Energy Intelligence

Africa's oil and gas potential

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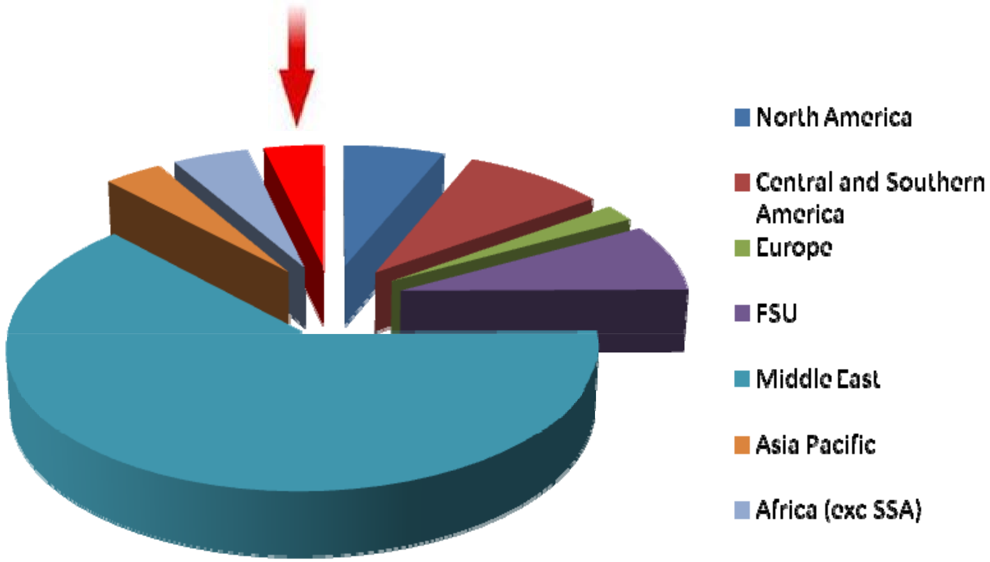
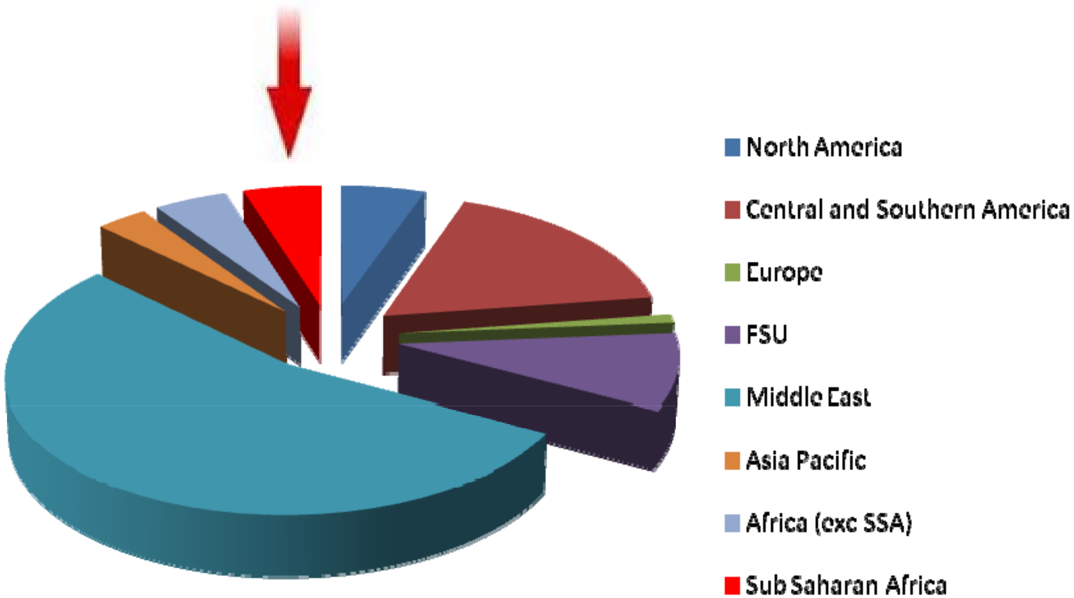
Powerful Thinking
for the global energy industry

