has attracted 24 lenders, including a number of new institutions and banks that have not been involved in recent years, including Japanese and Chinese Lenders	USD 2,500mm	5 years
Sonangol	SCB underwrote, funded and syndicated a USD 1,000 million 2 year financing for Sonangol.	USD 1,000mm	2 years
Oando Energy Resources	SCB acted as MLA, Bookrunner and Facility Agent for the USD 450mm 6-Year Senior Secured Reducing Reserve-Based Lending Facility	USD450mm	5.5 years

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Challenges and Opportunities in Global Oil and Gas Finance

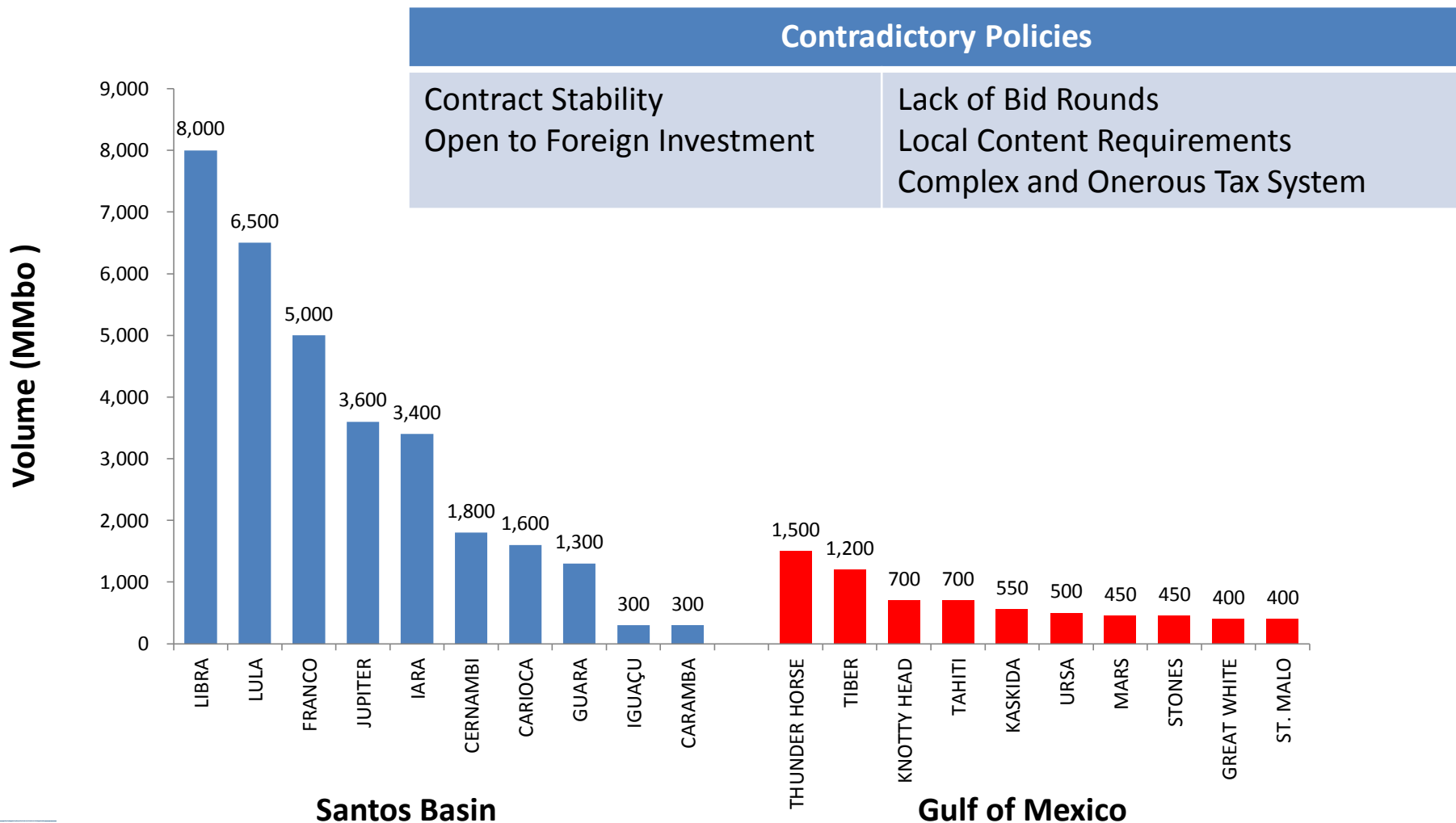
Case Study on a Private Equity E&P Funding in Brazil

Renato Bertani
CEO - Barra Energia
President – World Petroleum Council

- High Impact Opportunity Set
 - ... proven, under explored petroleum systems
- Experienced Team
 - ... do you google well?
- Well Capitalized Medium Independent
 - ... capital commitment, with strong discipline!



World Class Provinces in Early Appraisal Stage

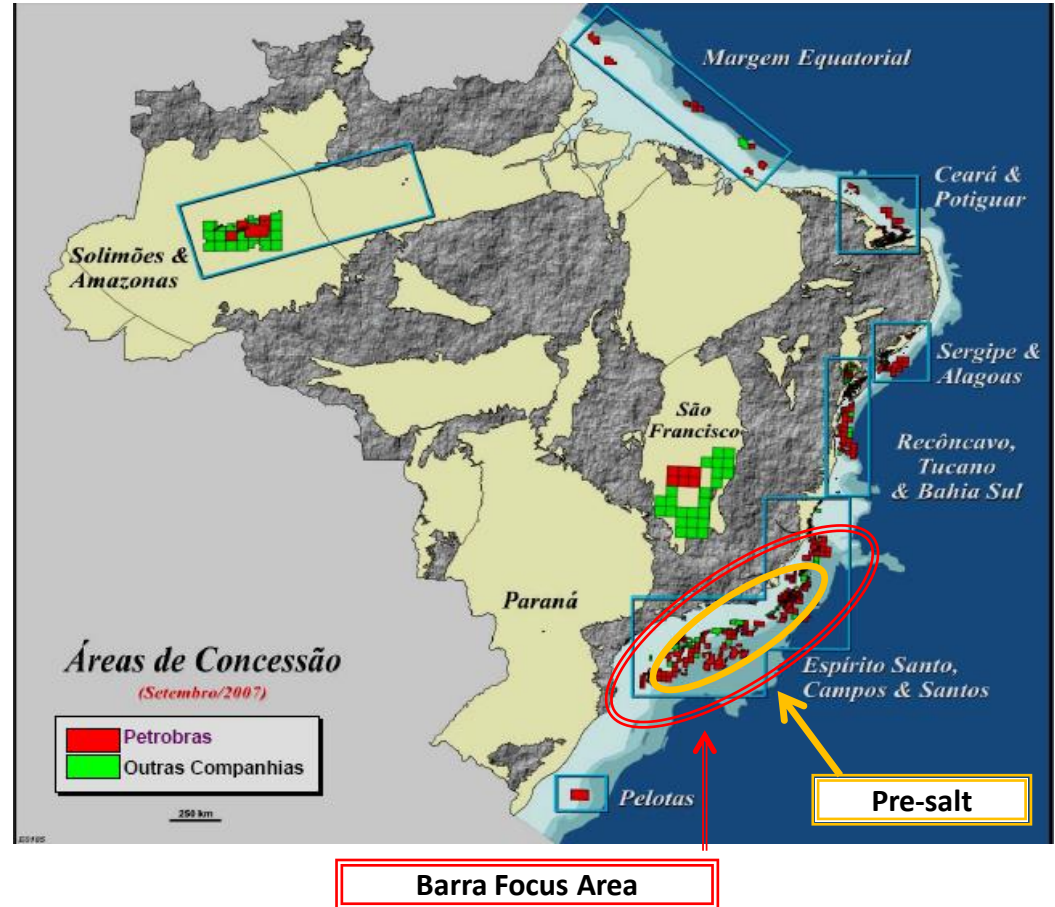


Source: IHS, ANP, Woodmac

Barra Strategy

In order to build a new Brazilian independent E&P company Barra Energia has adopted the following strategy:

- Focus on proven petroleum basins
- Target high growth opportunities in new pre salt and mature post salt plays
- Strong understanding of geology and business environment
- With \$1.2 bn commitment position as one of few mid-cap Brazilian independent E&P companies



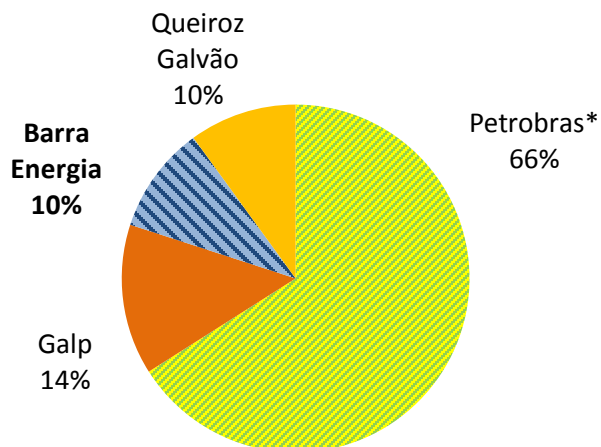
Capturing Niche Opportunities

- Barra executed on its strategy to build a portfolio in the Santos Basin pre-salt play and closed three separate deals to acquire interests in two highly attractive blocks

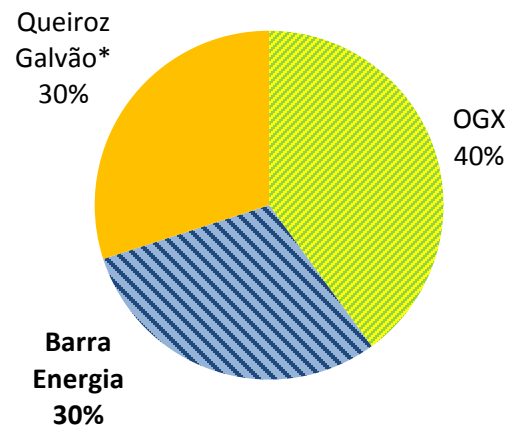
- Materiality
- Repeatability
- Optionalities

Block	Working Interest	Acquired From	Acquisition Agreement Reached	Acquisition Approved by ANP
BM-S-8	10%	Shell	Jul '11	Dec '11
BS-4	10%	Shell	Aug '11	Dec '11
	20%	Chevron	Aug '11	Feb'12

