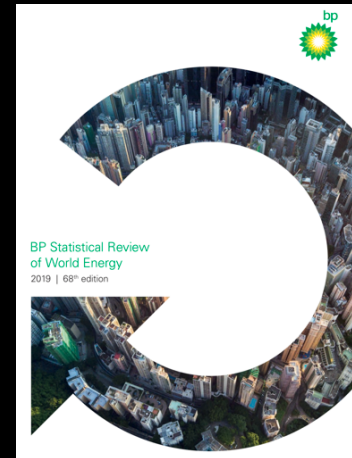


The Missing Oil & Gas Reserves of Africa.

An overview of the future development of hydrocarbons in Africa.



MMEA Scout Group Meeting

11 September 2019





BP Statistical Review of World Energy

2019 | 68th edition



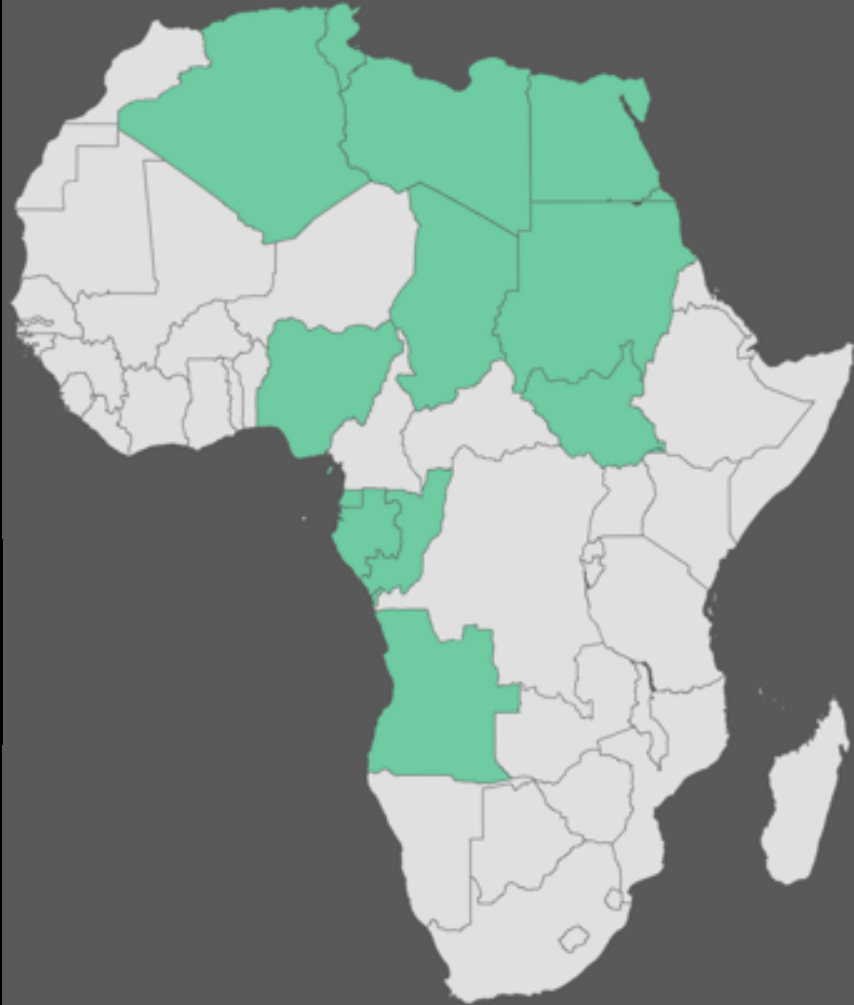
1st Subsurface

12 Countries
121 Billion bbls
468 Tcf

Algeria
Angola
Chad
Republic of Congo
Egypt
Equatorial Guinea
Gabon
Libya
Nigeria
South Sudan
Sudan
Tunisia

Let's take a quick look at
the other 42 countries

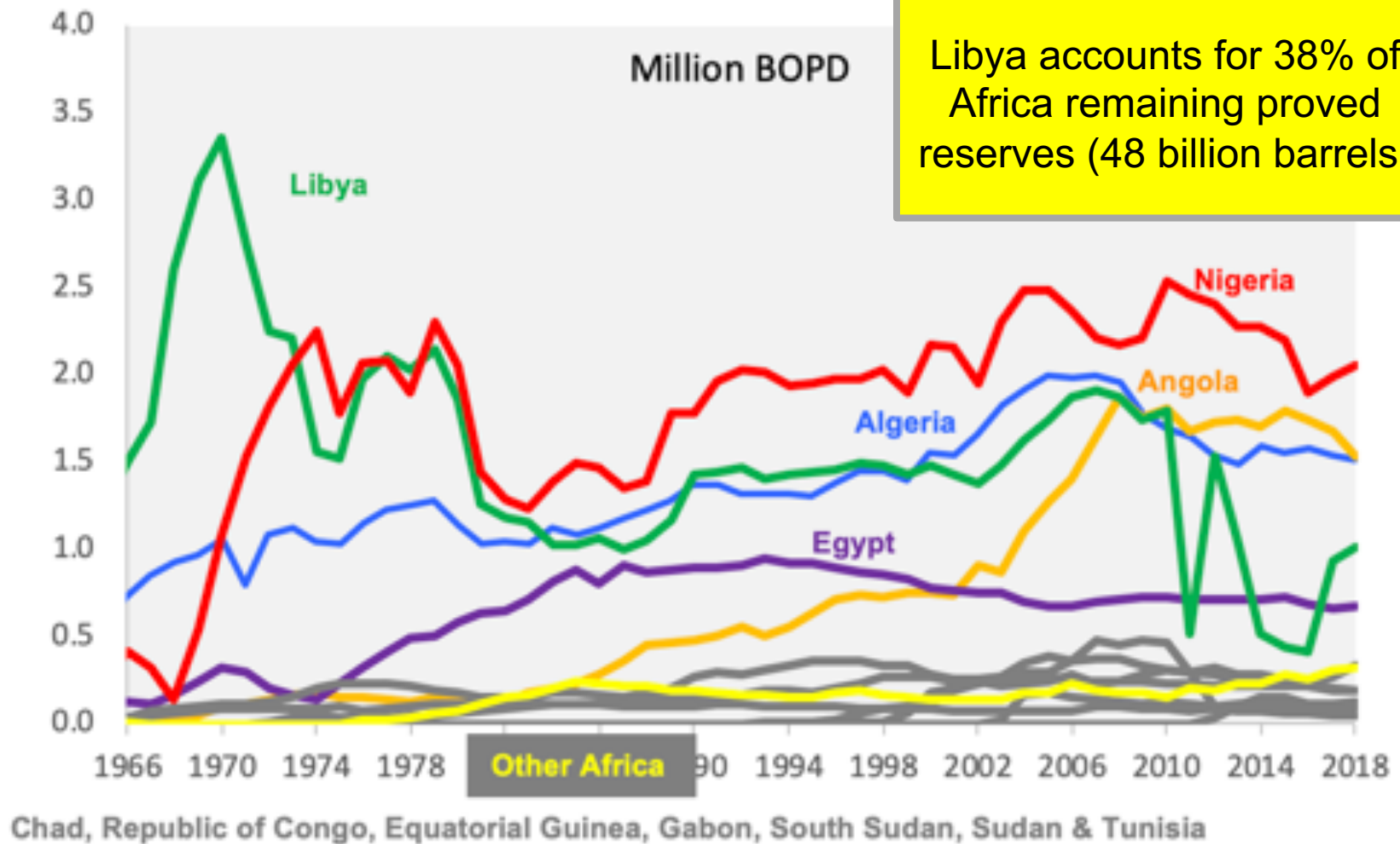
Countries Listed in the 2019 Statistical Review



