



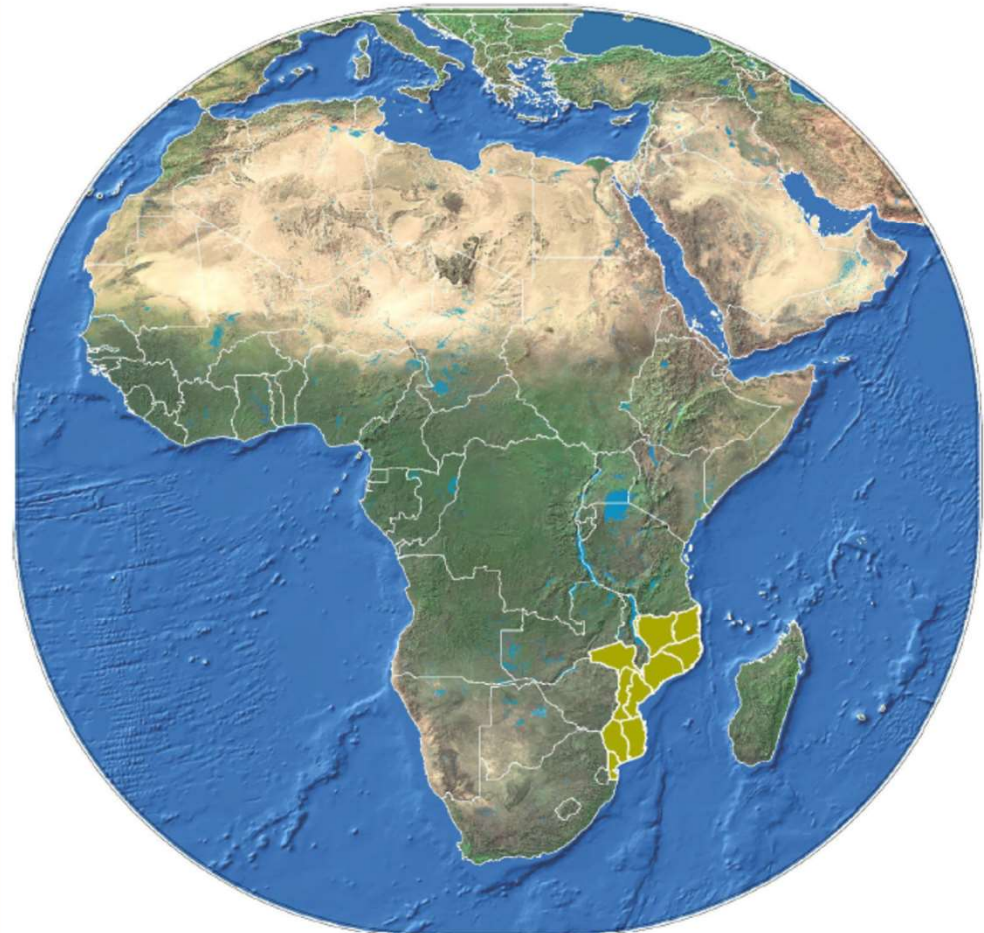
# Exploration Opportunities in Mozambique

AAPG Meeting  
Salt Lake City, USA

Presented by: Augusto Macuvelle  
Executive Board Member - Exploration

## Introduction

- **Location:** South-eastern Africa
- **Land area:** approximately 800,000 Sq.km
- **Coastline:** Approximately 2,700 Km
- **Population:** 28 million (2017)
- **Capital city:** Maputo (5 million inhabitants)
- **Natural Resources:** Hydropower, natural gas, coal, minerals, raw wood
- **Export:** natural gas, coal, heavy mineral sands, prawns, cashew-nut, sugar, tea, coconut oil and cotton



# Economic Outlook

MOZAMBIQUE GDP ANNUAL GROWTH RATE



SOURCE: TRADINGECONOMICS.COM | INSTITUTO NACIONAL DE ESTADÍSTICA, MOZAMBIQUE

MOZAMBIQUE GDP FROM MINING



SOURCE: TRADINGECONOMICS.COM | INSTITUTO NACIONAL DE ESTADÍSTICA, MOZAMBIQUE

MOZAMBIQUE GDP PER CAPITA



SOURCE: TRADINGECONOMICS.COM | WORLD BANK

Taxes	%
IRPC	32

## **Legal Framework – Oil & Gas Sector**

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- **Law 21/2014 – Petroleum Law**
- **Decree 34/2015 – Regulation of Petroleum Operations**
- **Concession Strategy for Petroleum Operations Areas**
- **Resolution 25/2016 of 6<sup>th</sup> October– New EPCC Model**
- **Law 14/2017 – Specific Taxation and Fiscal Benefits Scheme for Petroleum Operations**
- **Decree 32/2015 – Regulation of the Specific Taxation and Fiscal Benefits System of Petroleum Operations**
- **Decree 35/2014 – Regulation on Management of Explosive Substances**
- **Natural Gas Master Plan Strategy**
- **Law 25/2014 – Legislative Authorization for the Liquefaction Projects of Natural Gas of Areas 1 and 4 of the Rovuma Basin**
- **Decree 56/2017 – Terms and Conditions for the Supplementary Agreement to the EPCC of Area 4 of the Rovuma Basin**

# Sedimentary Basins

## Explored Basins

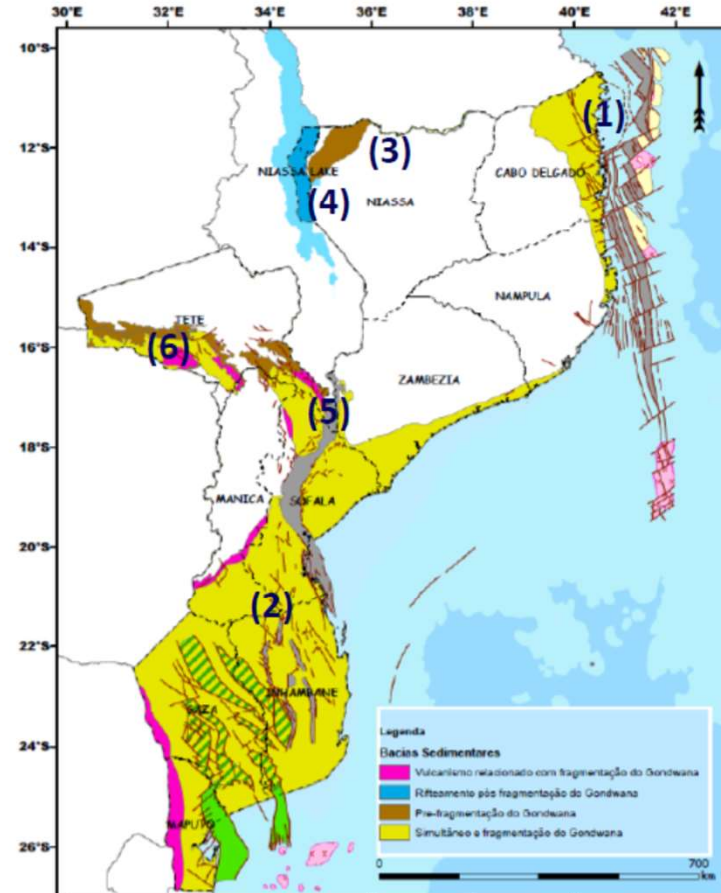
### Passive Continental Margin basins:

- Rovuma Basin (1)
- Mozambique Basin (2)

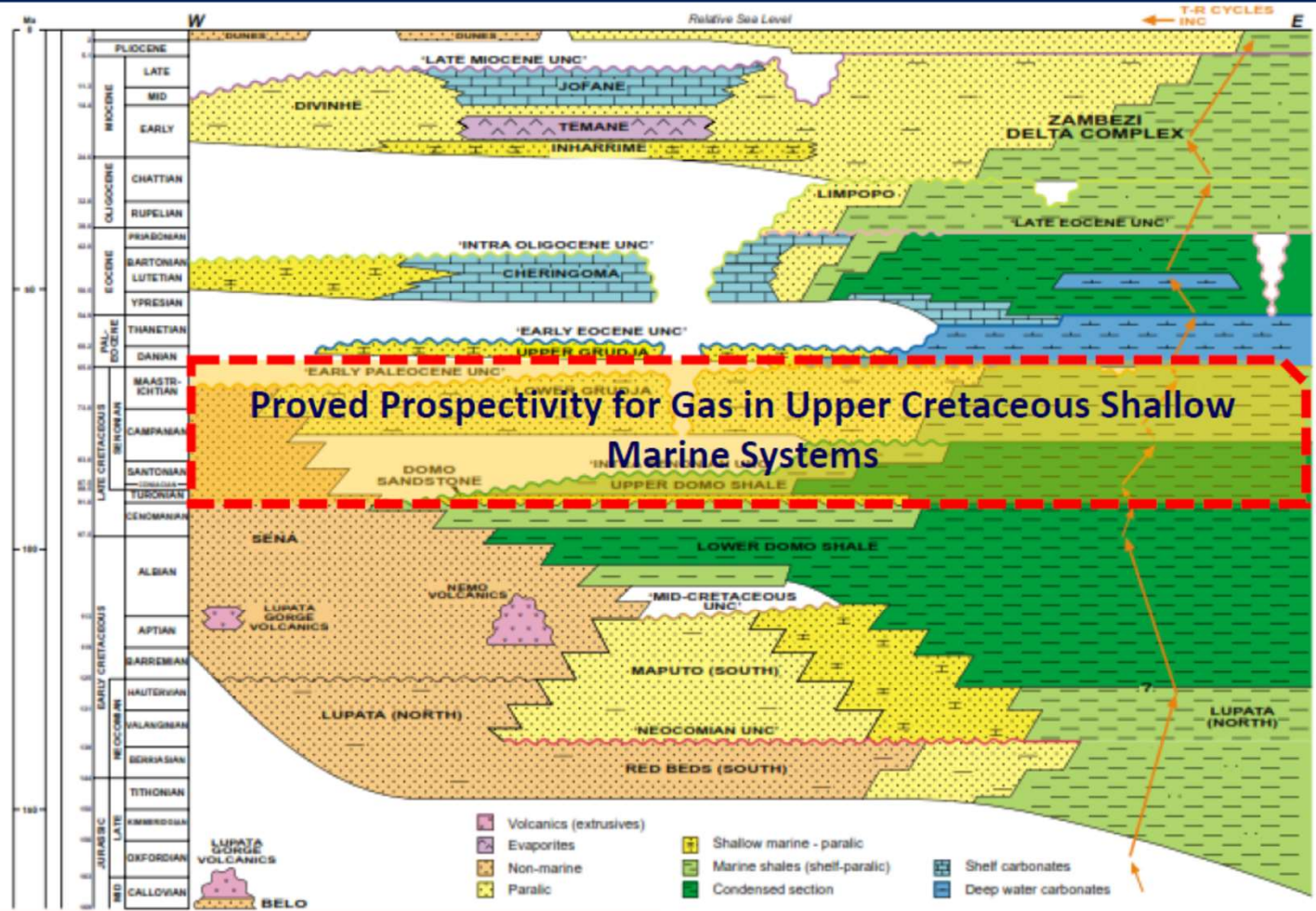
## Unexplored Basins

### Graben and Rift Type basins:

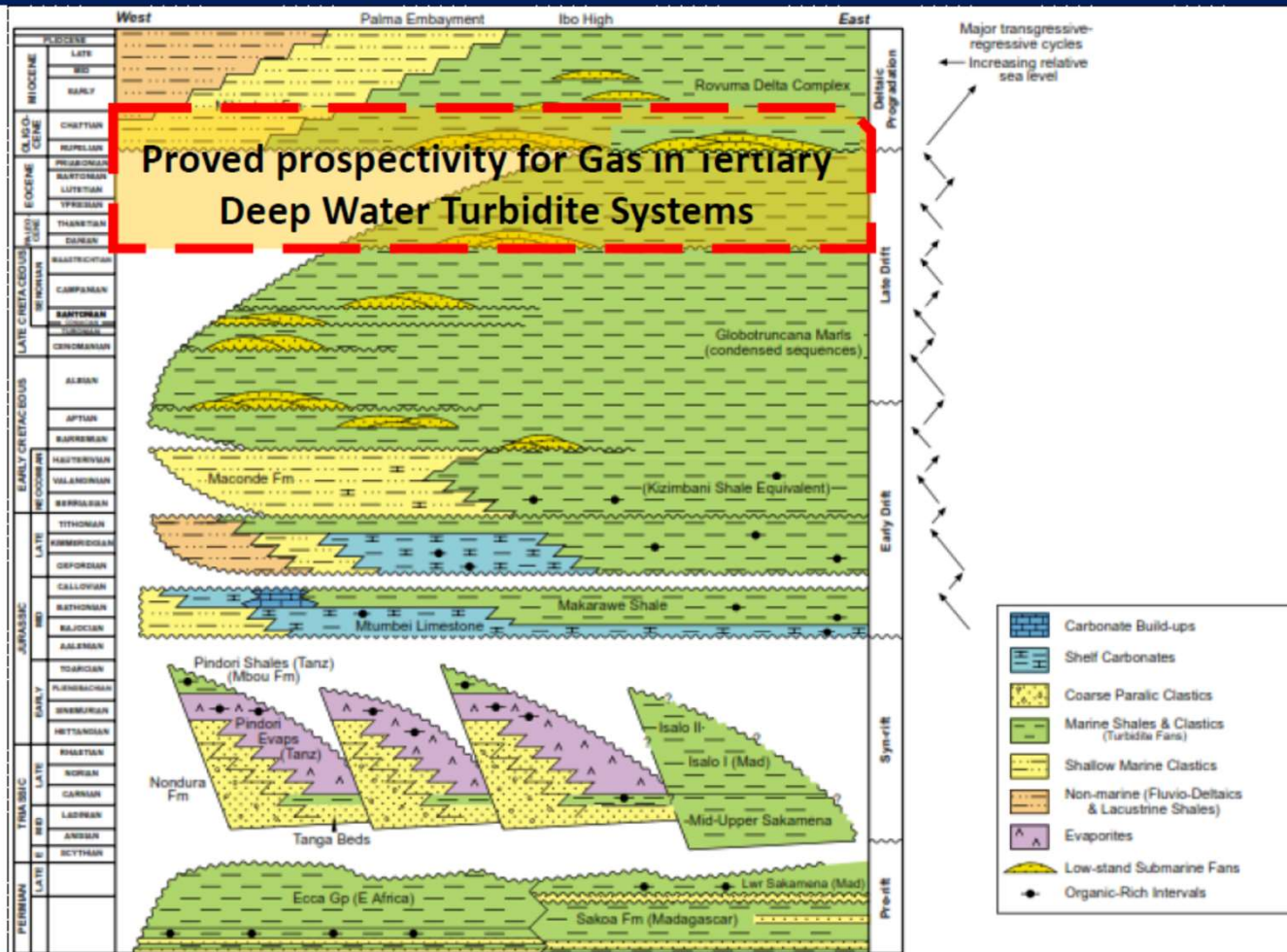
- Maniamba Basin (3)
- Lake Niassa Basin (4)
- Lower Zambeze Graben (5)
- Middle Zambeze Basin (6)