BM-S-8 Partnership



BS-4 Partnership



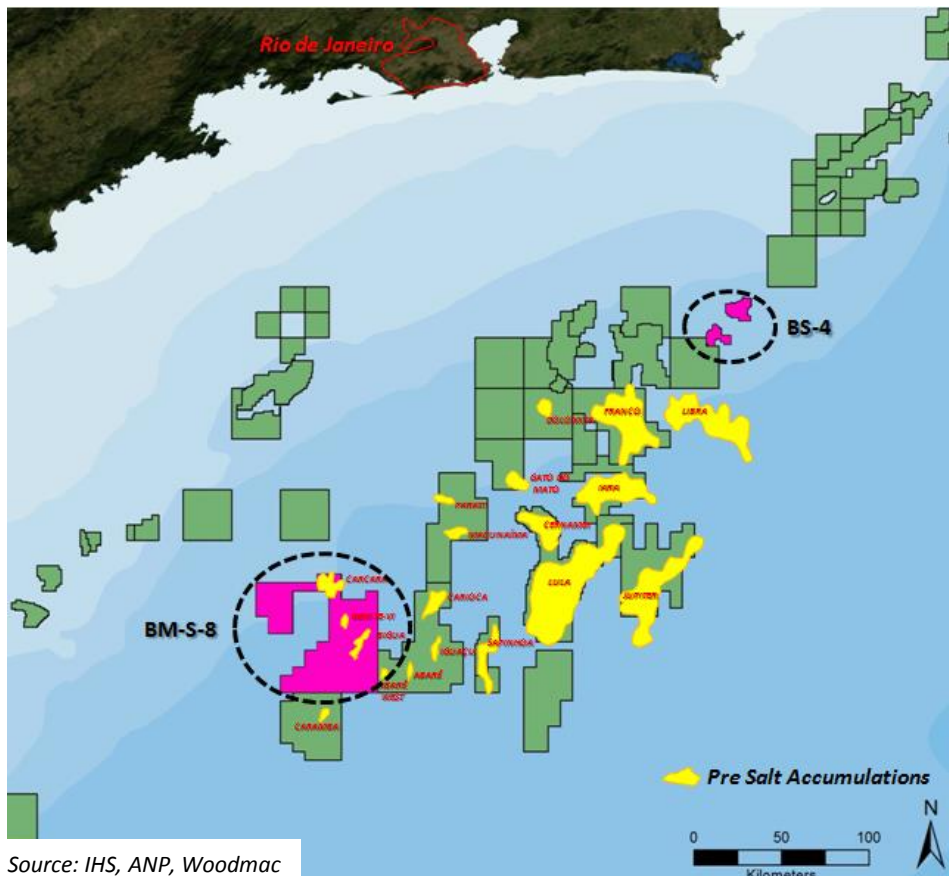
* Indicates Operator



Rigorous Capital Discipline in Building Current Asset Portfolio

Overview of Barra's Assets

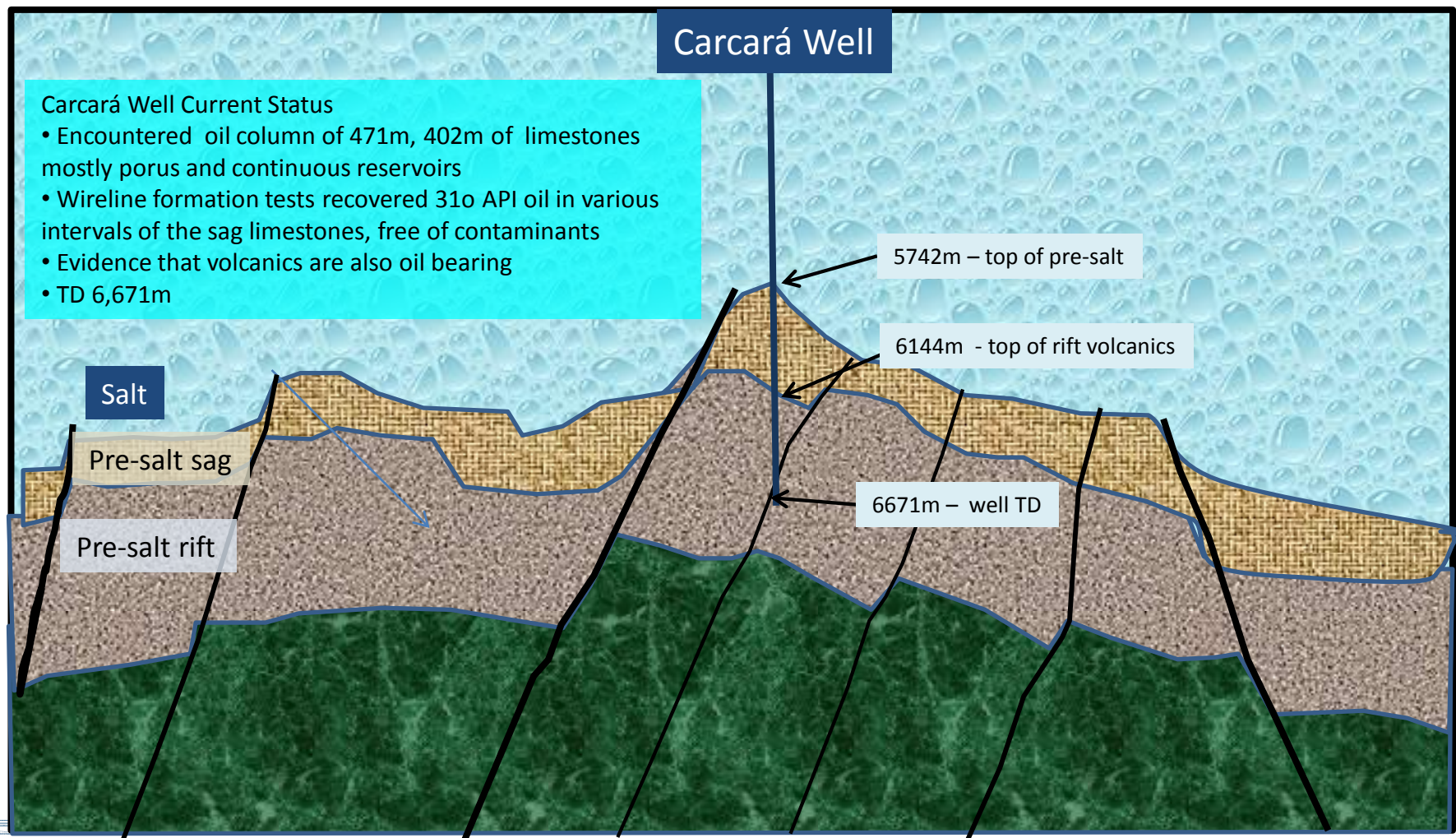
Commentary



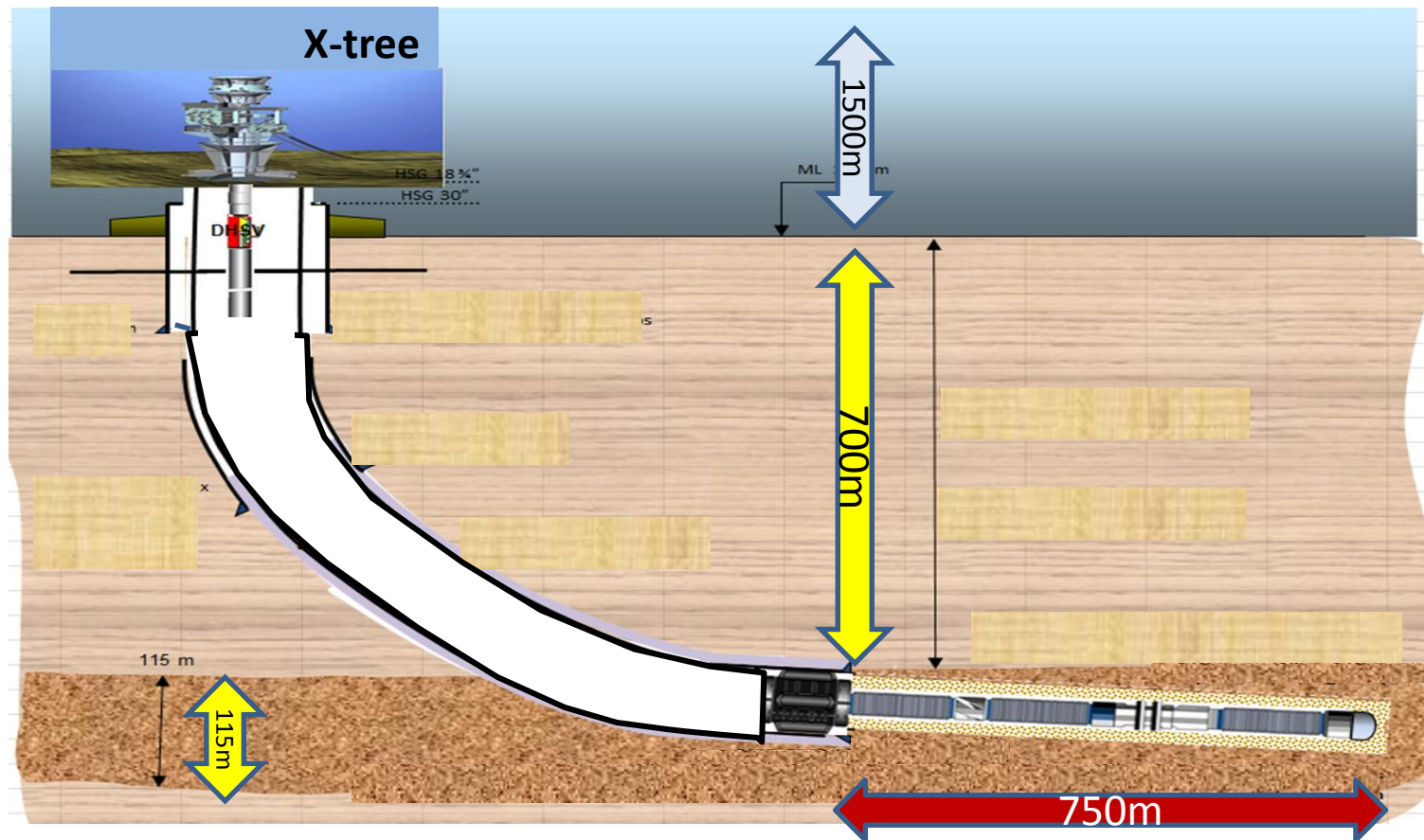
- Diversified portfolio includes fields under development, discoveries under appraisal and high impact low risk exploration prospects
- BMS-8 Block:
 - Carcará –world-class pre-salt discovery with first oil in 2018
 - Guanxuma and Guanxuma NW: de-risked, high impact pre-salt prospects
- BS-4 Block:
 - Atlanta and Oliva: post-salt Eocene fields under development, with first oil in 2015
 - Successful first Atlanta horizontal well
 - Inventory of pre and post-salt prospects



BMS-8 Carcara Pre Salt Discovery



BS-4 Atlanta Field – Production Well 7-ATL-2HP-RJS



Net pay: 650m of highly porous (38%) sandstone reservoir



With PE backing BE constructed an attractive business:

- Balanced and focused portfolio including fields under appraisal, discoveries under appraisal and an inventory of high impact, low risk exploration opportunities
- Operations focused in further de-risking current portfolio;
- Well funded to meet current portfolio capex and additional growth
- Future growth subject to even more rigorous capital discipline



Thanks from the Barra Energia Team





IP Week 2014

Challenges and Opportunities in Global Oil and Gas Finance

Gustavo Tardin

**Group Treasurer and Global
Head of Corporate Finance
PETROBRAS**

February, 2014

FORWARD-LOOKING STATEMENTS



The presentation may contain forward-looking statements about future events within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, that are not based on historical facts and are not assurances of future results. Such forward-looking statements merely reflect the Company's current views and estimates of future economic circumstances, industry conditions, company performance and financial results. Such terms as "anticipate", "believe", "expect", "forecast", "intend", "plan", "project", "seek", "should", along with similar or analogous expressions, are used to identify such forward-looking statements. Readers are cautioned that these statements are only projections and may differ materially from actual future results or events. Readers are referred to the documents filed by the Company with the SEC, specifically the Company's most recent Annual Report on Form 20-F, which identify important risk factors that could cause actual results to differ from those contained in the forward-looking statements, including, among other things, risks relating to general economic and business conditions, including crude oil and other commodity prices, refining margins and prevailing exchange rates, uncertainties inherent in making estimates of our oil and gas reserves including recently discovered oil and gas reserves, international and Brazilian political, economic and social developments, receipt of governmental approvals and licenses and our ability to obtain financing.

We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information or future events or for any other reason. Figures for 2014 on are estimates or targets.

All forward-looking statements are expressly qualified in their entirety by this cautionary statement, and you should not place reliance on any forward-looking statement contained in this presentation.

NON-SEC COMPLIANT OIL AND GAS RESERVES:

CAUTIONARY STATEMENT FOR US INVESTORS

We present certain data in this presentation, such as oil and gas resources, that we are not permitted to present in documents filed with the United States Securities and Exchange Commission (SEC) under new Subpart 1200 to Regulation S-K because such terms do not qualify as proved, probable or possible reserves under Rule 4-10(a) of Regulation S-X.

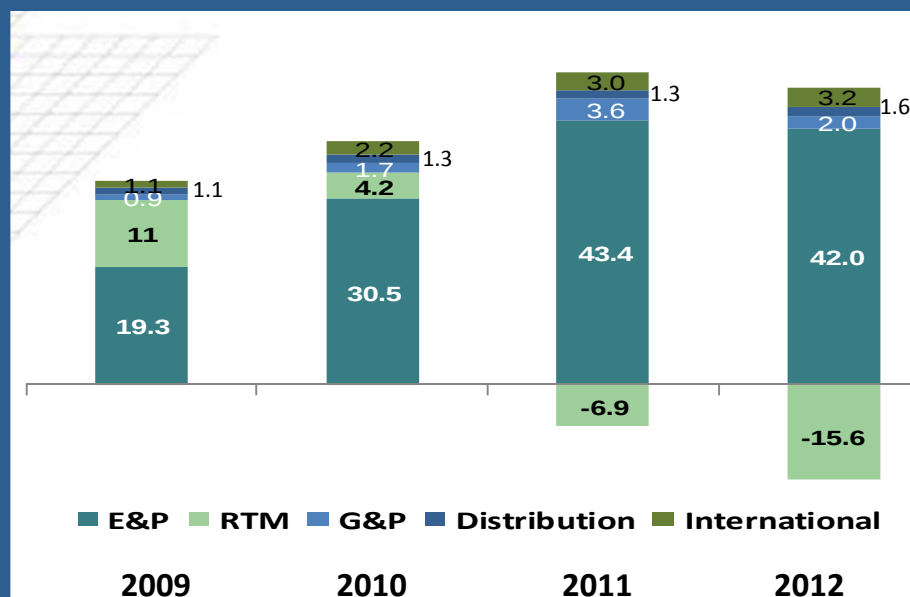
PETROBRAS TODAY



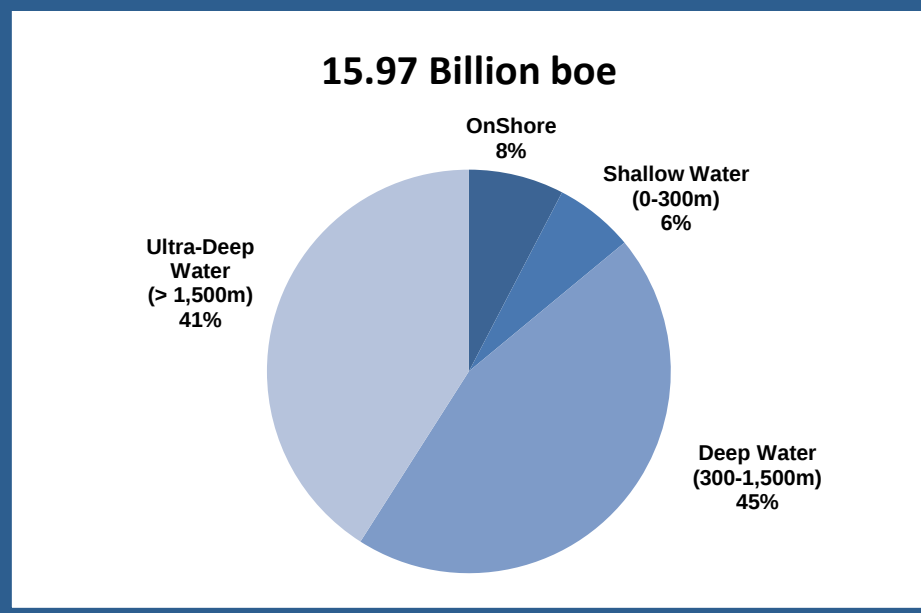
Fully integrated across the hydrocarbon chain

Exploration and Production	Downstream	Distribution	Gas and Power	International	Biofuels
• 2.4 mm boed production • 293 production fields • 96% of Brazilian production • 34% of global DW and UDW production	• 12 refineries (Brazil) • 2.0 mm bpd refining capacity • Oil products sales in Brazil: 2,285 Kbpd • Oil products output in Brazil: 1,997 Kbpd	• 7,641 service stations • 38,1% of market share • 20% share of service stations	• 9,190 km of gas pipelines in Brazil • NG Supply: 74.9 million m³/d • 3 LNG Regasification terminals by 2013 with 41 MMm³/d capacity • 7,028 MW of generation capacity	• 24 countries • 0.7 Bn boe of 1P (SPE) • 243 th. boed production • 231 th. bpd refining capacity	• 3 Biodiesel Plants • Ethanol: opening new markets • Largest domestic producer of biodiesel • 3rd producer of ethanol in Brazil

Adjusted EBITDA per Segment (US\$ bn) ⁽¹⁾



2013 Proven Reserves (SPE Criteria) - Brazil

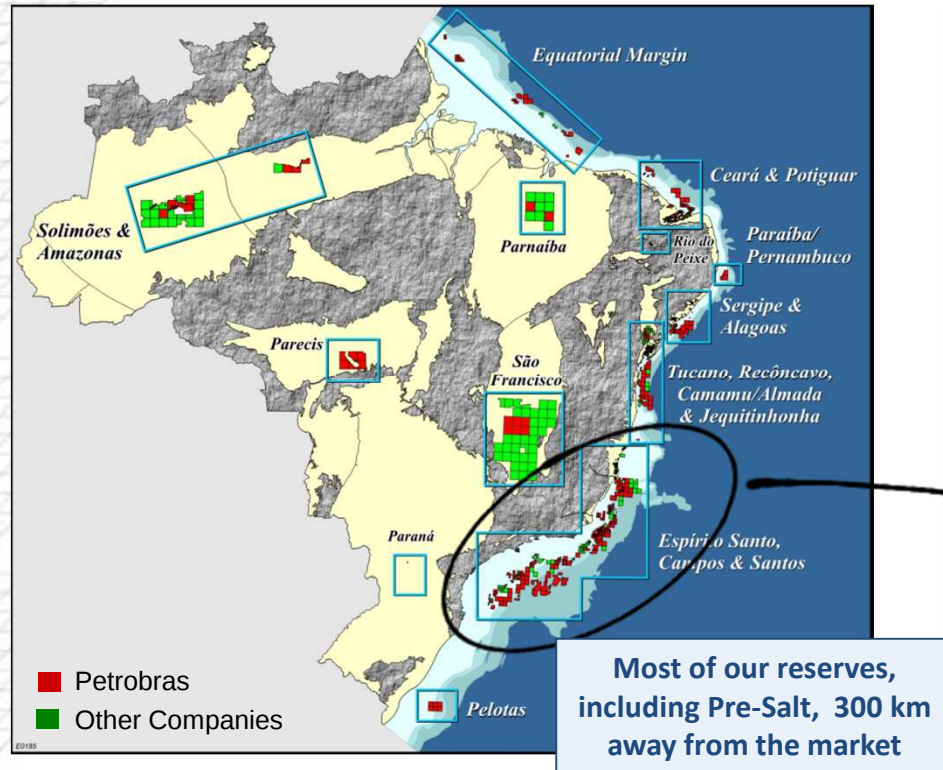


(1) Adjusted according average exchange rate. Excludes Corporate and Elimination.

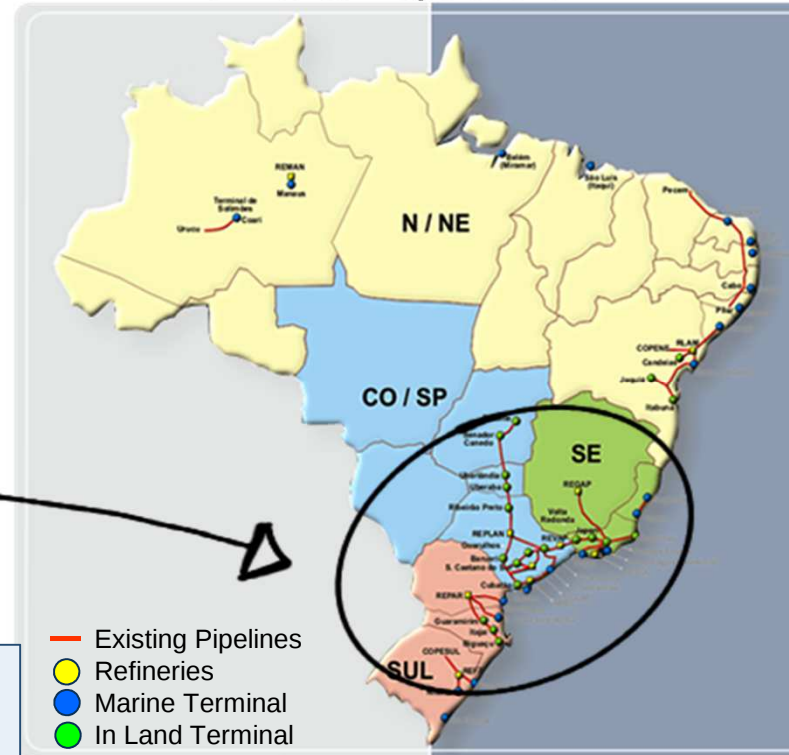
COMPETITIVE ADVANTAGES

Uniquely positioned to integrate upstream and downstream operations

Upstream Operations



Downstream Operations



Exploration & Production

- Leader in deep-water production, with access to abundant oil reserves
- New exploratory frontier, adjacent to existing operations

