
Mozambique



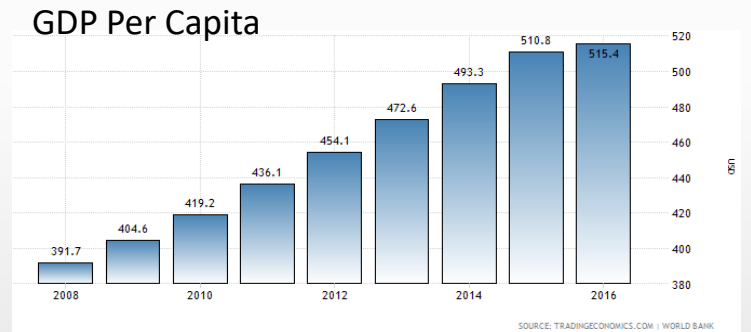
Overview of the Petroleum Sector in Mozambique

**AAPG PROSPECT AND PROPERTY EXPO
London - 2019**



Mozambique Location & Economic Outlook

- **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 sands, prawn, cashew-nut, sugar, tea, coconut oil and cotton



Legal Framework

- Law 21/2014 – Petroleum Law
- Decree 34/2015 – Regulation of Petroleum Operations
- Strategy for Concession of Areas for Exploration and Production
- Resolution 25/2016 of 6th October – 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, June/2014
- Law 25/2014 – Legislative authorization for the Natural Gas liquefaction Projects in Areas 1 and 4 in the Rovuma Basin
- Decree 56/2017 – Supplementary Agreement to the EPCC of Area 4 in the Rovuma Basin

Mozambique Fiscal Regime

Production Tax (royalty)

- Oil : 10%
- Gas: 6%

Profit sharing

- 15% - 60% assumed on a sliding scale linked to R Factor.

Back in rights

- Government can participate in all projects undertaken

Recovery provisions

- Ranges from 60 – 70%

Income Tax

- 32% of contractor's gross revenue

SEDIMENTARY BASINS

Explored basins

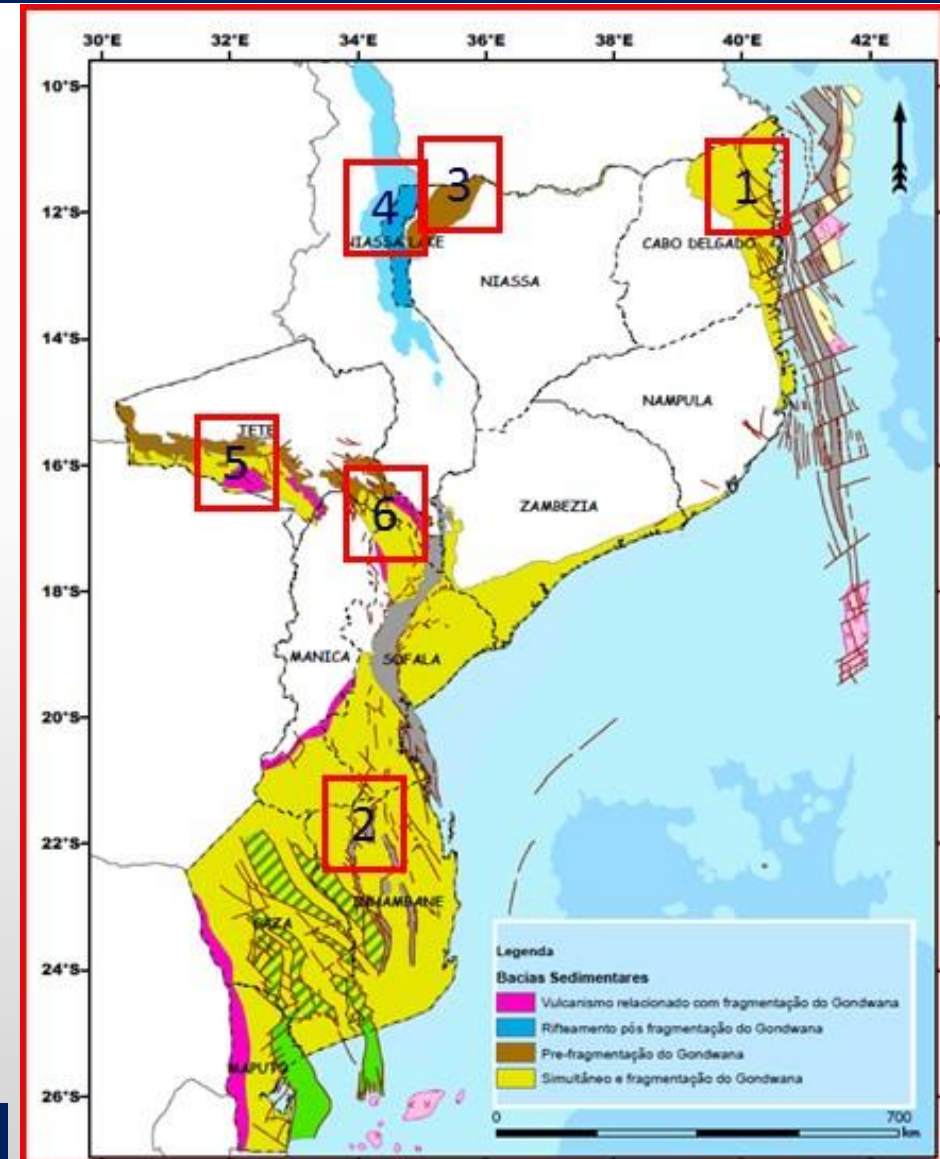
Passive Continental Margin basins:

- 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)