Africa in the world
Oil Reserves (billion bbls)

	2000	(% share)	2010	(% share)
World	1,105		1,383	
Africa	93	8.4	132	9.5
SSA	41	3.7	68	4.9
Source: BP statistical review				



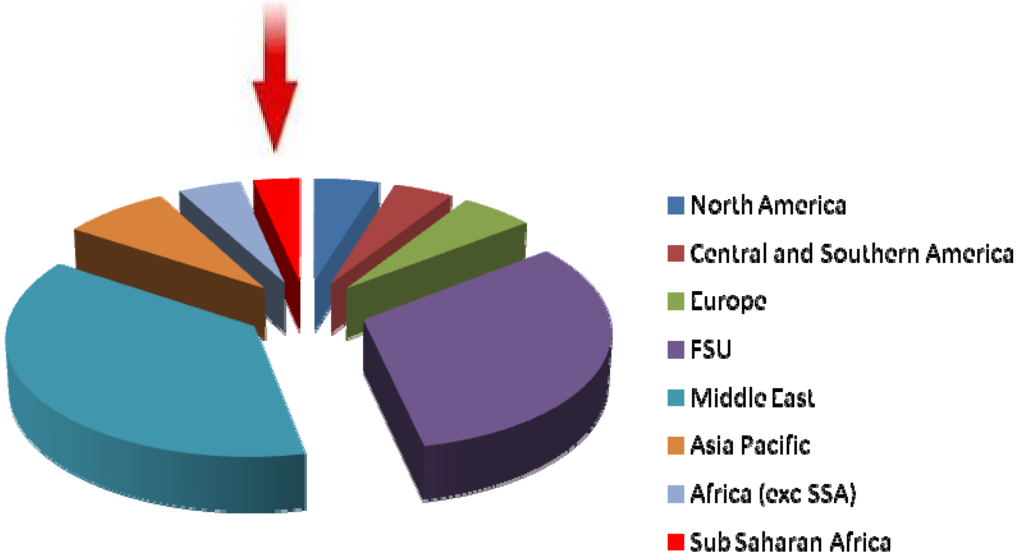
World Oil Reserves 2000



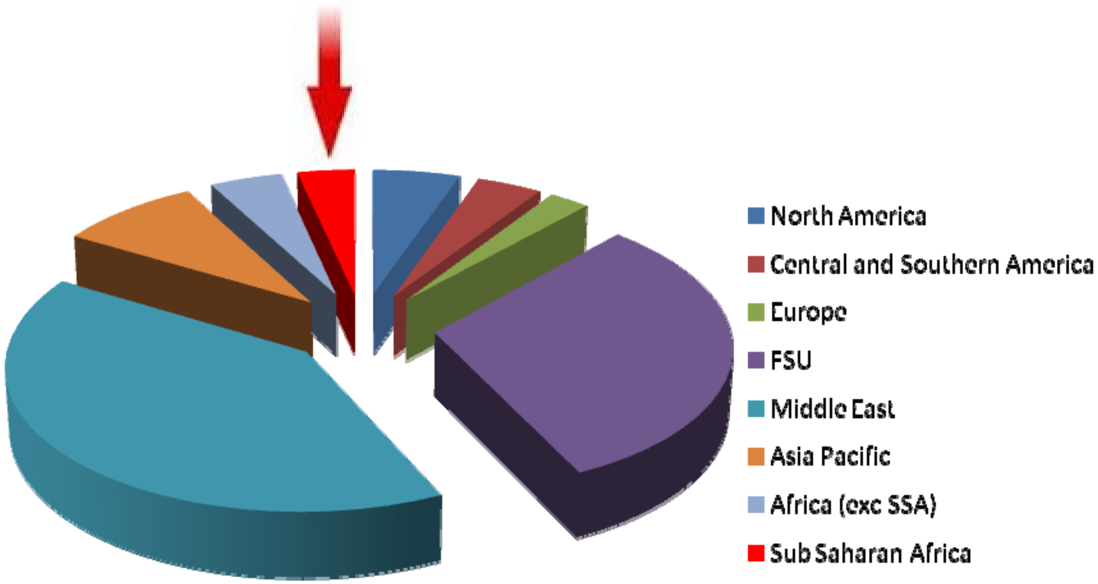
World Oil Reserves 2010

Africa in the world
Gas reserves (trillion cubic ft.)

	2000	(% share)	2010	(% share)
World	5,446		6,609	
Africa	441	8.1	520	7.9
SSA	187	3.4	229	3.4
Source: BP statistical review				



World Gas Reserves in 2000



World Gas Reserves in 2010

Africa in the world oil production ('000 b/d)

	2000	(% share)	2010	(% share)
World	74,893		82,095	
Africa	7,804	10.4	10,098	12.2
SSA	3,892	5.1	5,811	7.0

Subsaharan Africa
Oil reserves by country (million bbls)

	2000	2010	Volume growth	(%)
Nigeria	29,000	37,200	8,200	28
Angola	6,000	13,500	7,500	125
Chad	900	1,500	600	66
Congo-B	1,700	1,900	200	11
Eq. Guinea	800	1,700	900	112
Gabon	2,400	3,700	1,300	54
Sudan	600	6,700	6,100	1000+
Other	700	2,300	1,600	228
Sources: BP Statistical review; Wood Mackenzie				

SubSaharan Africa
Oil production by country (‘000 b/d)

(‘000 b/d)	2000	2005	2010