Downstream

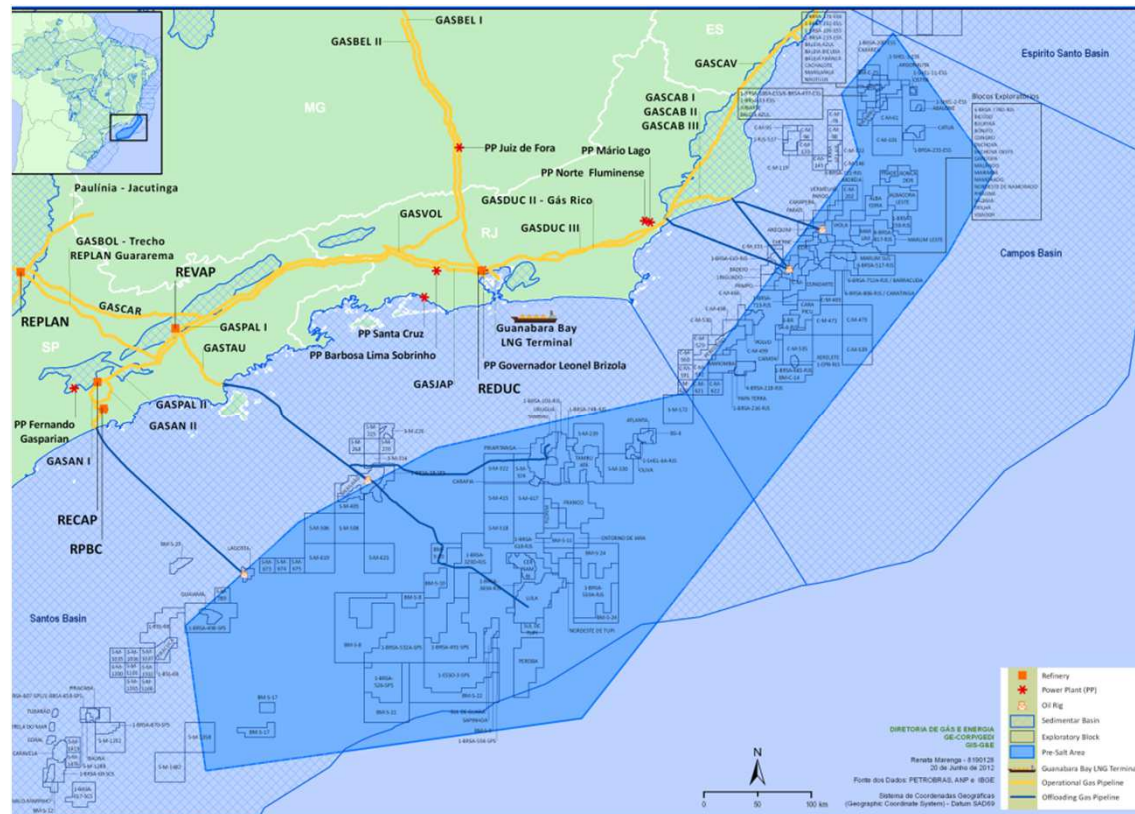
- Dominant position in growing market, far from other refining centers
- Balance and integration between production, refining and demand

Gas & Power/ Biofuels/Petrochemicals

- Fully developed infrastructure for processing and transporting gas
- Integration across full energy and hydrocarbon chain in Brazil

PRE-SALT PRODUCTION IS A REALITY

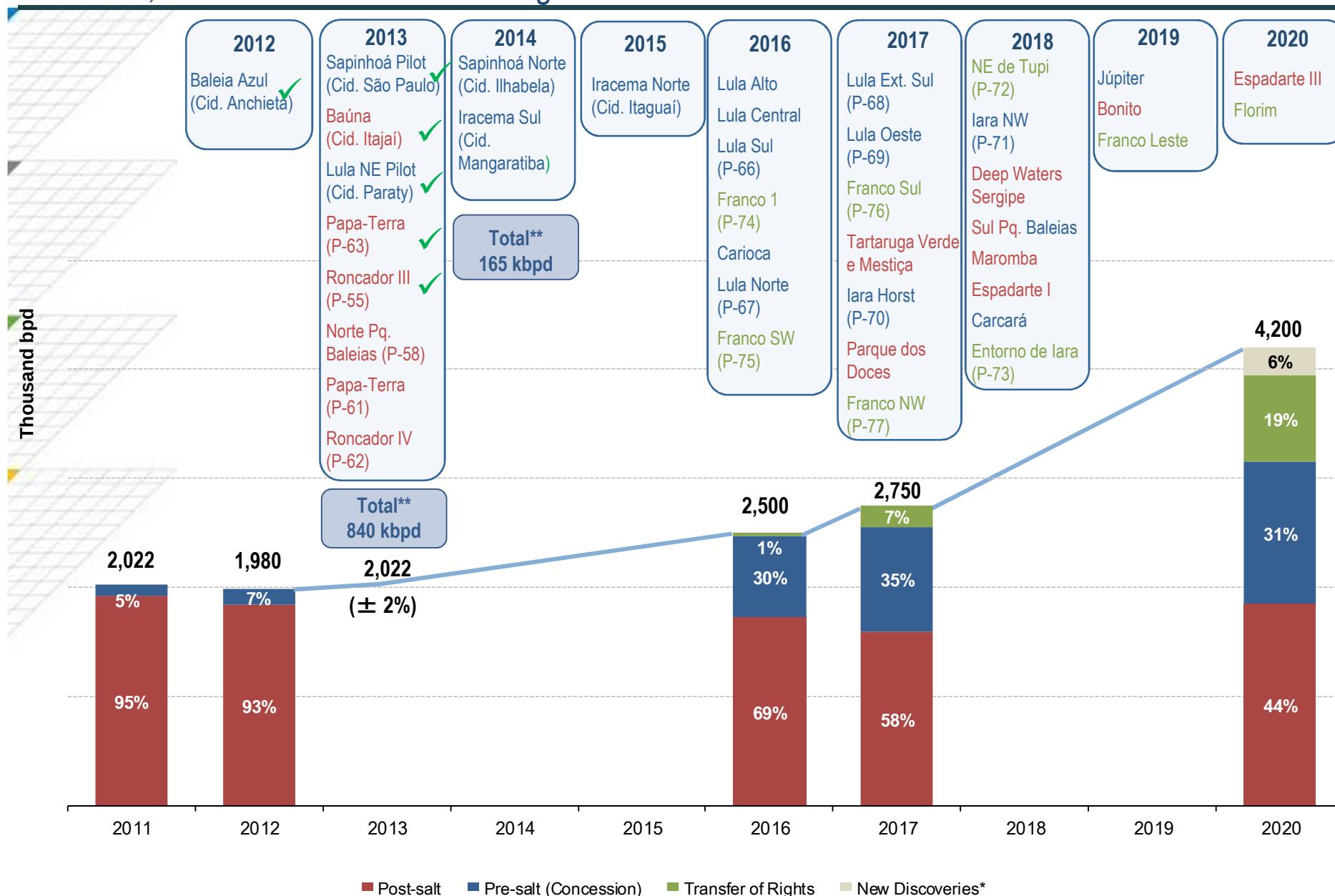
Production reached 390 thousand barrels of oil per day in January 14th, 2014



- ✓ Pre-Salt oil production reached 390 kbpd (Petrobras + Partners)
- ✓ This level was reached with only 19 producing wells, 6 in Santos Basin and 13 in Campos Basin
- ✓ Level reached only 7 years after discovery:
 - Campos Basin: 11 years
 - US Gulf of Mexico: 17 years
 - North Sea: 9 years

PRODUCTION CURVE IN BRAZIL - OIL AND NGL

Post-Salt, Pre-Salt and Transfer of Rights



(*) Includes new opportunities in blocks where discoveries have already been found (**) Total capacity added considering only Petrobras' stake

2013-2017 INVESTMENTS

Projects Under Implementation x Under Evaluation



Total

=

Under Implementation

All E&P projects in Brazil and projects of the remaining segments in phase IV

+

Under Evaluation

Projects for the remaining segments, excluding E&P, currently in phase I, II and III.

US\$ 236.7 Billion

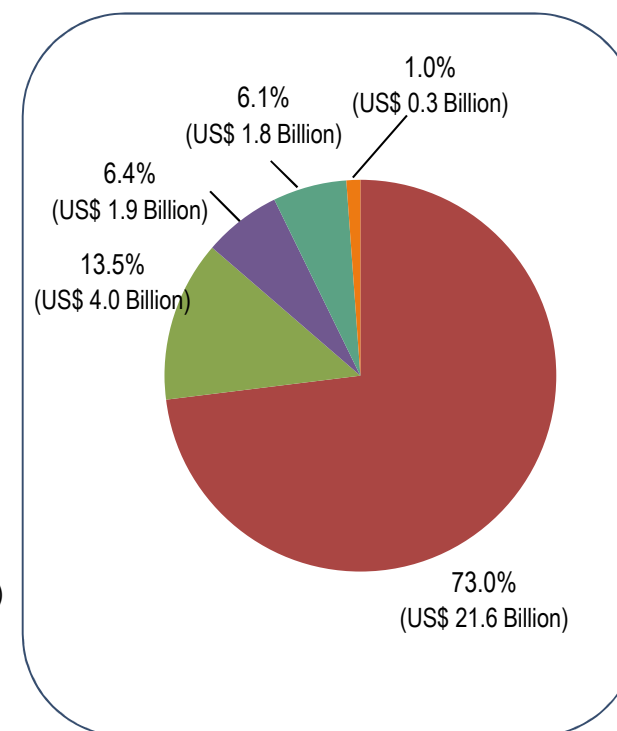
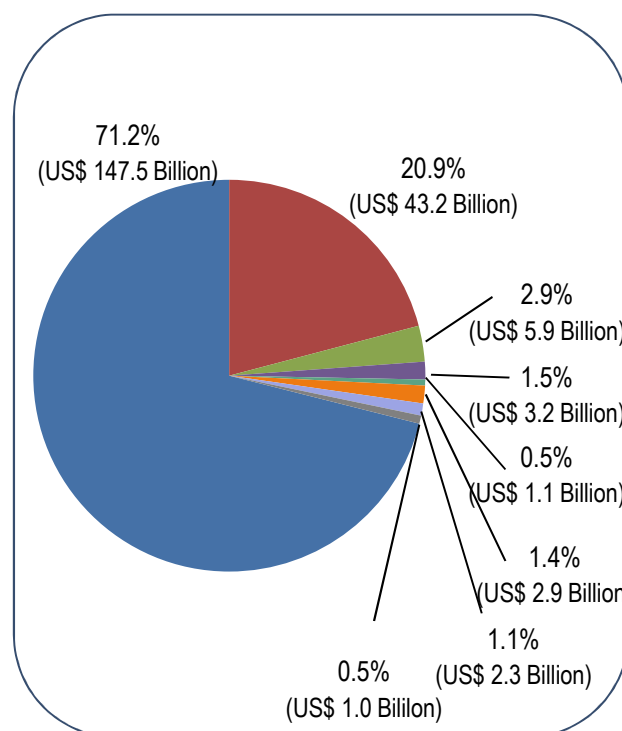
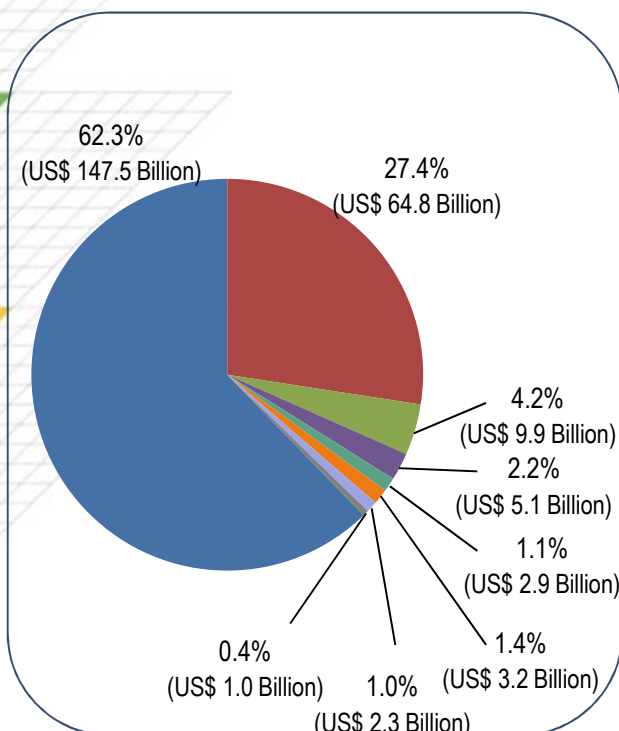
947 projects

US\$ 207.1 Billion

770 projects

US\$ 29.6 Billion

177 projects

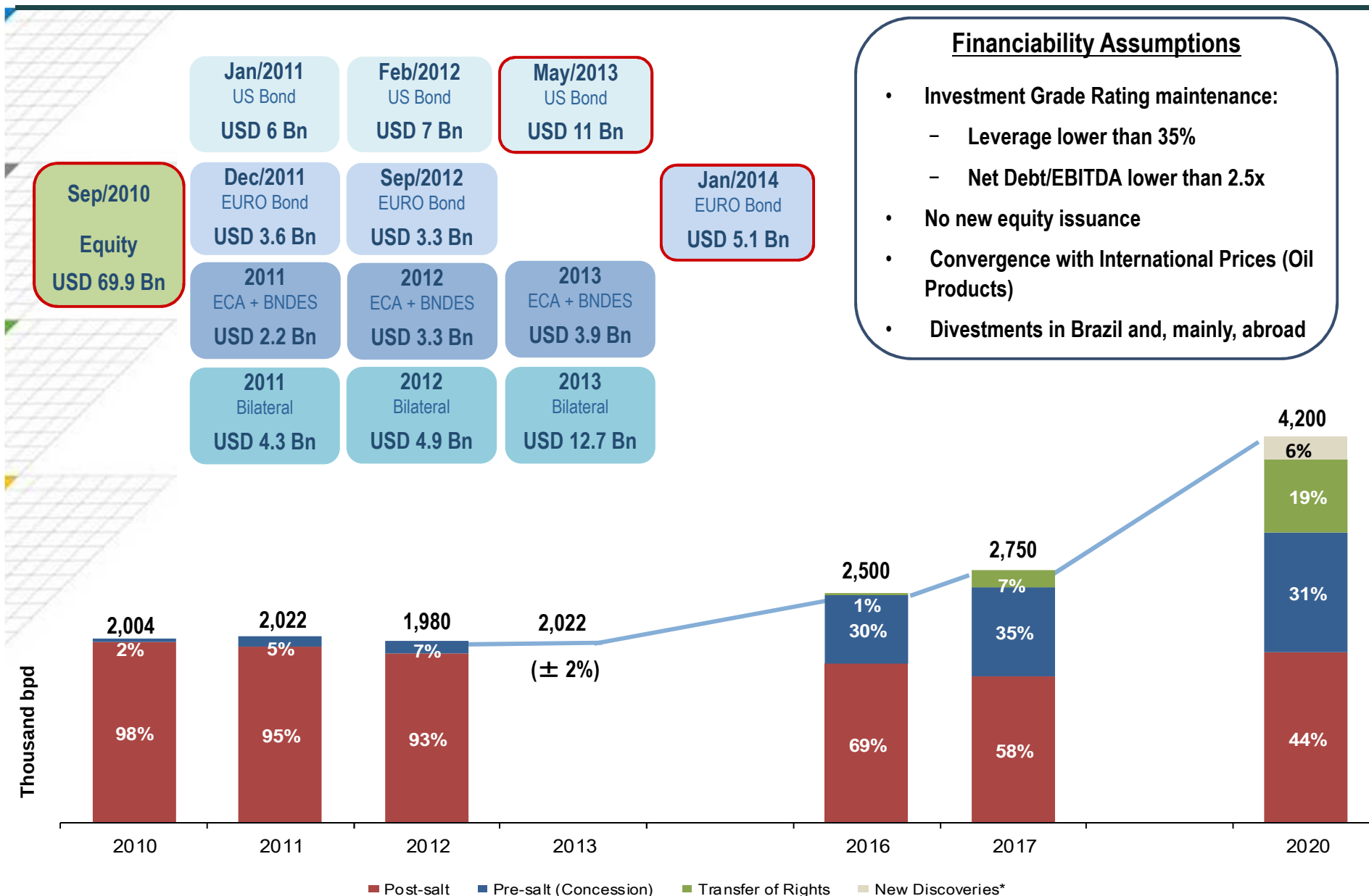


■ E&P ■ Downstream ■ G&E ■ International ■ Pbio* ■ Distribution ■ ETM* ■ Other Areas*

* Pbio = Petrobras Biofuel | ETM = Engineering, Technology and Materials | Other Areas = Financial, Strategy and Corporate

Phase I: Opportunity Identification; Phase II: Conceptual Project; Phase III: Basic Project ; Phase IV: Execution

FUNDING STRATEGY



Financiability Assumptions

- Investment Grade Rating maintenance:
 - Leverage lower than 35%
 - Net Debt/EBITDA lower than 2.5x
- No new equity issuance
- Convergence with International Prices (Oil Products)
- Divestments in Brazil and, mainly, abroad

(*) Includes new opportunities in blocks where discoveries have already been found

CONCLUSION

A portfolio of opportunities

OPPORTUNITIES

- Extraordinary Projects
- Abundant oil reserves
- A growing domestic market
- Maximizing scale, standardization, and integration
- Developing new technologies

FUNDING OPPORTUNITIES

- 2nd Pre-Salt: High liquidity of the market
- Benefits of being predictable



Thank You

FIRST RESERVE

— ENERGY INVESTORS SINCE 1983 —



Challenges and Opportunities in Global Oil & Gas Project Finance

Attracting Finance – Comparative South American Case Studies

Will Honeybourne
Managing Director

February 19, 2014



World Petroleum Council

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First Reserve is A Leading Energy Private Equity Investment Firm

FIRST RESERVE

UPSTREAM E&P



EQUIPMENT AND SERVICES



MIDSTREAM / DOWNSTREAM



- ▶ Over 30 years investing in energy
- ▶ More than \$24 billion of capital raised since inception
- ▶ > 100 platform investments, > 375 add-on acquisitions
- ▶ Portfolio companies operating in ~50 countries



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First Reserve's Global Footprint

FIRST RESERVE

First Reserve Buyout Funds currently control a diversified portfolio of energy companies that had over \$33 billion in revenues and over \$3.3 billion in operating earnings in the last twelve months as of September 30, 2013⁽¹⁾

First Reserve Buyout Fund Portfolio Companies⁽²⁾



- 1) Numbers exclude Plasco and White Rose, as they are not considered active portfolio companies, as well as Glencore, Abengoa and Plains All American Pipeline as they are non-control positions.
2) Represents all active controlled and non-controlled portfolio holdings as of December 31, 2013.