Exploration History

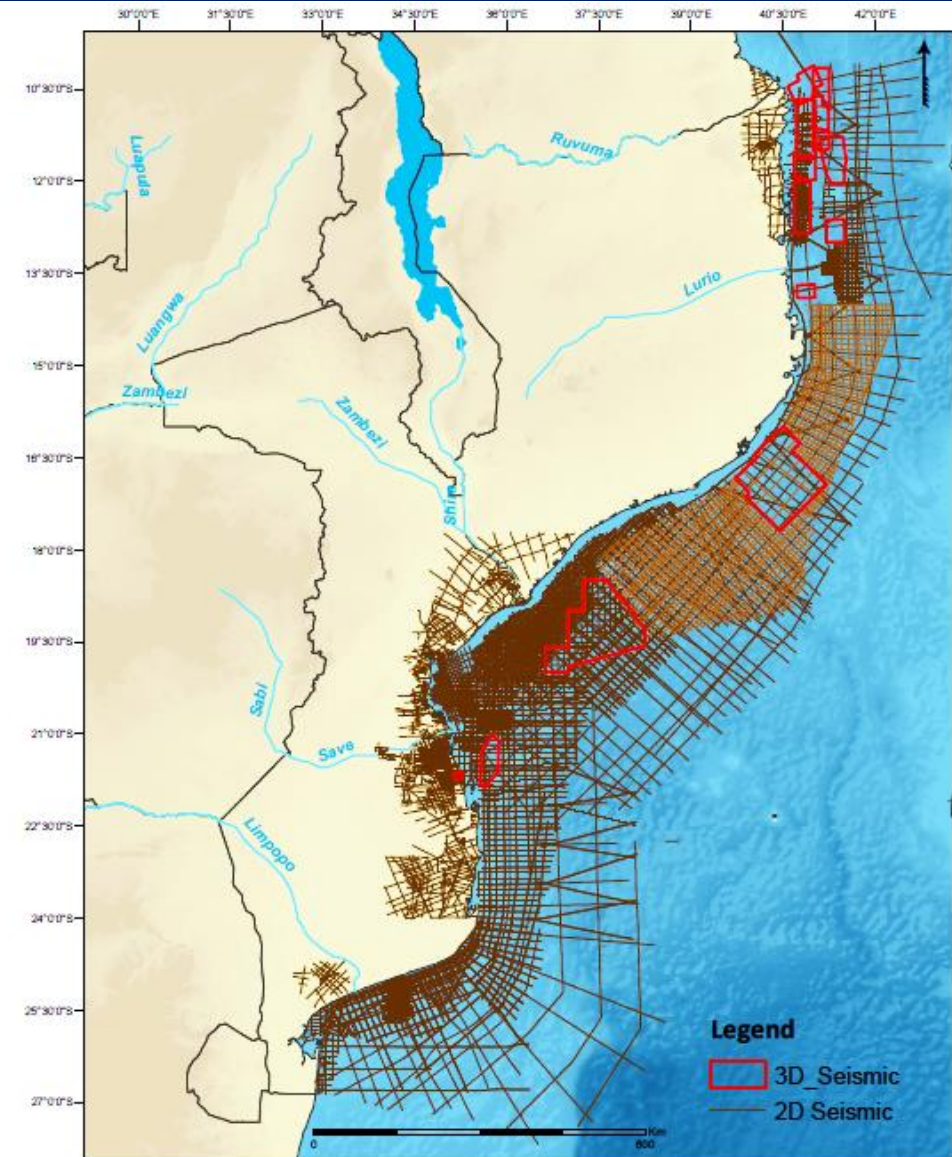
Seismic Data

Seismic:

- 70,526 km² of exclusive 3D seismic
- 248,000 km of 2D seismic

Other Data & Availability:

- Well Data
- Grav-Mag Data
- 2D & 3D seismic
- Access through Data Room & Multiclient Contract Agreement (CGG, WesternGeco, Spectrum)

