



THE NATIONAL PETROLEUM INSTITUTE OF MOZAMBIQUE

AN OVERVIEW OF THE PETROLEUM SECTOR

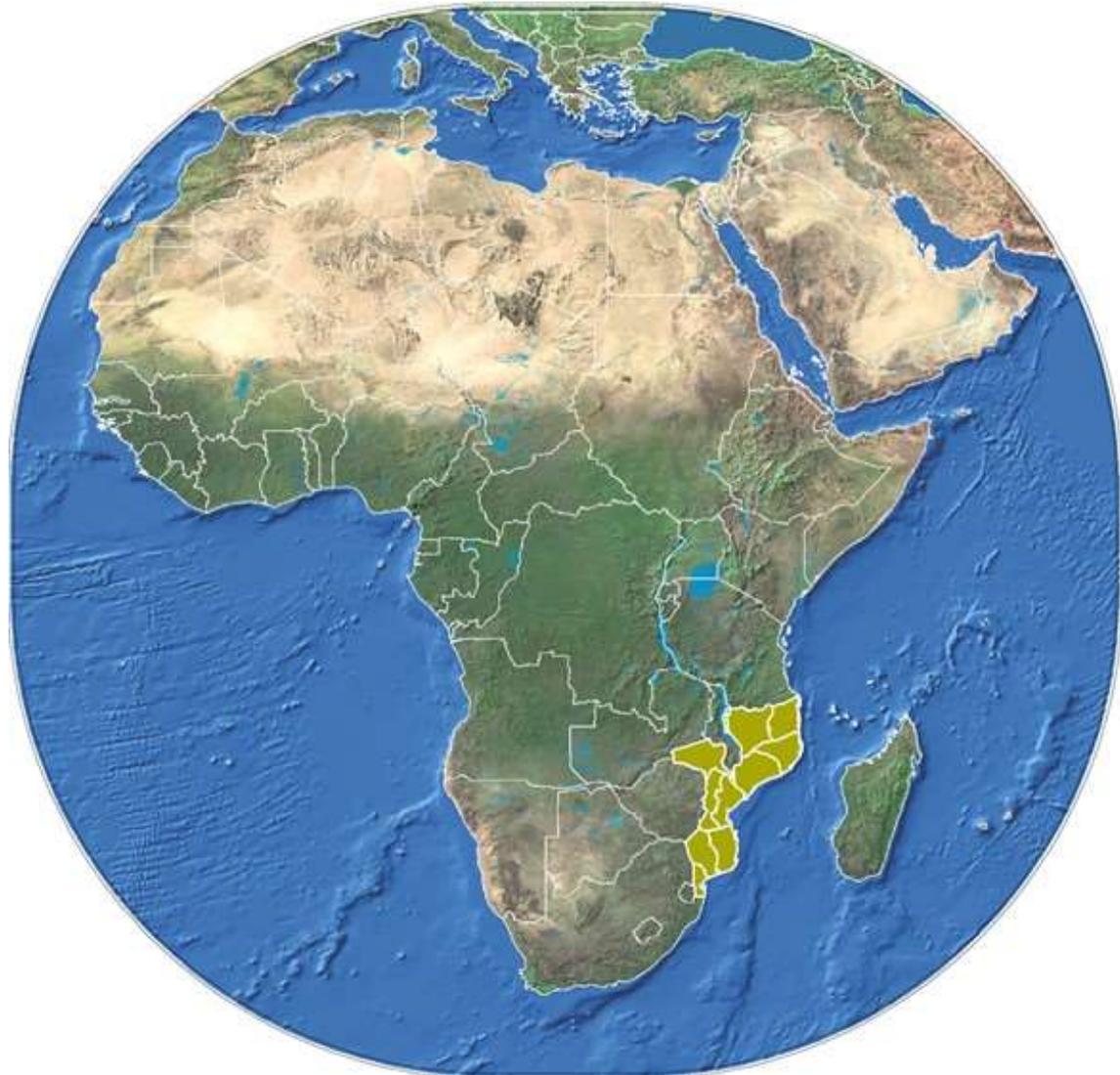
PRESENTED BY: INOCÊNCIA MACULUVE

AAPG – San Antonio, Texas

May, 21st 2019

INTRODUCTION

- **Location:** South-eastern Africa
- **Land area:** 800,000 sq.km
- **Coastline:** 2,700 Km
- **Population:** 28 million (2017)
- **Capital:** Maputo (1.1 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.



LEGAL FRAMEWORK – OIL & GAS SECTOR

- Petroleum Law: Law 21/2014
- Regulation of Petroleum Operations: Decree 34/2015
- Concession Strategy for Petroleum Operations Areas: 2009
- New EPCC Model: Resolution 25/2016 of 6th October
- Specific Taxation and Fiscal Benefits Scheme for Petroleum Operations: Law 14/2017
- Regulation of the Specific Taxation and Fiscal Benefits System of Petroleum Operations: Decree 32/2015
- Natural Gas Master Plan Strategy: 2010
- Legislative Authorization for the Liquefaction Projects of Natural Gas of Areas 1 and 4 of the Rovuma Basin: Law 25/2014
- Terms and Conditions for the Supplementary Agreement to the EPCC of Area 4 of the Rovuma Basin: Decree 56/2017

FISCAL REGIME

Production Tax (royalty)