Angola	746	1,405	1,851
Cameroon	100	82	64
Chad	0	173	122
Congo-B	254	245	292
Congo-K	n/a	20	22
Cote D’Ivoire	n/a	*63	45
Equatorial Guinea	91	358	274
Gabon	327	234	245
Mauritania	0	0	7
Nigeria	2,155	2,499	2,402
Sudan	180	294	475
Source: BP Statistical review, Energy Intelligence and govt. Estimates;*2006			

New kids on the block (oil)

- Ghana (Jubilee) deepwater started producing 2011 –95,000 b/d
- Niger (Goumeri and Sokor) just started -- 20,000 b/d

Future oil growth
Nigeria

Nigeria	Field/block	Date	Capacity (‘000 b/d)
Usan (Total)	138 deepwater	2012	180
Egina (Total)	130 deepwater	2014-5	150-200
Satellite 1 (Exxon)	shallow water	2011-13	70
Sanctioned			**400**
No FID yet:			
Bonga North (Shell)	118 deepwater	After 2014	100
Bonga S.West	118 deepwater	After 2014	200
Bosi (Exxon)	133 deepwater	After 2014	134

Angola future oil growth

Angola	field/block	Date	Capacity ('000b/d)
Pazflor (Total)	17 deepwater	2011-2012	220
PSVM (BP)	31 ultra-deep	2011-2012	150
Satellites (Exxon)	15 deepwater	2012	85
CLOV (Total)	17 deepwater	2014	160
Sanctioned:			615
No FID yet:			
Block 31 SE	Ultra deep		140
Block 15/06	Deepwater		