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First Reserve Continues to Deploy Significant Capital into South America

FIRST RESERVE

- ▶ Exploration & Production
- ▶ Mining Resources
- ▶ Equipment and Services



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- ▶ Attractive hydrocarbon opportunities
- ▶ Stable political and fiscal regime
- ▶ Compelling investment theme (e.g.: offshore, unconventional, applying new technology, etc.)
- ▶ Strong management aligned with opportunity
 - Technical and commercial qualifications
 - Proven track record and reputation
 - Key relationships
 - Alignment with investors through equity incentive
- ▶ Defined investment plan for value creation and realization



The Brazilian Case Study

FIRST RESERVE

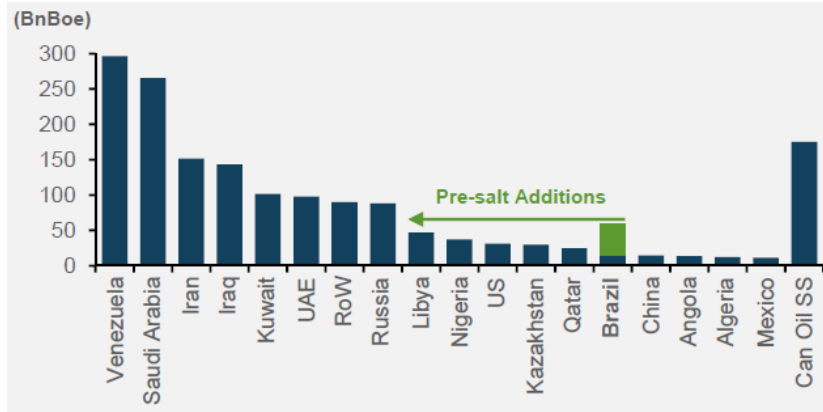


Brazil is One of the Most Attractive Regions for Oil Exploration in the World

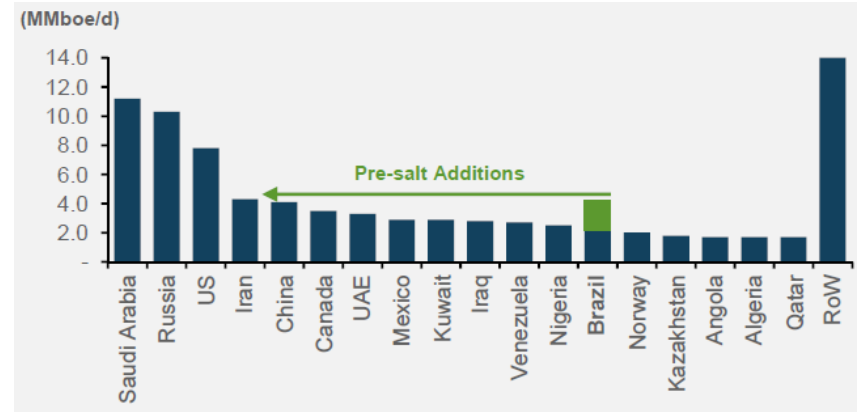
FIRST RESERVE

- ▶ Hydrocarbon rich province with proven reserves increasing over 300% during the last 10 years
- ▶ Reserves expected to increase to the 8th largest in world, oil output is expected to increase to > 4 MMBbl/d
- ▶ Early stage of exploration w/ huge growth opportunities

Leader in Global Reserves Growth



Production Ramping Up Near Term



Source: Petrobras.

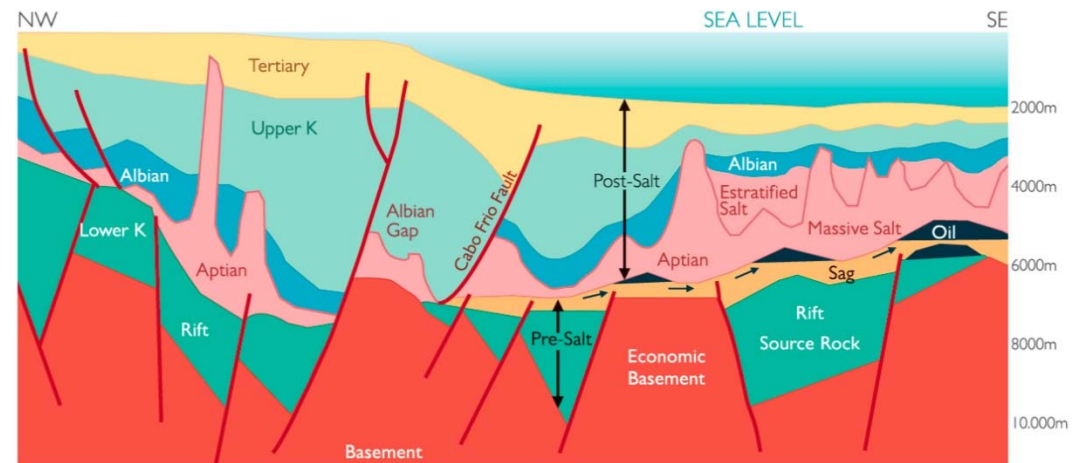


World Petroleum Council



Opportunities Exist for Well-Managed and Well-Capitalized Brazilian Independent E&P Companies

- ▶ Petrobras is the dominant player
- ▶ Majority of Brazilian independent E&P companies are relatively small
- ▶ Under-representation of well-capitalized independent Brazilian E&P companies





Proprietary opportunity to back world class Brazilian team to build mid-sized independent E&P company

Investment Thesis

- ▶ Access to high quality Pre-Salt offshore play
- ▶ Proven fiscal and political stability in Brazil
- ▶ Applying latest seismic and drilling technology for deepwater exploration and development
- ▶ Strong Brazilian team with proven track record and technical capabilities
- ▶ Focused investment plan targeting offshore opportunities and building a balanced portfolio





Opportunities

- Large accumulations discovered in the pre-salt of the Santos Basin with more to be found
- Attractive prospects and discoveries in BS-4 and BMS-8

Challenges

- Finding high quality M&A opportunities
- Access to new pre-salt acreage
- Issues stemming from setbacks with publicly listed Brazilian E&P companies

Barra plans to continue to execute its strategy by pursuing the exploration program on Block BMS-8, the development program on Block BS-4 and other potential farm-in or acquisition opportunities



Our Presence in Brazil is Growing

FIRST RESERVE

- ▶ Petrobras estimated five year E&P spend of ~US\$150 billion which creates a massive opportunity all across oil & gas supply chain⁽¹⁾
- ▶ Our portfolio companies' presence in Brazil is material today and expanding
 - Currently employ ~1400 employees directly in Brazil⁽²⁾

1) Source: Petrobras.

2) Does not include Abengoa or GlencoreXstrata, in which we have minority interests.



FIRST RESERVE

— ENERGY INVESTORS SINCE 1983 —



World Petroleum Council



SOCAR TURKEY AEGEAN REFINERY

WORLD PETROLEUM COUNCIL WORKSHOP
IP WEEK, 19th FEBRUARY 2014

CHALLENGES of DOWNSTREAM
INVESTMENT in TODAY's FINANCIAL CLIMATE

ROBERT STOREY
MANAGING DIRECTOR
SOCAR TURKEY

CHAIRMAN WPC
UK Executive Committee

ANDREW NEALON
PARTNER
VINSON & ELKINS



Trends in Sourcing of Project Finance for Downstream Projects

■ Multi-source financings

- Multi-lateral and bi-lateral development agencies
- Export credit agencies
- International commercial banks
- Local commercial banks

■ **Increased importance** of export credit agencies and multi-lateral and bi-lateral development agencies

Addressing Key Project Risks in Downstream Projects

- **Completion Risk**
- **Technology Risk**
- **General Operating Risk**
- **Feedstock Supply Risk**
- **Market Risk**



Addressing Key Project Risks in Downstream Projects (cont'd)

- Price Risk
- Currency Risk
- Legal and Fiscal Risk
- Political Risk
- Environmental Risk and Social Risk





Case Study: STAR Refinery

STAR – Project Overview



- **Location:** Excellent strategic location in the economically strong west of Turkey, in Aliaga close to Izmir; located in the most crude-proficient region worldwide
- **Configuration:** 10 mtpa capacity, configuration and production slate optimized to maximize the output of the highest margin generating petroleum products for Turkey
- **Integration:** Synergies with Petkim, by creating a vertically integrated complex
- Developed by **SOCAR, SOFAZ** and **Turcas**



STAR – Project Rationale (1)

- Establish SOCAR as the only fully vertically integrated player in the fast growing Turkish market
- Strategic location – well positioned for crude oil supply and access to market
- Substantial CAPEX savings through existing PETKIM infrastructure
- Excellent operating cost structure
- On-site offtake by PETKIM of Naphtha, LPG and Mixed Xylenes (with benefits to Petkim)
- Strong focus on products that are in deficit in Turkey– diesel, jet fuel and naphtha

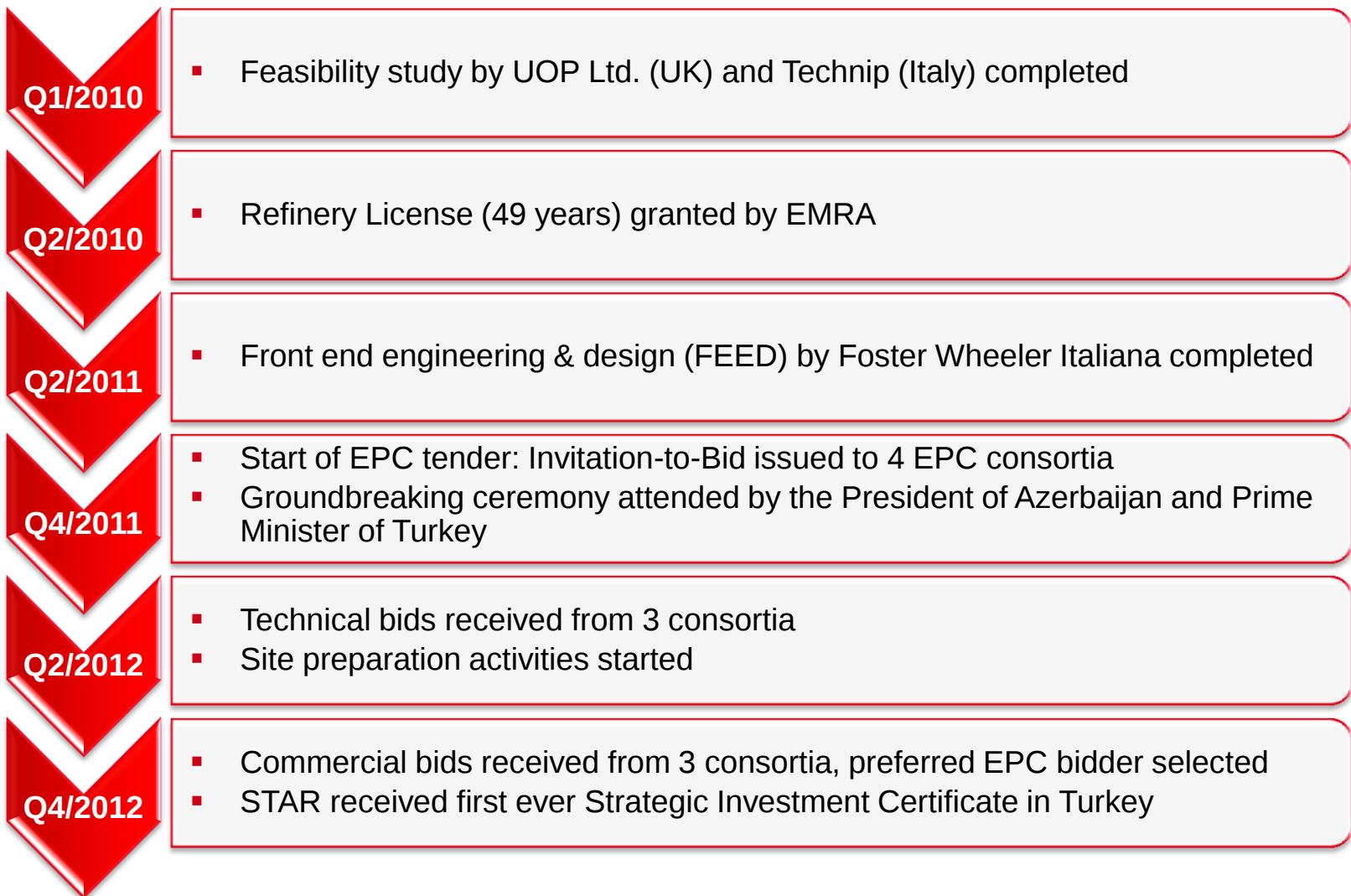


STAR – Project Rationale (2)

- Size, configuration and location offers premium margins over complex Mediterranean refineries
- Benefit from SOCAR's trading platform – crude oil supply and product marketing
- Reduce Turkey's dependence on imports (particularly for diesel, jet fuel and naphtha) and therefore the current account deficit
- Project will assist development of the existing Aliaga site into a world-scale integrated "Refinery-Petrochemicals-Logistics" hub



STAR – Project Timeline to date





Technical Project Overview

STAR – Project Overview

- Project scope includes:
 - Refinery including all process units
 - Infrastructure, utilities and buildings
 - Offsites
 - Pipelines
 - Jetty loading facilities
 - Deep conversion configuration / Nelson complexity index 7.4
 - Flexibility to process different sources of crude, readily available in the region
 - Product specifications: most recent EU standards
-

STAR – Process and Technologies

No technology or scale up risk

- Processes and technologies are well proven in other operating refineries around the world
- All process units are within the size range currently being operated / constructed elsewhere
- Technology licensors are well known, experienced and industry leaders in their areas of expertise
- Initial design of the open art units has been done by Foster Wheeler Italiana

Process	Licensors
Crude distillation unit (CDU)	Open Art
Vacuum distillation unit (VDU)	Open Art
Delayed Coker Unit (DC)	Foster Wheeler
Hydrocracker Unit / PSA (HC)	UOP
Naphtha Hydrotreater (NHT)	Axens
Kero Hydrotreater (KHT)	Axens
Diesel Hydrotreater (DHT)	Axens
Hydrogen Plant (HG)	Technip Benelux
Catalytic Reformer / Splitter / Xylene Fractionation (CCR)	UOP
Saturated LPG Merox Regenerative Caustic Treatment (SRCT)	UOP
Unsaturated LPG Merox Regenerative Caustic Treatment (URCT)	UOP
Recovery and tail gas treatment unit (SRU-TGT)	Tecnimont KT
Unsaturated Gas Plant (UGP)	Open Art
Saturated Gas Plant and LPG Recovery (SGP)	Open Art
Amine Regeneration Units (ARU)	Open Art
Sour Water Strippers (SWS)	Open Art

