



RPS Energy

RPS Energy

working with

The Ministry of Mines, Industry and Energy,

Equatorial Guinea

Assisting Natural Resource Development

Role of RPS (and legacy companies).....

- **Technical advisors to MMIE since 1994**
 - **Monitoring of activities**
 - **Database management**
 - **Resources quantification**
 - **Commercial analysis**
 - **Strategy advice**

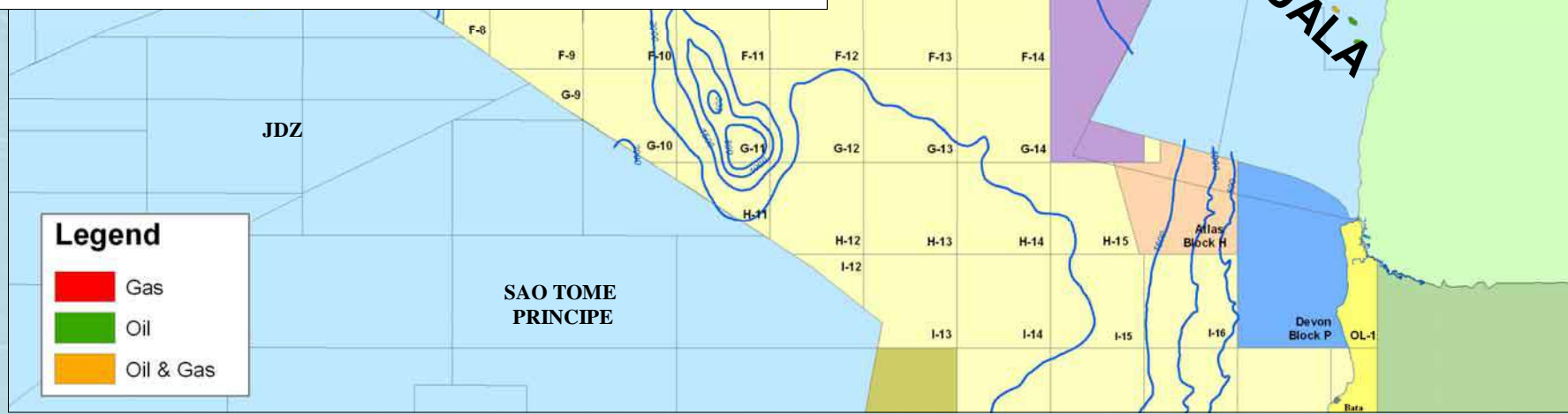
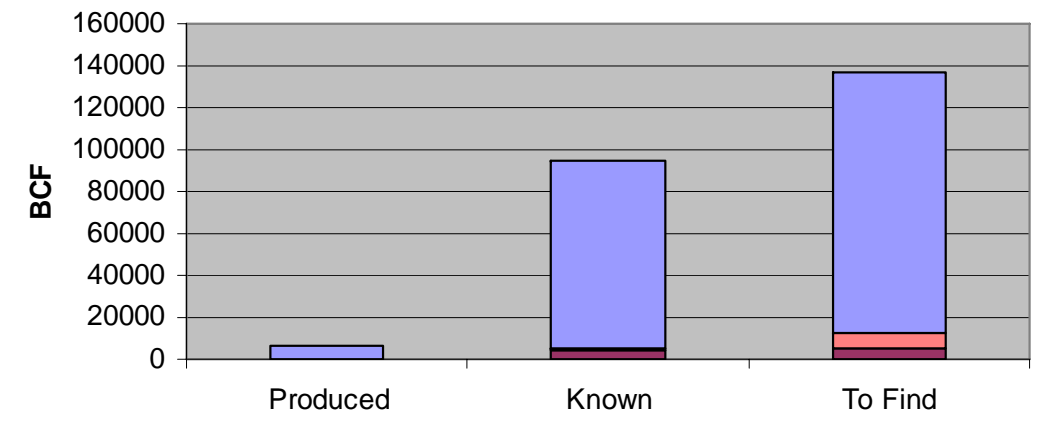
Regional Hydrocarbons & Potential



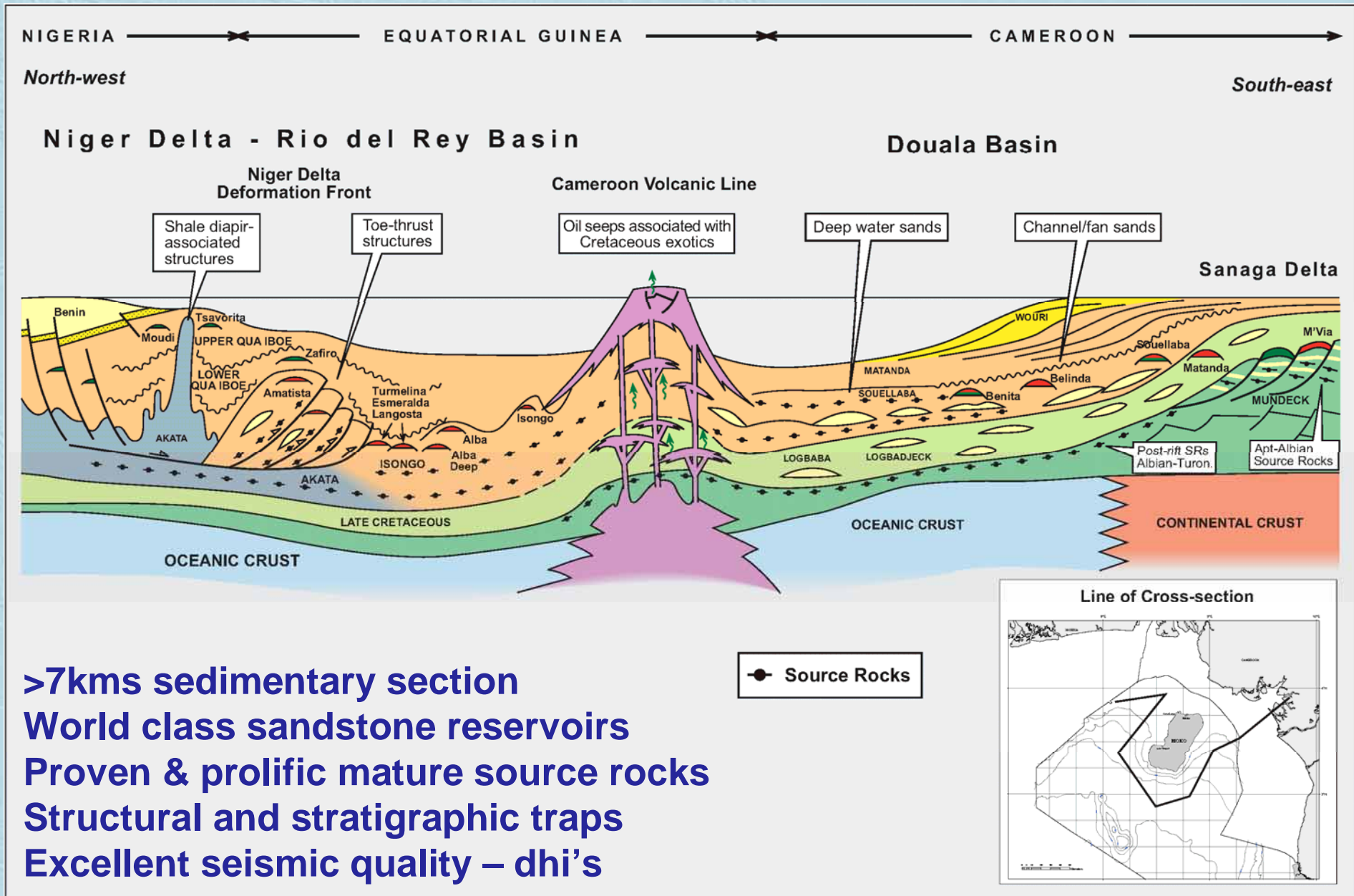
• EASTERN GULF of GUINEA
• “Very Rich” Petroleum Province –
“Best in Class”

• Huge potential for reserves addition
• High Exploration Success
• established infrastructure

GAS RESERVES
(USGS 2002)