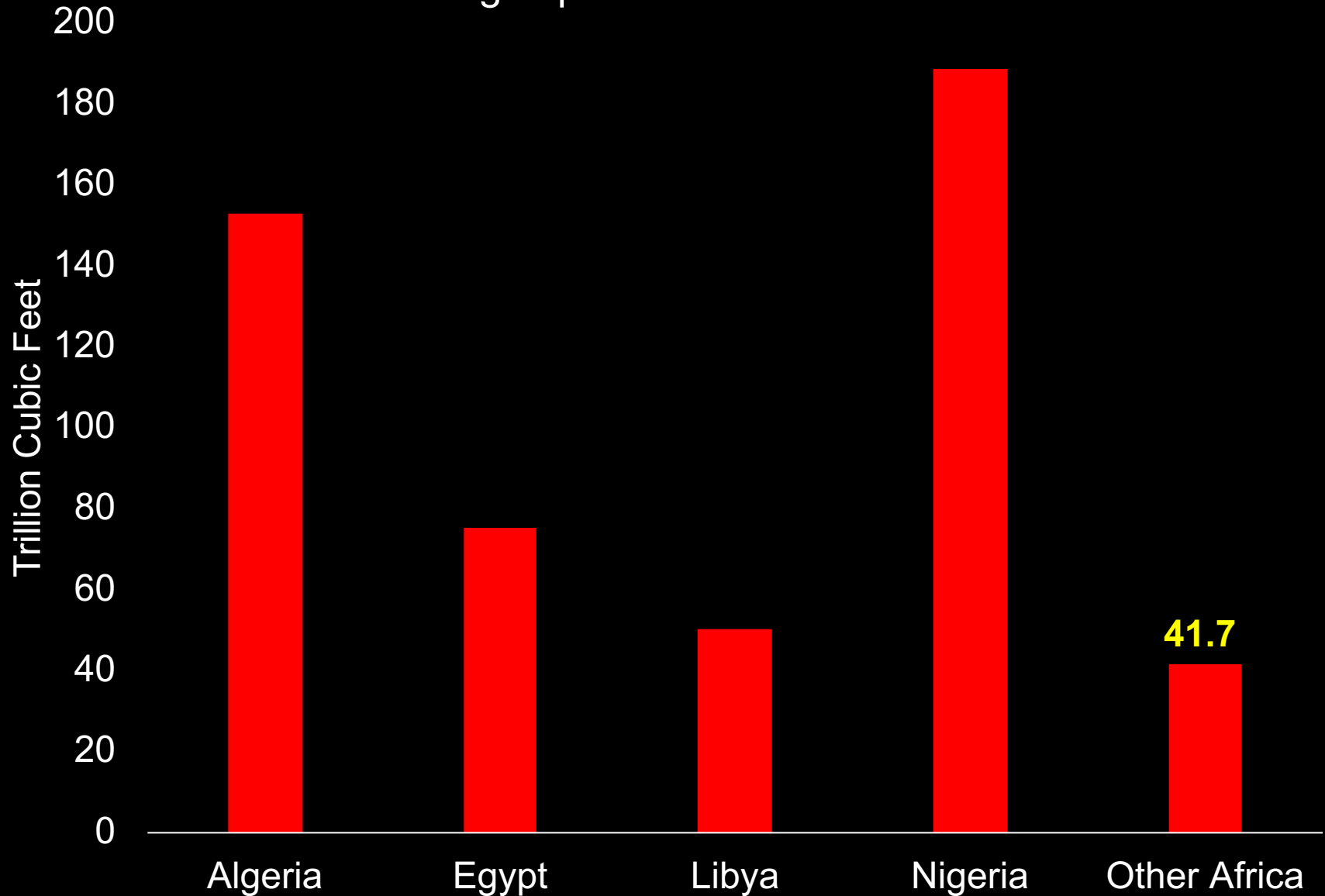
1st Subsurface

Oil: Production*

Million BOPD

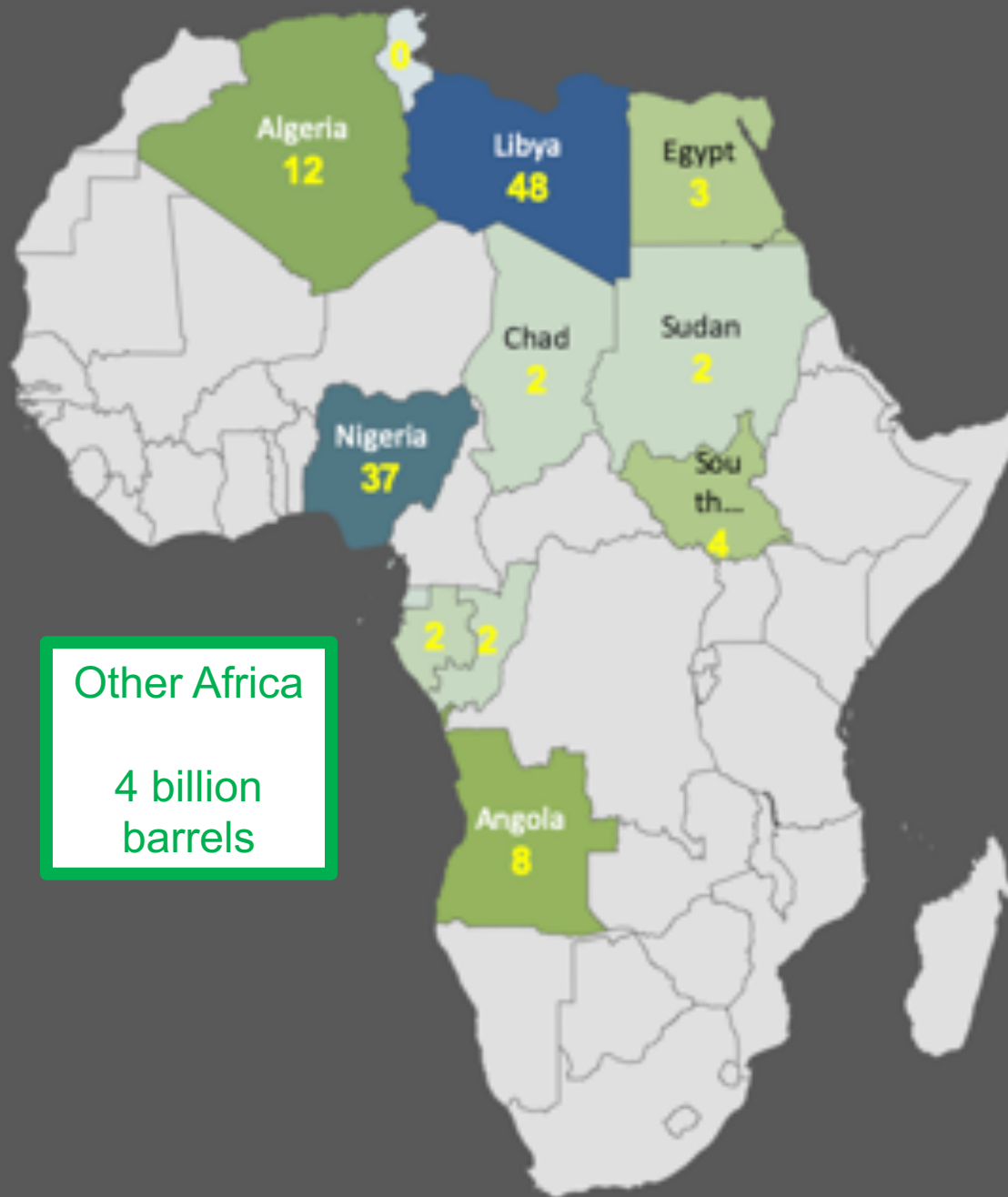


Total natural gas proved reserves at end 2018



1st Subsurface