STAR – Project Management and Construction Strategy

Best practice project management and construction strategy, supported by strong PMC and EPC contractors

- The implementation of the STAR Project will be overseen by the project management team including experienced project managers / engineers and supported by **‘Foster Wheeler’** acting as Project Management Contractor (“PMC”)
- Foster Wheeler is one of the most well regarded engineering companies in this field
- The EPC contracting strategy is to award **one lump sum turn key EPC contract** for all of the plant units, including main process units and utility/offsite units
- Minimal interface risk (negligible works outside the scope of the EPC contract)
- Joint and several liability for EPC contractors

STAR – World Class EPC Consortium

- Following a competitive and industry standard EPC tender and evaluation process, the consortium comprising the following contractors was selected as preferred bidder in December 2012:

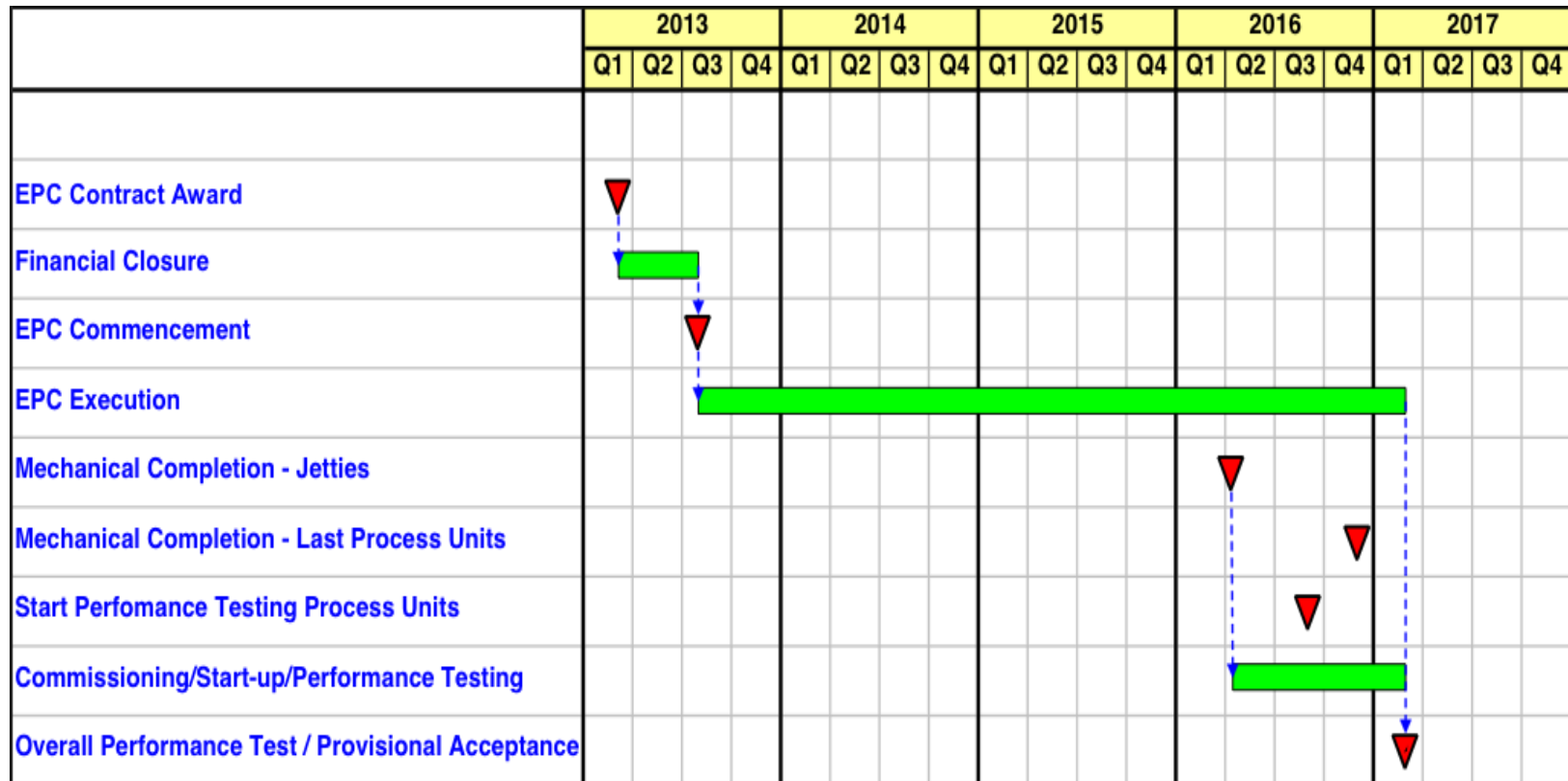


Saipem



- In the last five years, the members of the EPC consortium have been awarded 24 oil refinery projects similar to STAR
- EPC members also have experience in working in downstream projects in Turkey

STAR – Indicative EPC Schedule



STAR – Operations & Maintenance Strategy

Best practice O&M strategy

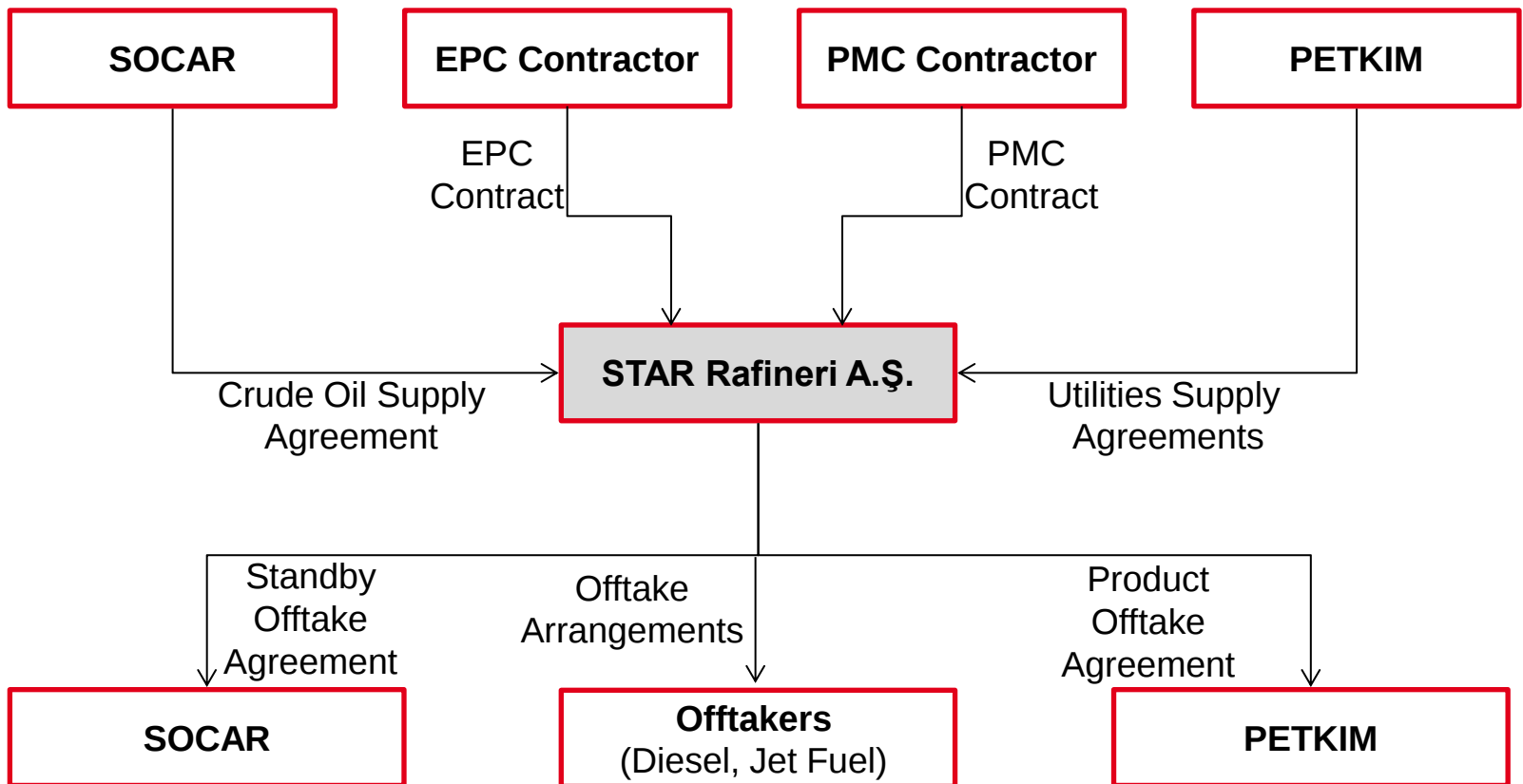
- STAR will operate the refinery with its own staff
- STAR will start recruiting and training refinery staff 8-12 months after award of EPC contract
- Training will be provided by existing STAR engineers, licensors, experts, PETKIM staff and vendor representatives
- The EPC contractor will be responsible for training the refinery operating personnel (6 months before mechanical completion)
- Training will include visits to similar refinery units already operating in other countries
- There is an ample pool of technical professionals in Turkey
- Subcontractors will be used for major maintenance works
- The detailed O&M plan and strategy is currently being prepared by STAR and will be reviewed by the Lenders' Technical Consultant in due course



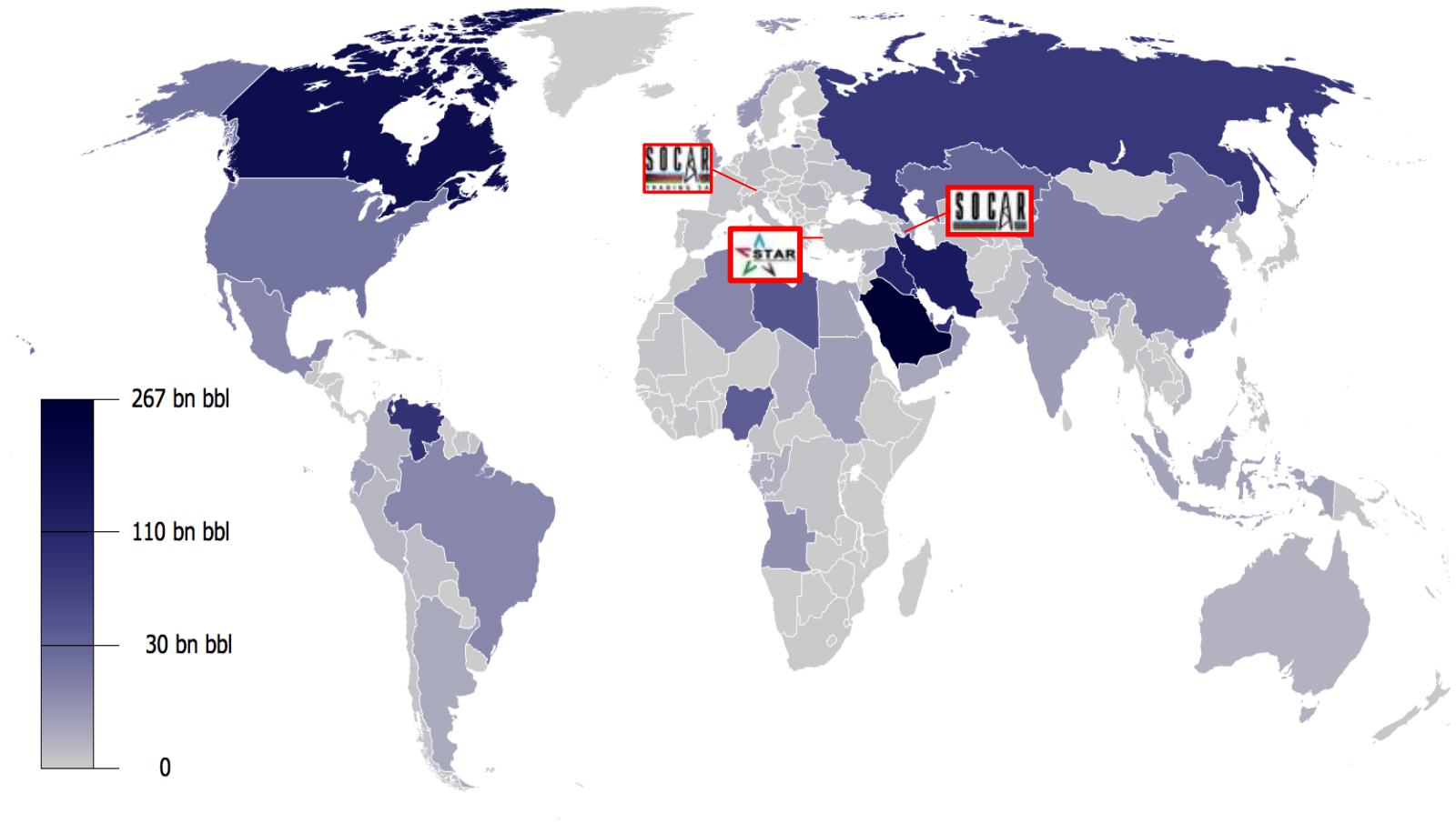
Commercial Project Overview

STAR – Contractual Structure Overview

The contractual structure of the Project has been developed in line with comparable projects that have successfully raised international project financing



STAR – Proximity to World Oil Reserves



STAR – Crude Oil Supply

Secured and reliable crude oil supply

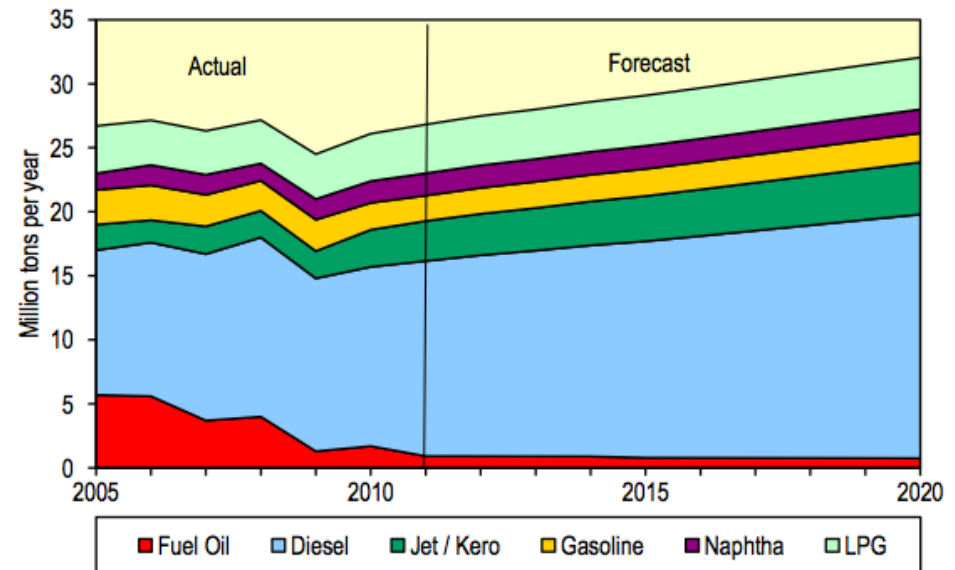
- SOCAR will supply 100% of STAR's crude oil feedstock requirement for 20 years
- SOCAR provides a volume guarantee for the provision of crude oil – including priority to STAR with respect to Azeri crude oil produced
- STAR will benefit from SOCAR's experience, trading platform and ability to provide Azeri Light Crude (if required)
- STAR will procure its crude oil based on a linear programme to optimize its yield and product slate
- STAR will obtain competitive market-based price
- STAR will be able to process bulk of the crude oils available in the region from the CIS and Middle East, including Urals (medium/sour) and for Kirkuk (medium/sour)
- Lenders' Market Consultant has confirmed that there is expected to be adequate regional supply of the type of crude oil to be processed by STAR and that the configuration provides flexibility to process heavy sour crude oil in blend with lighter grades

STAR – Perfectly Positioned for the Turkish Market

STAR will be the leading refinery in the fast growing Turkish market, due to:

- Size
- Complexity
- Location
- Product slate tailored to the Turkish market
- Synergies with Petkim
- Significant advantages over imports (storage requirements, port capacities)

Figure 3.4 Turkish Demand for Refined Products (Historic and Forecast)