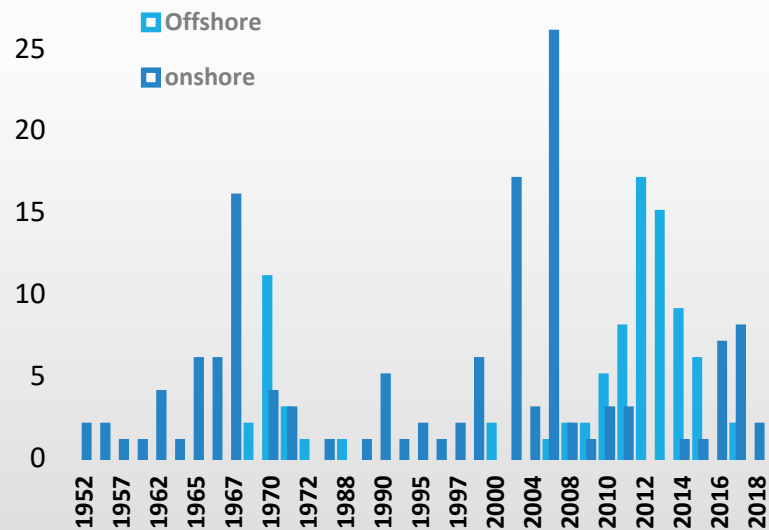


Well Data

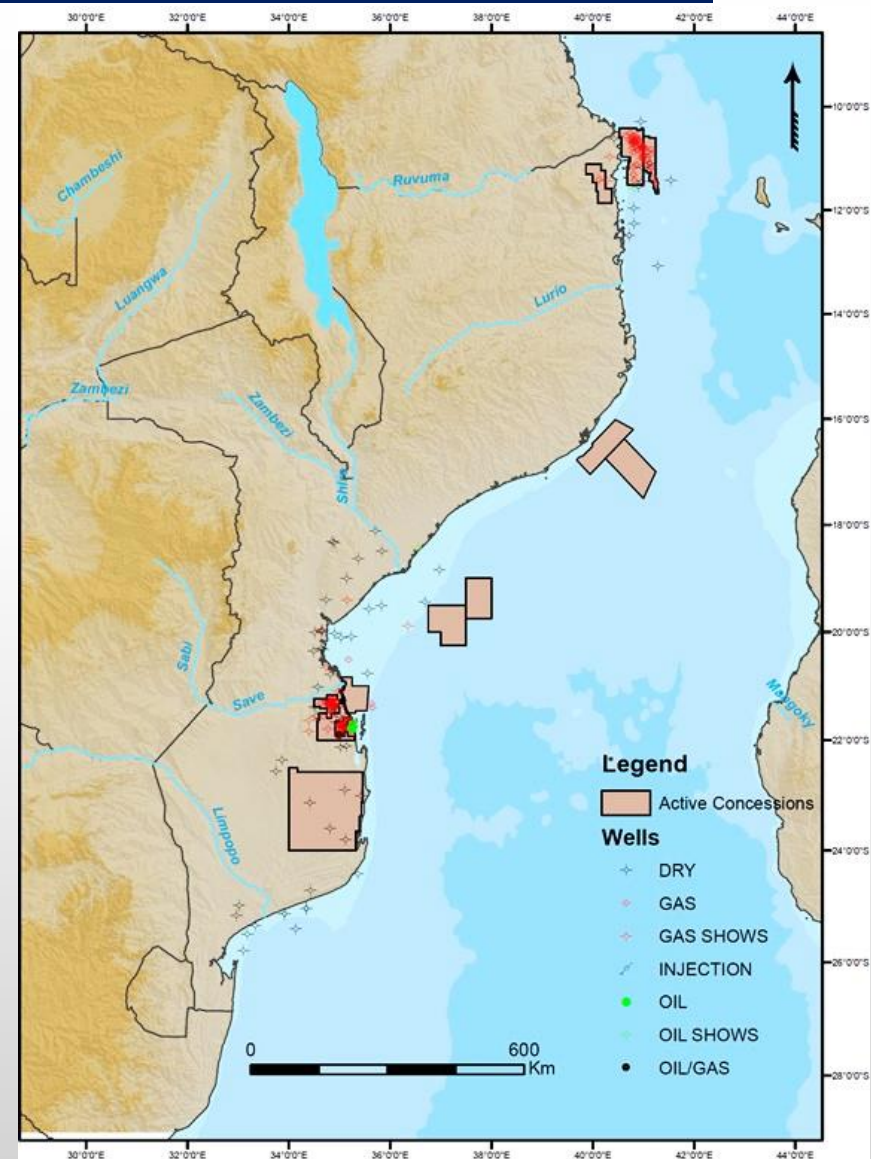
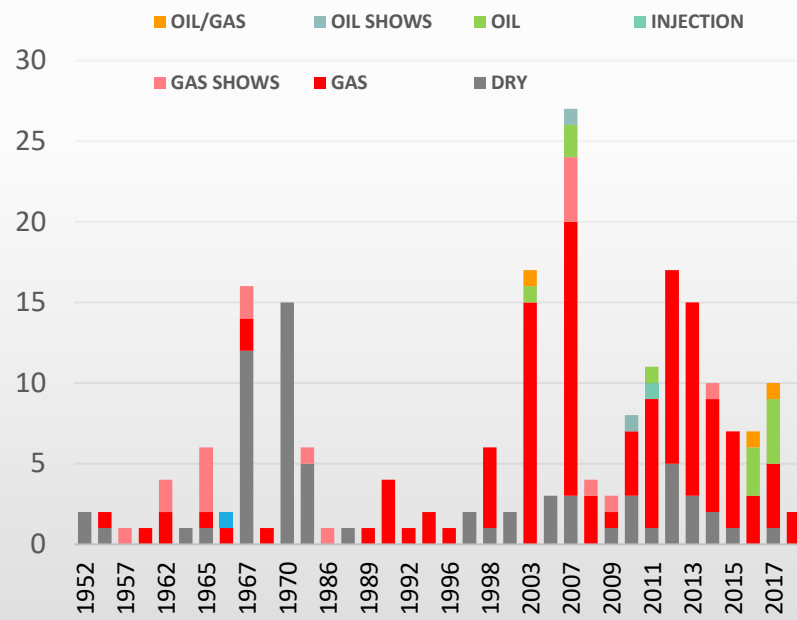
A total of 223 wells drilled since the 50's to date

- 141 Onshore
- 82 Offshore

OFFSHORE VS ONSHORE WELLS



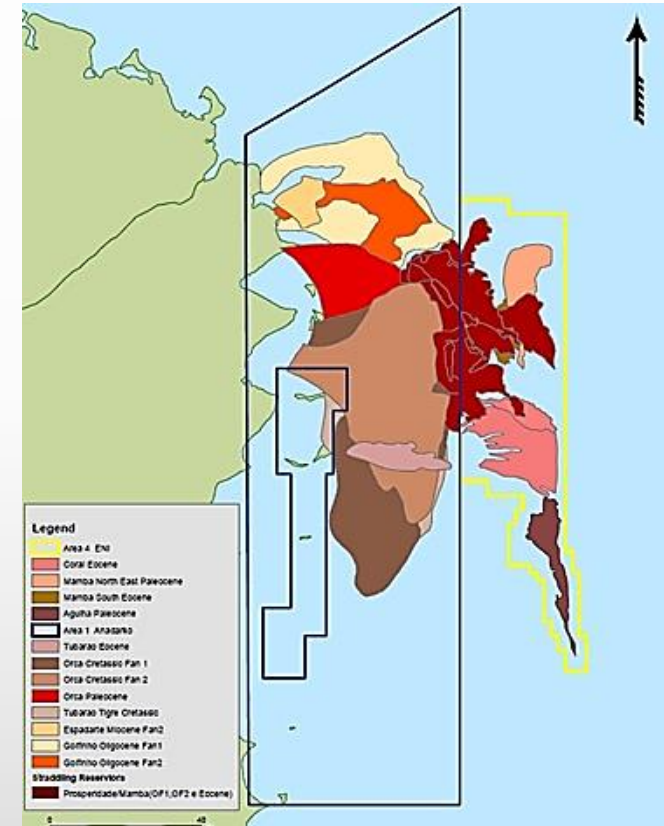
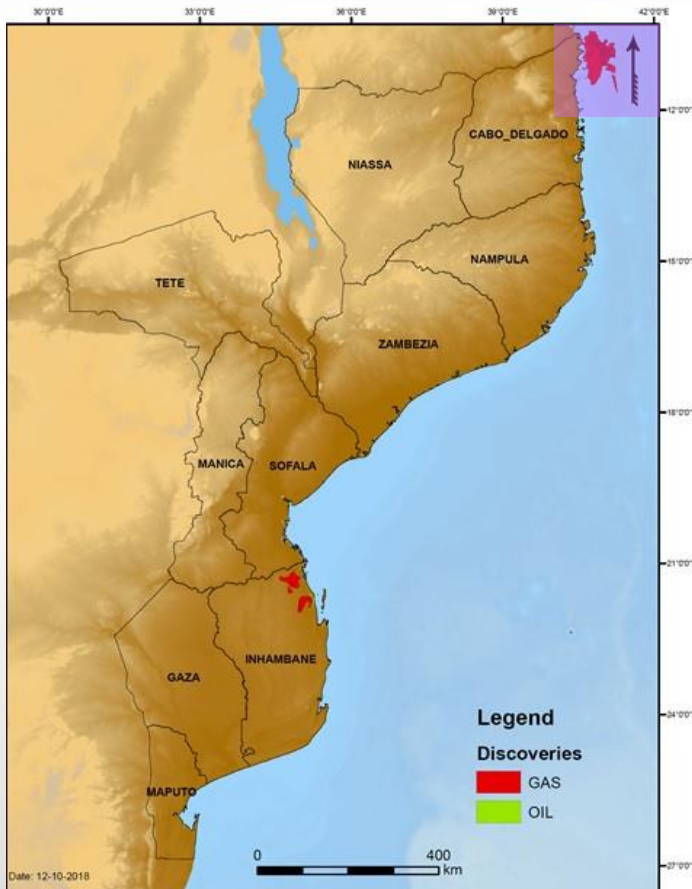
WELL CONTENT