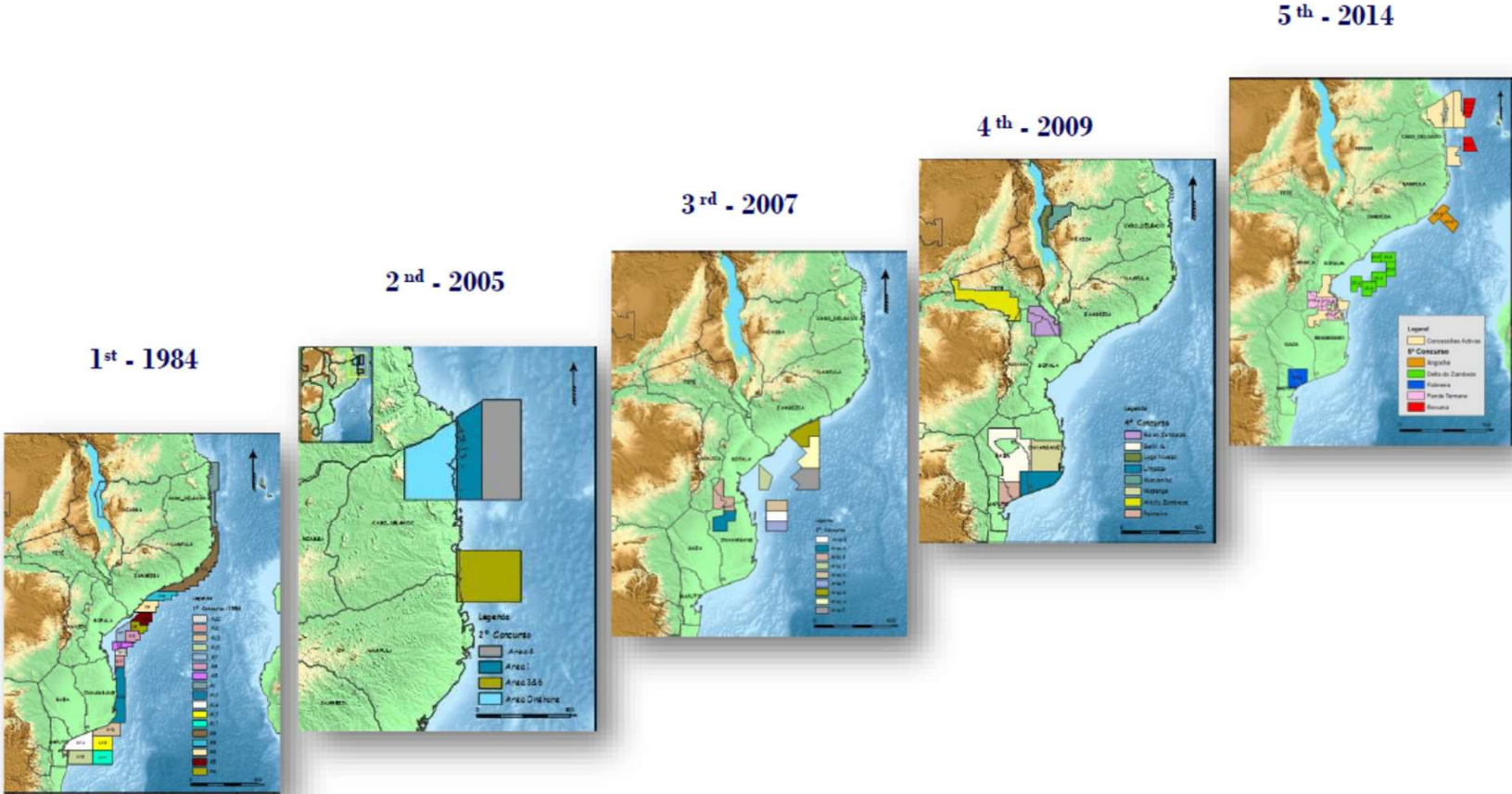
# Stratigraphy - Mozambique Basin



# Stratigraphy - Rovuma Basin

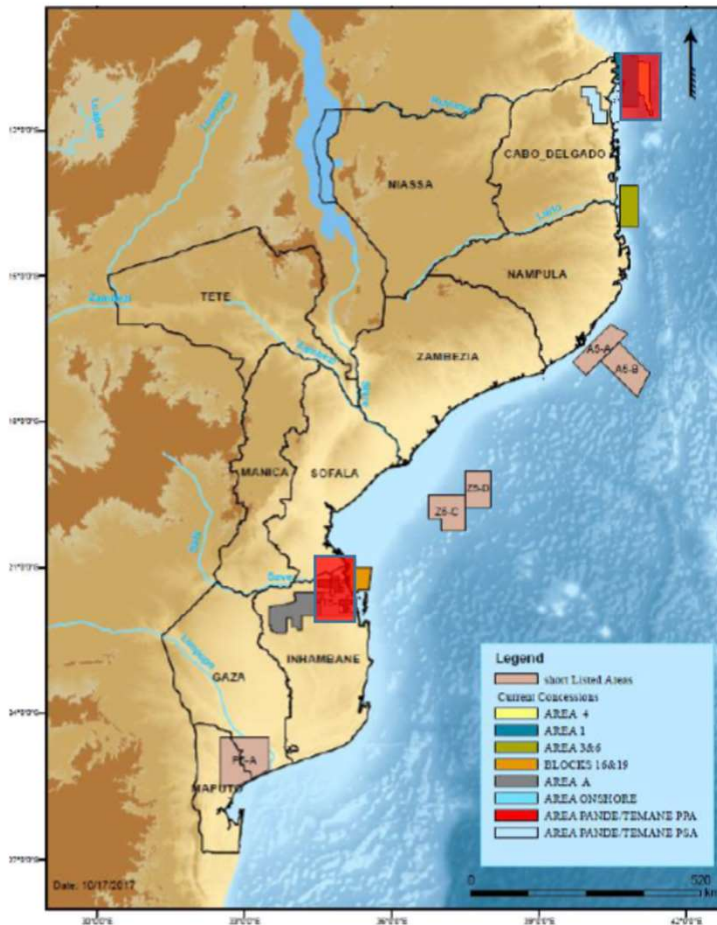


# Bidding Rounds





# Active Concessions



## Area 1



AMA-1 (26.5%)  
Mitsui (20%)  
BREM (10%)  
ENH (15%)  
BPRL (10%)  
PTTEP (8.5%)  
ONGC Videsh (10%)