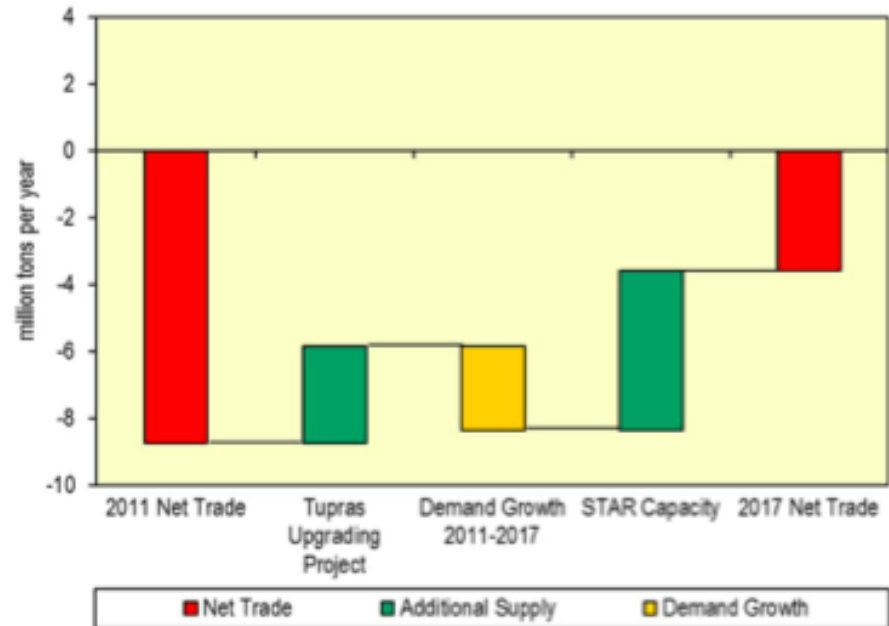
Source: Nexant

STAR – Benefitting from the Diesel Deficit

Widening Diesel deficit even with STAR onstream

- Diesel deficit will be significantly reduced, but will remain intact after additional capacity from Tupras Upgrade and STAR, so import-parity pricing expected to continue for all domestic sales
- Diesel demand is expected to continue to grow, with the diesel deficit widening

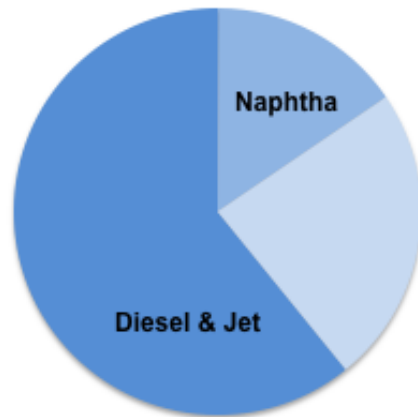
Figure 3.20 Turkey – Diesel Deficit Development 2011 to 2017



Source: Nexant

STAR – Product Slate Tailored to Maximise Profit

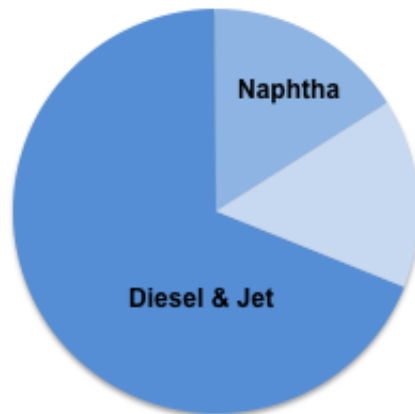
STAR Product Slate



Optimised product slate targeted for fast growing Turkish market with deficit in middle distillates

- Production focuses on products which are in deficit in Turkey:
 - Diesel
 - Jet fuel
 - Naphtha

STAR Revenues



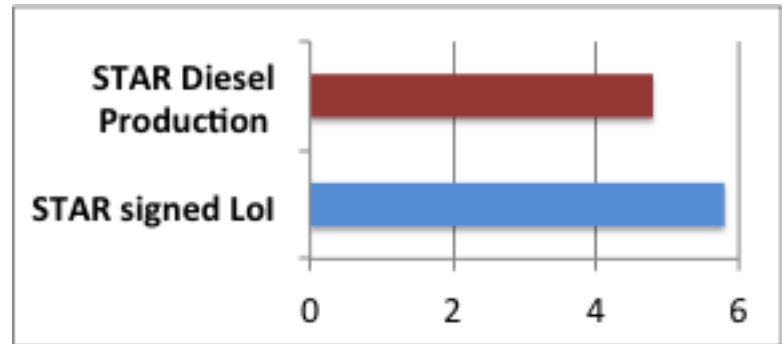
- Diesel – increasing deficit as the preferred motor fuel for growing transport sector
- Jet fuel – expanding aviation sector will continue to drive growth in consumption
- Naphtha - Petkim is major naphtha consumer
- No fuel oil or gasoline production

STAR – Strong Interest from Turkish Retailers

Lols exceed production

- STAR has received Lols from leading retailers in Turkey
- For diesel, the stated amount already exceeds the total diesel production of STAR

Letters of intent signed - mtpa

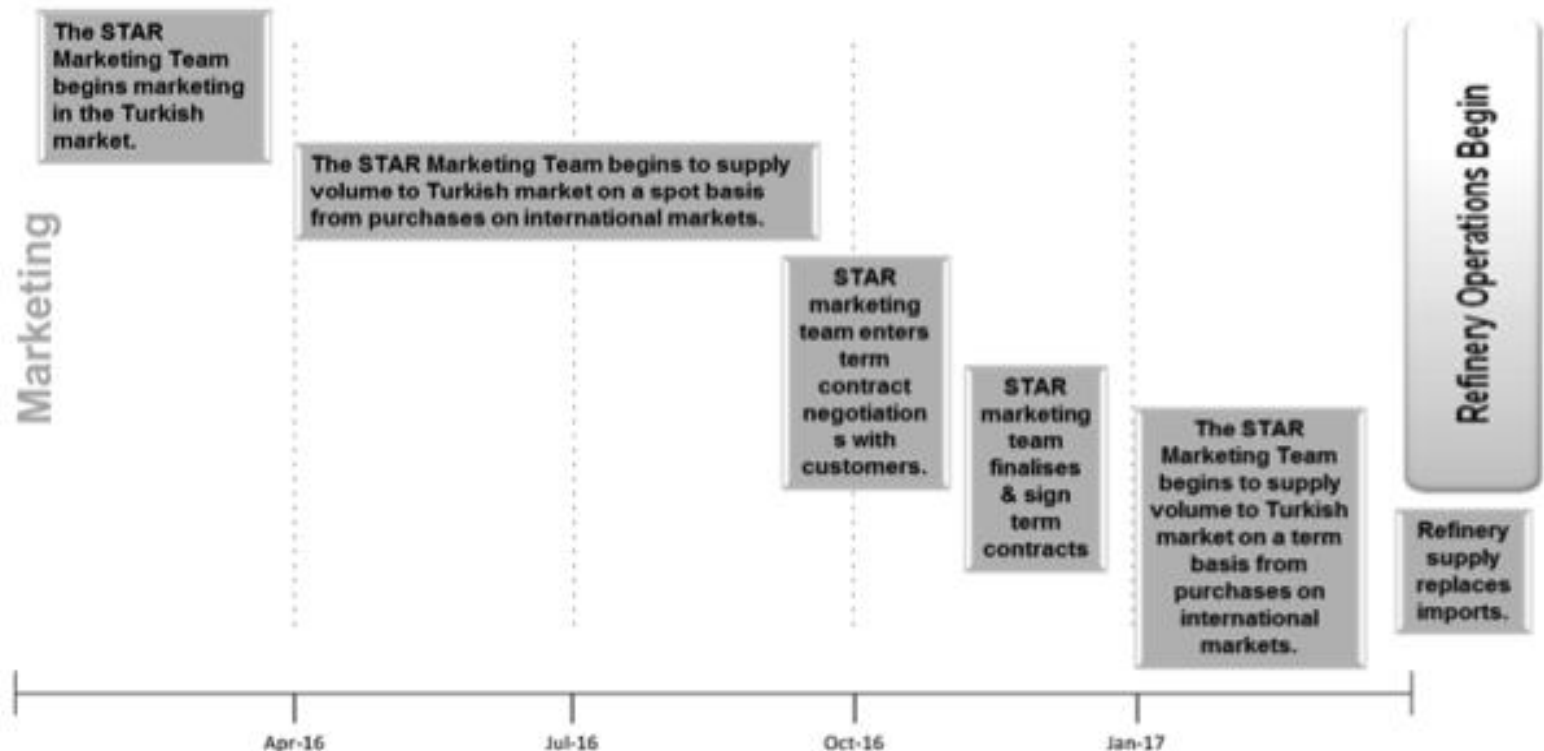


Strong local demand

- These retailers have a combined market share of approximately 50% of the Turkish diesel market
- All major retailers have adjacent storage facilities
- STAR will establish a strong marketing team and also benefit from capabilities of SOCAR Trading and SOCAR Distribution

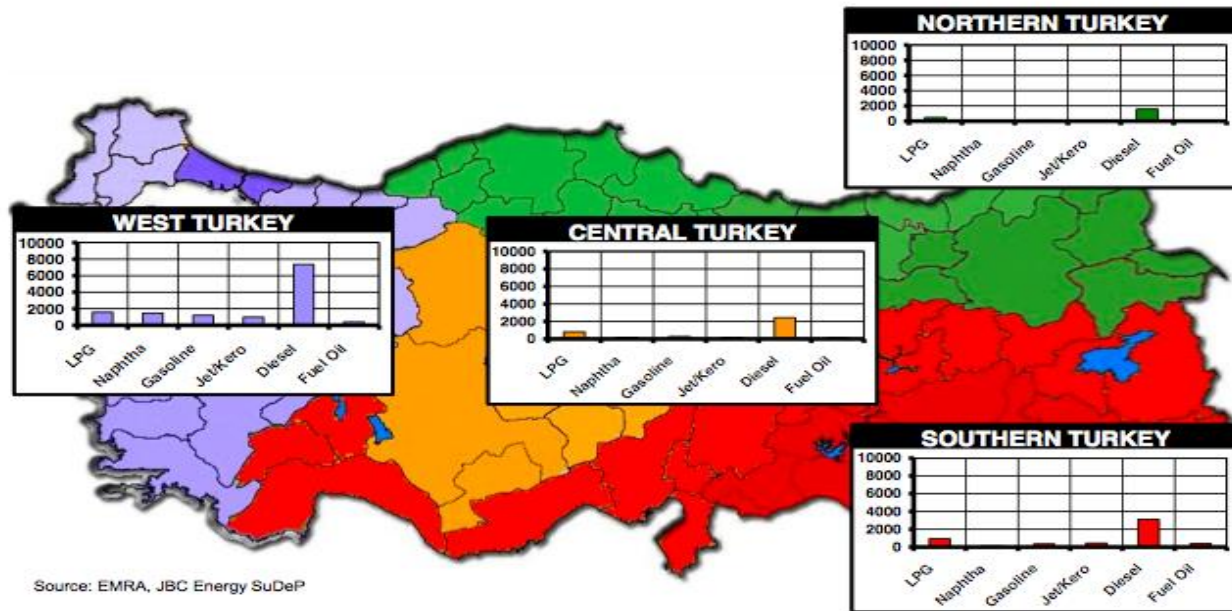


STAR – Pre-Marketing Activities



STAR – Regional Demand in Turkey

- STAR expects that all major products can be sold in the domestic market, especially naphtha (Petkim offtake), diesel and jet fuel
- STAR expects that the majority of the middle distillates will be sold in the Western part of Turkey, the remainder shall be placed in south, central and northern Turkey
- STAR will work closely with retailers (including SOCAR Distribution)



STAR – Petkim Integration Further Supports Product Offtake

Majority of other products will be sold to Petkim

- STAR will sell the following products to Petkim for 20 years
 - Naphtha
 - Mixed xylenes
 - LPG
 - Sales at market prices, pricing formula for naphtha provides for transportation cost saving for Petkim (compared to imports)
 - Naphtha is key feedstock for Petkim, which consumed more than 1.6 mt in 2011
 - Petkim is the sole petrochemical producer in Turkey with a market share of approx. 25%
 - SOCAR currently indirectly owns approx. 69% of Petkim
 - Other products will also be sold domestically
-

STAR – Strategic Investment in Turkey

- STAR is of strong macroeconomic importance for Turkey: one of the largest foreign direct investments ever made
- STAR symbolizes the strategic partnership between Azerbaijan and Turkey, based on the approach **“Two States – One Nation”**
- Production of high value products will reduce Turkey’s reliance on diesel and jet fuel imports
- STAR will secure Petkim’s feedstock at stable quality and market prices
- Project will contribute to the reduction of Turkey’s current account deficit
- Project will assist development of the existing Aliaga peninsula into a world-scale integrated “Refinery-Petrochemicals-Logistics” hub
- STAR generates approx. 750 mostly highly qualified employment opportunities with a long-term perspective

STAR – Success Factors



INSURANCE REQUIREMENTS FOR ONSHORE OIL & GAS CONSTRUCTION PROJECTS

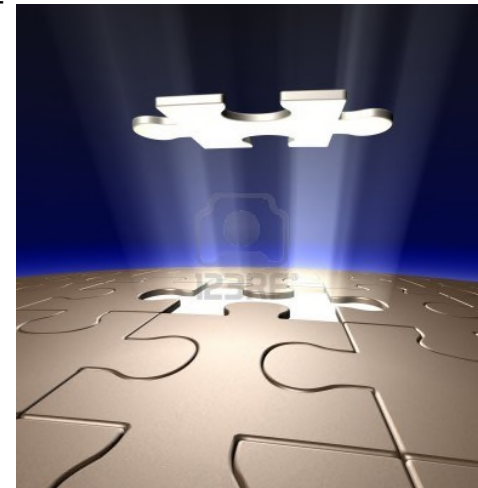


LONDON INTERNATIONAL PETROLEUM WEEK 19th FEBRUARY 2014

INSURANCE – THE FORGOTTEN PIECE OF THE PUZZLE

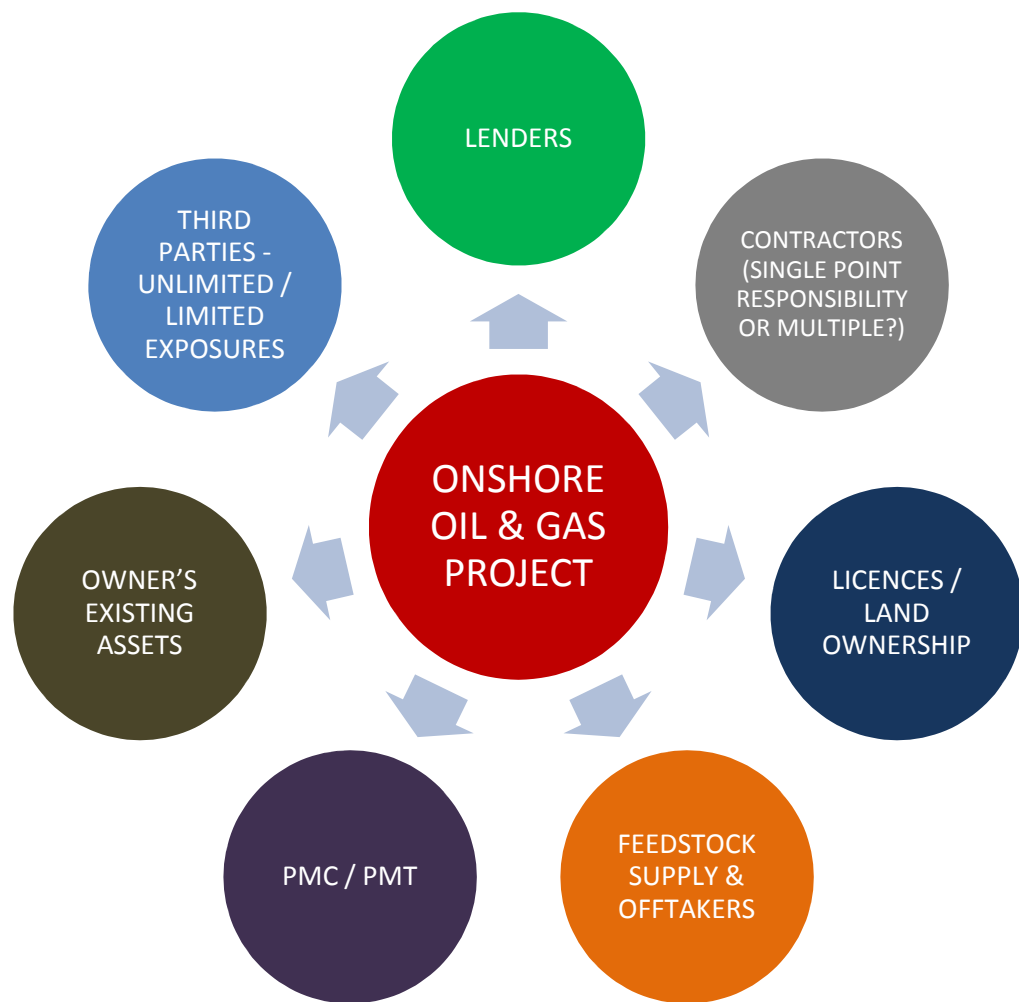


- When projects are conceived insurance often seems to be an afterthought or treated as a simple commodity
- Understanding the issues early on can save a great deal of time, money and anguish
- Needs to be part of an overall project risk assessment and allocation strategy from early on in a project
- Any misunderstanding as to what is insurable and where limitations of cover exist can lead to major issues with all those involved in the project (e.g. contractors, investors, lenders) potentially leading to the downfall of the project.
- Understanding the intended contractual arrangements is of paramount importance
- Lenders requirements can be extensive, time consuming and some issues are likely to be strongly resisted by underwriters