Total Proved Oil Reserves (Billion Barrels)



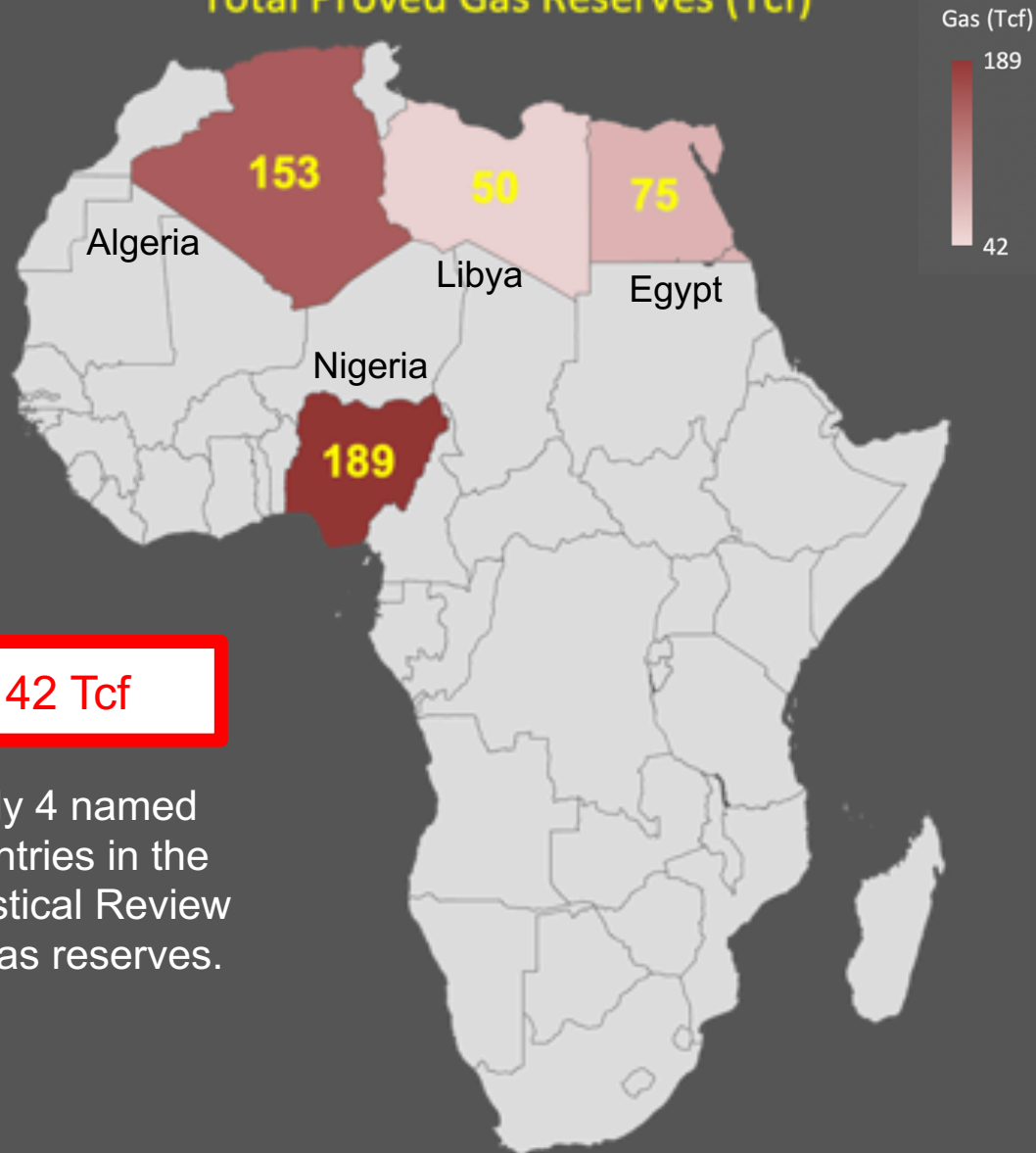
Other Africa

4 billion
barrels



1st Subsurface

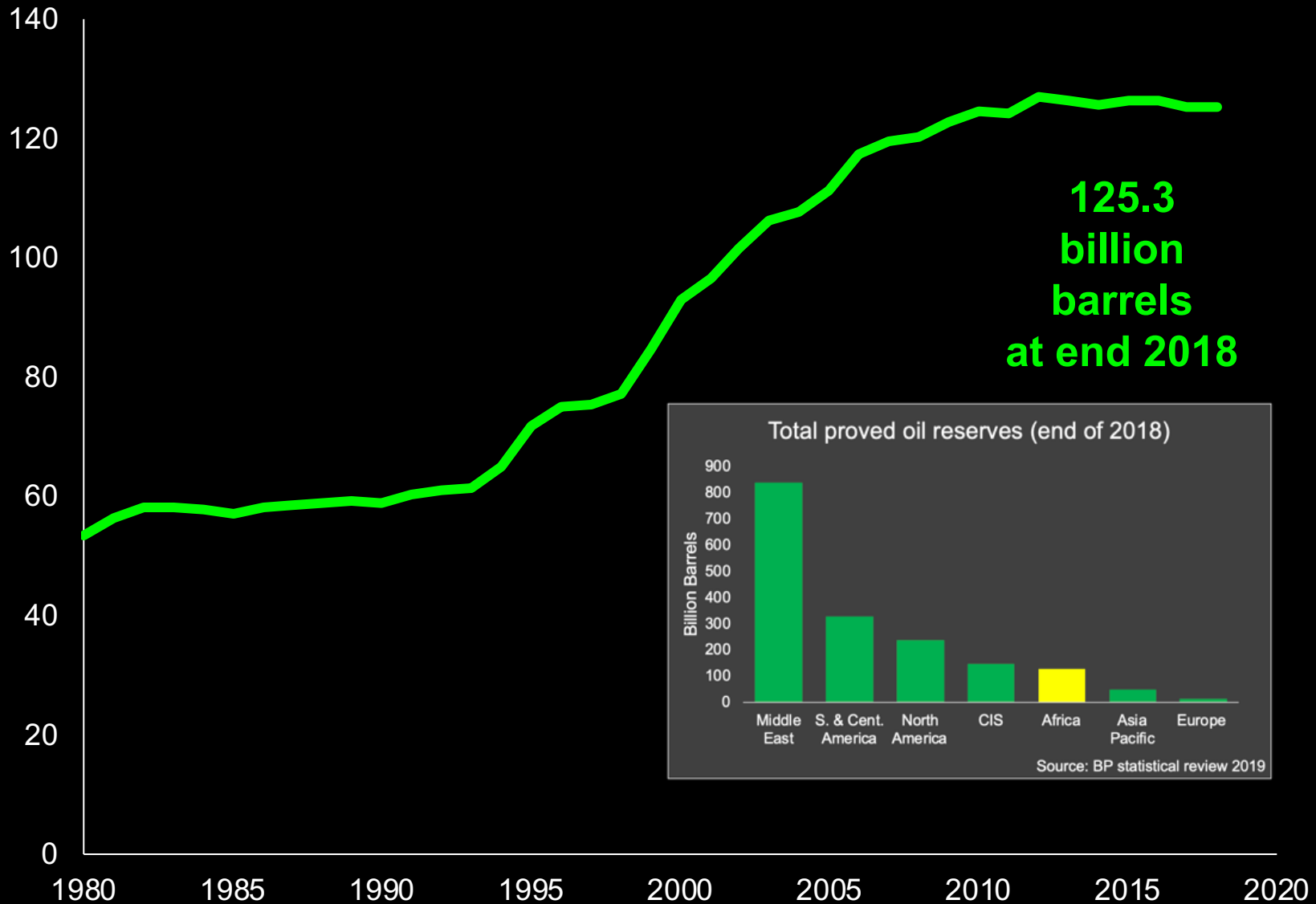
Total Proved Gas Reserves (Tcf)