- Oil : 10%
- Gas: 6%

Back in rights

- Government can participate in all projects undertaken

Income Tax

- 32% of contractor's gross revenue

SEDIMENTARY BASINS

EXPLORED BASINS

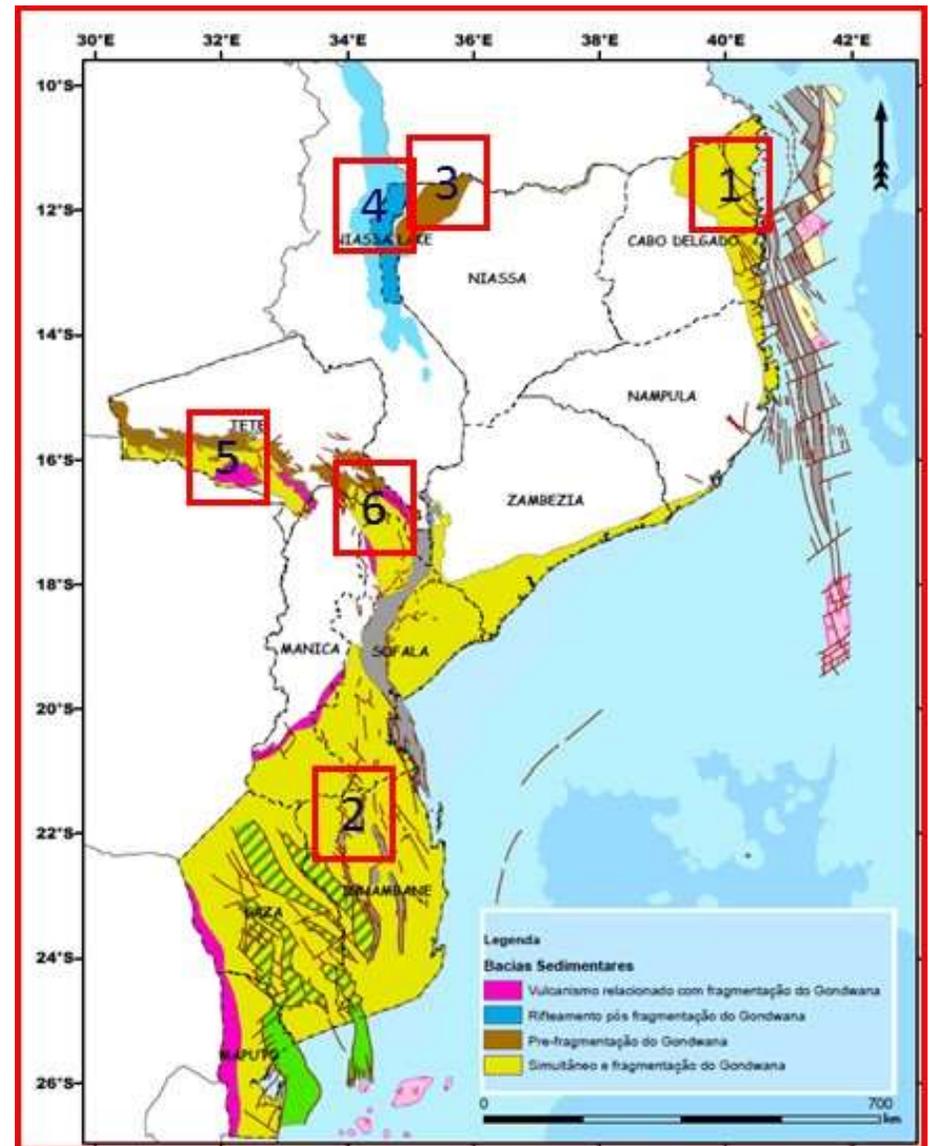
Passive Continental Margin basins:

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

UNEXPLORED BASINS

Graben and Rift Type basins:

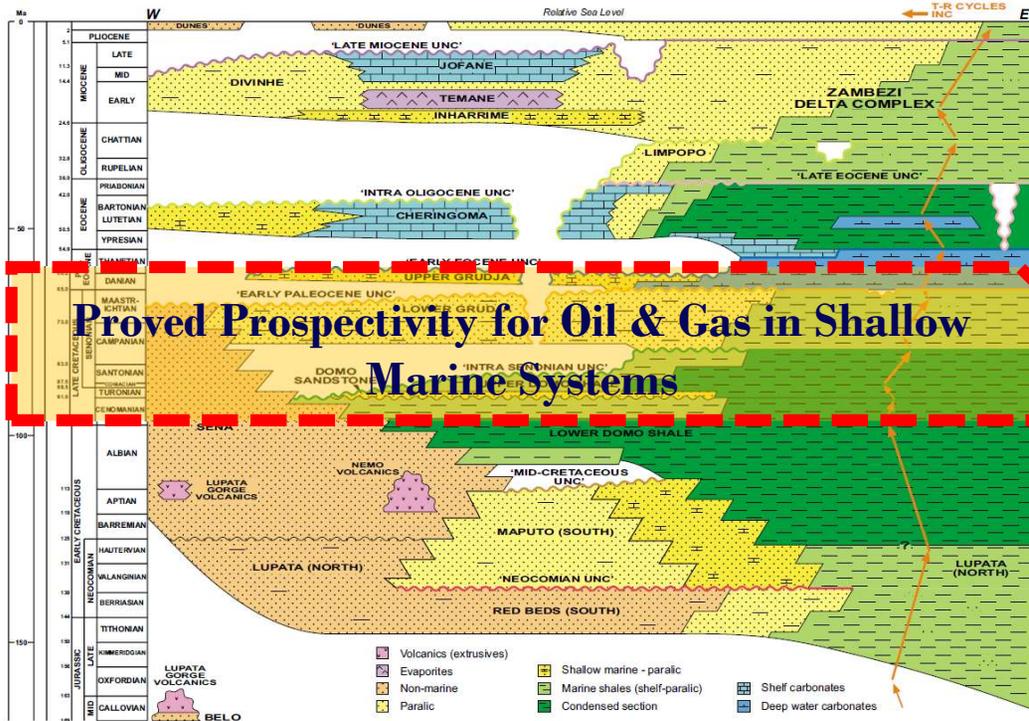
- Maniamba Basin (3)
- Lake Niassa Basin (4)
- Lower Zambeze Graben (5)
- Middle Zambeze Basin (6)