LIKELY CONTRACTUAL RELATIONSHIPS



TRADITIONAL ALLOCATION OF RISK BETWEEN OWNER & CONTRACTOR



RISKS RETAINED BY OWNER

- Commercial Risk
- Delay outside the control of the Contractor
- Responsibility for his own employees
- Political Risks Incl. Terrorism
- Project Financing

RISKS PASSED ONTO THE CONTRACTOR

- Damage to / liability arising from his own property
 - ❖ including vehicles / waterborne craft / aircraft
- Duty of care for the project works
- Responsibility for own workers
- Responsibility for Design
- License Agreements
- Liability to Third Parties
- Liquidated Damages
 - ❖ for delay
 - ❖ for lack of performance

WHO NORMALLY BUYS WHAT INSURANCE - OWNER CONTROLLED PROGRAMME (EX USA)



OWNER

- Erection All Risks (EAR) / Construction All Risks & Subsequent Delay in Start Up (DSU)
- Marine Cargo / Transit & Subsequent Delay in Start Up
- Third Party Liability (Excess of / Difference in Conditions to the EPC Contractor's Primary limit required under contract)
- Terrorism & Subsequent Delay In Start Up (stand alone or via local terrorism pools)
- Employer's Liability / Worker's Compensation for own personnel
- Motor Liability
- Office physical damage and liability covers
- Any other insurance that is required by law

WHO NORMALLY BUYS WHAT INSURANCE - OWNER CONTROLLED PROGRAMME (EX USA)

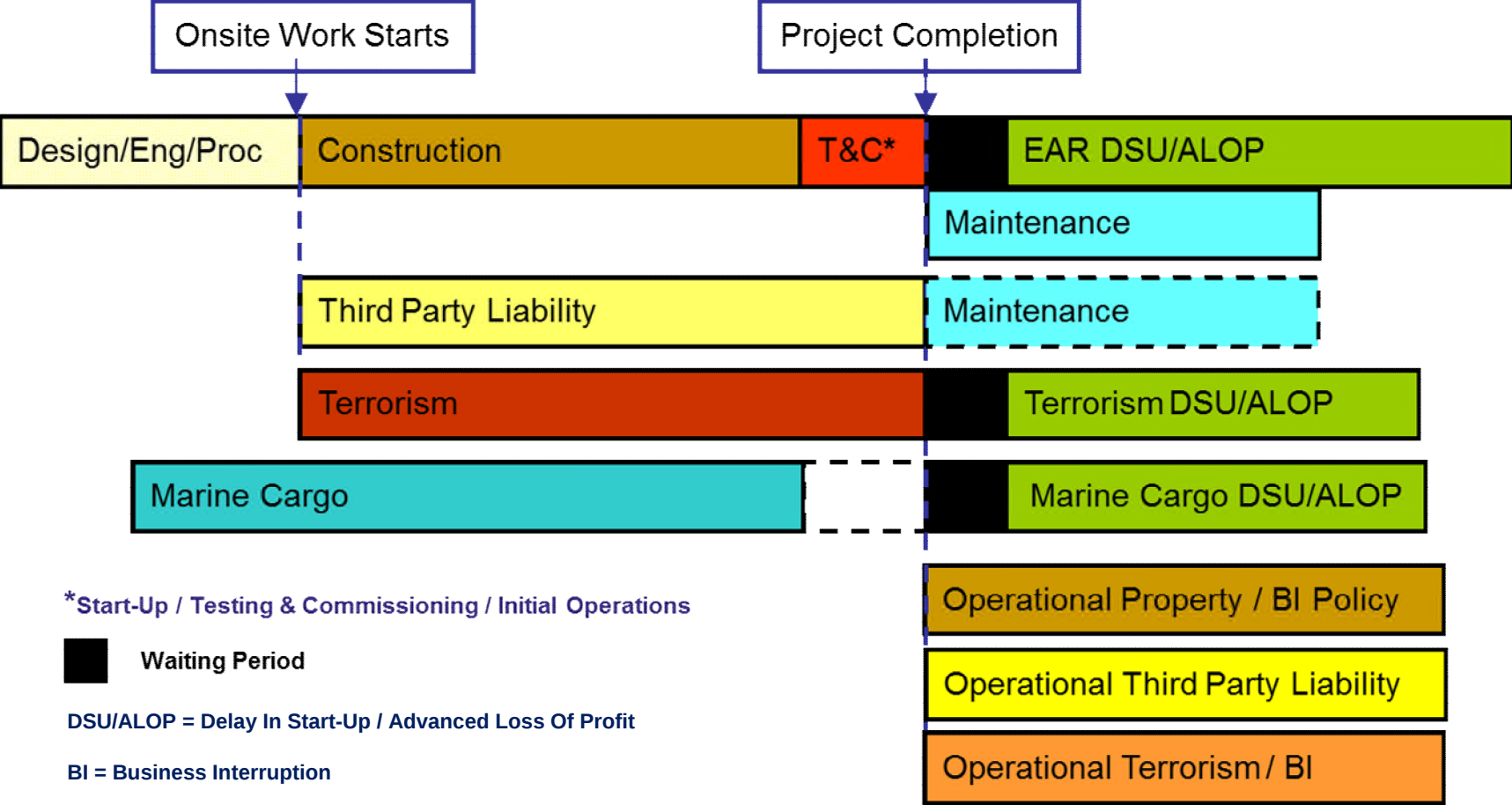


CONTRACTOR

- Contractor's Plant and Equipment
- Primary Third Party Liability (often between USD 5 - 10 million)
- Employers Liability / Workers Compensation for own personnel
- Professional Indemnity (depending upon contractual arrangements)
- Motor Liability
- Waterborne / Aircraft Liabilities as required
- Any other insurances required by law
- (Equipment Cargo/Transit if no Lenders or Delay In Start Up Insurance Required)



CORE INSURANCE POLICIES





MAIN INSURANCE POLICY COVERAGES

PHYSICAL DAMAGE:

- Physical Damage to project equipment once arrived at site or at pre-agreed off-site storage areas
- Inland Transit of project equipment not originating from overseas
- General Site construction activities through to Mechanical Completion
- Cold (e.g. Hydrostatic or Pneumatic) and Hot (After Introduction of Feed Stock) Testing & Commissioning of the new project (72 hour Test Run needed to transfer to operational insurance)
- Damage caused by failure in design, specification and workmanship but not latent defects in their own right (non-damage) can be covered – different levels of coverage are available
- Corrosion / erosion / wear and tear excluded but resultant damage is covered
- Maintenance coverage during the defects liability period – different levels of coverage are available

TRANSIT/ CARGO:

- Physical Damage to project equipment whilst being transported between the overseas manufacturers' sites to the project site(s)
- Transport by ship, barge, rail, air, train or lorry – (loading / discharge surveys are required for critical equipment)

THIRD PARTY LIABILITY:

- Legal liabilities for damage or injury to third party property / personnel whilst carrying out of the contract works

TERRORISM:

- Damage to project equipment caused by a terrorist act (can also cover Strikes, Riots & Civil Commotions – SRCC)

Delay In Start Up:

- Financial loss of the owner / lenders caused by an insured physical damage loss occurrence
-

REQUIRED INFORMATION



WHO?

WHAT?

WHERE?

HOW?

WHEN?

WHY?



NMB

Newman Martin and Buchan LLP
Insurance and reinsurance brokers

COOPER GAY

A **CGSC** Company



DIFFERING RISK PROFILES

BY WHOM IS THE PROJECT BEING BUILT?

Experienced Project Parties or not? - Owner, PMC, Main Contractor, Sub-Contractors, Engineers, License Owners, Consultants etc.

WHAT IS BEING BUILT?

What is included within the Scope Of Work? Wet Works, complicated Civils, New Technology, Scale Ups, High Pressures and Temperatures, Large Flammable Inventories / Hold-Ups, Start-Up Sequencing, Longevity of the Commissioning / Hot Testing Periods, large Estimated Maximum Losses (EMLs), Long Equipment Lead Times etc.

WHERE IS IT BEING BUILT?

Location / Natural Perils / Country Risk / Logistics

HOW IS IT BEING BUILT?

Methodology of build: Modules, Stick Build, Barges, Foundations, Heavy Lifts, QUALITY ASSURANCE & CONTROL, Individual Party Responsibilities etc.

WHEN IS IT BEING BUILT?

Weather Patterns, Political Stability, Tight / Weak Contracting Markets, Overall Project Period

WHY IS IT BEING BUILT?

Financial implications, Off-Take Agreements, Take Or Pay Contracts, Product Price Sensitivities,

INFORMATION IS KEY TO NEGOTIATING BEST TERMS AND AVOIDING DISPUTES



EXAMPLE OF A PROJECT INFORMATION DISC

 Project Introduction & Scope	 Overall Project Schedule	 Start Up Schedule
 Breakdown of Project Values	 Delay in Start Up – Financial Information	 Delay in Start Up – Technical Information
 Geotechnical – Soils & Ground Conditions, Soils	 Natural Hazard Exposures	 Natural Hazard protections and/or design
 Construction / Supply & Off-take Contracts	 Plot Plans – Overall & for Major Units	 Flow Diagrams
 Civil Works - Foundations / Pilings / Pipelines	 Surrounding Property and Third Party Exposures	 Wet Works (Works in or over Water)
 Catalysts (Types and Values)	 Heavy Lifts (List plus Procedures)	 Fire Protections
 QA & QC Procedures and Methods of Implementation	 Safety Studies and Procedures incl. HAZOP	 Start Up Procedures
 Transit Information	 Design / Technology Issues	 Extension / Tie Ins to Existing Facilities



WHY INSURANCE?



- When things go wrong in the energy sector the results are dramatic!
- The insurance industry is there to help when problems arise.



SUMMARY



- Insurance is an important and fundamental part of any project
- Involve risk advisers / qualified insurance personnel at an early stage of a project's life
- Spend time providing good clear technical project information
- Work in partnership with the insurance industry in order to obtain the best results





Robert Glynn

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Strategic Risk Management in Project Finance: A Contractor's Perspective

IP Week 2014

Samir Brikho
Chief Executive
AMEC plc



What I would like to discuss:



- Background on project finance
 - Key players / participants
 - The Contractor's role
- Risks in Project Finance
 - Allocation and mitigation
- Example of a financed project
- AMEC's business

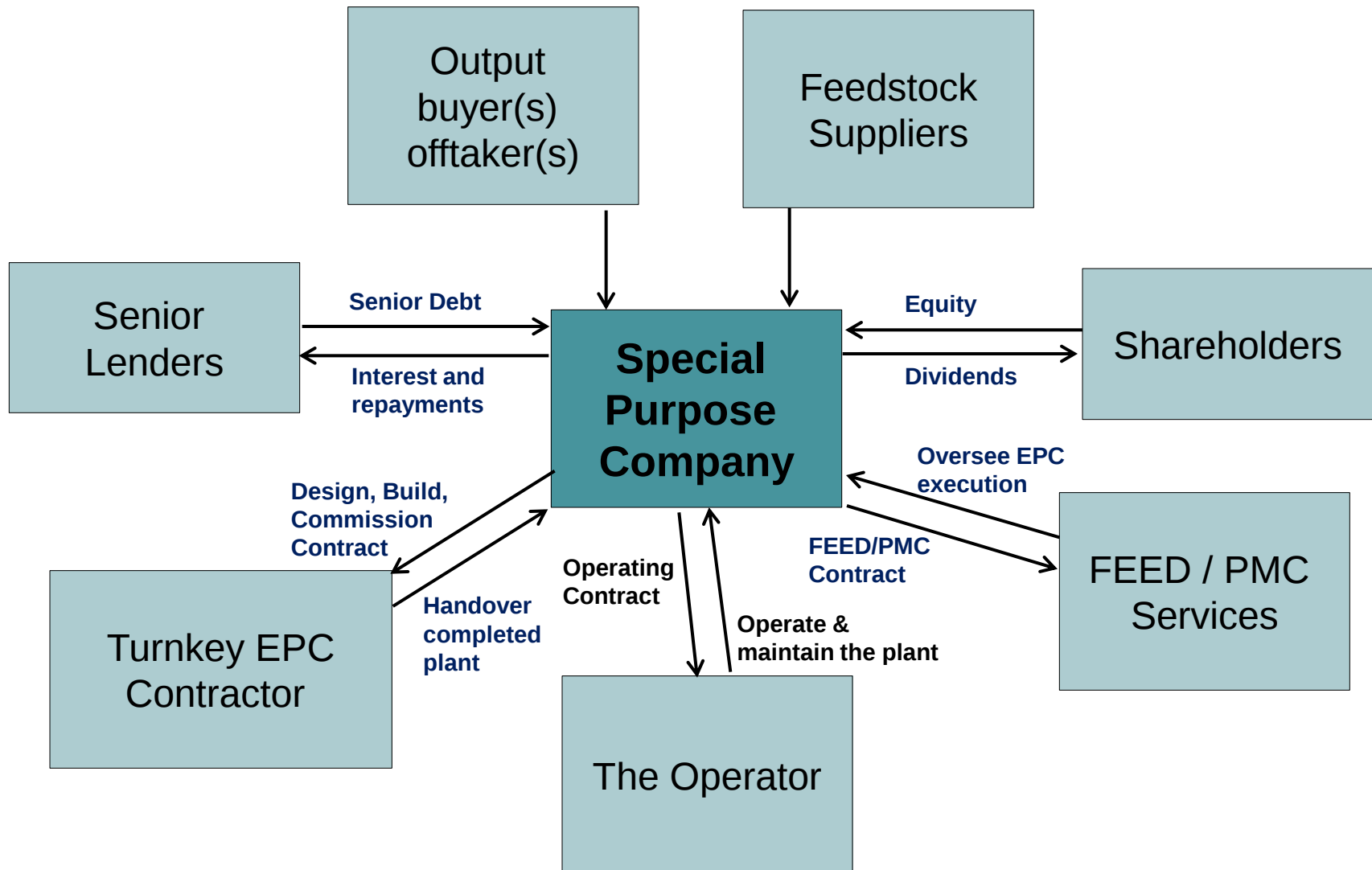
MEMBER OF
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In Collaboration with RobecoSAM 



- Project Finance: the extension of credit to finance a project where the future cash flows serve as collateral for the loan.
- Why use project finance:
 - Alternative to financing the project on Sponsor's balance sheet, or when balance sheet cannot support size of investment
 - Enables development of market opportunities
 - Allows Sponsors to allocate project risk to parties best suited to manage that risk

In the Oil & Gas sector, project finance has been used for LNG projects, refineries, petrochemical facilities, drilling platforms..