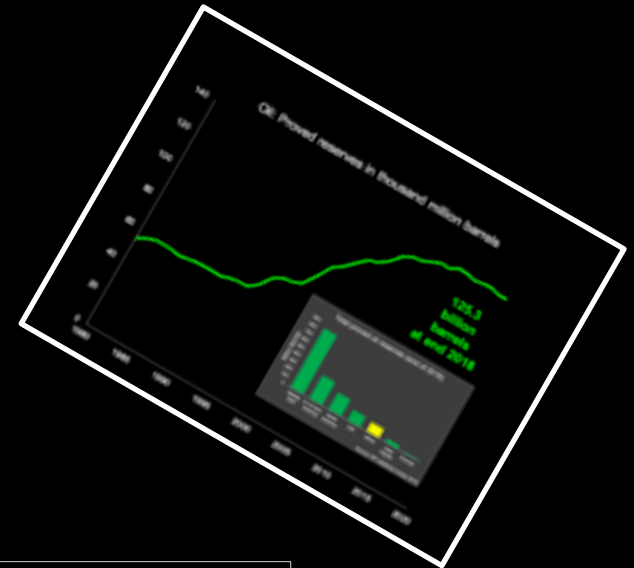
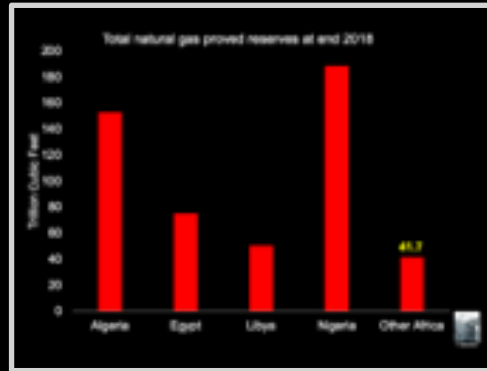
42 Tcf

Only 4 named
countries in the
Statistical Review
for gas reserves.

Oil: Proved reserves in thousand million barrels



Africa Overview (BP Statistical Review of World Energy 2019)



Reserves Definition

“Total proved reserves of oil – Generally taken to be those quantities that geological and engineering information indicates with **reasonable certainty** can be recovered **in the future** from known reservoirs **under existing economic and operating conditions**.”

The data series for total proved oil reserves **does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level**, for instance as published by the SEC, nor does it necessarily represent BP’s view of proved reserves by country”.

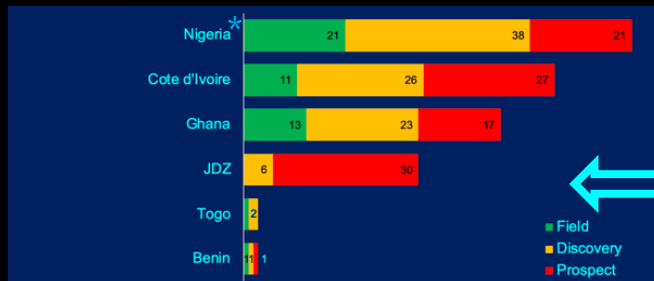
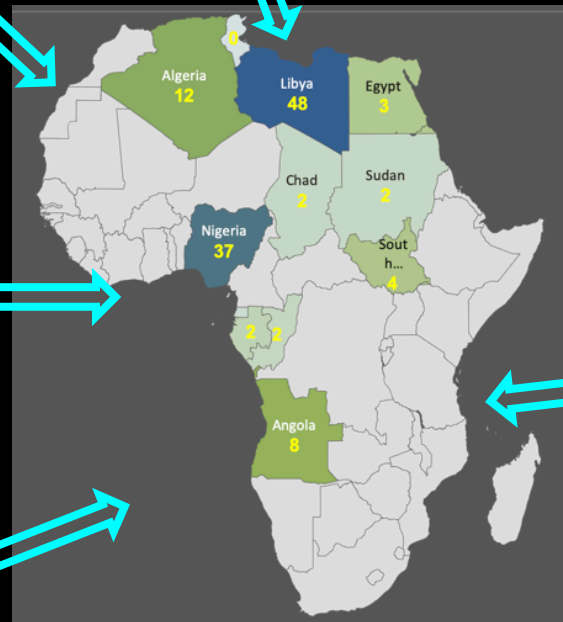
We will include “high probability” Contingent Resource.



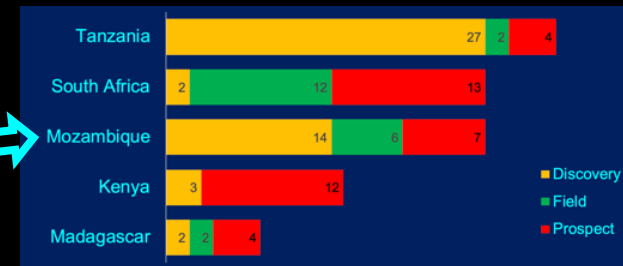
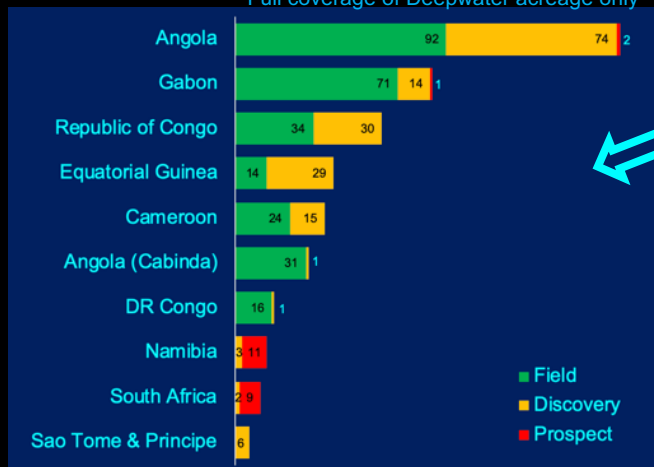
1st Subsurface