Mozambique Discoveries

Rovuma Basin

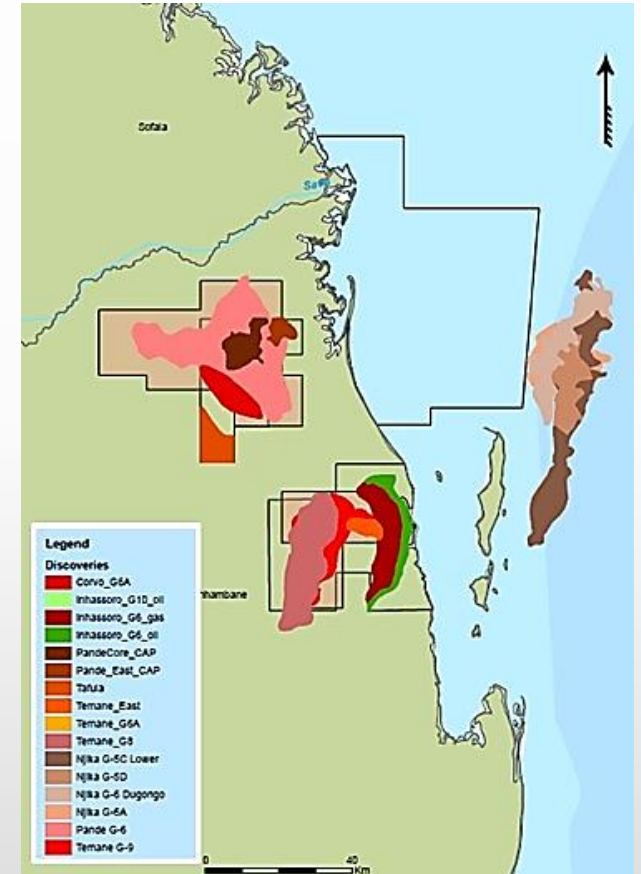
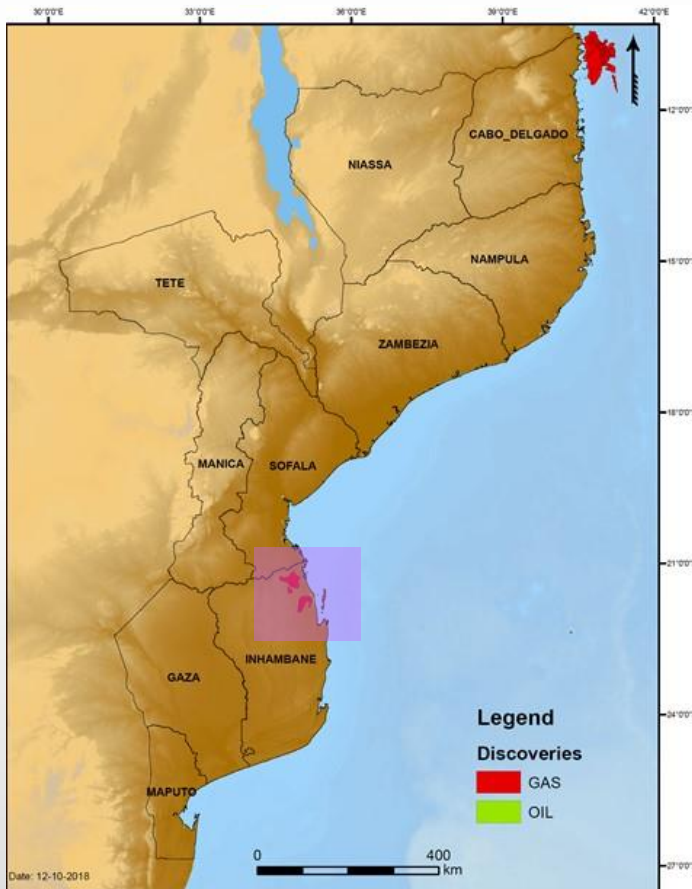
- **Source:** Assumed Jurassic marine shale
- **Reservoirs:** Tertiary – fans and channels reservoir sandstones and Cretaceous – Basin Floor Fan reservoir sands.
- **Traps:** mainly Stratigraphic, but also Structural and combined.
- **Seal:** Paleocene to Miocene Shale deposits.
- **Resource Estimate :** Approximately 165 tcf of GIIP (115 tcf Rec.)