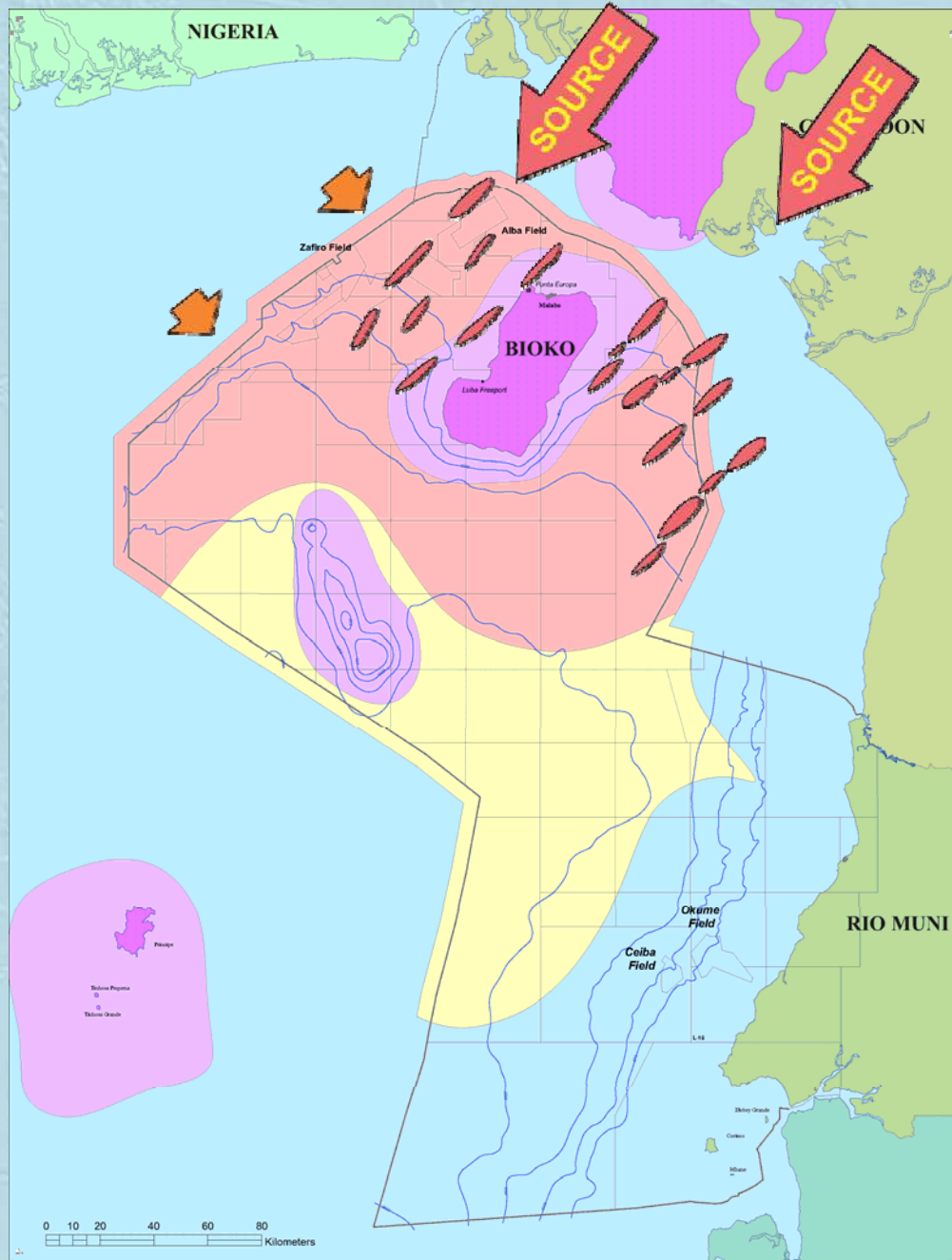


Northern Equatorial Guinea Petroleum Systems



- >7kms sedimentary section
- World class sandstone reservoirs
- Proven & prolific mature source rocks
- Structural and stratigraphic traps
- Excellent seismic quality – dhi's

Plio-Miocene Gas & Condensate Play Fairway



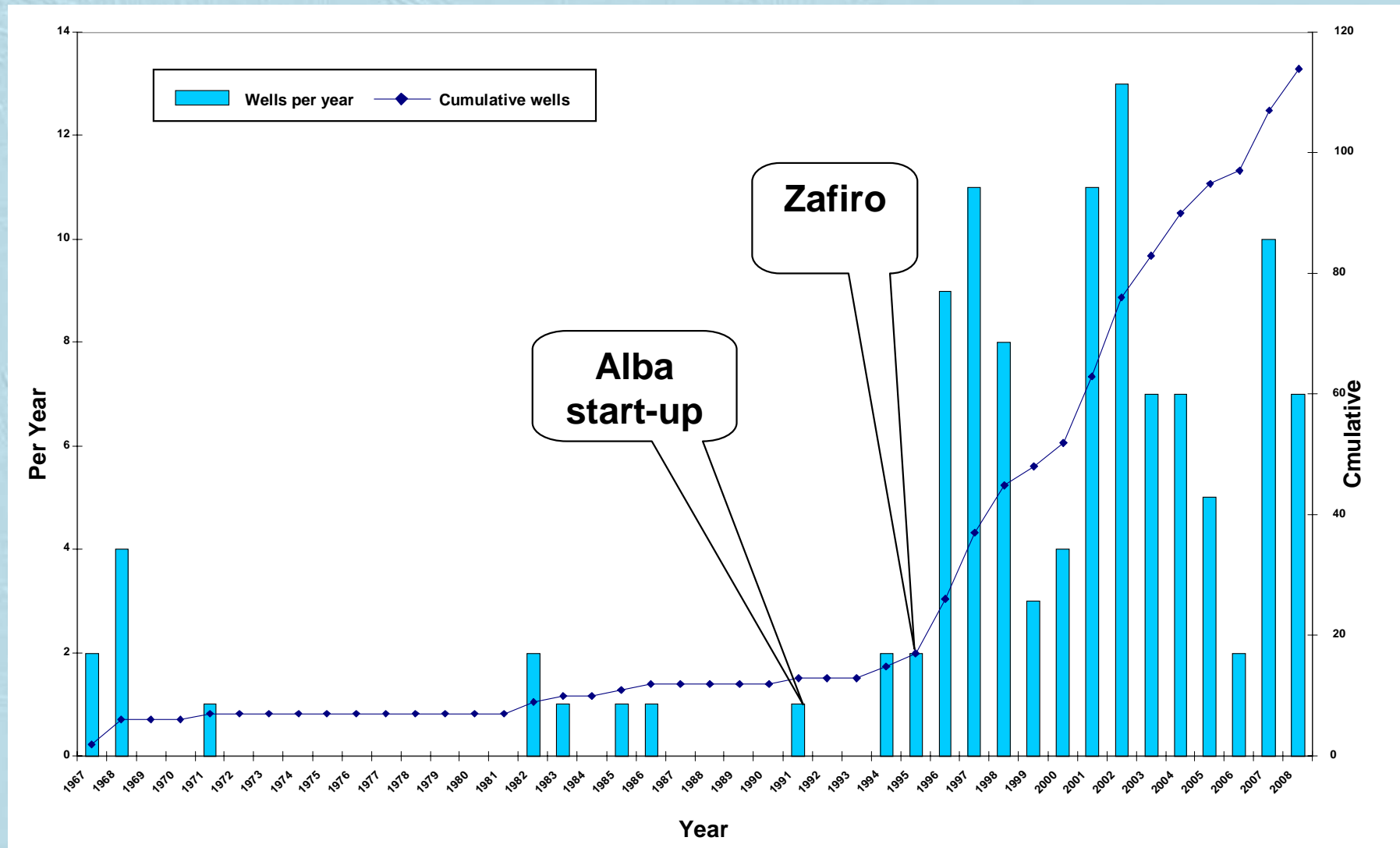
Oligo-Miocene source mature towards and under Niger Delta thrust front

Miocene fan and channel sands provide excellent reservoirs, derived from north-east

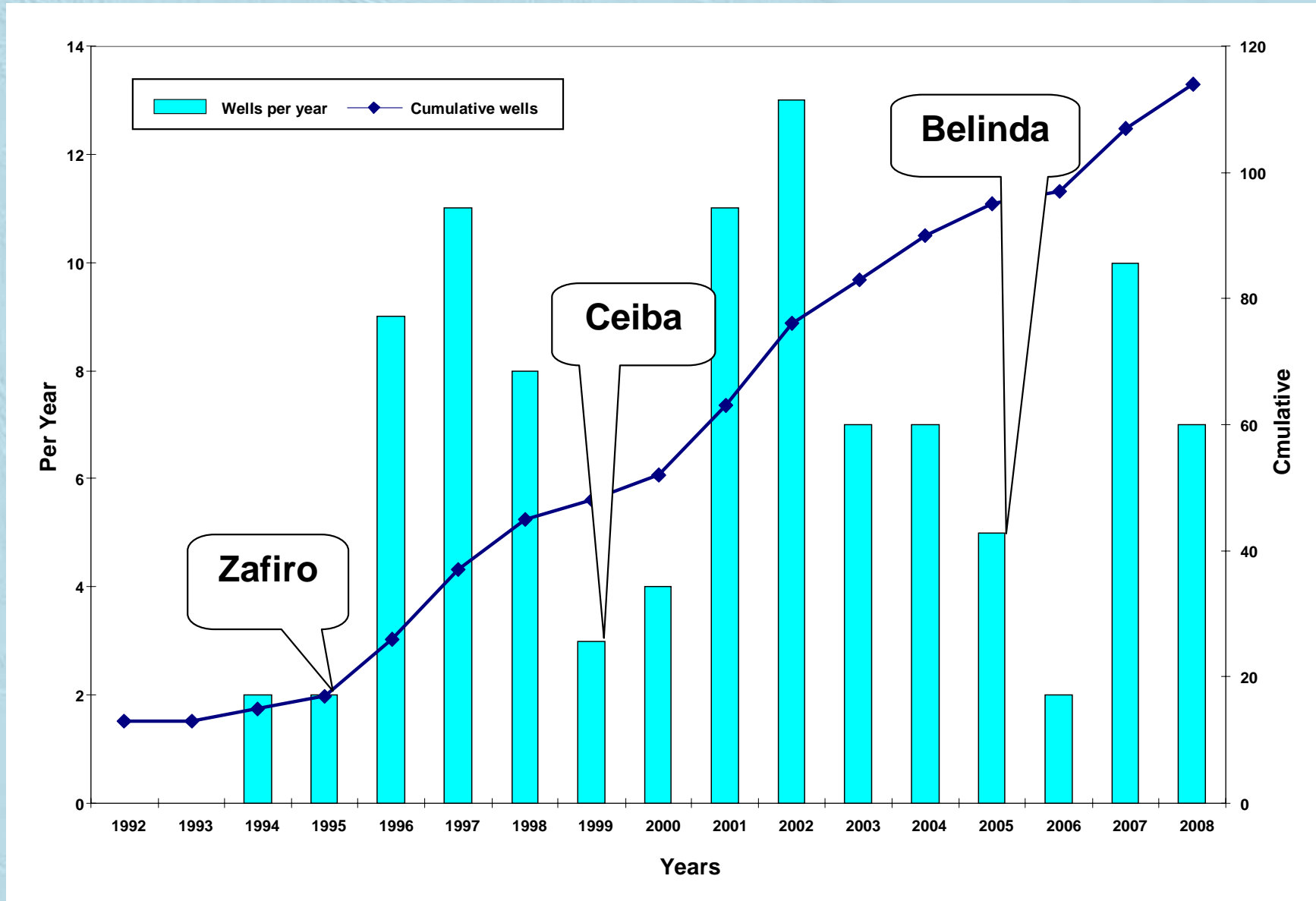
Pliocene canyon systems sourced from north and north-west