## Area 4



MVR (ENI, Exxon, CNPC (70%))  
ENH (10%)  
KOGAS (10%)  
Galp Energia (10%)

## Rovuma Onshore



Wentworth Resources (85%)  
ENH (15%)

## Pande & Temane (PSA)

SPM (100%)

## Block 16&19



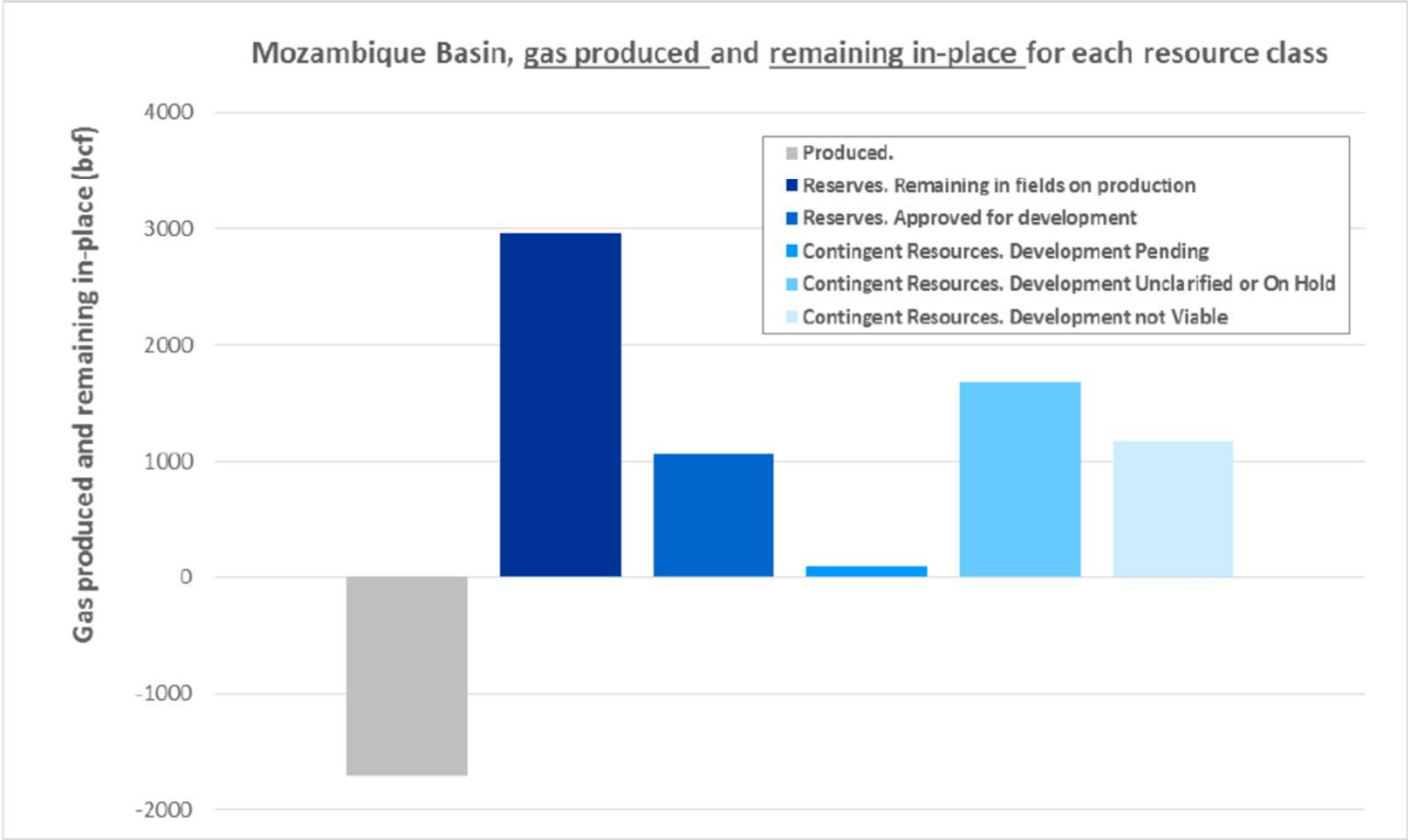
SPM (85%)  
ENH (15%)

## Pande & Temane (PPA)

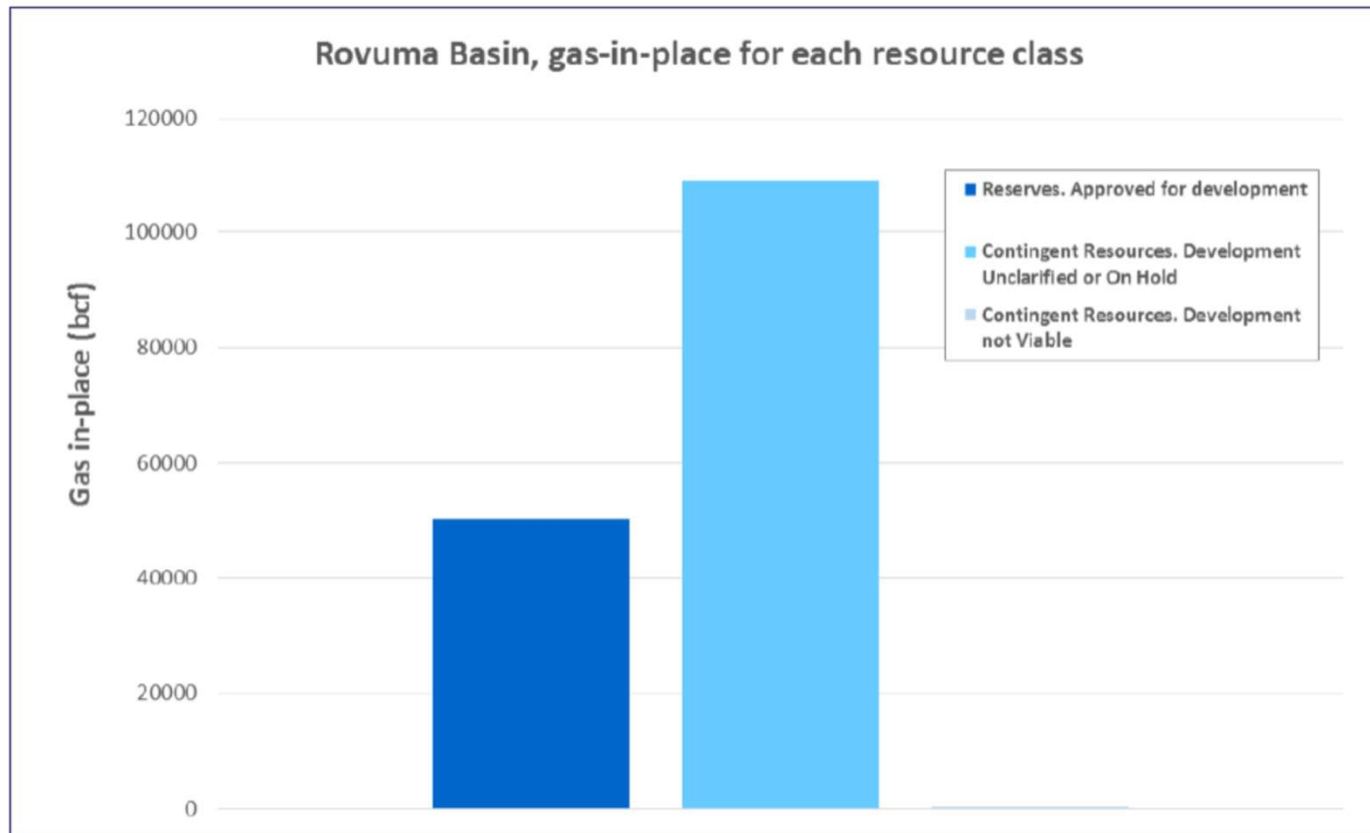


SPM (70%),  
ENH (25%)  
IFC (5%)