Mozambique Discoveries

Mozambique Basin

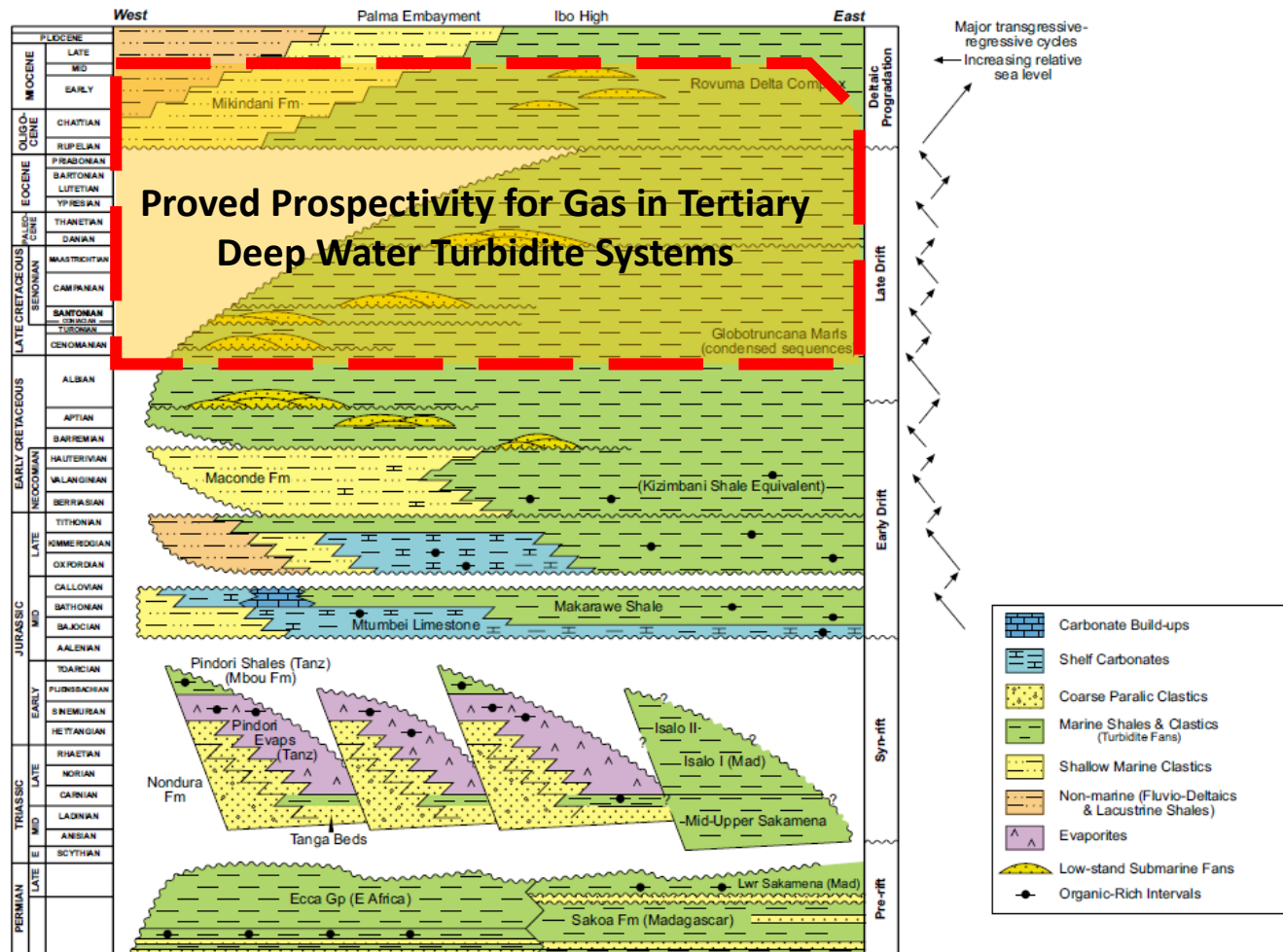
- **Source:** Assumed Albian – Cenomanian shallow marine shale
- **Reservoirs:** Upper Cretaceous - Sandstone of Lower Domo and Lower Grudja FMS, Paleocene and Oligocene fans and channels from Zambezi Delta complex
- **Traps:** Stratigraphic and structural
- **Seal:** Transgressive Marine deposits (mudstone stratum)- Grudja FM.
- **Resource Estimate :** Approximately 8 tcf of GIIP (6tcf Rec.) and 250 mmbbl of OIIP (35mmbbl Rec.)