Around 3.5 billion boe discovered

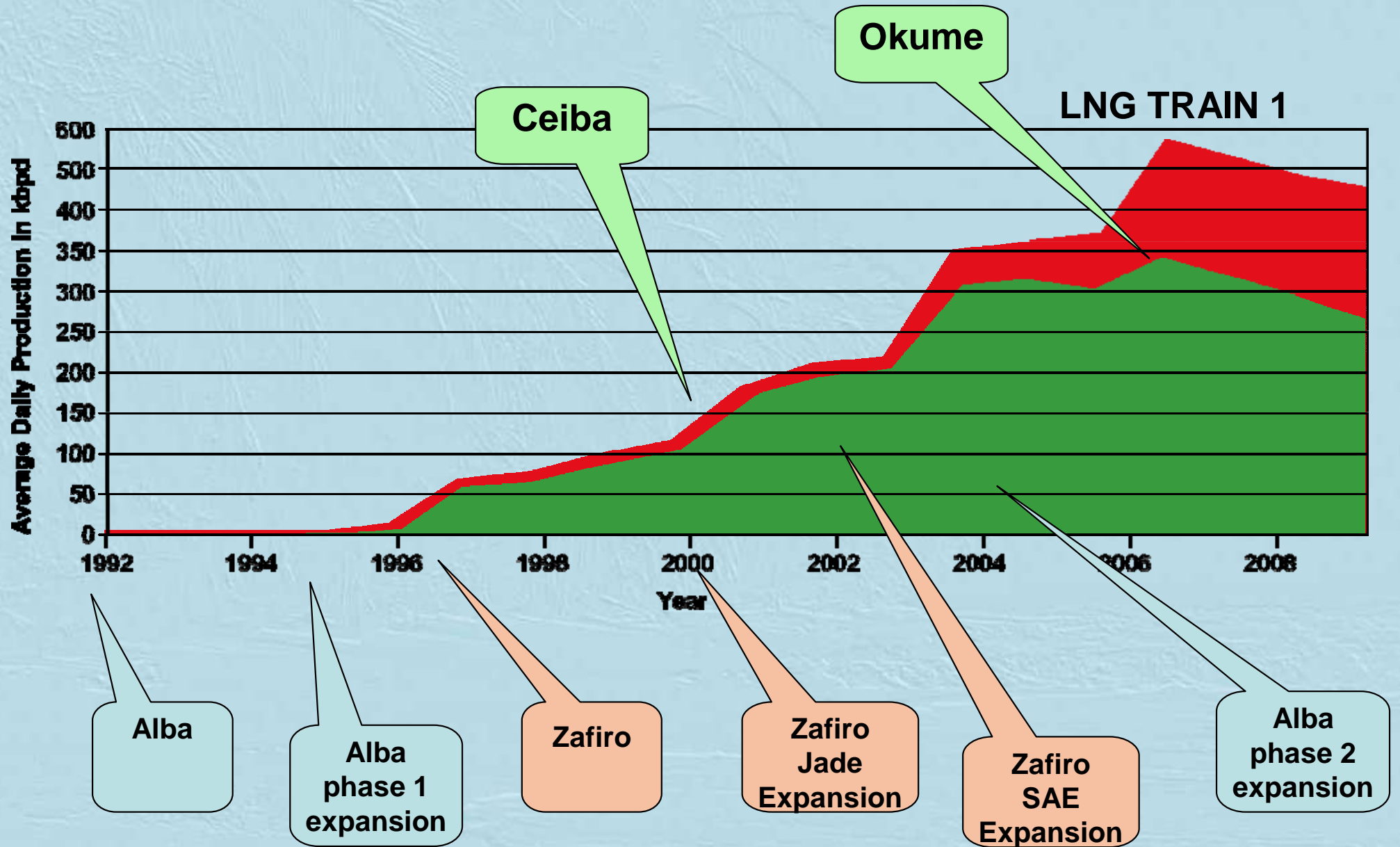
Exploration Drilling History



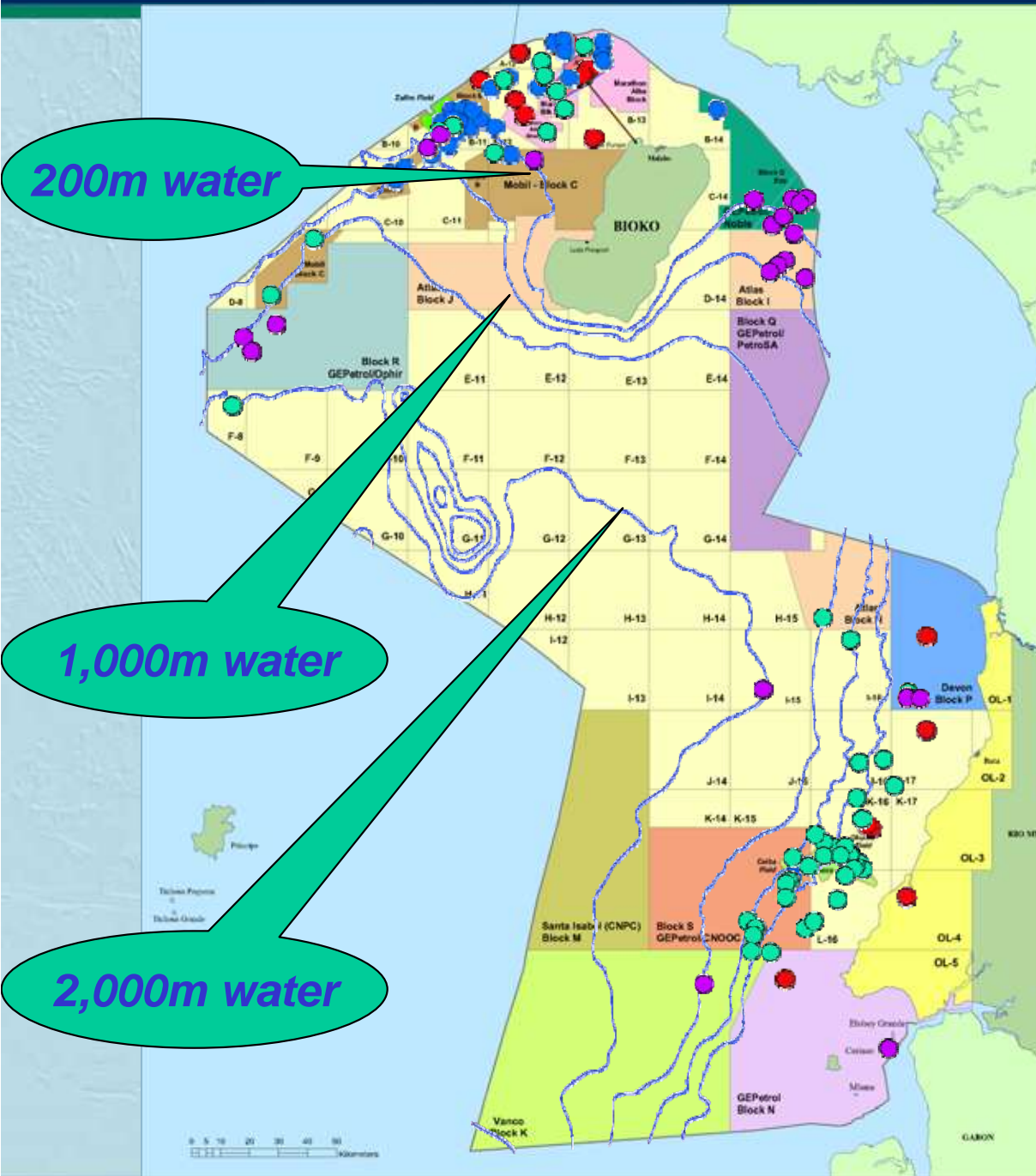
Exploration Drilling History



Oil & Gas Production History



Well Drilled



TO 1992.....