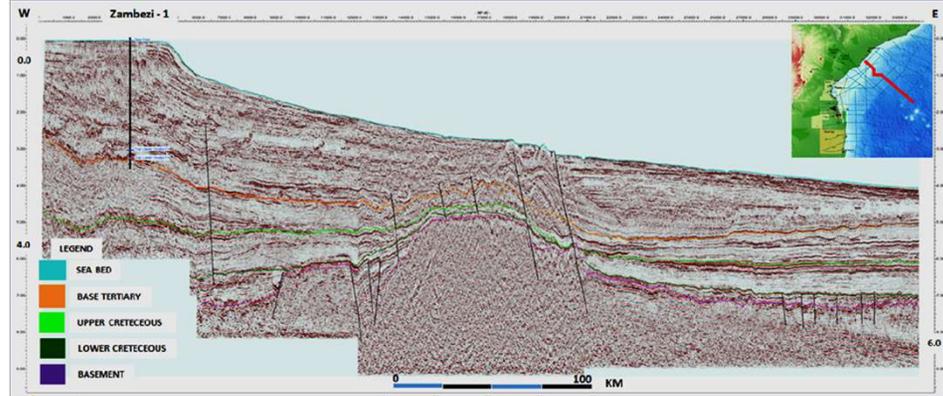
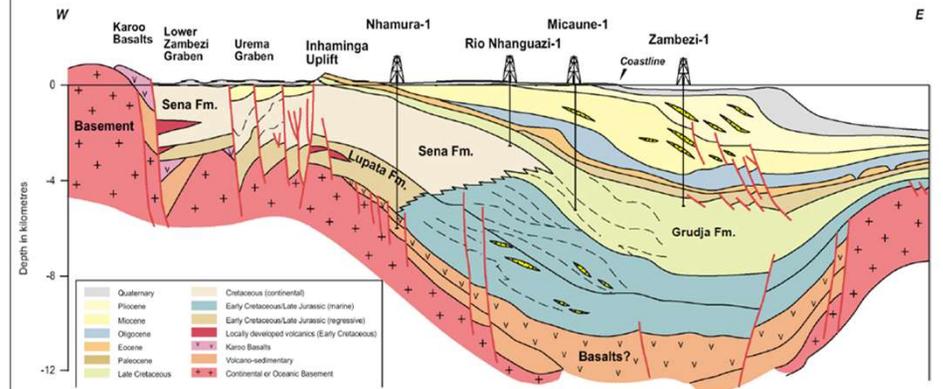
MOZAMBIQUE BASIN

Play Types & Cross Section Central Part

Stratigraphy

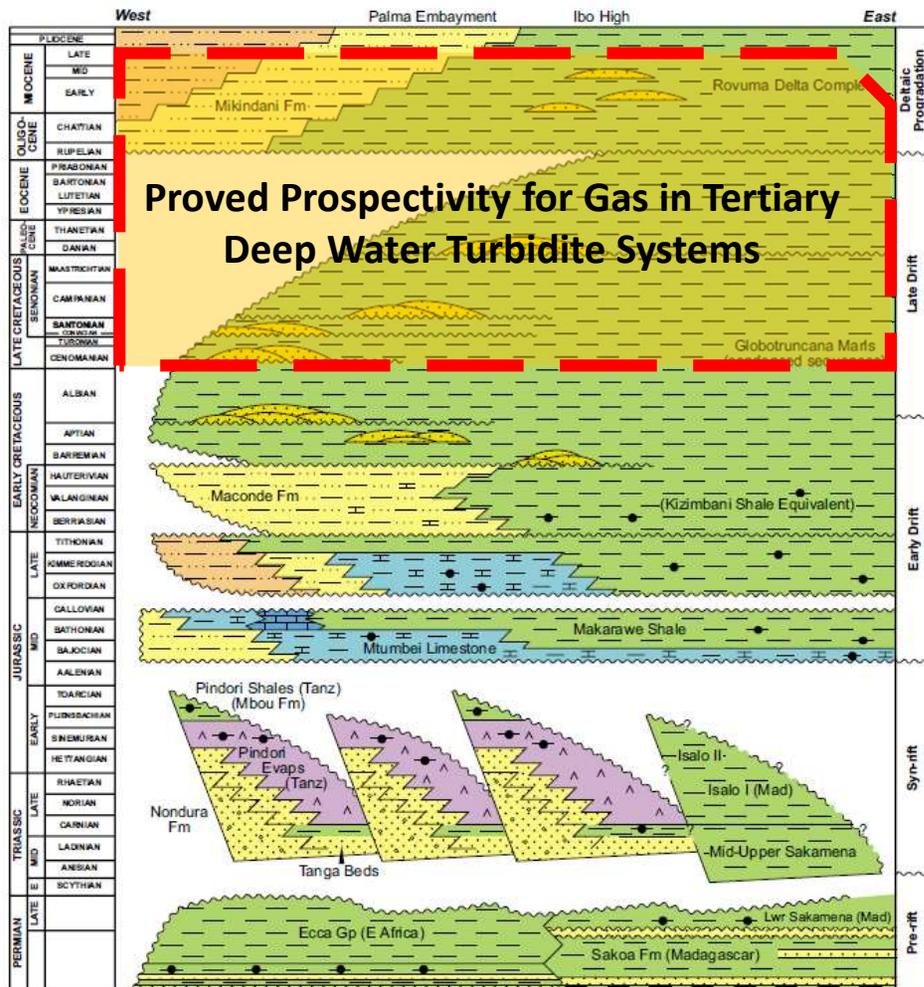


Schematic Cross-Section of the Zambezi Delta (Mozambique Basin)