# Mozambique Resources

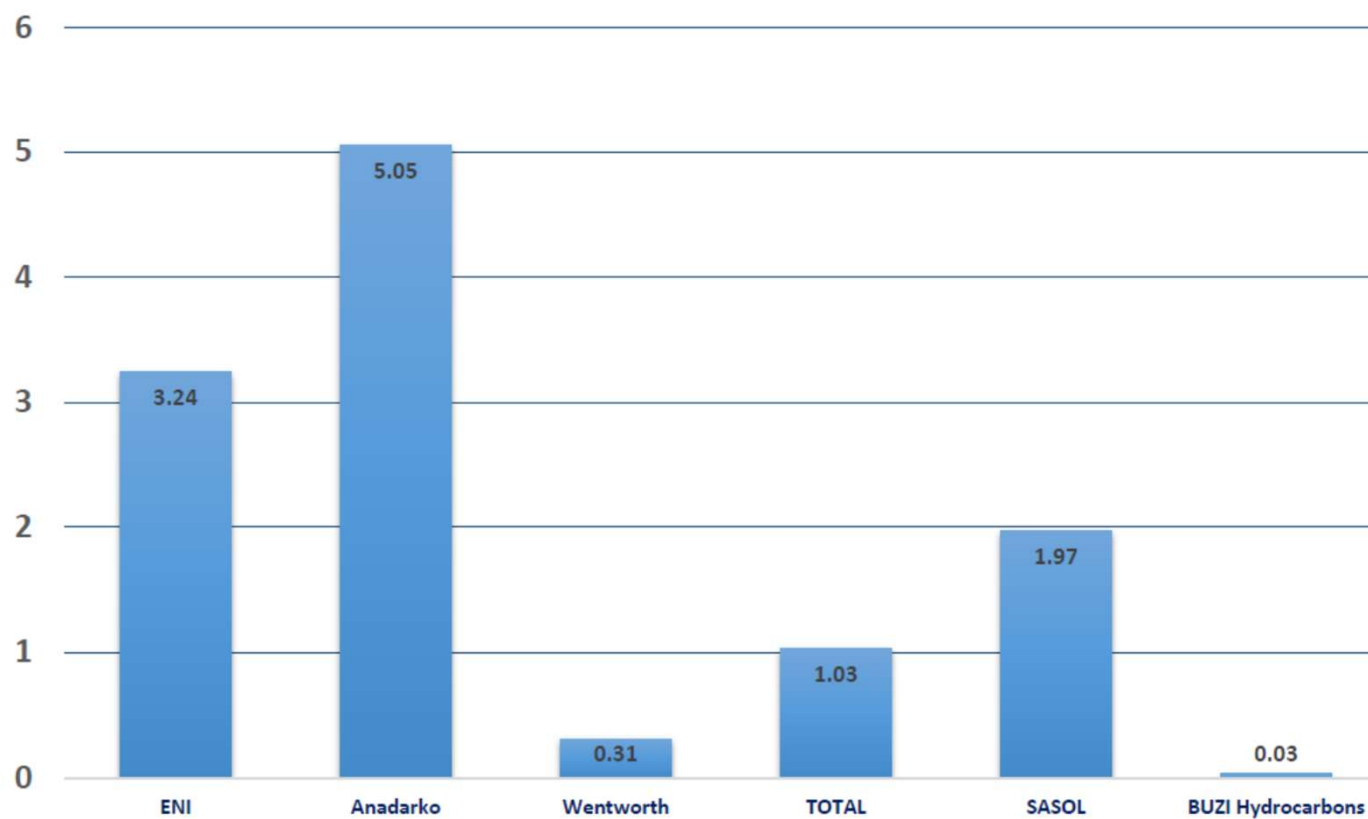


## Mozambique Resources

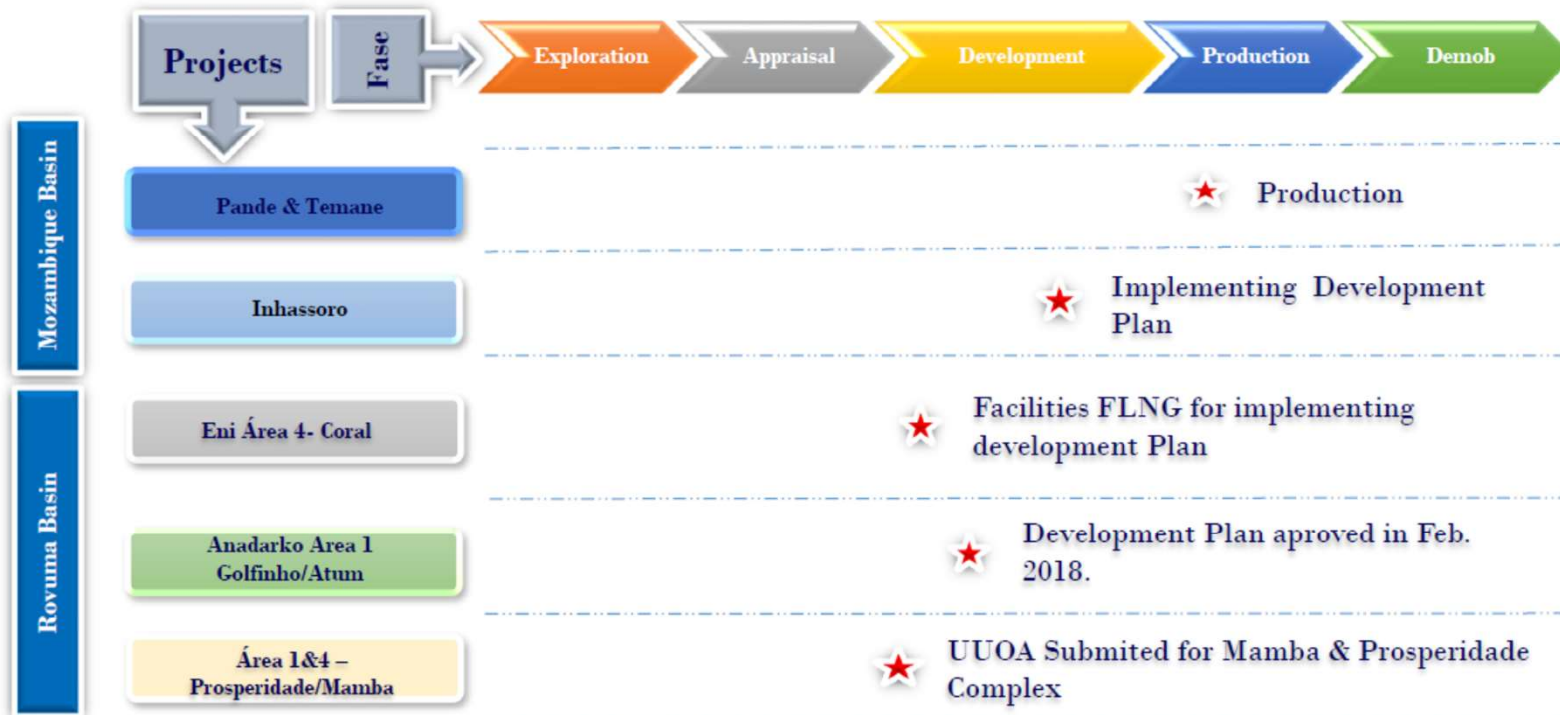


## Investments in Oil & Gas Sector

Total Investments (bi USD) (2004-2017)