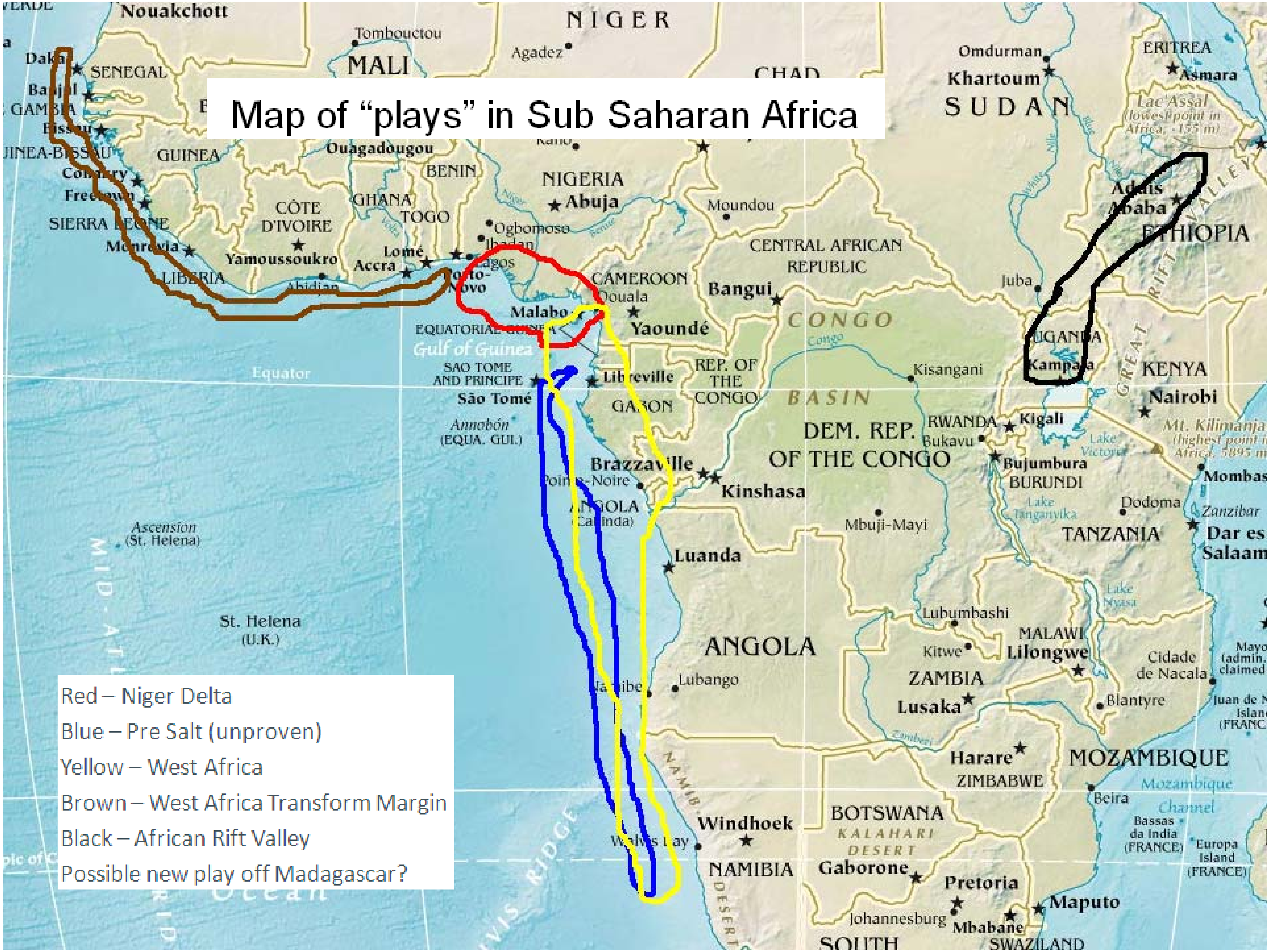
Other SSA – near term growth prospects

- Very difficult to forecast for all sorts of reasons – ranging from company decisions to government action:

- Cameroon after years of decline -- expects 23% growth during 2012-14
- Chad exploration ongoing
- Congo-B Growth
- Congo-K uncertain
- Cote D'Ivoire end of civil war should boost investment
- Eq.Guinea
- Gabon Some growth
- Ghana 2010-2015 Enyera and Tweneboa – decision imminent
- Mauritania Exploration ongoing

- Uganda 2015+ 200,000 b/d

Map of “plays” in Sub Saharan Africa



Red – Niger Delta

Blue – Pre Salt (unproven)

Yellow – West Africa

Brown – West Africa Transform Margin

Black – African Rift Valley

Possible new play off Madagascar?