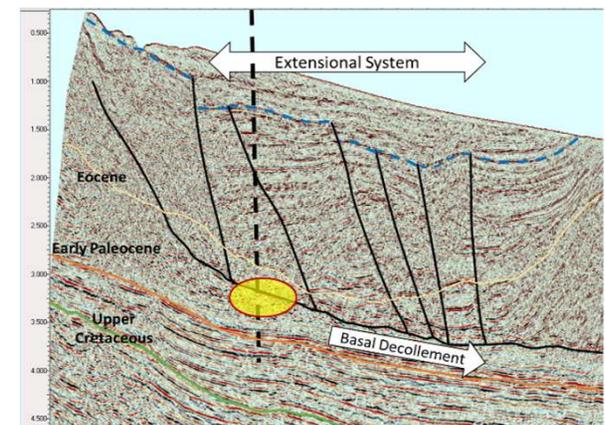
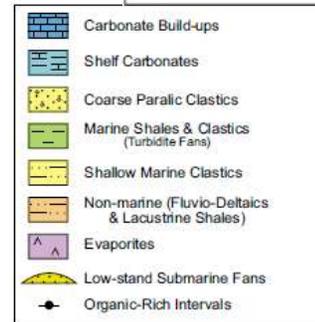
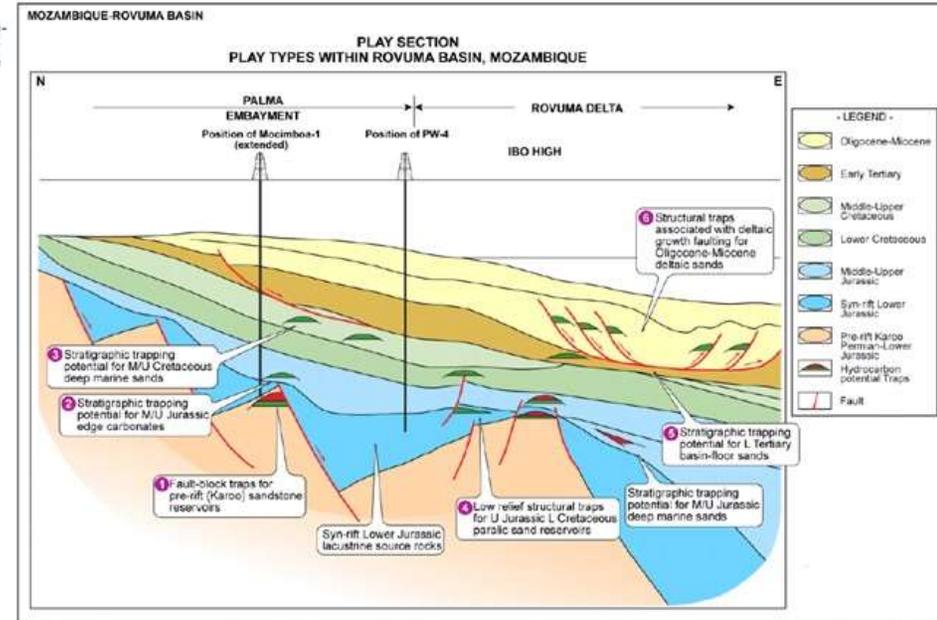


ROVUMA BASIN

Stratigraphy

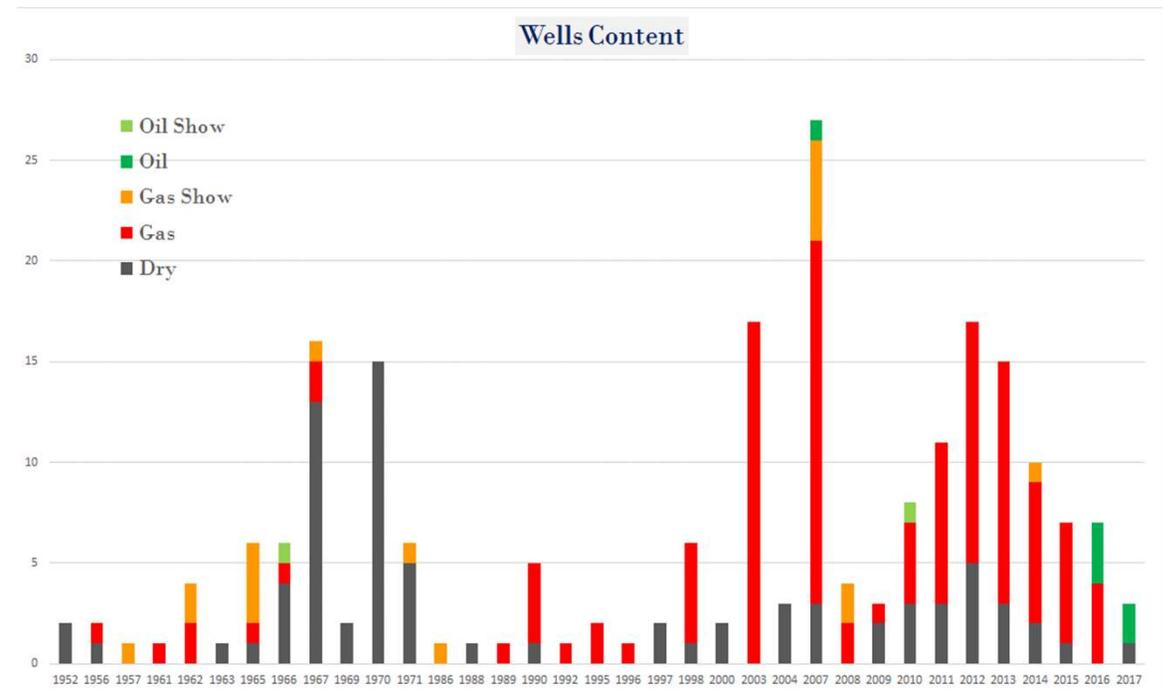
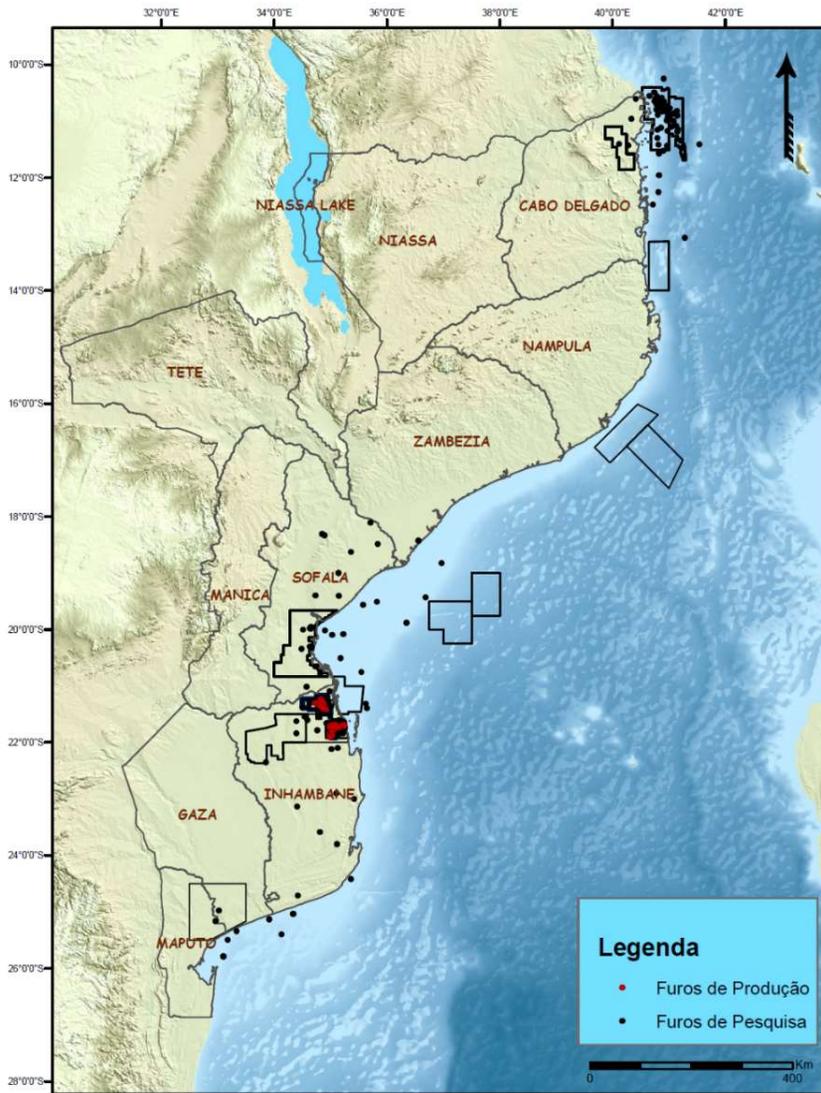