TROVE – “Bottom Up” Analysis

470 Unsanctioned Discoveries
(Excludes interior basins)



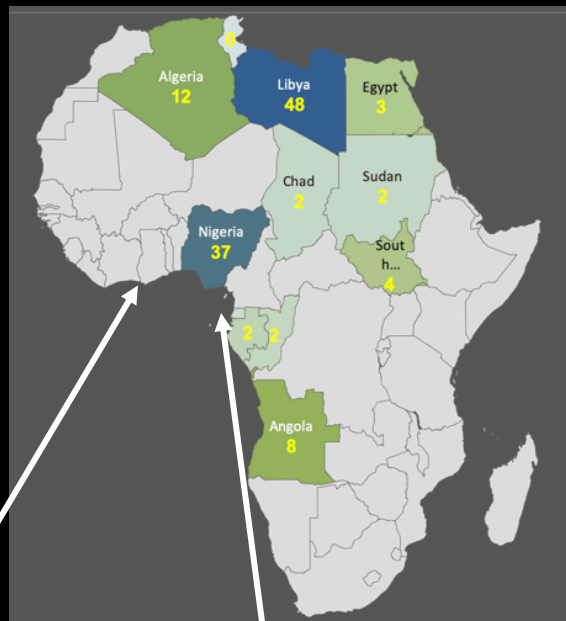
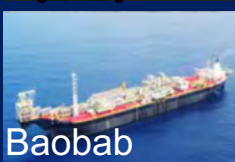
* Full coverage of Deepwater acreage only



1st Subsurface

Examples of Infrastructure outwith “the Statistical Review 12”

West Africa
LOTS



East Africa



Songo Songo

East Africa
ONE?