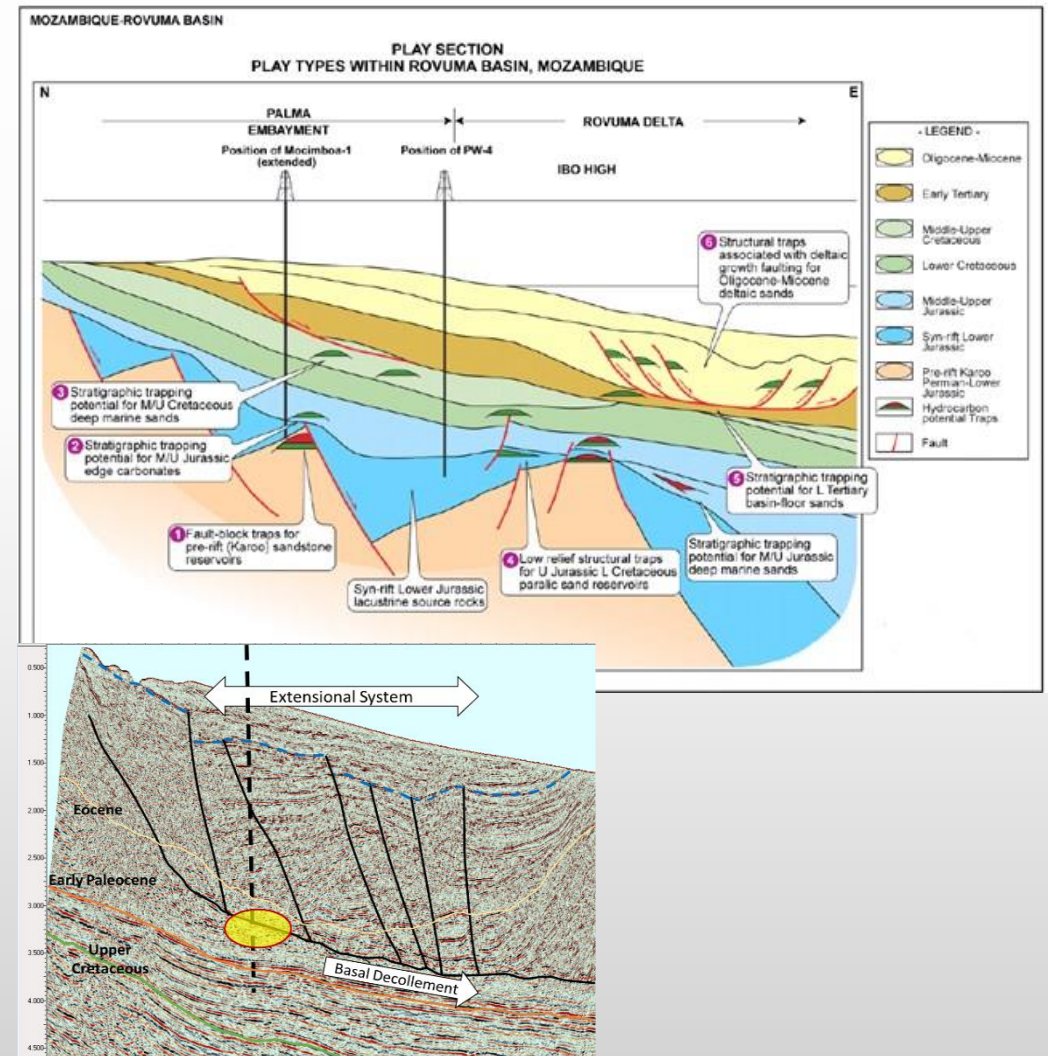
Petroleum Geology

Rovuma Basin

Stratigraphy

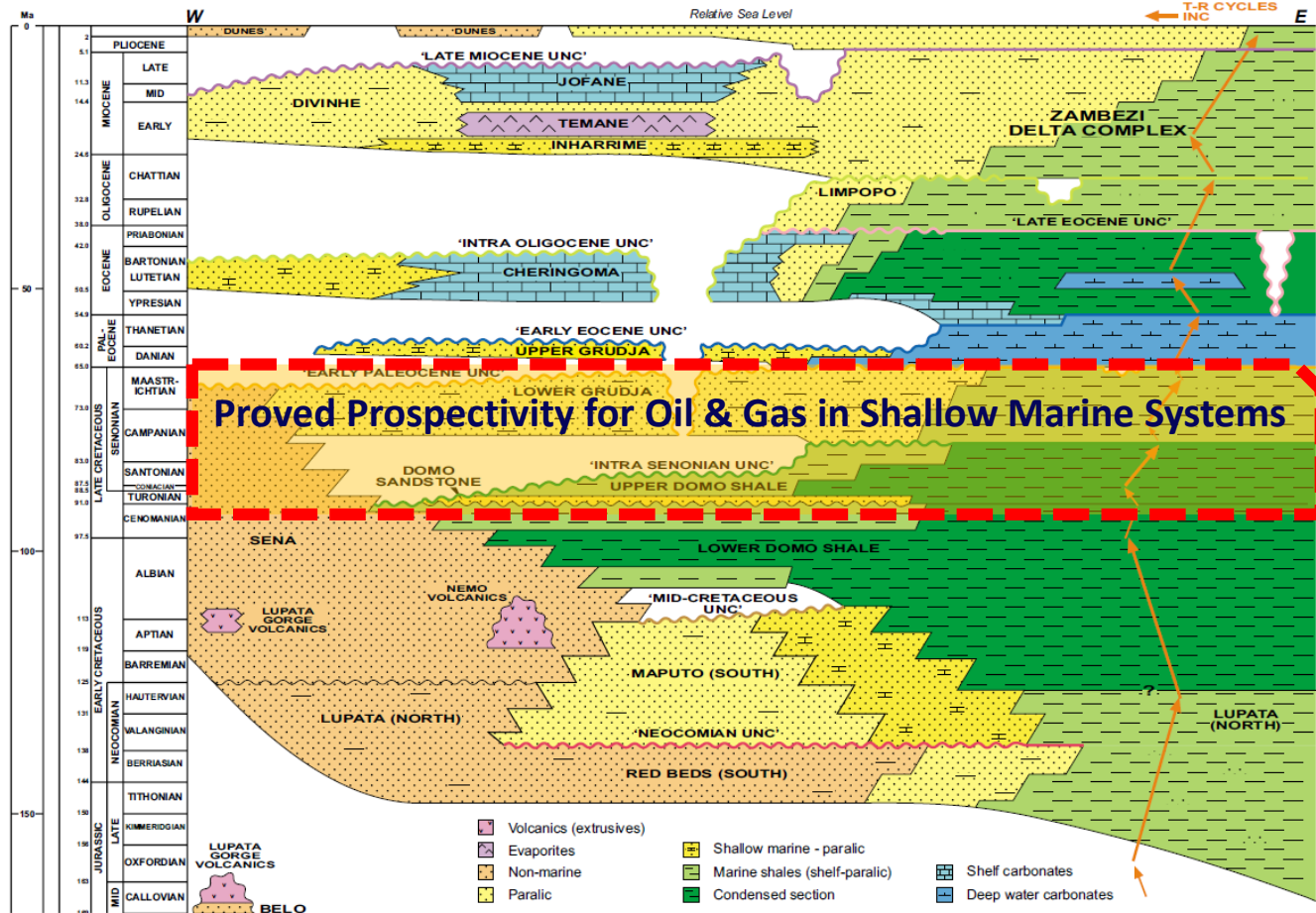