Play Types & Cross Section



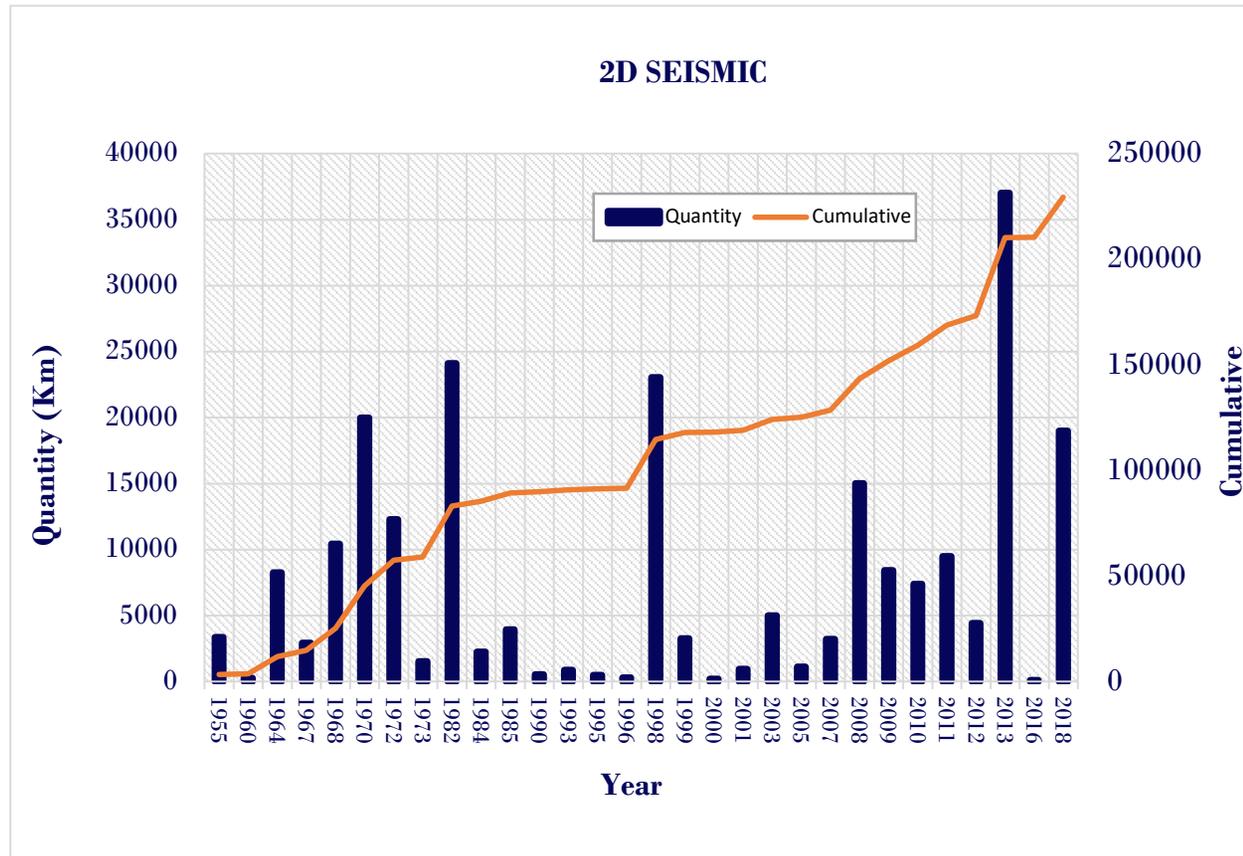
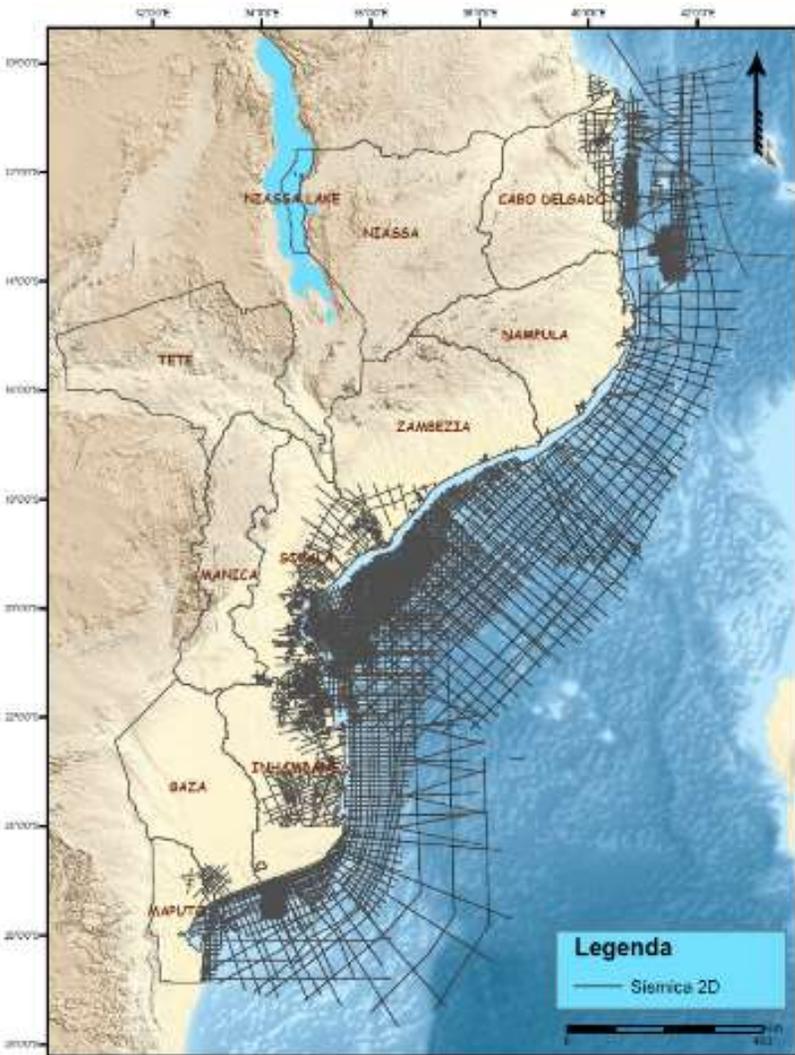
WELL DATABASE