La Lobe



Sanaga Sud

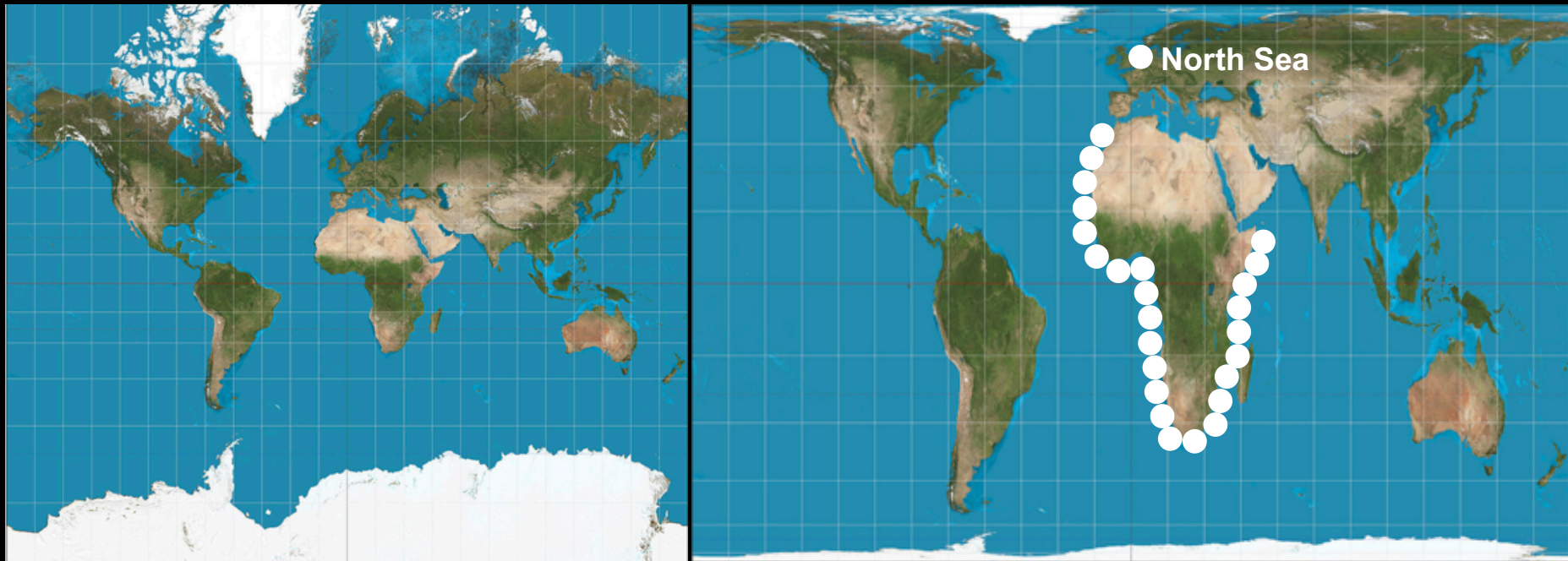


FSO Kome Kribi

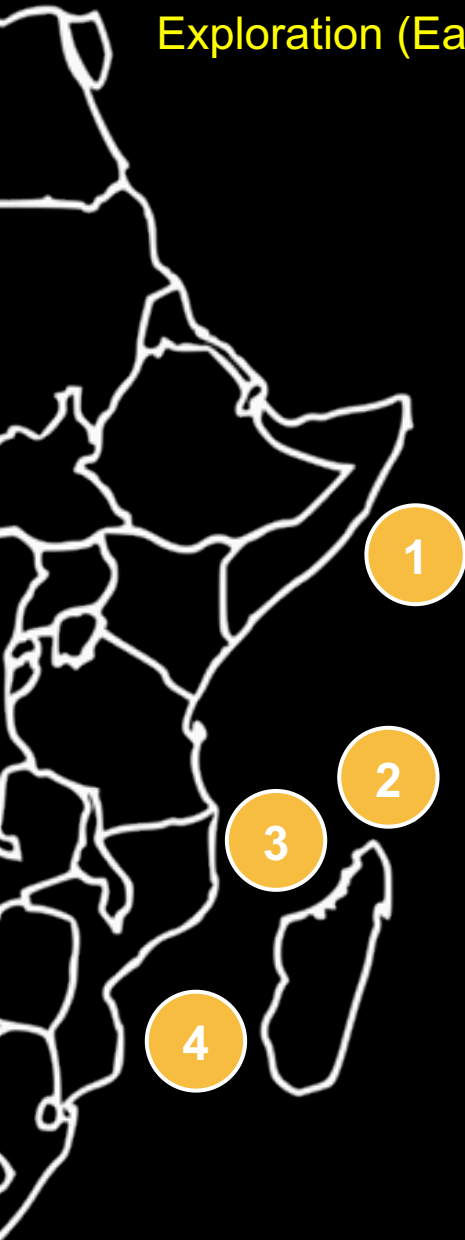


1st Subsurface

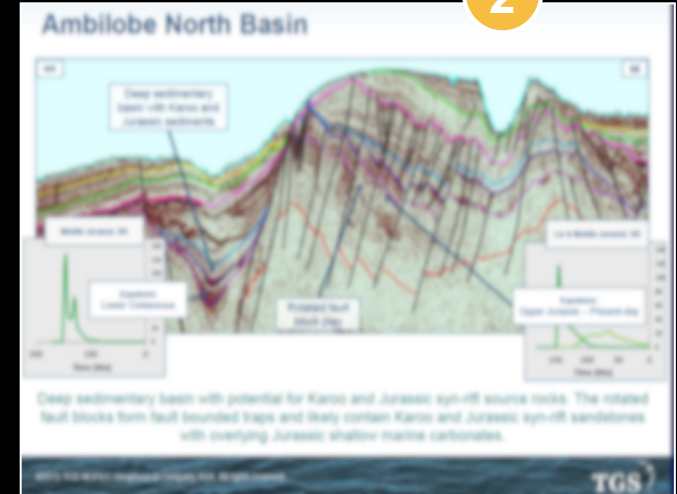
Mercator v Equal Land Area Projections



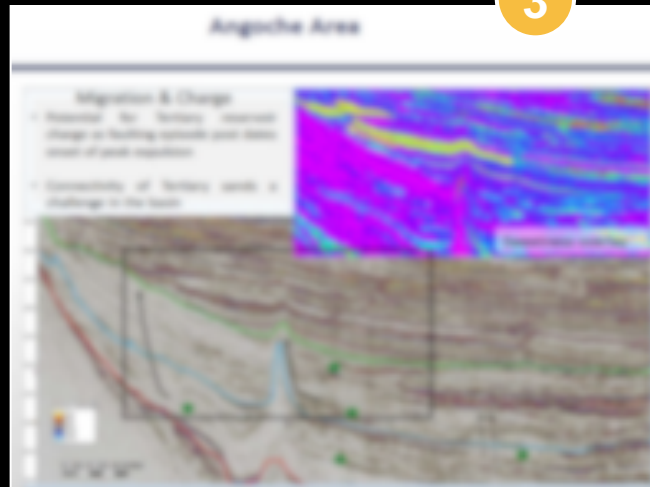
Exploration (East Africa examples)



Davidson et. al



TGS



www.inp.gov.mz



www.inp.gov.mz

Huge areas of frontier exploration with thick sedimentary sections and, as yet, scant penetrations of reservoir & source rocks



1stSOM

North West Africa

Structural

BirAllah (Marsouin)

5 Tcf

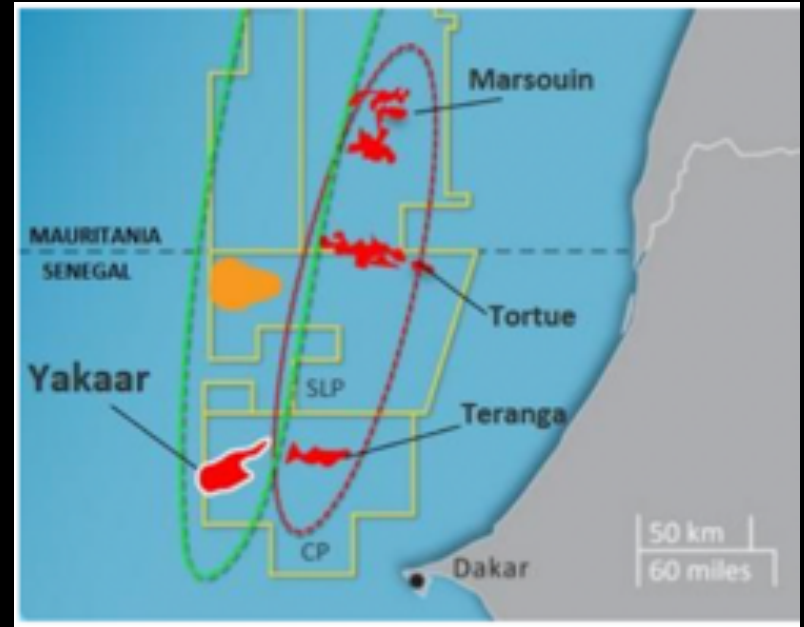
DHI

Greater Tortue Ahmeyim 15 Tcf

Stratigraphic

Yakaar

15 Tcf



East Africa

Pande
Temane
Inhassoro



Mrongo
Tangawizi
Zafarani
Lavani
Lavani Deep
Taachui
Mzia
Mkizi
Jodari N
Jodari
Chaza
Mnazi Bay

Golfinho
Atum
Orca
Mamba
Prosperidade
Barquentine
Windjammer
Lagosta
Coral
Tubarao



Mozambique
Tanzania

120 Tcf
83 Tcf



Field Reactivation & Further Development of Unsanctioned Discoveries - Libya

~2000 exploration wells

165 fields developed

29 > 1 Billion bbls STOIP

11 > 1 Tcf GIIP

Cumulative production to
end 2018

30.3 Billion bbls

12.0 Tcf

~550 discoveries

130 Bbbls STOIP

72 Tcf GIIP

385 unsanctioned
discoveries

5 Bbbls STOIP



Libyan Fields

Seeking pre-commitments to a regional Algeria-Tunisia-Libya subsurface analogue database.
~750 fields & discoveries