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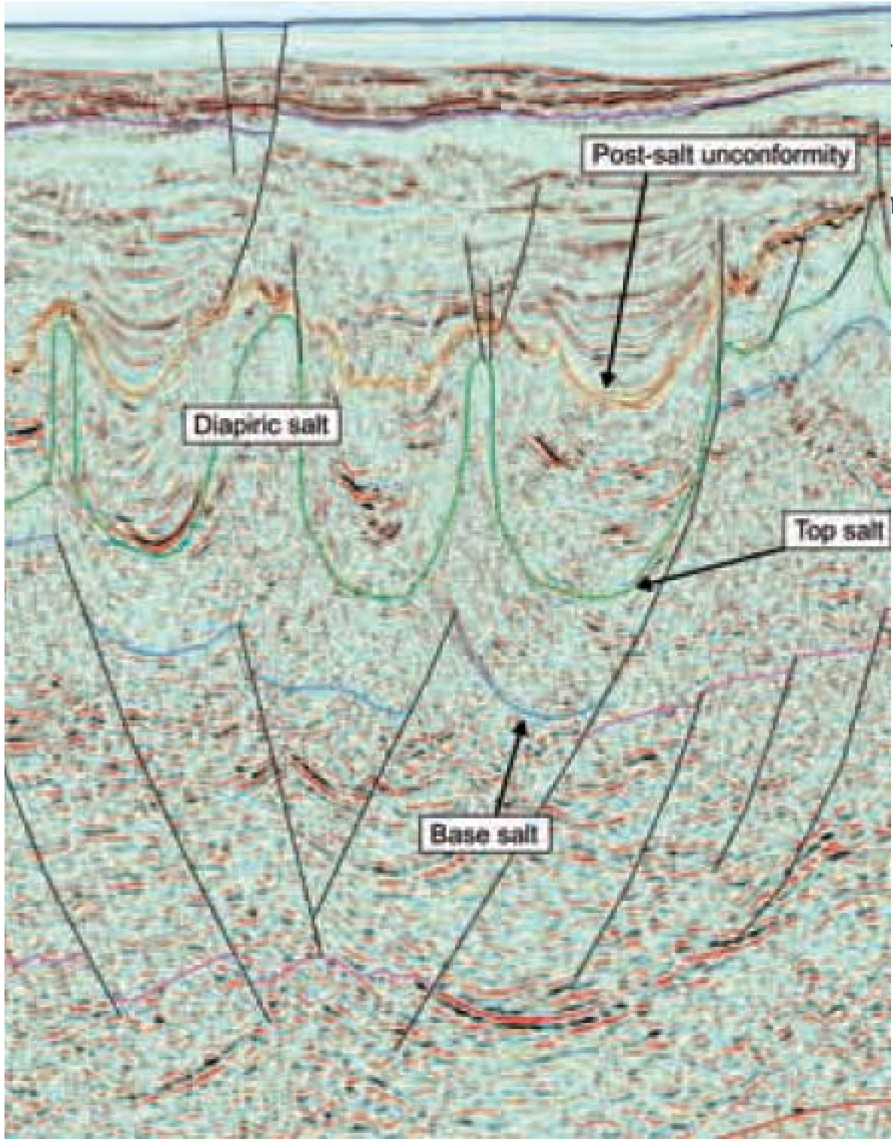
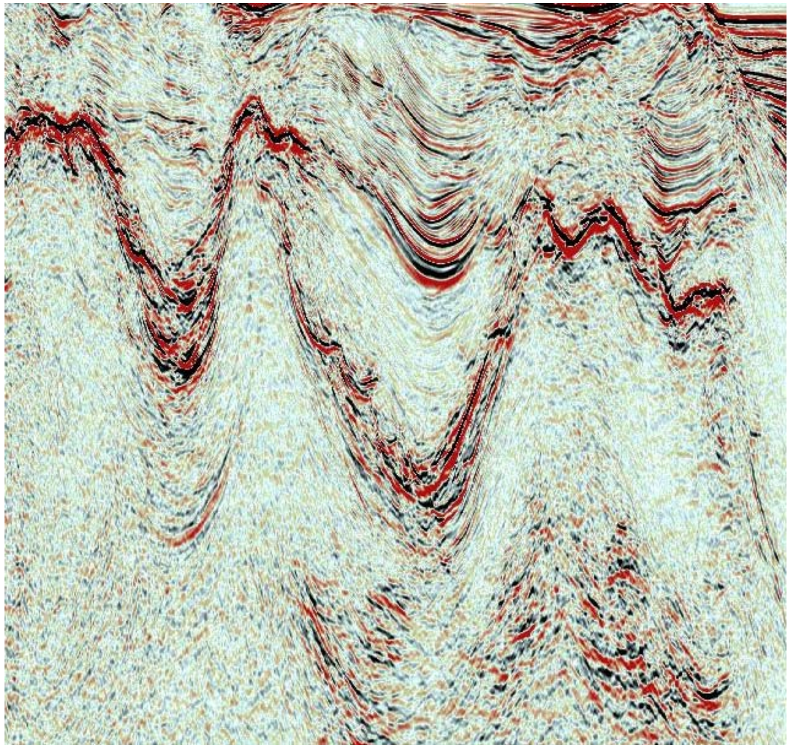
Pre Salt Play