Drilling from 1967 within the 200m isobath found the Alba condensate discovery which was deemed non-commercial. 13 wells in Niger Delta, 6 wells in Rio Muni

1992-99.....

Exploration on Zafiro trend to the 1,000m isobath (33 wells). Ceiba Field discovered 1999.

1999-2004.....

Exploration westwards along the Niger Delta Deformation Front (3 wells) beyond 2,000m isobath and around Alba (10 wells) but mostly along and inboard of the Ceiba Trend (31 wells)

2005-2009.....

Rio Muni outstep drilling (5 wells)
Distal Niger Delta Gas fairway (6 wells)
and opening of Douala Basin (11 wells)



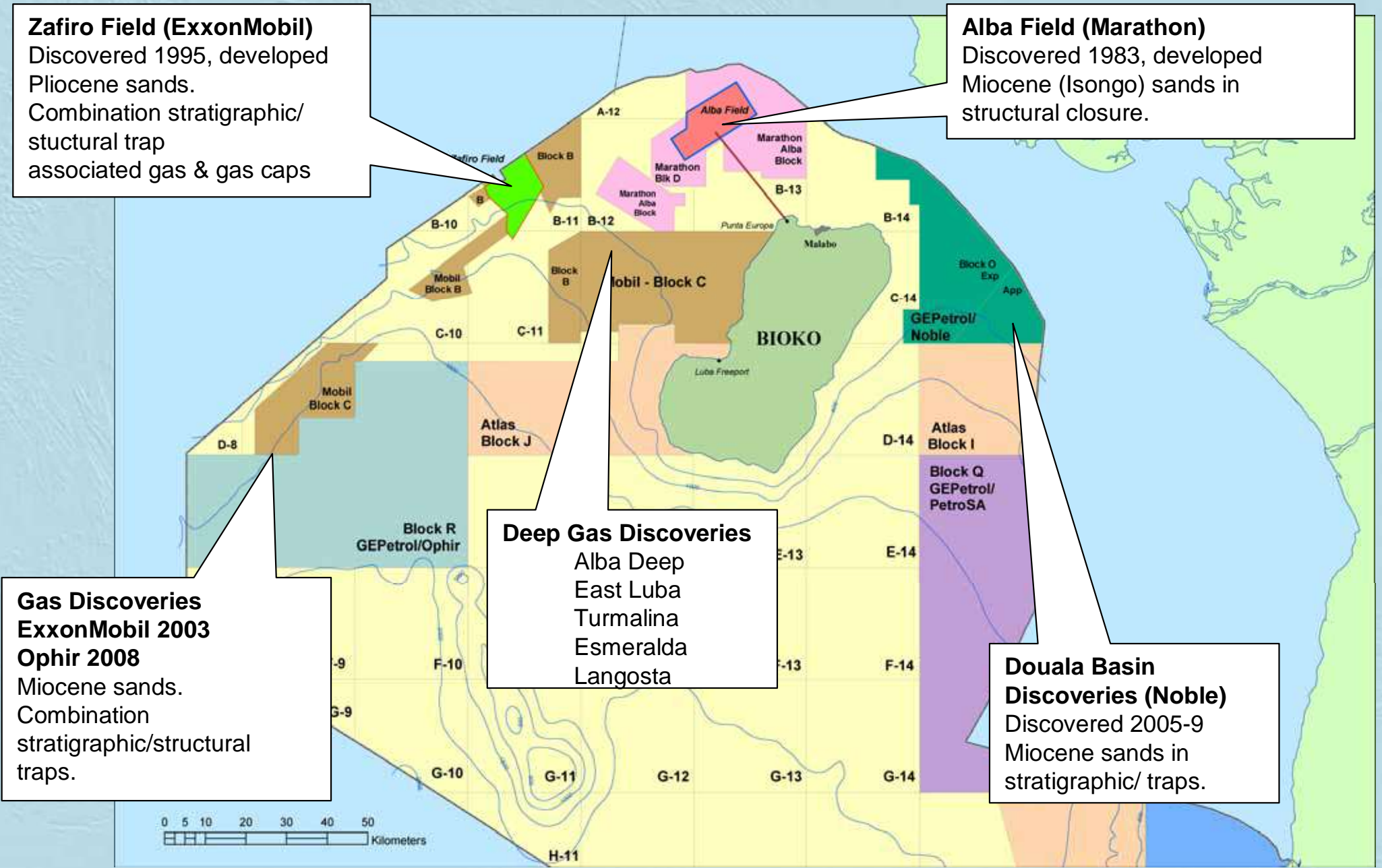
Upstream Gas Activity in Northern Equatorial Guinea

Zafiro Field (ExxonMobil)

Discovered 1995, developed Pliocene sands.
Combination stratigraphic/structural trap associated gas & gas caps

Alba Field (Marathon)

Discovered 1983, developed Miocene (Isongo) sands in structural closure.



Deep Gas Discoveries

Alba Deep
East Luba
Turmalina
Esmeralda
Langosta

Gas Discoveries

ExxonMobil 2003

Ophir 2008

Miocene sands.
Combination stratigraphic/structural traps.

Douala Basin Discoveries (Noble)

Discovered 2005-9
Miocene sands in stratigraphic/ traps.



Active Regional Gas Monetisation Projects

Main Flare Centers:

- Nigeria 700 Bcf/y
- Cameroon 45 Bcf/y
- Equatorial Guinea 70 Bcf/y

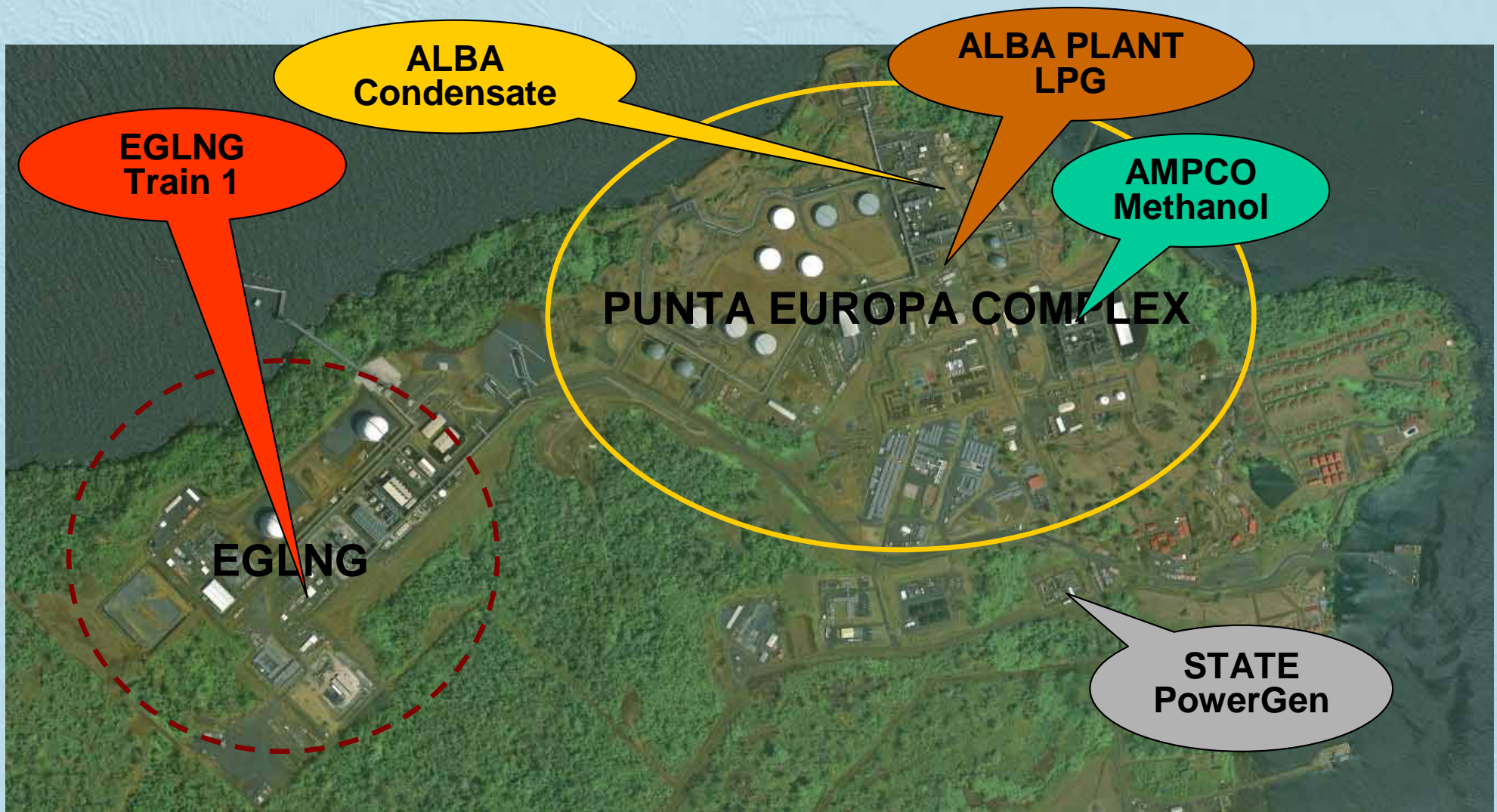
EGLNG
1 train operational
2 trains considered