- >1 Bbbls STOOIP and / or >1 Tcf GIIP

ENI	TOTAL	Rosneft
OMV	Repsol	Equinor
ConocoPhillips		



1st Subsurface

Example TROVE Montages



Brulpadda, South Africa



0.25 Billion boe



Mnazi Bay, Tanzania



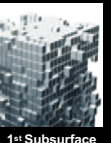
0.26 Tcf



Tsimiroro, Madagascar



1.8 Billion bbls



Pecan, Ghana



0.33 Billion bbls

Sanaga Sud, Cameroon



0.9 Tcf

Tortue, Senegal/Mauritania



15 Tcf



Saturno, Angola



In BP Statistics



Songo Songo, Tanzania



0.88 Tcf

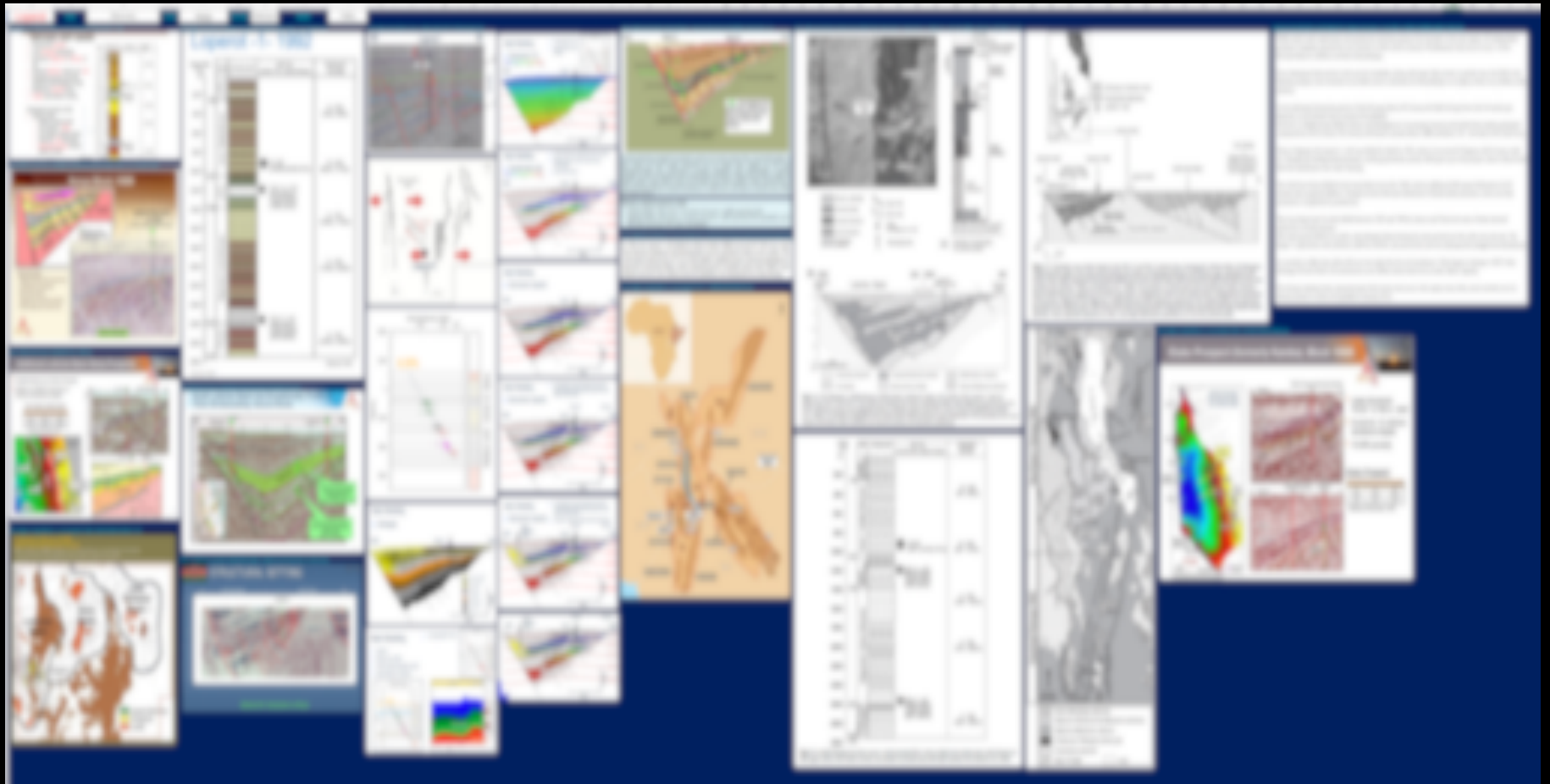


Baobab, Cote d'Ivoire



0.2 Billion bbls

Loperot, Kenya



0.02 Billion bbls



Jubilee, Ghana



0.62 Billion bbls



Badila, Chad



0.05 Billion bbls



Zohr, Egypt



5 Tcf



1st Subsurface

Eastern Mediterranean

Zohr, Egypt



Abu Qir, Egypt



Thekah, Egypt



Simian, Egypt



Rosetta, Egypt



Tamar, Israel



Aphrodite, Cyprus



Leviathan, Israel



Karish, Israel



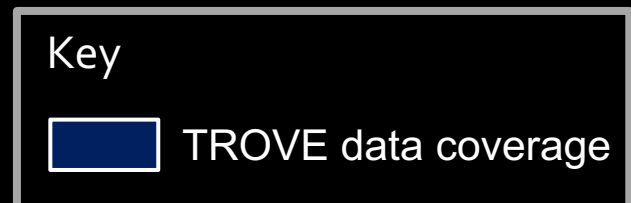
TROVE extends beyond Africa



TROVE – the conjugate margin coverage



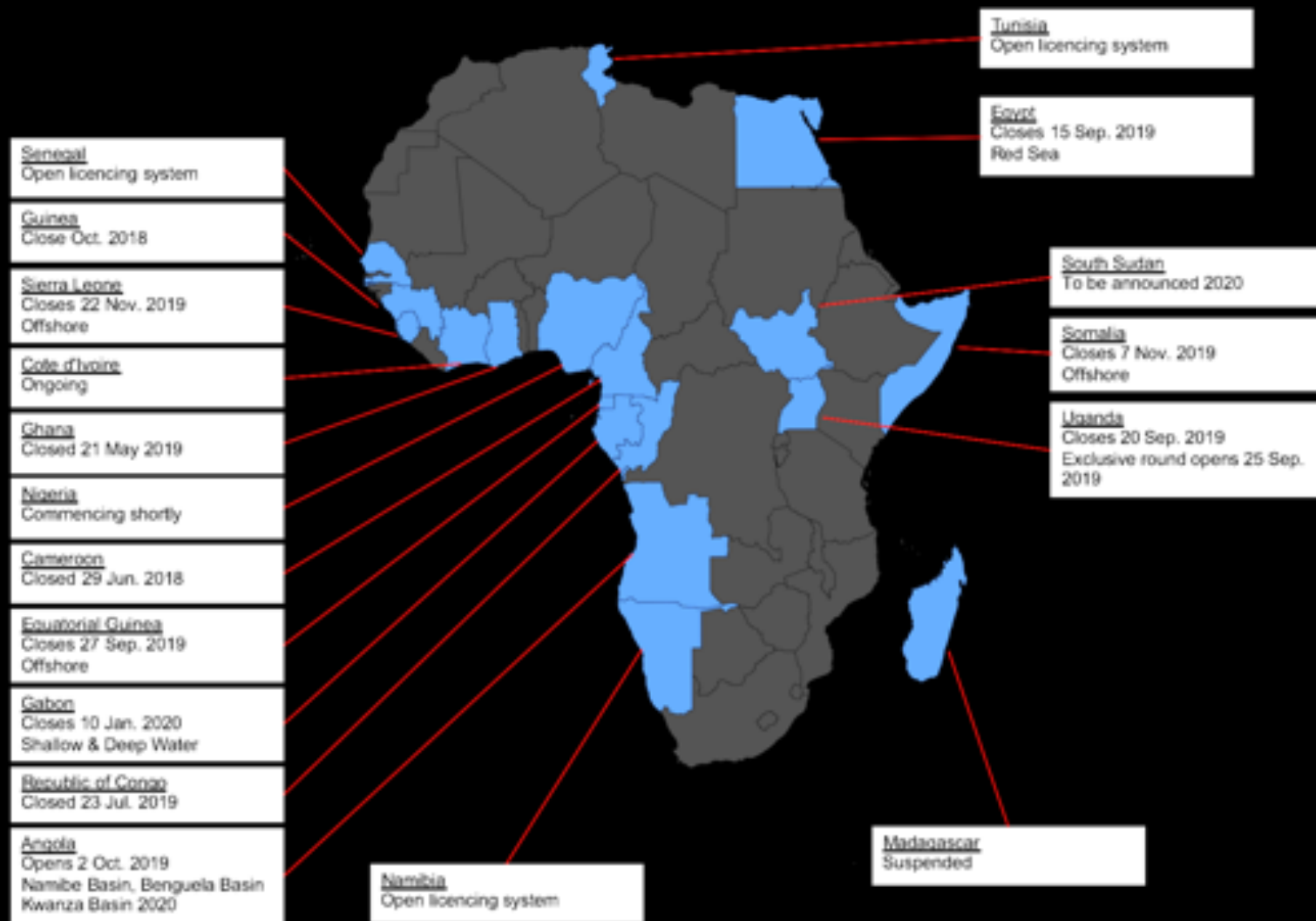
392 fields and discoveries
on the Atlantic coast of
South America.