Gabon (left) vs Brazil (below)



- azilian Reserves are estimated at up to 150 billion barrels (in total pre salt)
- e African Presalt is untested, but extends under Gabon, Angola and Namibia.



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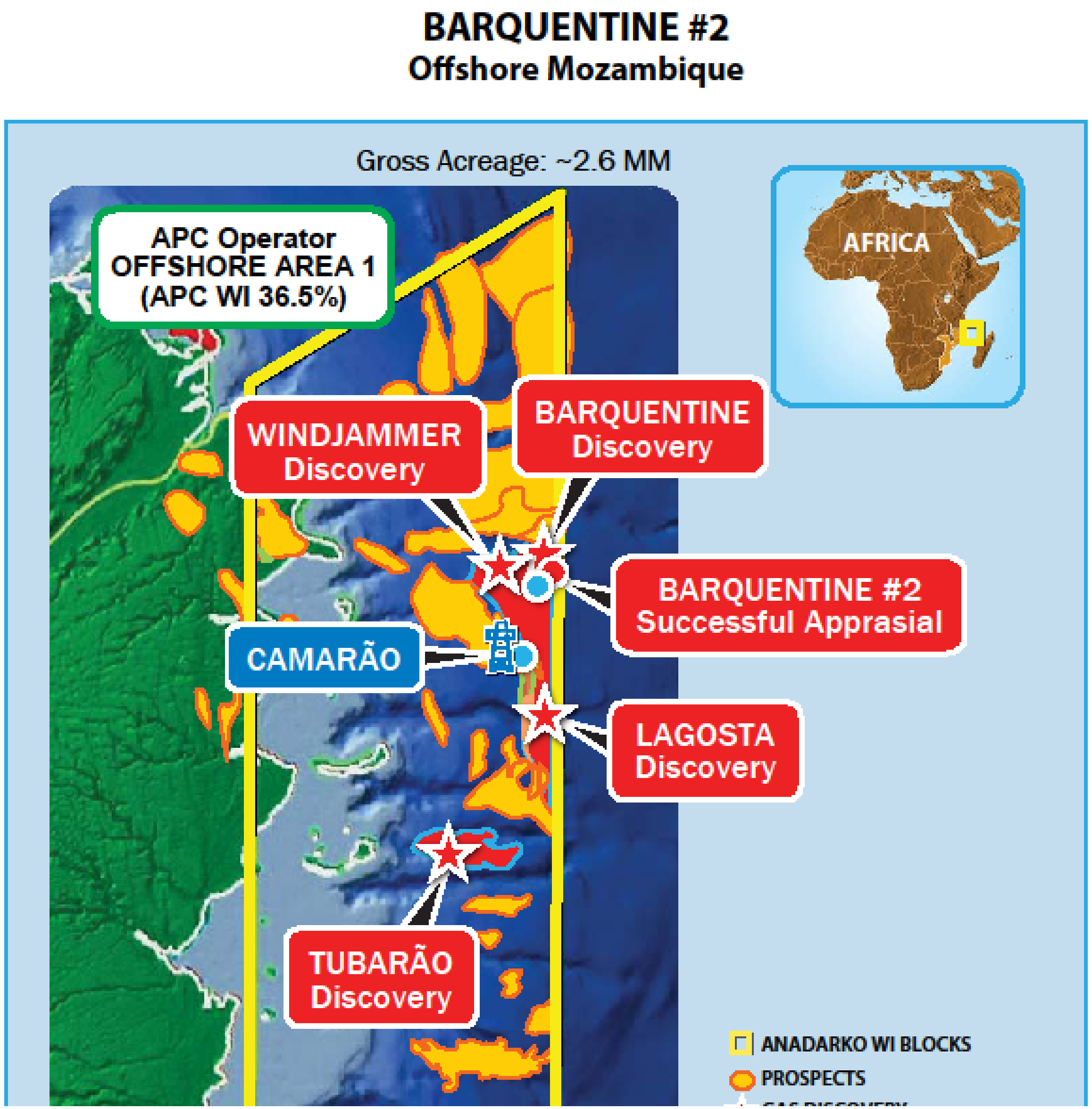
Mozambique recent gas finds