Nigeria LNG
4 trains operational
6 trains committed
8 trains considered

Zafiro Flare Gas
Capture project –
Afgas/Sonaf JV
for Sonagas

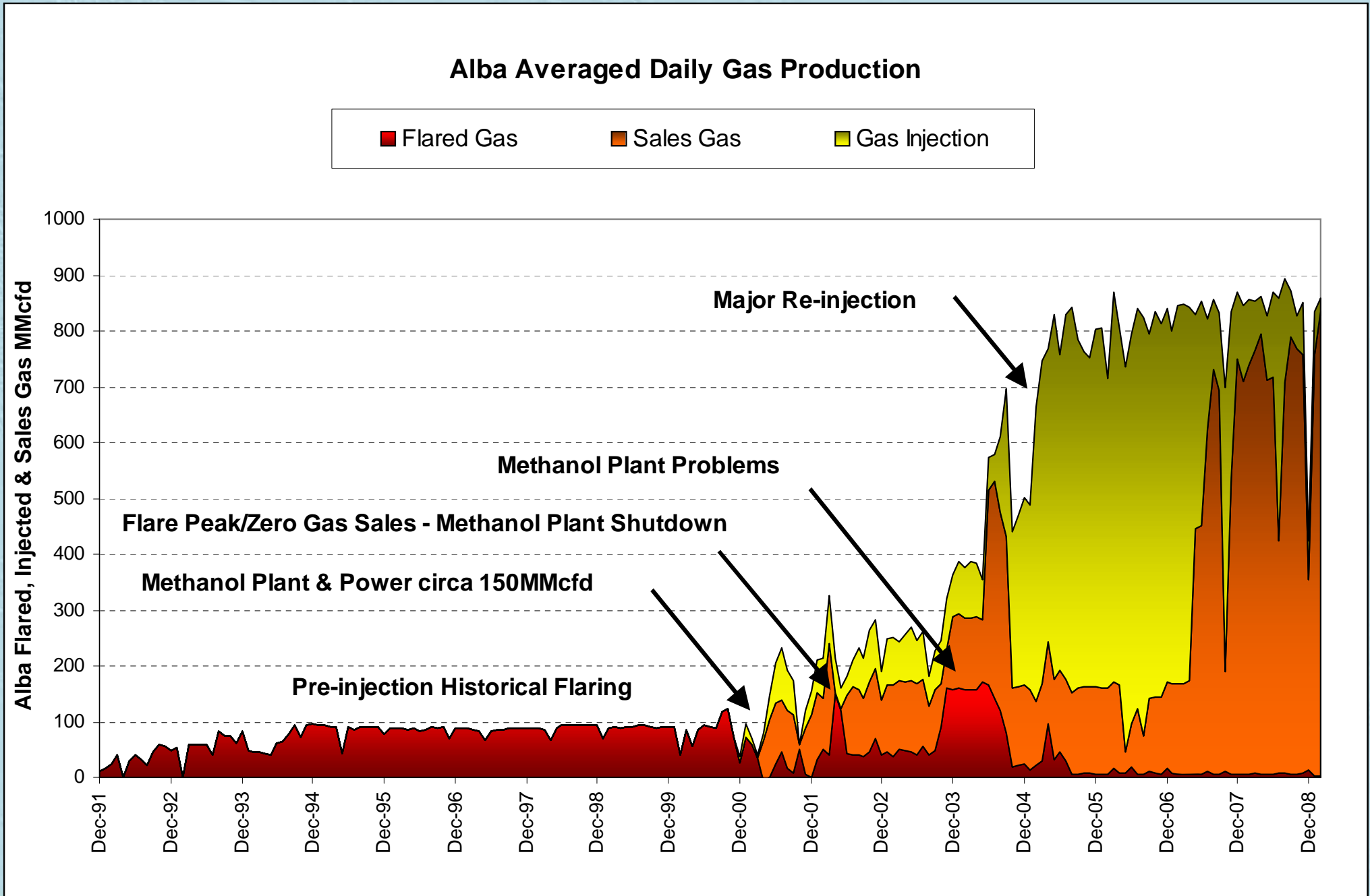
Punta Europa
Methanol
Propane,
Butane
Power