Play Types & Cross Section

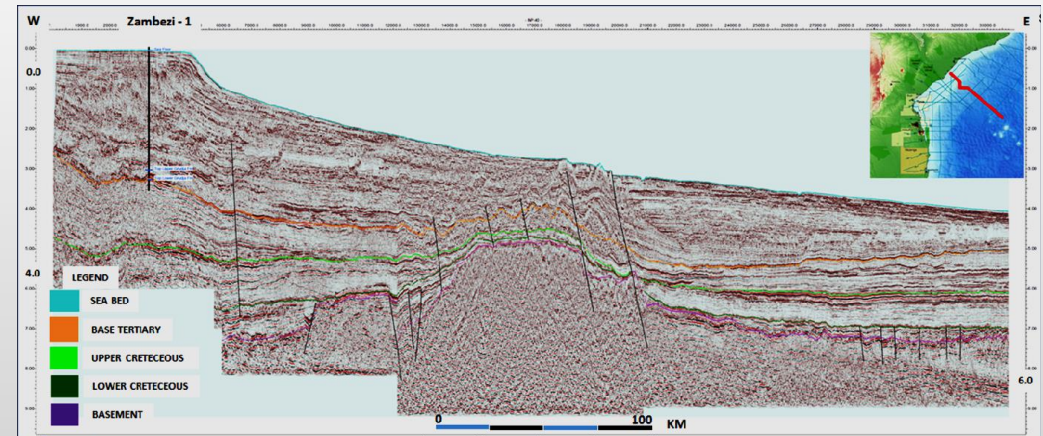
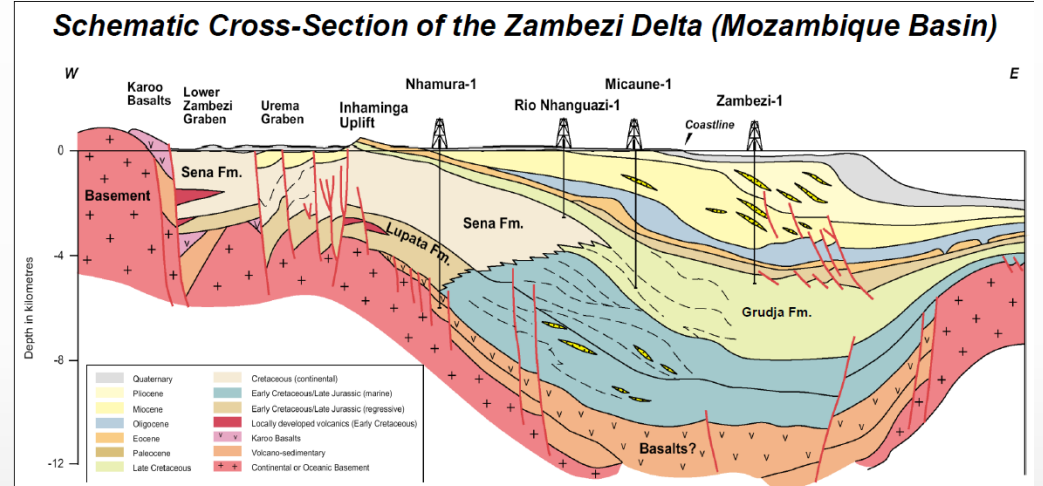