- Wells: 217 wells
 - 109 Exploration
 - 44 Production (including injection)
 - 64 Appraisal



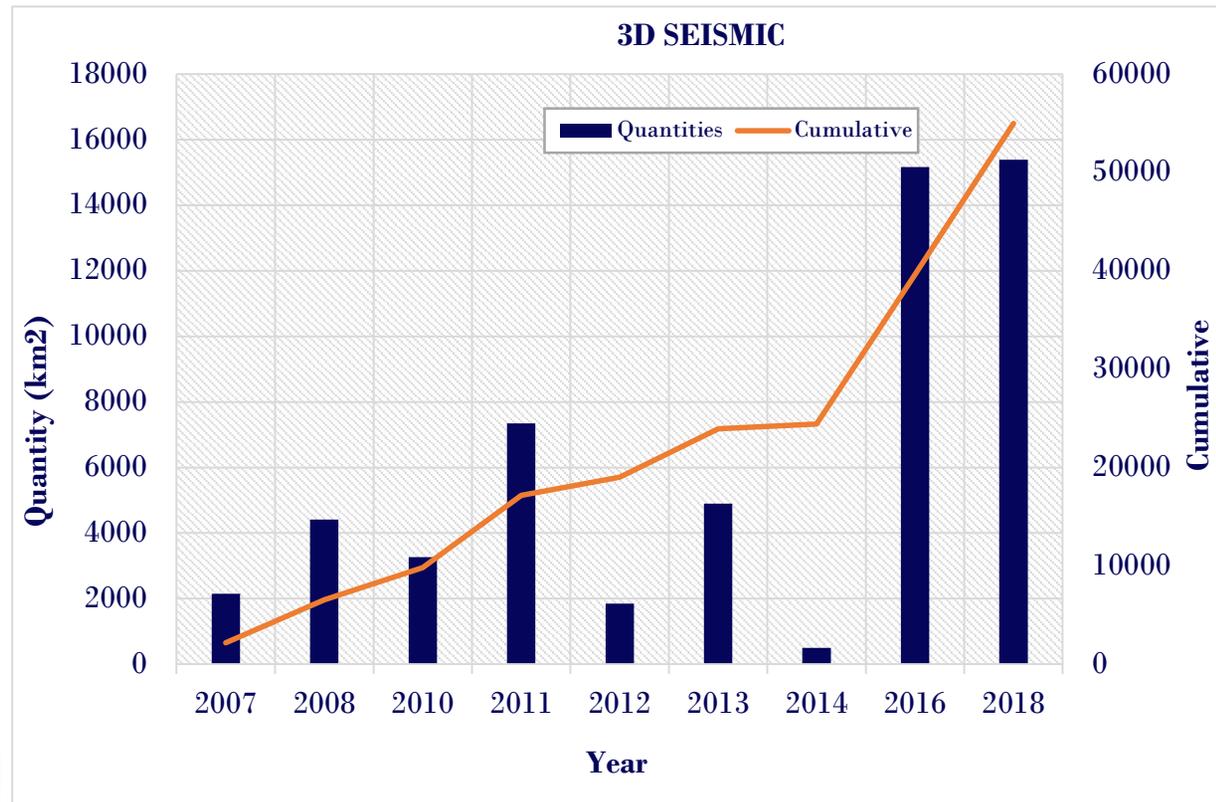
2D SEISMIC DATABASE

- 229,000 km of 2D seismic (Onshore & Offshore)



3D SEISMIC DATABASE

- 55.400 km² 3D acquired to date (onshore & offshore)