Punta Europa and EGLNG Today

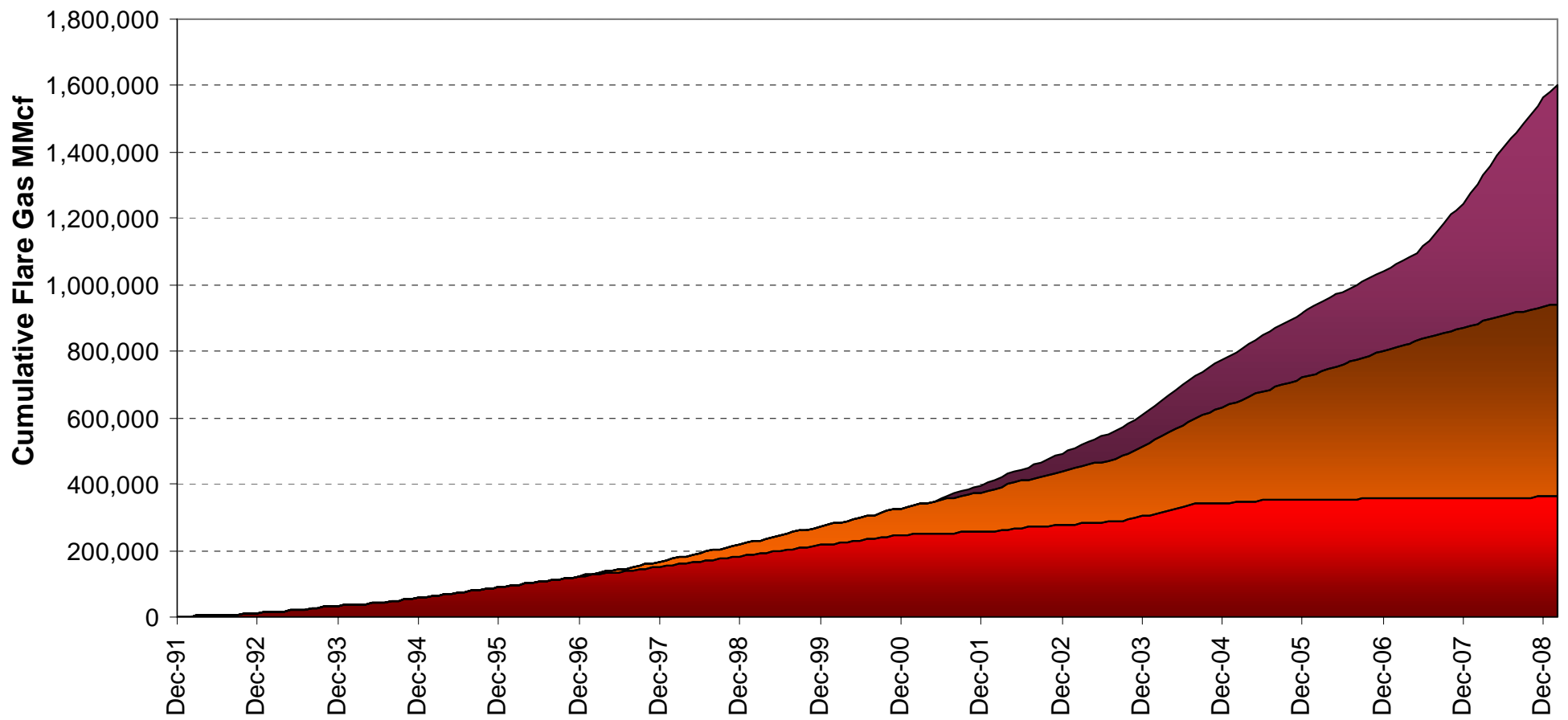


- large potential for expansion
- good deepwater loading facilities

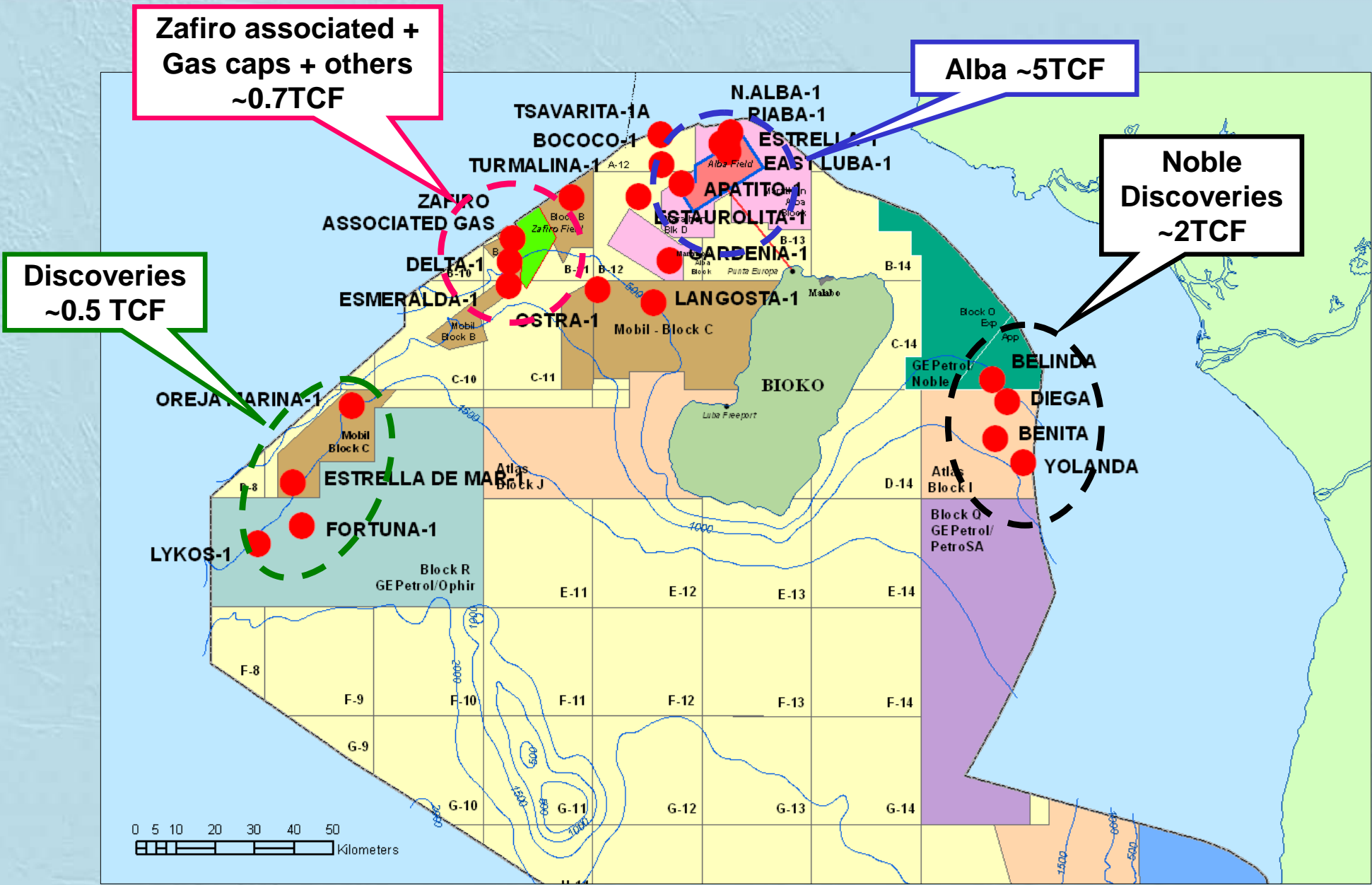
Alba Historical Gas Production Profile



Alba & Zafiro Fields Cumulative Sales & Flare Gas MMcf



Discovered Gas Volumes



Remaining Reserves and Contingent Resources

as at Sept 2008

- Compression on Alba and gas gathering on Zafiro are taken as reasonably certain
- Blocks B & D discoveries could be relatively easily developed through Zafiro and Alba respectively. The large P10/ 3C resources in block B implies more appraisal is needed
- Blocks I&O will need new stand-alone developments

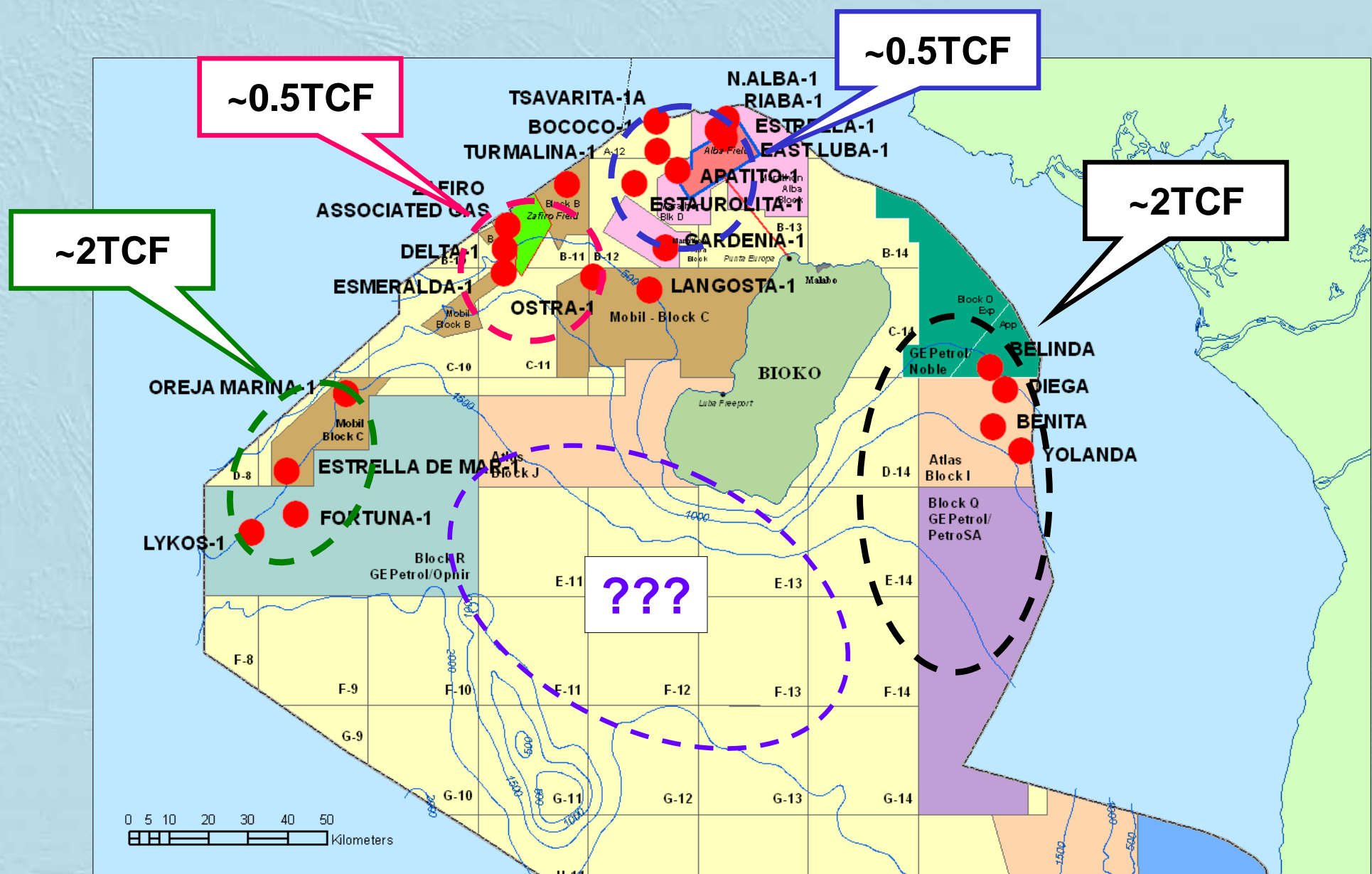
field	P90/1P	P50/ 2P	P10/ 3P	Mean	bcf
Alba	4049	4162	4275	4162	
Zafiro	180	202	250	214	
	4259	4376	4494	4376	

RESERVES 4376 BCF

block	P90/1C	P50/ 2C	P10/ 3C	Mean	bcf risked
Alba	169	294	513	323	
C	0	84	225	91	
D	111	494	1250	624	
I	729	996	1234	983	
O	668	877	1122	872	
B	291	1653	5691	2599	
	3021	4630	8619	5460	