# Ongoing Projects

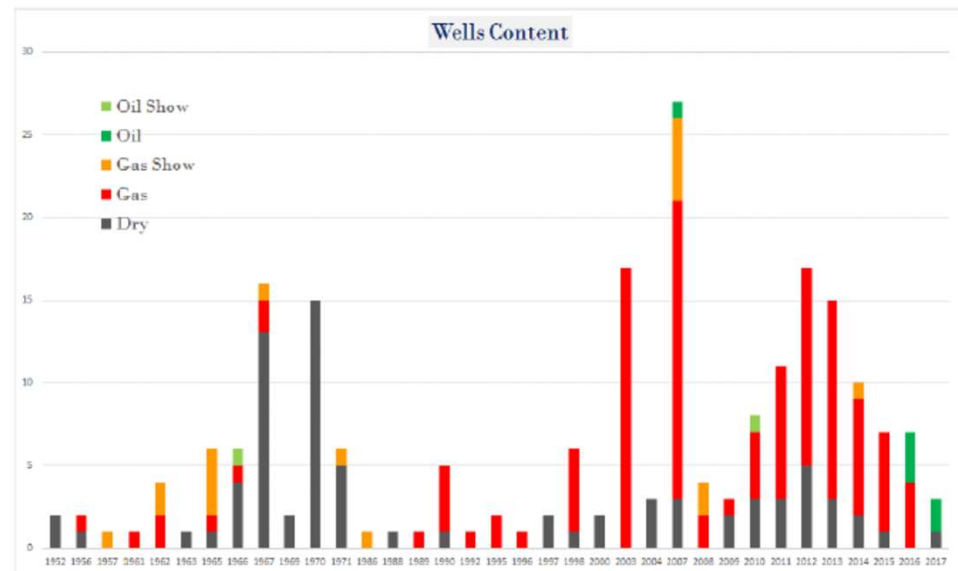


# Well Database



A total of 217 wells drilled since the 50's to date

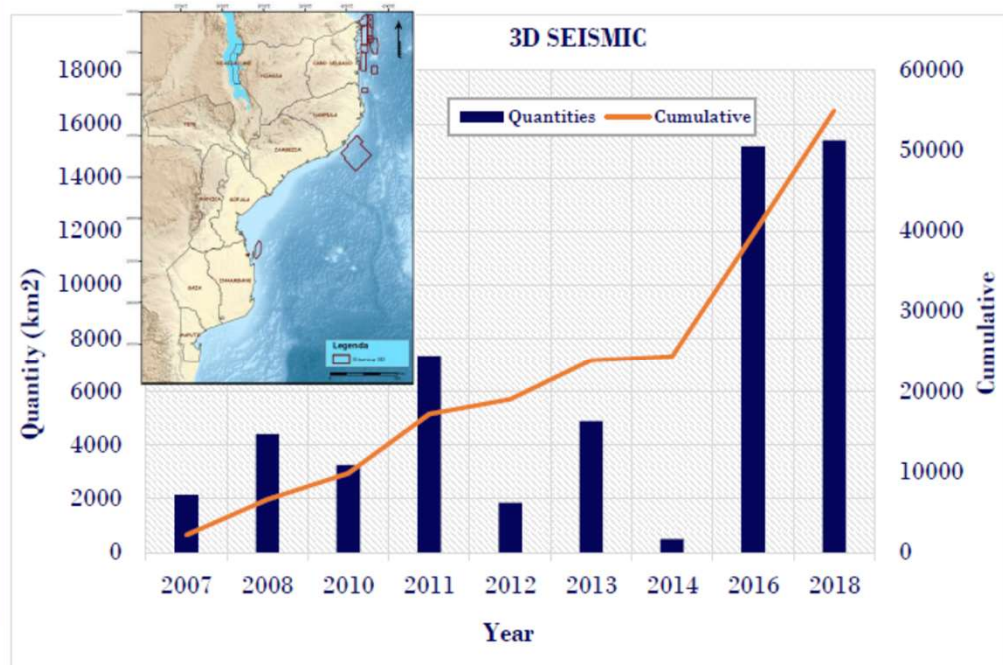
- 109 Exploration wells
- 44 Production wells (including injection wells)
- 64 Appraisal wells



## 3D Seismic Database



- 40.000 km<sup>2</sup> 3D acquired to date (onshore & offshore)
- 15,400 km<sup>2</sup> 3D ongoing (Zambeze Delta)