DISCOVERIES

Mozambique Basin

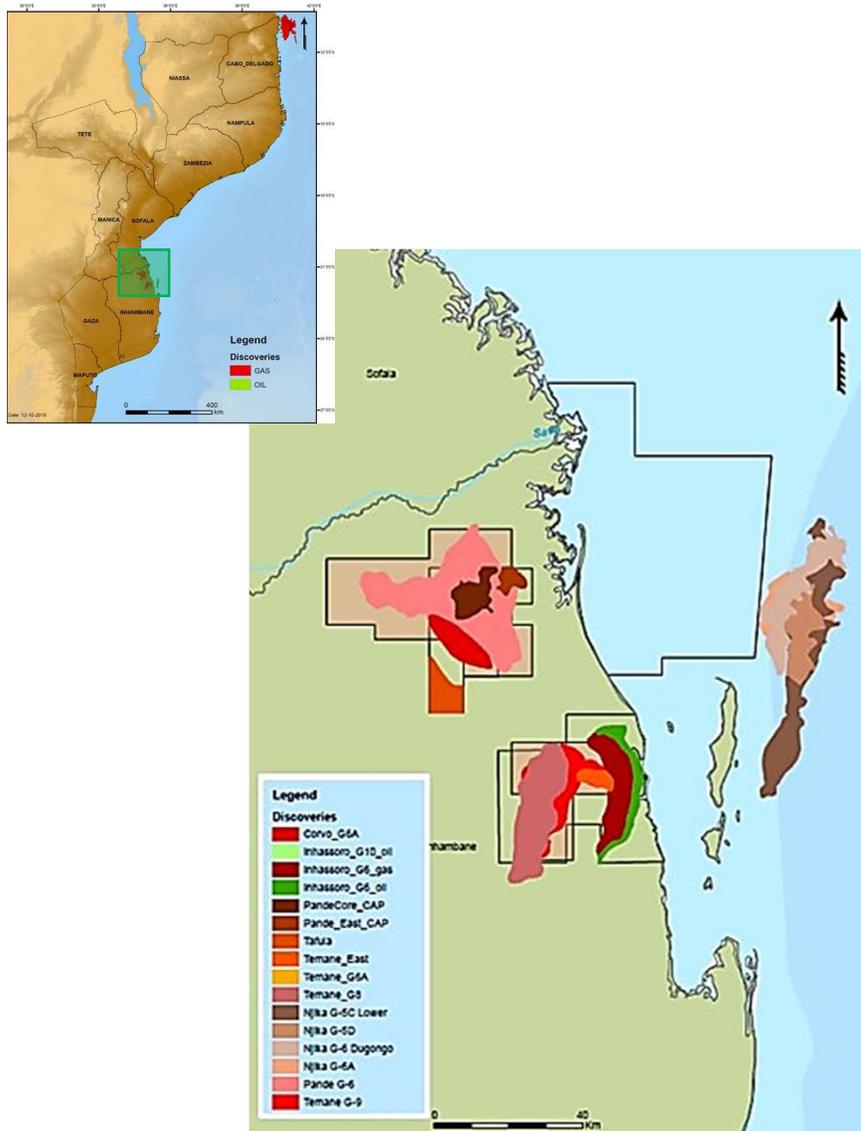
Source: Assumed Albian – Cenomanian shallow marine shale

Reservoirs: Upper Cretaceous - Sandstone of Lower Domo and Lower Grudja FMS, Paleocene and Oligocene fans and channels from Zambezi Delta Complex

Traps: Stratigraphic and structural

Seal: Transgressive Marine deposits (mudstone stratum) - Grudja FM.

Resource Estimate : Approximately 8 tcf of GIIP (6tcf Rec.) and 250 mmbbl of OIIP (35mmbbl Rec.)



DISCOVERIES

Rovuma Basin

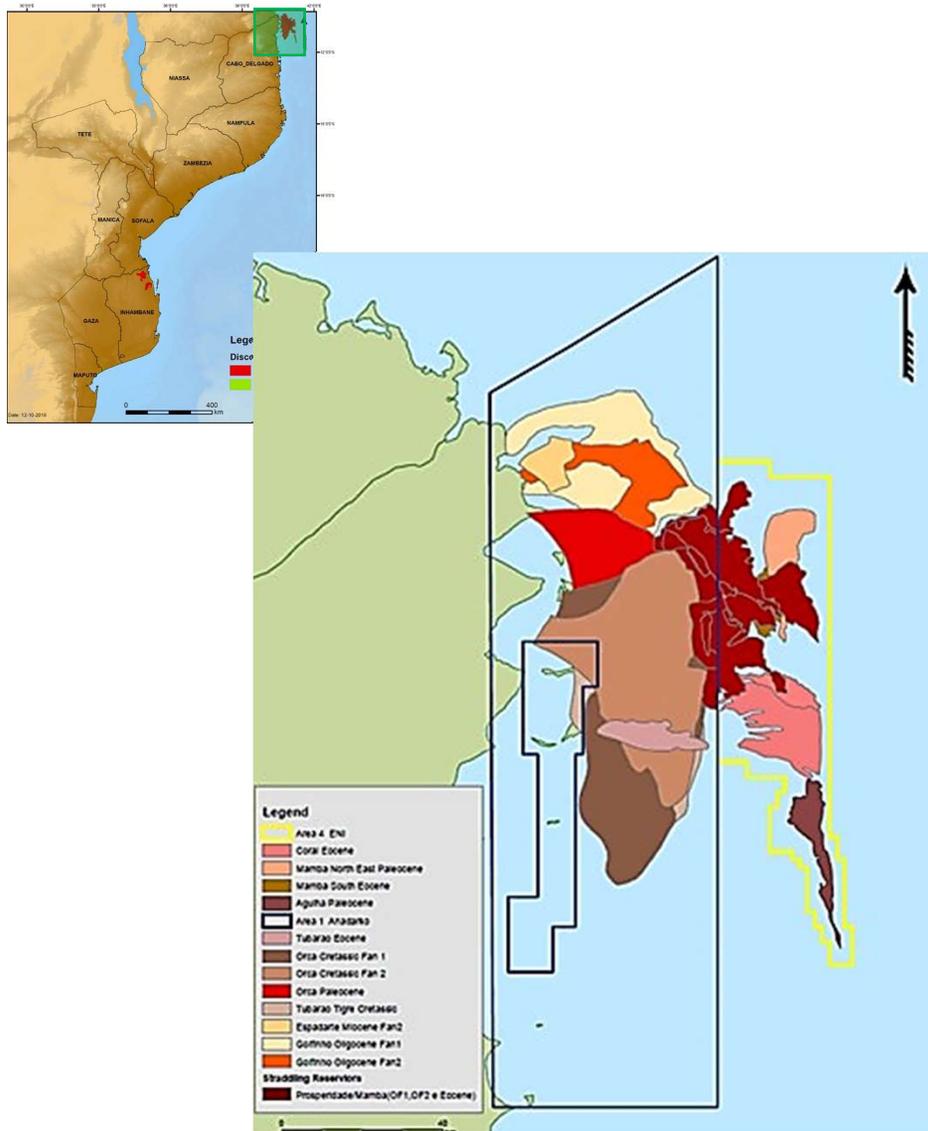
Source: Assumed Jurassic marine shale

Reservoirs: Tertiary – fans and channels reservoir sandstones and Cretaceous – Basin Floor Fan reservoir sands.

Traps: mainly Stratigraphic, but also Structural and combined.

Seal: Paleocene to Miocene Shale deposits.

Resource Estimate : Approximately 165 tcf of GIIP (115 tcf Rec.)