CONTINGENT RESOURCES 5460 BCF

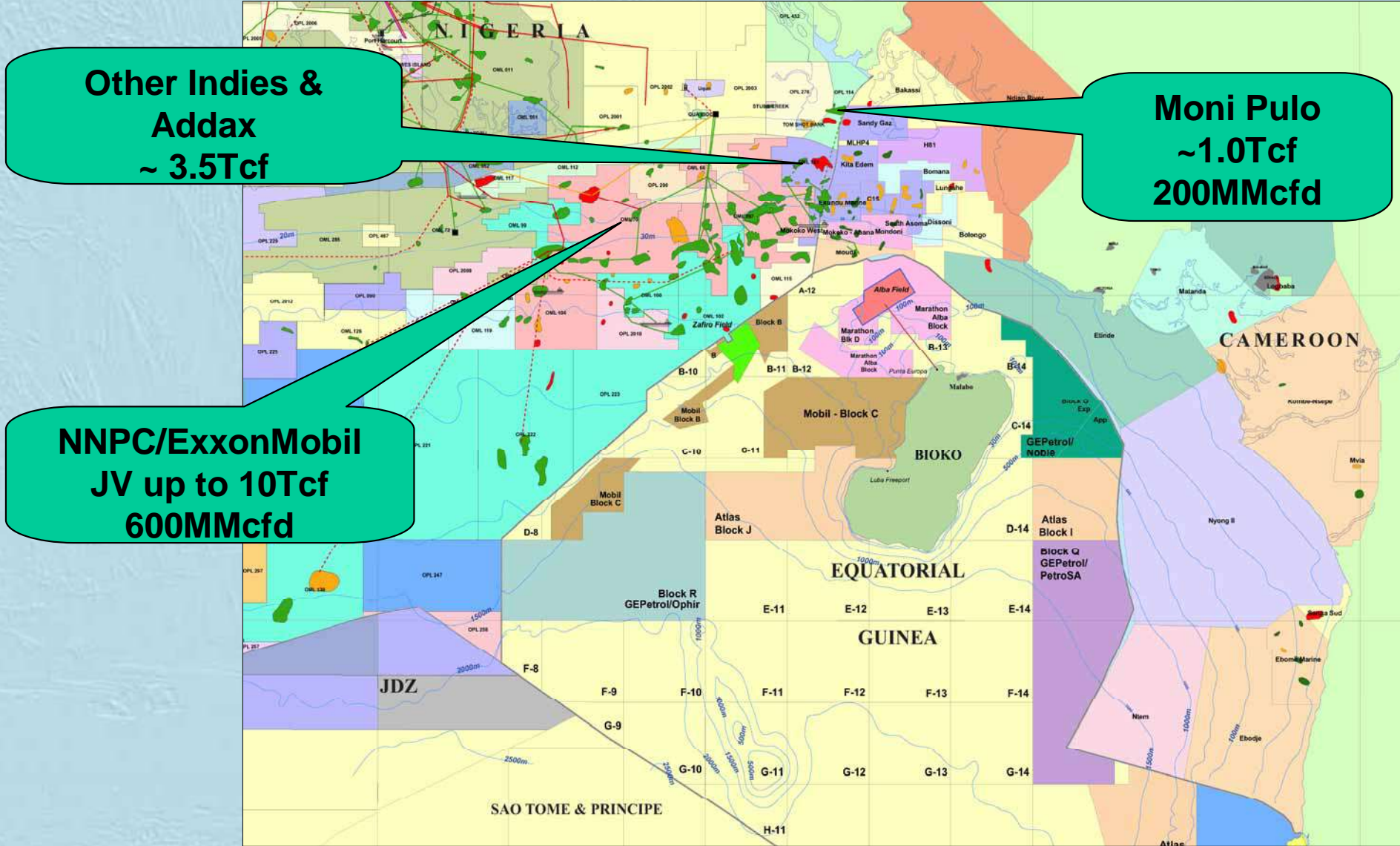
Prospective Gas Volumes



Equatorial Guinea – Licensed Acreage



Gas Supply Options - *Nigeria imports*



easily enough gas for Train2..... & for Train 3

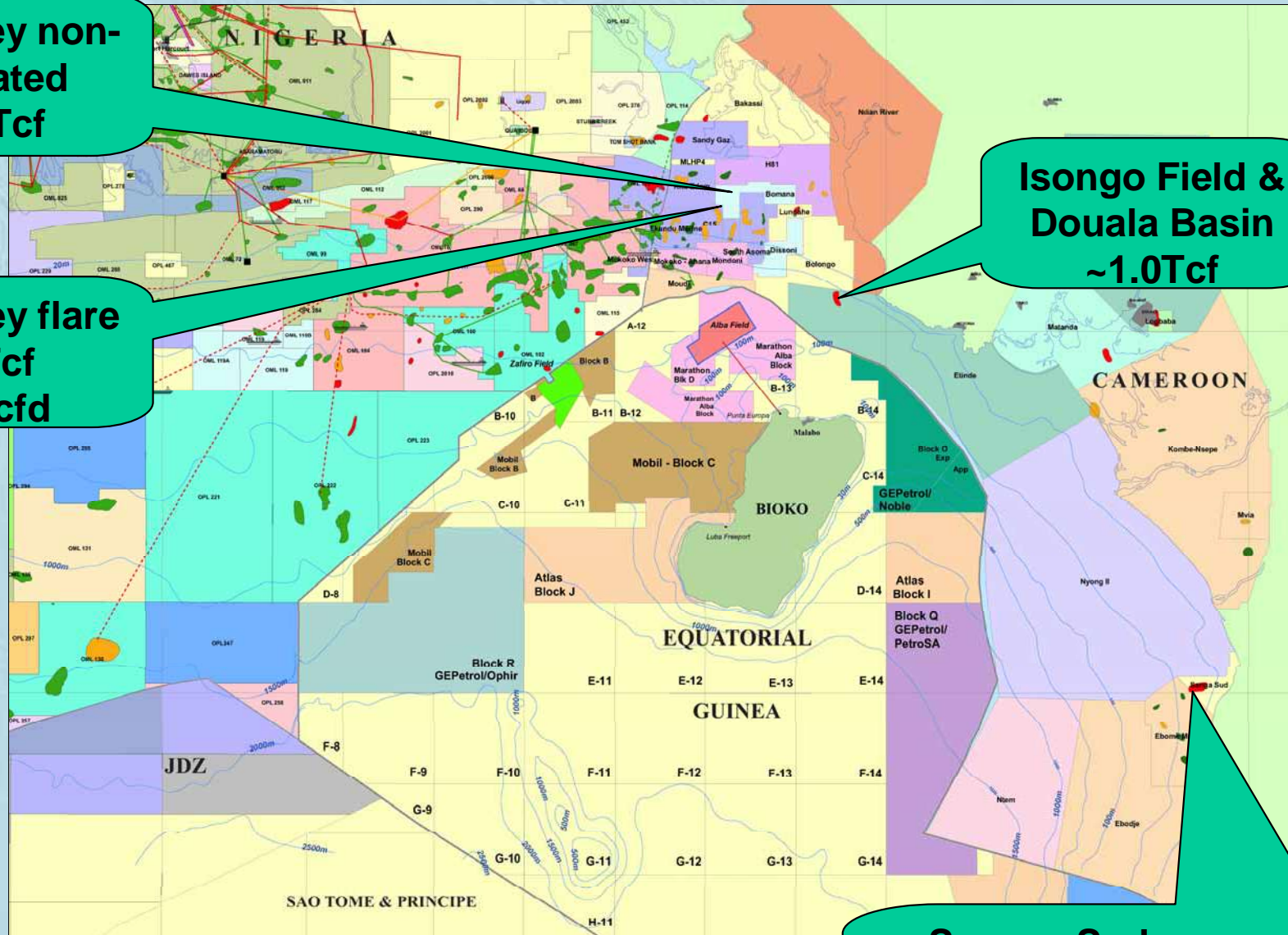
Gas Supply Options - Cameroon imports

Rio del Rey non-associated
~1.7Tcf

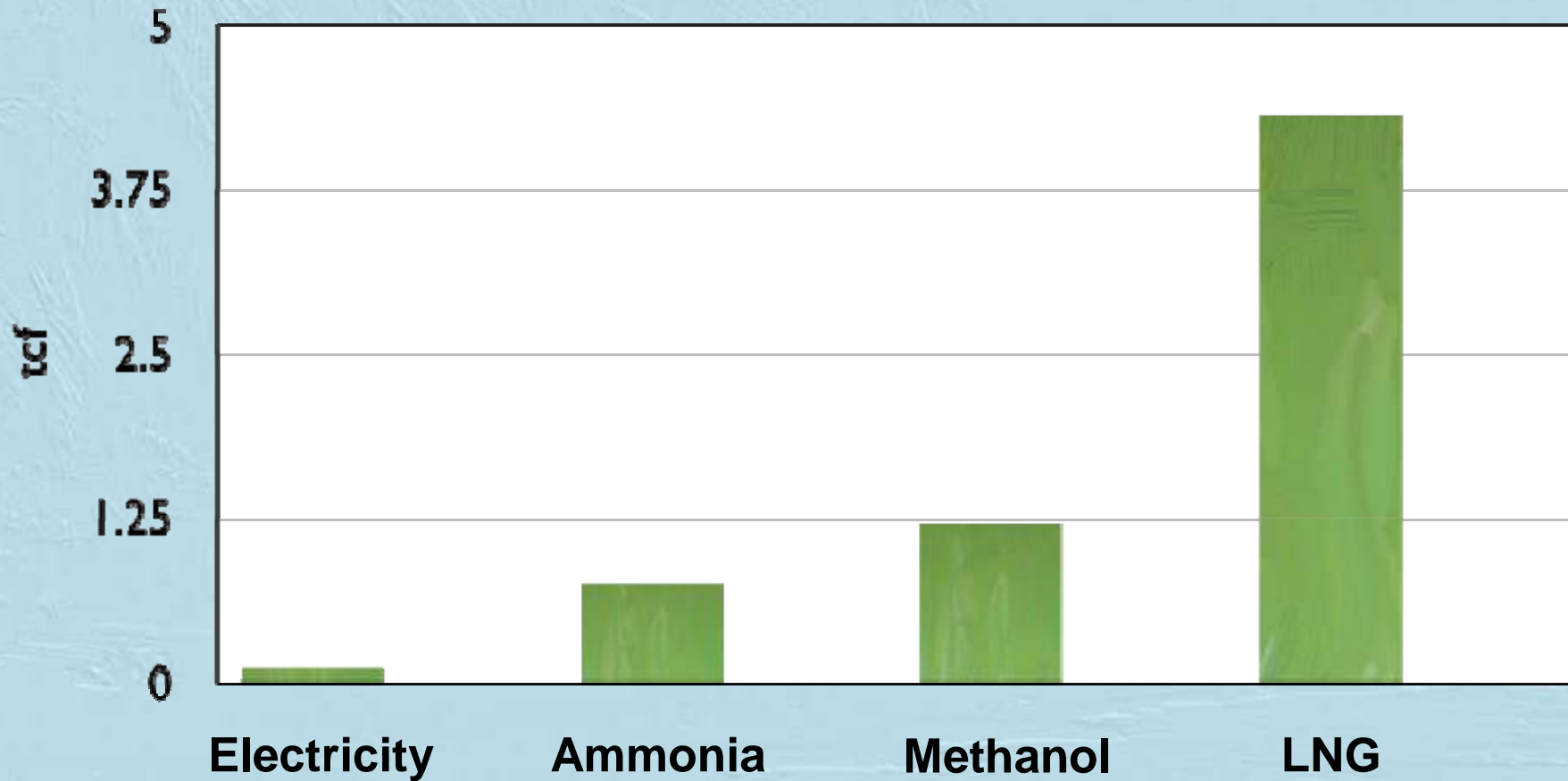
Rio del Rey flare
~0.7Tcf
65MMcfd

Isongo Field & Douala Basin
~1.0Tcf

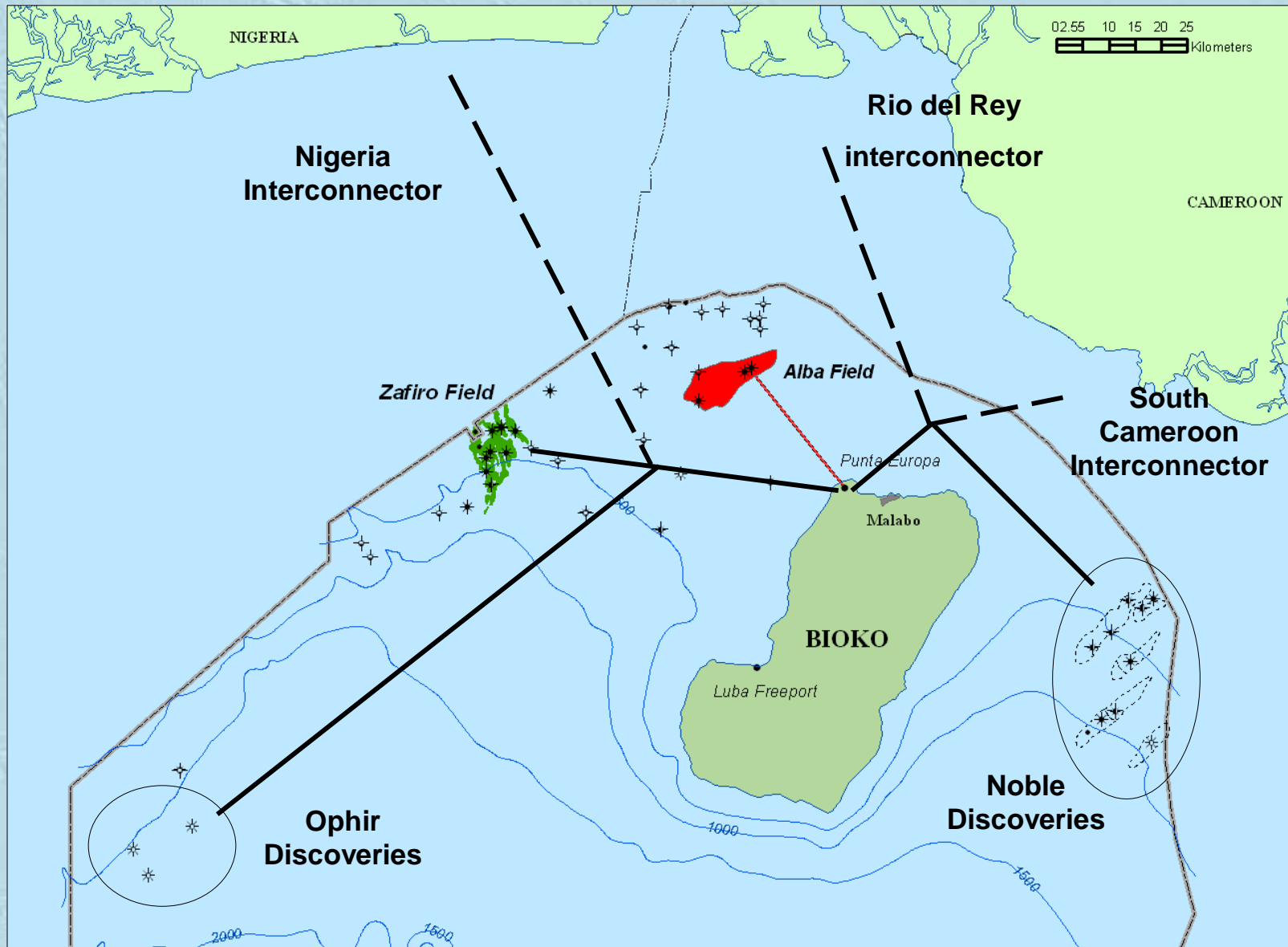
Sanaga Sud excess & Kribi
~ 0.75Tcf



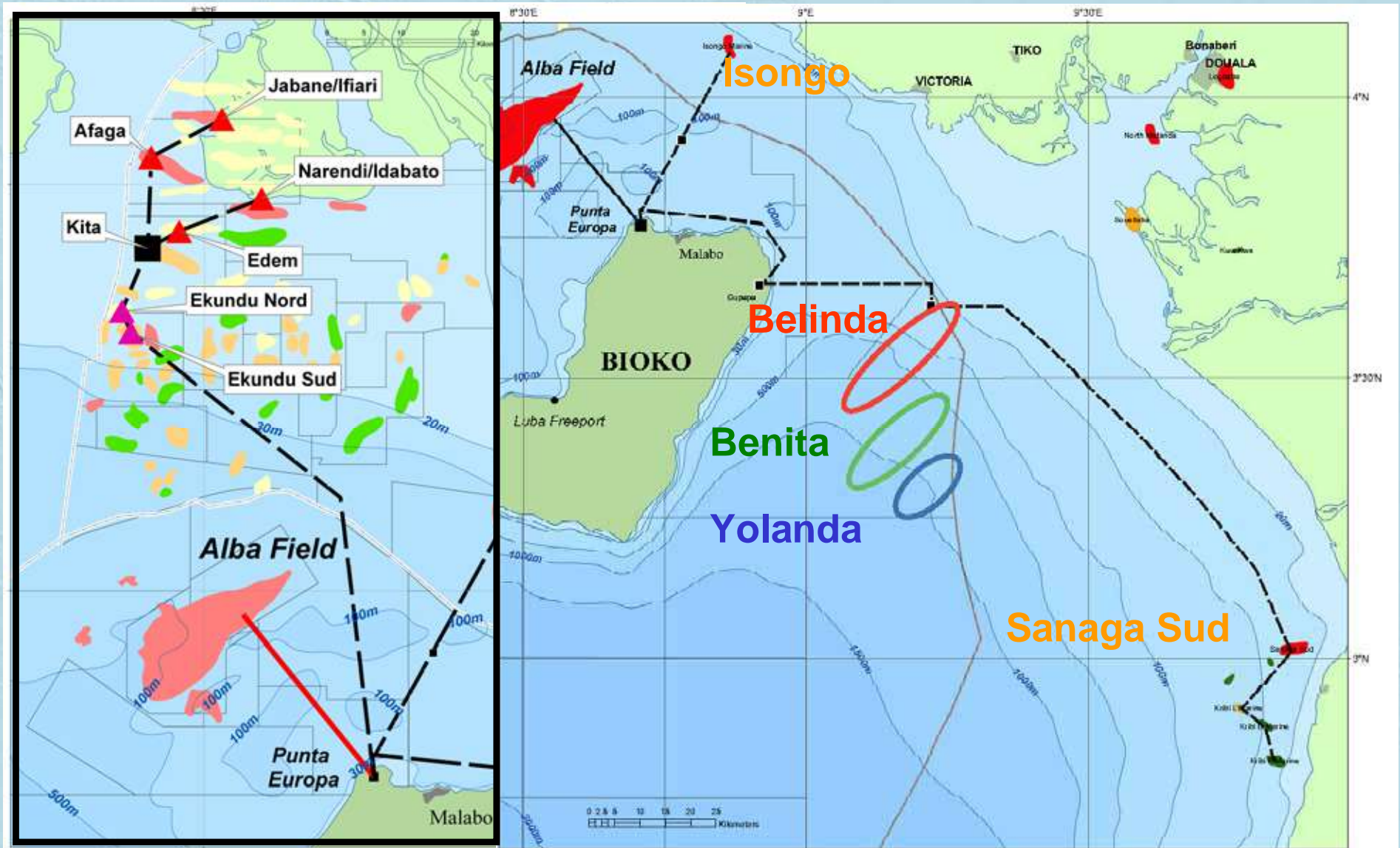
Commercialisation Options



Gas Gathering System



Pipeline Scenario, Cameroon to EG



100 MCFD potential from Rio del Rey fields

Undefined potential from Douala Basins



Bioko - Hub of the Gulf of Guinea



- **8 YEARS OF SUCCESSFUL GAS BUSINESS DEVELOPMENT TO DATE**
 - exploration
 - development
 - gas commercialisation through Bioko Island as a natural hub
- ***much more still to do***
 - further exploration and development
 - further gas commercialisation
- **now is the time to study development of a gas gathering system**
- **Government support for creation of 3G**