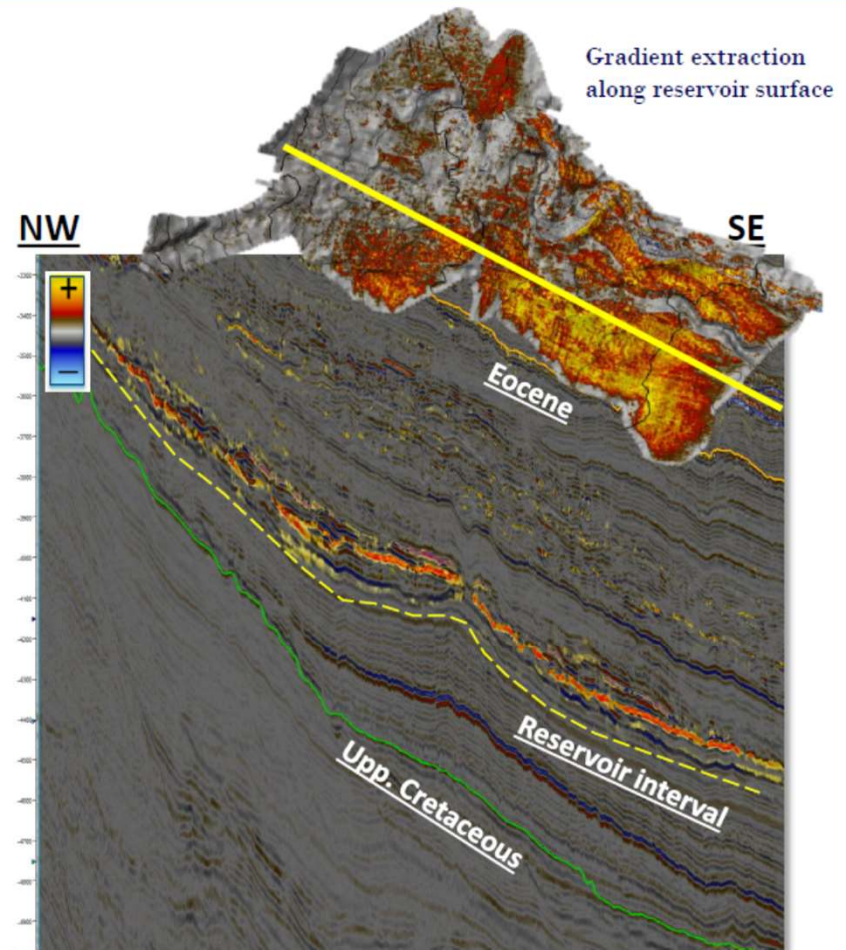
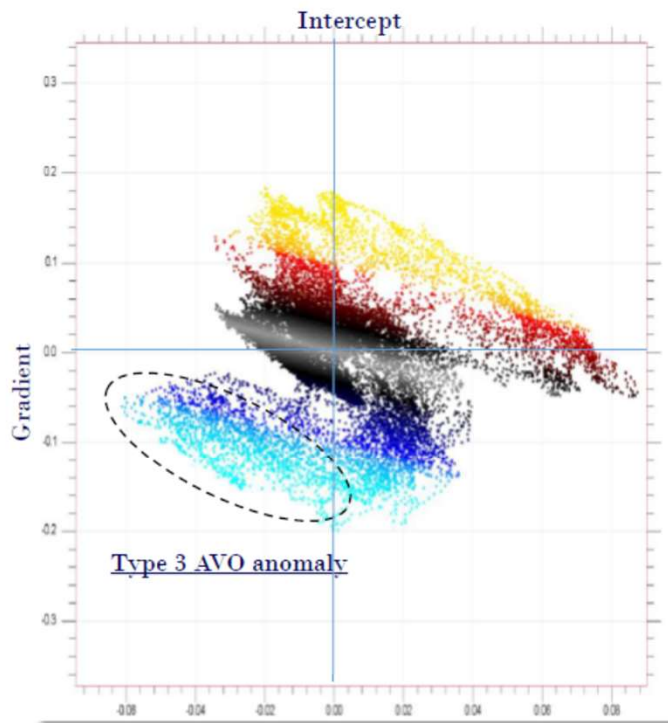






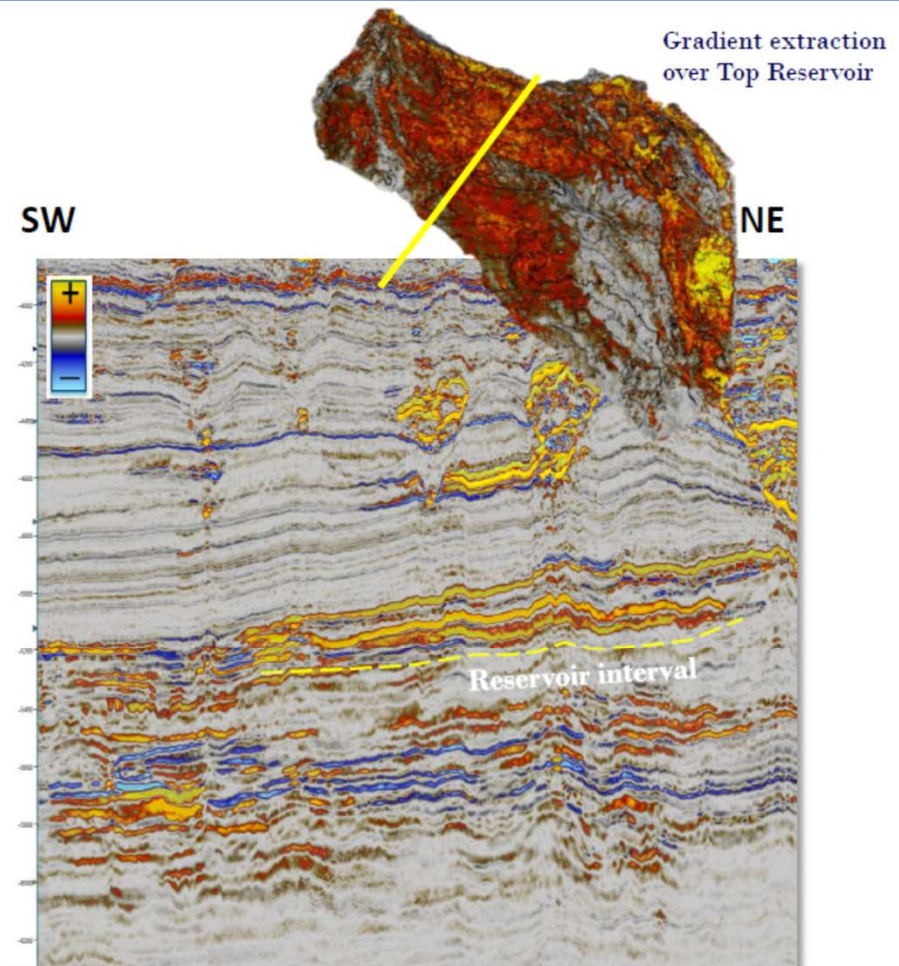
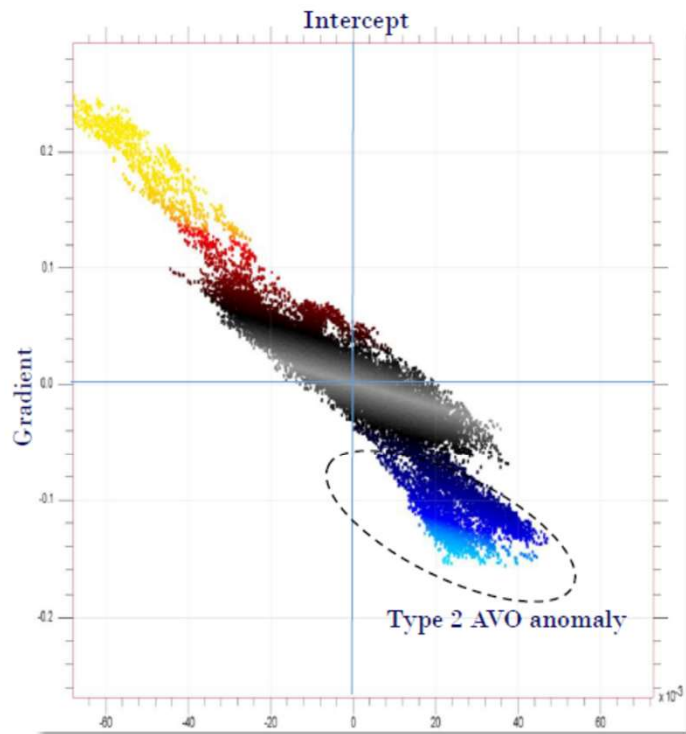
# Exploration Opportunities – Angoche Area