ONGOING PROJECTS

Temane – Secunda Pipeline



Pande/Temane Fields - Production started in 2004

Capacity

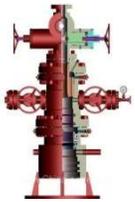
- CPF: 197 MGJ/a
- MSP: 212 MGJ/a @ 26”
- MGC: 22 MGJ/a @ 8”

Application of Natural Gas:

- Power generation
- Fuel to industries (Mozal, Cement plant, etc)
- Fuels to vehicles (CNG - Compressed natural gas)
- Commercial and domestic use - Gas distribution Project

ONGOING PROJECTS - DAILY PRODUCTION QUANTITIES

Wells



Temane

8

Pande

10



Gas Produced
15.000.000,0 Nm³

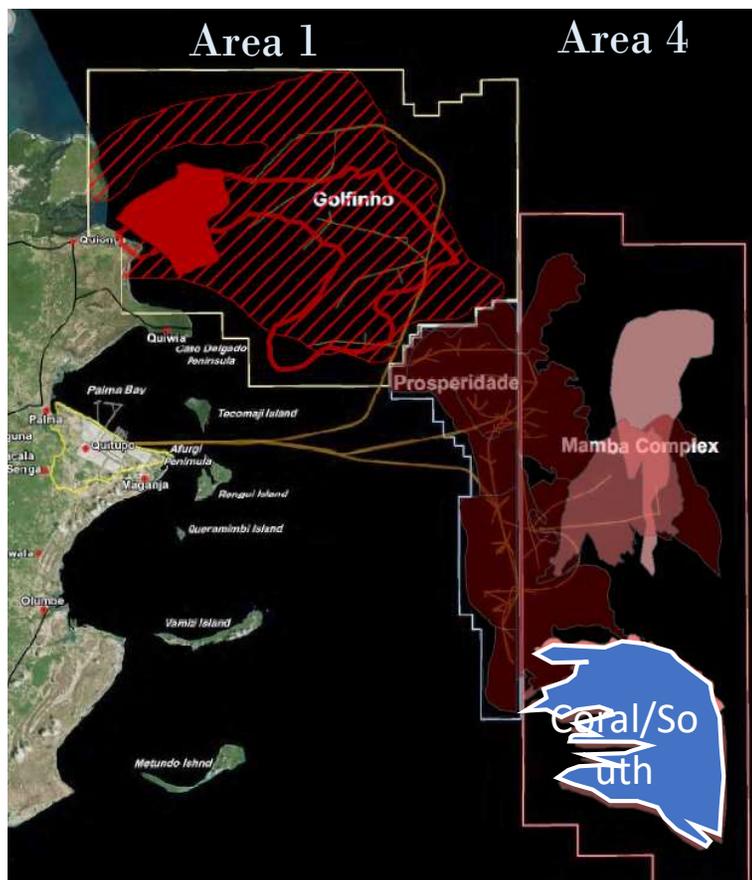
Condensate Produced 150,00 m³/d

Produced Water
35 m³/d

Gas Composition	mol (%)
Methane	94,00
Nitrogen	2,14
carbon dioxide	0,00
Total Sulphur	0,00

ONGOING PROJECTS

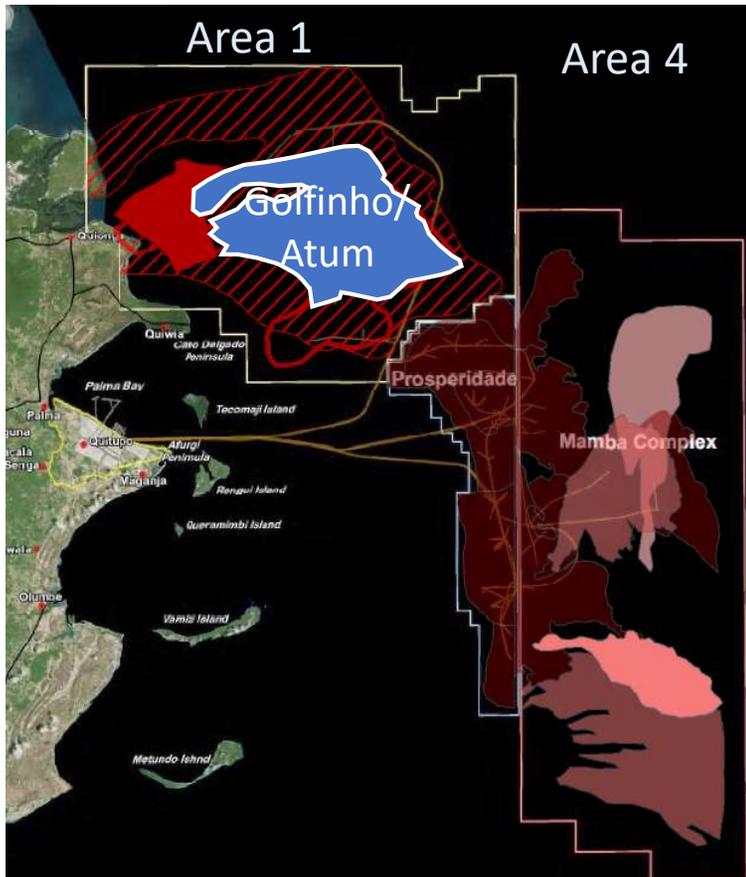
Coral South – Area 4 (FLNG)



- GIIP of 15.67 TCF
- FLNG, 1 Train with 3,4 MTPA capacity
- 6 Production Wells
- PoD approved February 2016
- FID reached in June 17 and EPCIC adjudicated
- SPA finalized with BP Poseidon Limited
- Expected first production in 2Q 2022
- Construction of FLNG started in March 2018

ONGOING PROJECTS

Golfinho / Atum Field – Area 1 : LNG



- 31.3 TCF GIIP
- 20 Production wells
- PoD approved in February 2018
- 2 Trains each with 6 MTPA capacity (2023)
- FEED contract adjudicated: Chyoda/CB&I/Saipem
- Ongoing negotiations and approvals for LNG SPA:
 - Approved 8: EDF; Tohoku; Shell; Bahrat; Pertamina; Tokyo Gas; CNOOC/Centrica; Jera

Muito Obrigada pela Atenção

Thank you Very Much for your Attention



“Regulating the Sustainable Exploration of Petroleum Resources”