Background on Project Finance, Typical Structure



- The keys to success in Project Financing are secure, predictable, long-term cash flows, and predictable capital cost and schedule
- Need to fully understand what the risks are in any project - Full risk assessment is essential.
- Each party involved in the project should take the risks that it can best manage
- A key risk is that the capital asset – LNG, refinery, pipeline etc - will be built on time and to budget and will perform as forecast
- This risk is passed to the EPC Contractor

I will look at this risk from the perspective of the EPC Contractor in a project finance project and describe role of FEED/PMC Services Contractor in managing/reducing risk

- Quality, Experience and Financial standing of the sponsors
- Robustness of the finance package
- Quality and clarity of the contractual documents
- Project specific risks – operations, feedstock, site etc
- External risks in the project - regulatory risk, business and legal institutional development, force majeure risk

The Contractor should be involved early and deeply to ensure it understands the whole project and is satisfied that these risks have been satisfactorily addressed

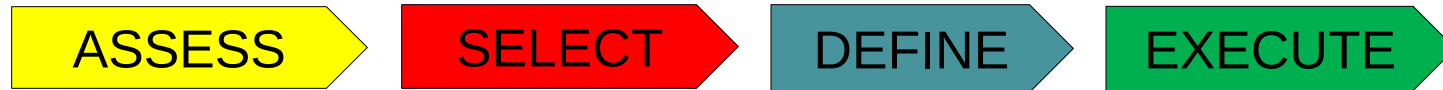
Risk	Mitigation
Cost – completing the design and build within budget	Well-defined and clear scope of work, detailed work schedule and completion definition, priced appropriately for the scope and risks. (FEED quality is critical) Contractor should use proven technology with which he has previous experience and have prior experience with EPC of this type of facility and in the Country/Location Critical vendors of procured items and subcontractors to be experienced, creditworthy and bear appropriate risk.
Schedule – completing the works on time and bearing liquidated damages for any delay	
Change Control – particularly changes that may come from the owner company personnel	Minimizing changes and impact of changes requires constant effort, where an experienced PMC can have significant value.
Critical Technical Risks – instances such as unexpected geotechnical conditions or key errors on site plans may have outweighed impact on project outcome	FEED and early detailed design phases should be thorough and accurate.

Managing Risk: EPC Contractor (cont.)



Risk	Mitigation
Process or Performance Guarantees	Contractors should simply not take on process guarantees without a certain leverage on the technology licensors.
Commissioning and Handover – requirement to demonstrate that the asset is complete and can perform to the contractual standard to achieve Handover	Commissioning and Handover tests to be clear and objective. Role and responsibility of Contractor and Operator clear and interface well managed
Parent Company Guarantees and/or Letters of Credit/ Performance Bonds	Terms of any guarantees /bonds must be clear and callable only on proven failure to perform the contract.
	Comprehensive insurance package covering all insurable risks.
Acts of nature (e.g. floods, storms), civil unrest, cross-border issues, changes in law	Suitable force majeure and other contractual protections in EPC contract with cost and schedule relief provisions

FEED and PMC in Financed Projects – Managing all Stages



STAGE GATE PROCESS:

- ASSESS Stage: Feasibility, Construction Methodology, Screening Studies, Site Investigation, Field Development, Process (Technology) requirements, Order of magnitude estimates
- SELECT Stage: Concept selection, Site surveys, Process schematics, Technology licenses, Layouts, Codes/Standards, Environmental and Social Consequences, Initial Permits, Risk Assessments, Project estimates and Overall economics
- DEFINE Stage: FEED, Project Specifications, Safety reviews, Environmental Impact Assessments and Permits, Master Schedule and Cost Estimates, Value Engineering >>>>> FID
- EXECUTE Stage: Detailed Design, Procurement, Construction, Safety and Quality Assurance, Testing, Completion, Ready for Commissioning, Handover

A HIGH QUALITY AND COMPREHENSIVE FEED AND A ROBUST PMC ROLE TO ASSURE PERFORMANCE OF EXECUTION CONTRACTS CAN MITIGATE RISK

Example – ICHTHYS LNG Project Australia (project in process)



- Largest Project Financing at \$20 Billion (\$16 B mix of Commercial with ECA cover, ECA Direct, and Commercial, with \$4B of Sponsor Credit)
- Capital Cost of \$ 34 Billion
- Sponsors: Inpex, Total, and minor Japanese Utilities (main offtakers)
- Complex Upstream (CPU, FPSO, Subsea Pipelines) and Two Train Onshore LNG
- Inpex Operations as Operator
- Inpex Operations also overall Project Lead with ten principal contractors under varying contracts
- Central Processing Facility Semi-Submersible Contract with SHI
- FPSO Contract with DSME
- LNG Liquefactions Trains contract with JV of JGC, KBR, Chiyoda
- Some project risks retained by Inpex (Australian construction risk)

AMEC LED THE FEED CONTRACT FOR THE UPSTREAM – CPF, FPSO, URF'S, AND SUBSEA PIPELINE

Strategic Risk Management in Project Finance

Managing Delivery Risk on Megaprojects

Renny Borhan

Managing Director, Claims and Consulting Group, International

Hill International, Inc.

LIFE IN THE ERA OF O&G MEGAPROJECTS ...

- Capital spend on energy projects through 2035 may reach \$38 trillion
(International Energy Agency (IEA))
- Potential overspend across the whole capital budget of the energy industry could be approximately 13 percent, which translates to US\$5 trillion overspend
(Accenture)
- On MegaProjects, this overspend often well exceeds the average figure above
- \$10+ Billion CAPEX projects are becoming more and more common
- So A new era of opportunities And corresponding challenges

... AND THE ERA OF MAJOR COST OVERRUNS

- Majority of energy industry executives:
 - Are dissatisfied with project performance (40% of capital projects overrun); this level of dissatisfaction is the highest ever.
 - Agree that poor project performance is not acceptable when the market expects predictability

(Booz Allen and Hamilton)

- “... many greenfield projects suffer significant cost overruns. Indeed, as a general rule 30 percent of such projects experience budget overruns of 50 percent.”

(A. Gould, CEO Schlumberger)

- “Success, measured by how well we meet promises made at the time of the financial investment decision (FID), declines rapidly with project size. While projects in the USD 300- to USD 600-million range were largely successful, the success rate for the megaprojects—defined as exceeding USD 1 billion measured in constant start-of-2003 terms—was approximately 50%.”

(Morrow 2003, 2012)

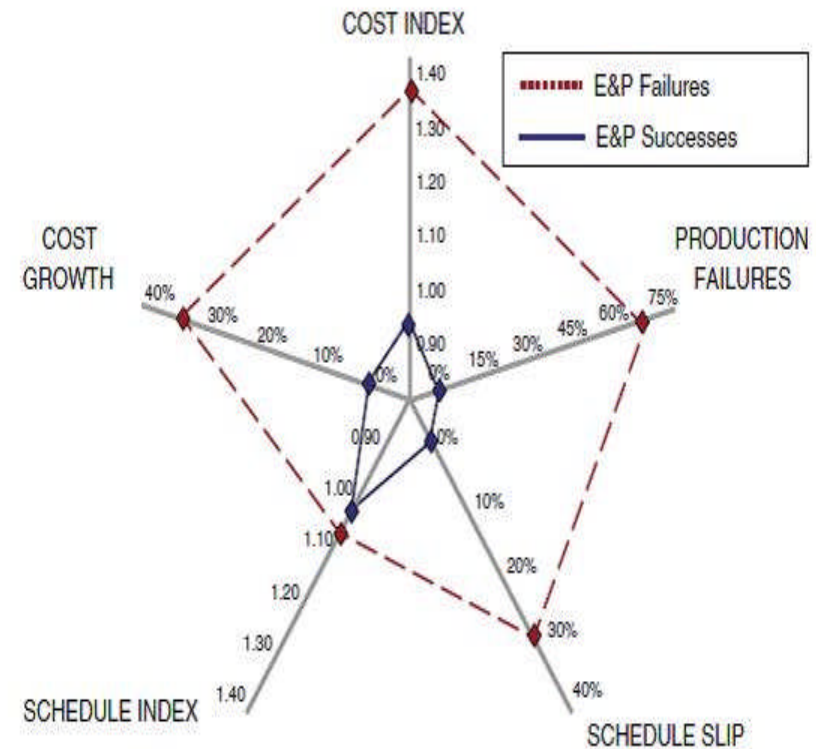
SIX TYPICAL CULPRITS

- I don't care – it has to be done in 3 years
- Let's just get the deal done; we can worry about the details later
- Why do we have to spend so much upfront?
- We need to cut the numbers by 30% for this to work
- Let's just dump all the risk on the contractors – they can afford it
- Fire any damn Project Manager who overruns a project

WHEN O&G MEGAPROJECTS FAIL, THEY FAIL BIG

- Rich recent history of major cost overruns:
 - Kashagan (\$30->\$150+Bn)
 - Gorgon (\$37->\$52+ Bn)
 - QCLNG (\$15->\$20+ Bn)
 - Pearl GTL (\$5->\$20+ Bn)
 - Escravos GTL (\$1.7->\$8.4 Bn)
- Current proposed and sanctioned Australian LNG projects are estimated to cost \$2.7 billion per MMtpa vs. \$1.2 billion per MMtpa for recently commissioned projects globally

Sources: Reuters, Platts,
Deutsche Bank, Company filings



Source: E. Merrow, IPA

PROJECT FINANCE CHALLENGES

- Project Finance is generally “Non-recourse” – lenders have limited to no recourse to sponsors’ balance sheet
- Finance Security is limited to project assets, income stream and the various contracts making up the project
- Complicated structures – Single Point of Responsibility, Bonding Requirements, Complex Contract Documents and little or no possibility of lender intervention
- Usually places as much risk as possible on the Contractor
- Contract structure not usually customary in the mining/resources industries

WHAT ARE THE REASONS FOR THESE OVERRUNS?

- Oil and Gas projects regularly establish UNREALISTIC and UNOBTAINABLE schedules for execution. E.g. Speed to First Oil drives up Capex by billions per year, and after missing these aggressive target dates, projects end up moving slower than average.
- Insufficient FEL (Front End Loading) – particularly scope development and FEED
- Contract documents which have every good intent when drafted to address risks, but which fall apart when these risks actually surface
- Project Management and Coordination – usually the Project Director is the only ‘glue’ that holds all the different disciplines and pieces together. Projects where the PD changes midstream have a higher rate of failure. Competition for human resources in an extremely tight market.
- Contract/Package Management - Complex commercial arrangements require experienced specialists in contract management – not a core strength of IOCs and NOCs. Owners don’t always understand how contractors work.

HOW CAN YOU MITIGATE THE RISK?

- FEL – As in any other project, an extra dollar spent during early design and engineering usually pays itself back several-fold
- Get the Contract right – the payback is even greater on the dollar you spend on a solid, realistic and fair contract
- Hire good advisors and get multiple opinions. A modest 1% savings on a \$10 billion project is \$100 million. Even the sexiest group of lawyers, technical experts and contract advisors would have trouble running a bill of 0.01% or \$10 million pre-FID.
- Establish a Project Management Office (PMO) working with the Project Director with independent reporting to board and/or funders. Outsource critical non-technical services (procurement, contracts administration) to vendors who are specialized in the field.
- Check, check and check again – but use independent experts who have no gain from a positive outcome.

FRONT END LOADING

- A rush to FID or Project Sanction is often the first and deadliest bullet
- Use independent advisors and peer-reviews to challenge assumptions, punch holes in your assumptions, ask the tough questions
- Fast-tracking a complex Mega-Project is generally a recipe for disaster
- Get contractors and suppliers on board early and make them part of the process – they're your best resource for evaluating risk
- Leverage your size to take advantage of economies of scale – plan across your portfolio of projects, not by individual ones
- Create a single repository of best practices and lessons learned, and make sure it is disseminated thoroughly

CONTRACT DRAFTING

- Although the initial intent when drafting a contract may well place risks in the appropriate baskets, the potential outcome of these risks should they materialize are far removed from the perceived reality seen from the comfort of the contract drafting desk.
- Standard NOC and IOC ITTS and Contract terms and conditions are often not up to date, do not take proper consideration of local laws and/or religious/social customs, and do not reflect current market conditions and/or recent lessons learned

Recommendation

- “Wargaming” or Challenge sessions before any documents are issued to contractor and suppliers
- Two sets of eyes are always better than one – get competing law firms and consultants to challenge the contract documents and provide a fresh viewpoint

Advantages:

- Gets all of the project team members (and advisors) into a room over a couple of days so they all thoroughly discuss and better understand the contract
- A rigorous challenge of the contractual documents through what-if scenarios
- Make sure all contract sections are consistent with each other
- Ensure contract administration procedures are thorough, efficient and most importantly realistic
- Ensure contract price structure and scope are aligned

HIRE GOOD ADVISORS

- True Independence is hard to come by
- Don't skimp on technical, legal, insurance advice pre-FID
- Pay for redundancy and get a second, or even a third opinion
- A positive FID or Project Sanction on a MegaProject has a lot of fans – naysayers are not usually welcome in early stages; Create and incentivize naysayers so at least people think about worst-case scenarios and try to address them to the extent possible

PMO AND INDEPENDENT OVERSIGHT

- Project Team members are least incentivized to highlight risks and liabilities
- Strengthen Project Director function and provide a PMO which assists the PD but also has reporting responsibility to board and/or funders – if nothing else it will increase transparency
- Contracts Management and Claims Avoidance is critical to controlling costs – hiring 40 bodyshop freelancers from different backgrounds and varying levels of expertise is not the answer to managing billions of dollars in contracts – outsource the service
- Spend money and allocate good resources to scheduling – challenge contractors' and suppliers' schedules continuously and be on top of your project

SUMMARY

- O&G MegaProjects can be managed and cost overruns are not a given
- The disconnect between Owners and their suppliers and contractors must be addressed and bridged
- Proper (and more expensive) cost and schedule controls should be implemented early in the Project Cycle
- Get the best advisors, lawyers and consultants – good advisors will have experience of having seen many projects go wrong – use that knowledge!
- Last but not least - Get the contract right

MANAGING DELIVERY RISK ON MEGAPROJECTS



Thank you



21st WORLD PETROLEUM CONGRESS

June, 15 - 19, 2014 | Moscow

21st WORLD PETROLEUM CONGRESS

15-19 June 2014, Moscow, Russia



Russian National
Committee of the
World Petroleum
Council



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21st WPC TECHNICAL PROGRAMME

TIME		PL-HALL	BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 4	ROOM 5	ROOM 6	PL-HALL	BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 4	ROOM 5	ROOM 6	PL-HALL	BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 4	ROOM 5	ROOM 6	PL-HALL	BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 4	ROOM 5	ROOM 6	TIME
08.30-09.30 09.30-10.30 10.30-10.45 10.45-11.45 11.45-12.00 12.00-13.00 13.15-14.00 14.15-15.45 15.45-16.00 16.00-17.30	SUNDAY	MONDAY, 16th June						TUESDAY, 17th June						WEDNESDAY, 18th June						THURSDAY, 19th June										
		PLENARY 1						PLENARY 3						PLENARY 6						PLENARY 9						08.30-09.30				
		PLENARY 2						PLENARY 4						PLENARY 7						PLENARY 10						09.30-10.30				
	Chair Briefing	BREAK						BREAK						BREAK						BREAK						10.30-10.45				
		Exhibition Opening						RS 1	MS	MS	MS	MS	MS		MS	MS	MS	MS	MS	MS		MS	MS	MS	MS	MS	MS		10.45-11.45	
		BREAK						BREAK						BREAK						BREAK						11.45-12.00				
		SP1	BP1	BP3	BP5	BP7	BP8		RS 2	BP2	RT4	BP6	BP9	EW1	EW2	SP9	RT2	BP4	BP7	RT9	EW3	SP10		RT3	RT6	EW4	EW5	SP17		12.00-13.00
		Lunch between 12.30-14.30 EXCELLENCE AWARDS						Lunch between 12.30-14.30 PLENARY 5						Lunch between 12.30-14.30 PLENARY 8						Lunch between 12.30-14.30 PLENARY 11						13.15-14.00				
	WPC Council Meeting	SP2	F1	F9	F14	F18	BL1: RT1	SP3	RS 3	F3	F11	F15	F20	BL1: F5	SP7	SP11	F6	F12	F16	F22	BL4: RT10	SP12	SP18	F8	F13	F17	F24	BL4: RT12		14.15-15.45
		BREAK						BREAK						BREAK						BREAK						15.45-16.00				
	SP4	F2	F10	RT7	F19	SP5	SP6	RS 4	F4	RT5	RT8	F21	BL4: F25	SP8	SP13	F7	SP14	SP15	F23	BL4: RT11	SP16	DEWHURST LECTURE						16.00-17.30		
																				CLOSING CEREMONY										
	OPENING CEREMONY							RUSSIAN NIGHT						YOUTH PARTY																

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- Digital Poster Plaza area
- Social Responsibility area



FLOOR PLAN



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World Petroleum Council meeting and reception

15 June, 2014, Sunday, Metropol Hotel

Opening Ceremony

15 June, 2014, Sunday,
State Kremlin Palace

Russian Night ("Podmoskovnye Vechera")

17 June, 2014, Tuesday, Gorky Park

Youth Party

18 June, 2014, Wednesday,
Izmailovo Kremlin

Closing Ceremony

19 June, 2014, Thursday , "Crocus Expo"

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- Red Square and Manezh Square
- Gorky Park
- Museum of A. Pushkin
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- St. Basil's Cathedral
- Moscow Cathedrals and Churches
- Tretyakov Gallery
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welcoming you to Moscow!**