AVO analysis indicates Eocene shelf fan is a Type 3 AVO anomaly



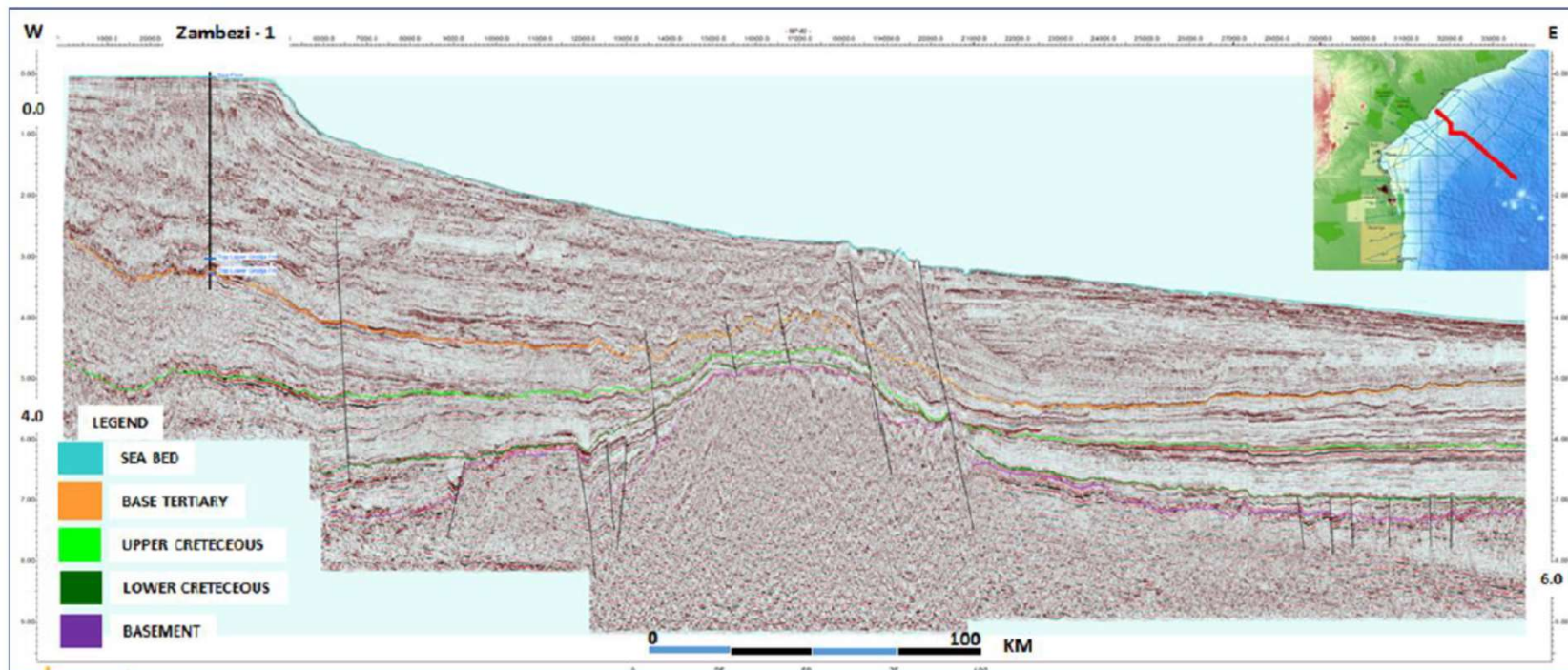
# Exploration Opportunities – Angoche Area

AVO analysis indicates Upper Cretaceous fan is a Type 2 AVO anomaly

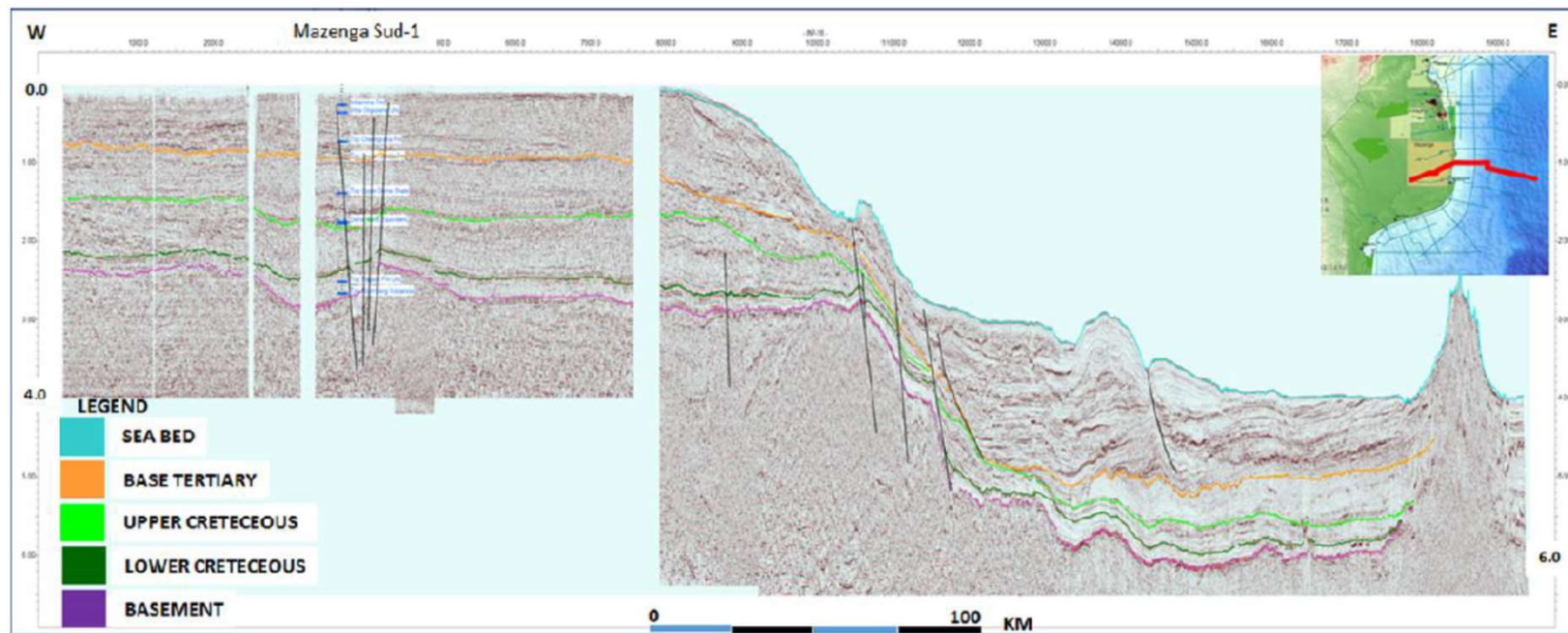


AVO Gradient overlaid on Ufar stack

# Exploration Opportunities – Zambeze



# Exploration Opportunities – Mazenga



## 6<sup>th</sup> Bidding Round Roadmap

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- Nomination Process 2018 - 2019
- Launch of the bidding round
- Bid proposals submission
- Bid evaluation
- Announcement of winners
- EPCC signature

## Conclusions

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- Mozambique offers countless exploration opportunities;
- Significant potential for exploration successes:
  - Tertiary - Angoche Area, Zambeze Delta and Rovuma Basin
  - Upper Cretaceous - Mozambique Basin
  - Cretaceous - Angoche Area
- Eminent signature of the 5th bidding round contracts will improve investors convenience for future exploration projects
- Roadmap towards 6th bidding round for E&P concessions under consideration in 2018 - 2019

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**THANK YOU!**