The Future.....



Licensing Rounds

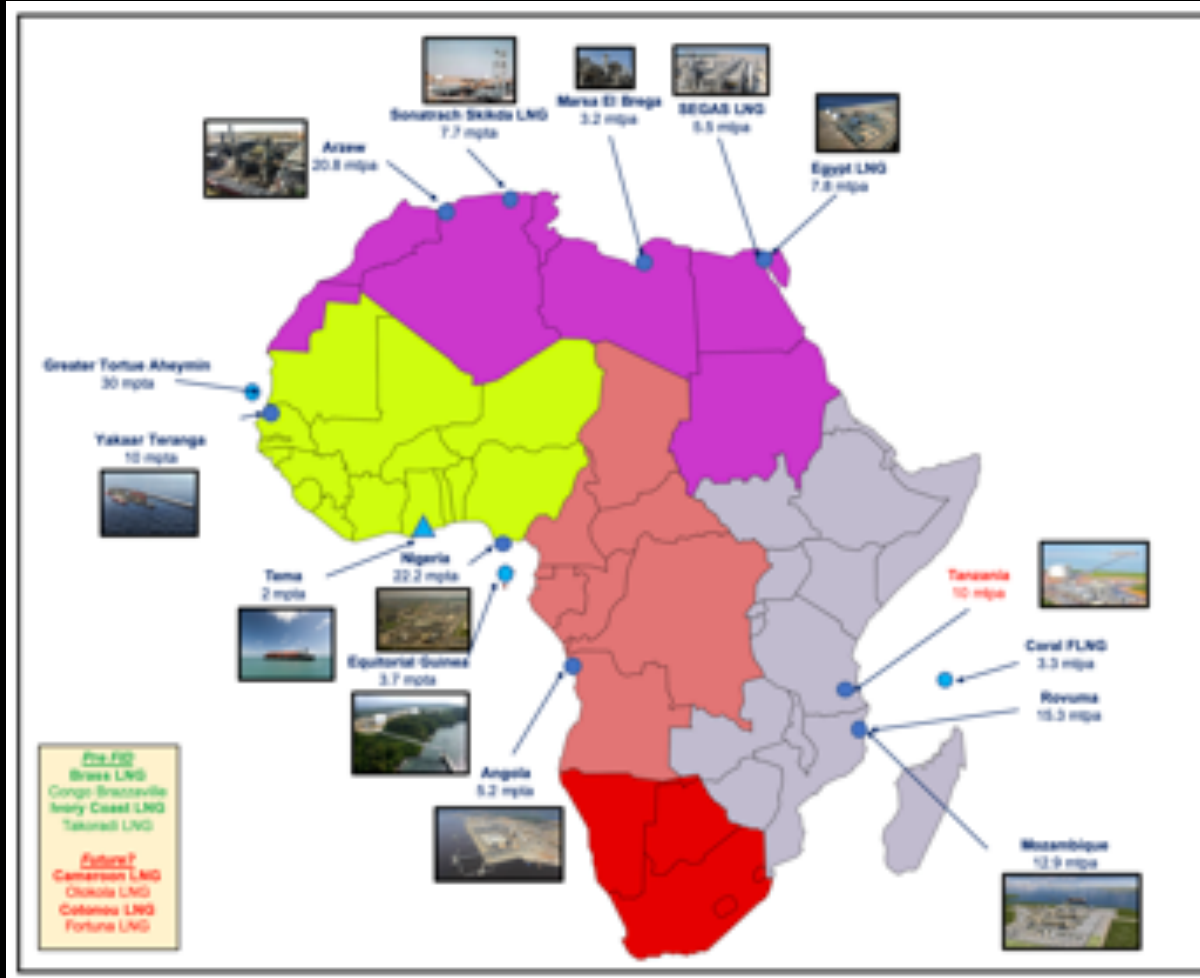


16 “live” licence rounds - chasing limited exploration dollars.
There are also open-door & farm-out opportunities. Hence the
need for an efficient screening & analogue database



1st Subsurface

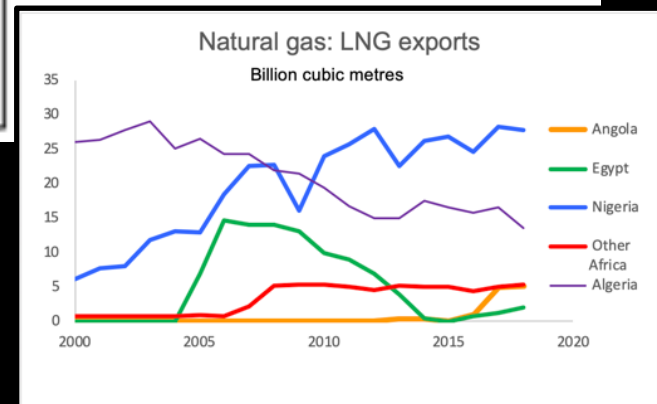
LNG in Africa as part of Energy Transition



Name	Country	Capacity (mtpa)	Type	Active
Arzew	Algeria	20.8	Export	Operating
Sonatrach Skikda	Algeria	7.7	Export	Operating
Angola	Angola	5.2	Export	Operating
Coloma	Senegal	0.3	Export	Future?
Cameroon	Cameroon	8.5	Export	Future?
Congo Brassville	Congo	18C	Export	Future?
Egypt	Egypt	7.2	Export	Operating
EGSAB	Egypt	3.3	Export	Operating
Equatorial Guinea	Equatorial Guinea	3.7	Export	Operating
Fortuna	Equatorial Guinea	3.3	Export	Future?
Takoradi	Ghana	18C	Export	Future?
Tema	Ghana	2	Export	Future?
Ivory Coast	Ivory Coast	18C	Export	Future?
Marsa El Briga	Libya	3.2	Export	Operating
Takoradi	Mauritania	10	Export	Future?
Mozambique	Mozambique	12.9	Export	Future?
Mozambique	Cape Verde	3.3	Export	Future?
Mozambique	Rovuma	12.9	Export	Future?
Brass	Nigeria	10	Export	Future?
Nigeria	Nigeria	22.2	Export	Operating
Okoko	Nigeria	10.6	Export	Future?
Yakari Teranga	Sierra Leone	10	Export	Future?
Takoradi	Togo	10	Export	Future?

100 million tonnes per annum

188 mtpa LNG Capacity



Summary

The (very excellent) 2019 BP Statistical Review features 12 named countries and assigns “limited” reserves to 42 others.

Frontier exploration potential remains but governments will have to compete to attract exploration investment. Africa continental margin has a low drilling density on global scale.

Enormous potential in unsanctioned opportunities, requiring no exploration funding with inherent difficulties to fund.

Development & Redevelopment Opportunities Abound (e.g. Libya).

The Statistical Review 2020 should feature significant African reserves adds.



The End

Visit our booth at:



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or

e-mail: info@1stsom.com