Subsaharan Africa 2010

Proven gas reserves by country –trillion cubic feet

Country	Tcf
Nigeria	187.0
Angola	11.3
Cameroon	4.7
Mozambique*	4.5
Congo-B	3.2
Sudan	3.0
Namibia	2.2
Rwanda	2.0
Eq. Guinea	1.3
Cote D’Ivoire	1.0
Mauritania	1.0
Gabon	1.0
Ghana	0.8
Uganda	0.5

Subsaharan Africa Gas production bcf/d main producers

	2009	
Nigeria	2.25	
Eq. Guinea	0.61	
Mozambique	0.35	
South Africa	0.18	
Cote D’Ivoire	0.15	
Angola	0.07	
Total	3.61	
Source* Oil and Gas Journal		

Gas monetization projects and proposals– West Africa

Current		(tons per year)
Nigeria	NLNG	22 million tpy
Eq. Guinea EGLNG	3.7	
Imminent		
Angola	ALNG	5.2
Near future		
Nigeria	Brass LNG 10.0 (FID imminent)	

Later:

Angola

Floating LNG (FLNG) -- Eni

“Second LNG” -- proposed in 2007 by Gas Natural, Repsol & Galp

Cameroon

“strategic partnership SNH and Gaz de France

ELNG

Monetizing oil

- Demand for local products fast growing
  Weak refinery performance (NNPC)
- Raft of new refineries proposed but only three have been built in recent years – all by CNPC!
- Implications – lot of producers sell cheap and pay through the nose for imports
- *Web of vested interests against efficient refineries...

More gas monetization

Why gas is tricky

- Ghana Jubilee – flaring gas despite government’s grand ambitions (CK spell those out)

Tracking oil exports and production

- That's the annual data, but more timely data is difficult to get. How do we do it? Exports plus crude destined for Subsaharan refineries. West African loading schedule
- Difficult to get information on volumes: Sonangol more transparent than NNPC; the International oil companies don't reveal anything on lifted volumes month by month, except for ENI. So rely on traders and refiners for data.
- Refinery guestimates