Mozambique Basin

Stratigraphy

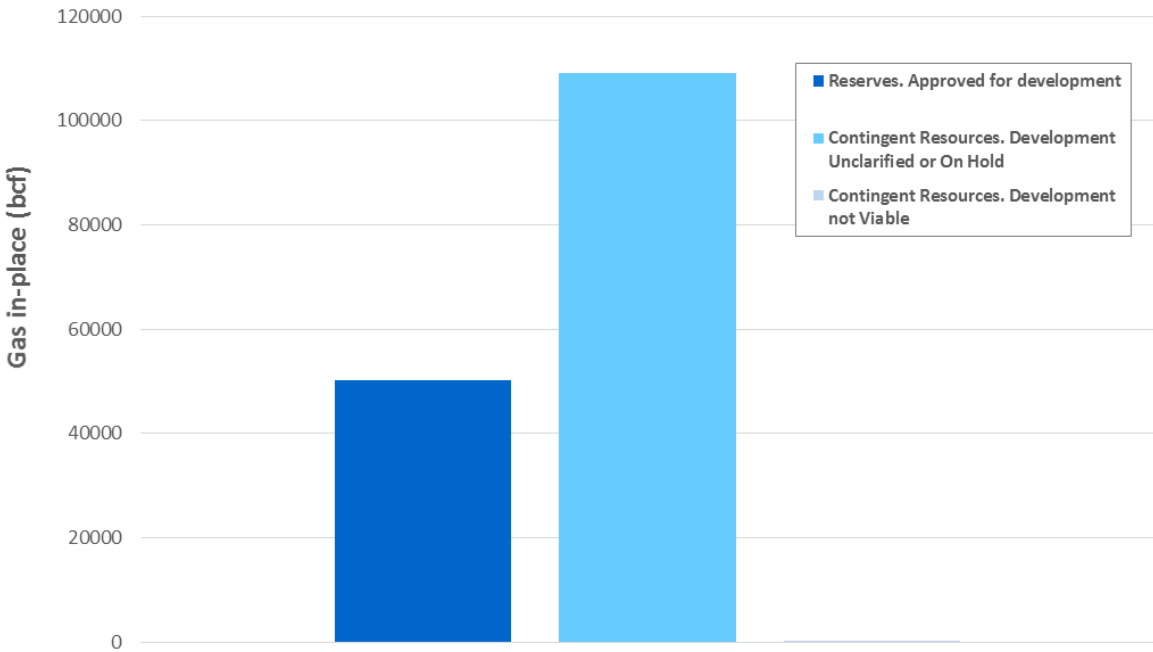


Play Types & Cross Section Central Part

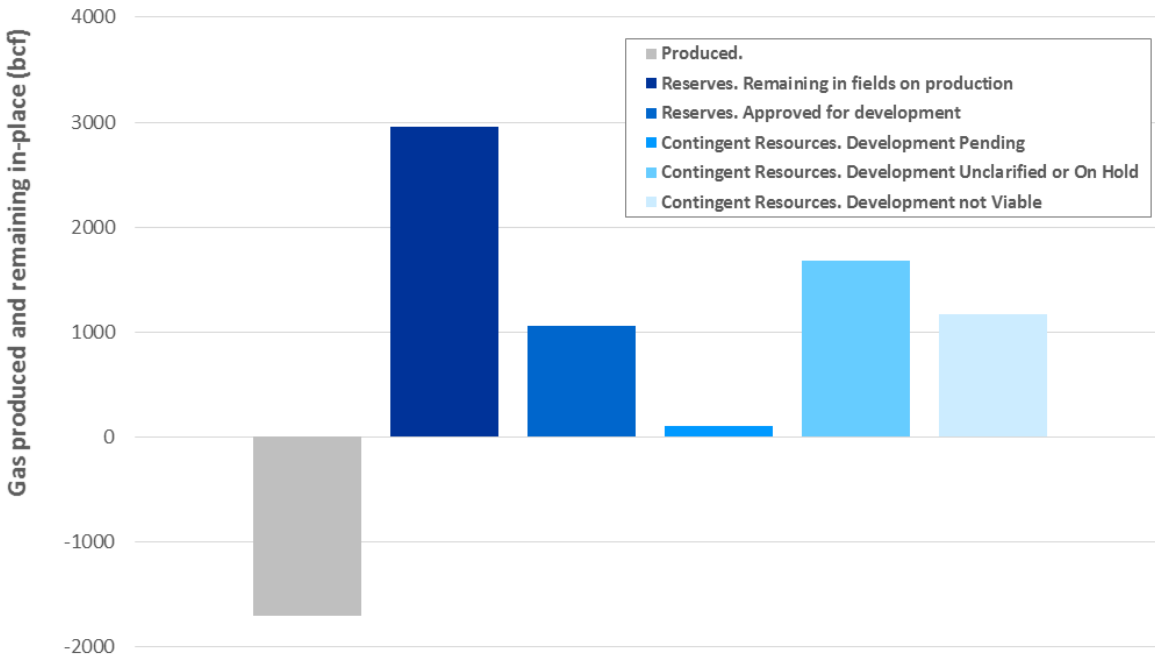


Mozambique Hydrocarbon Resources

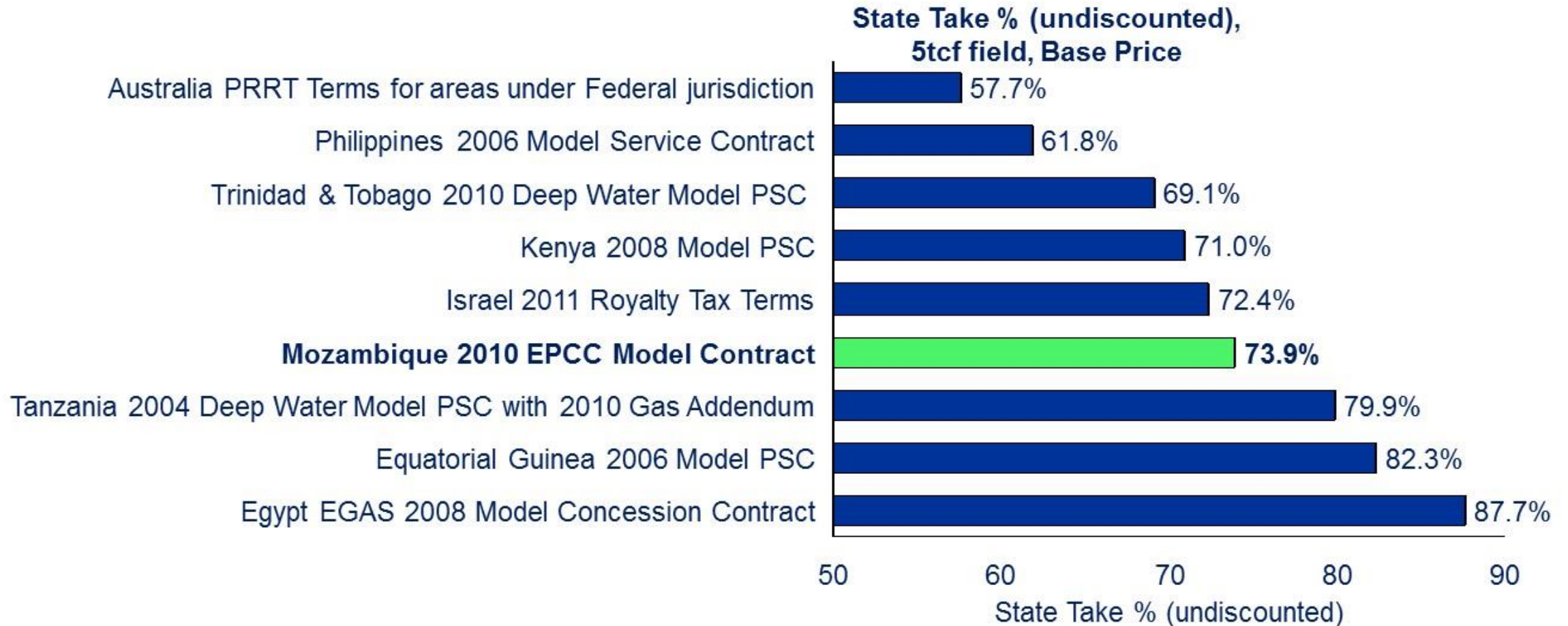
Rovuma Basin, gas-in-place for each resource class



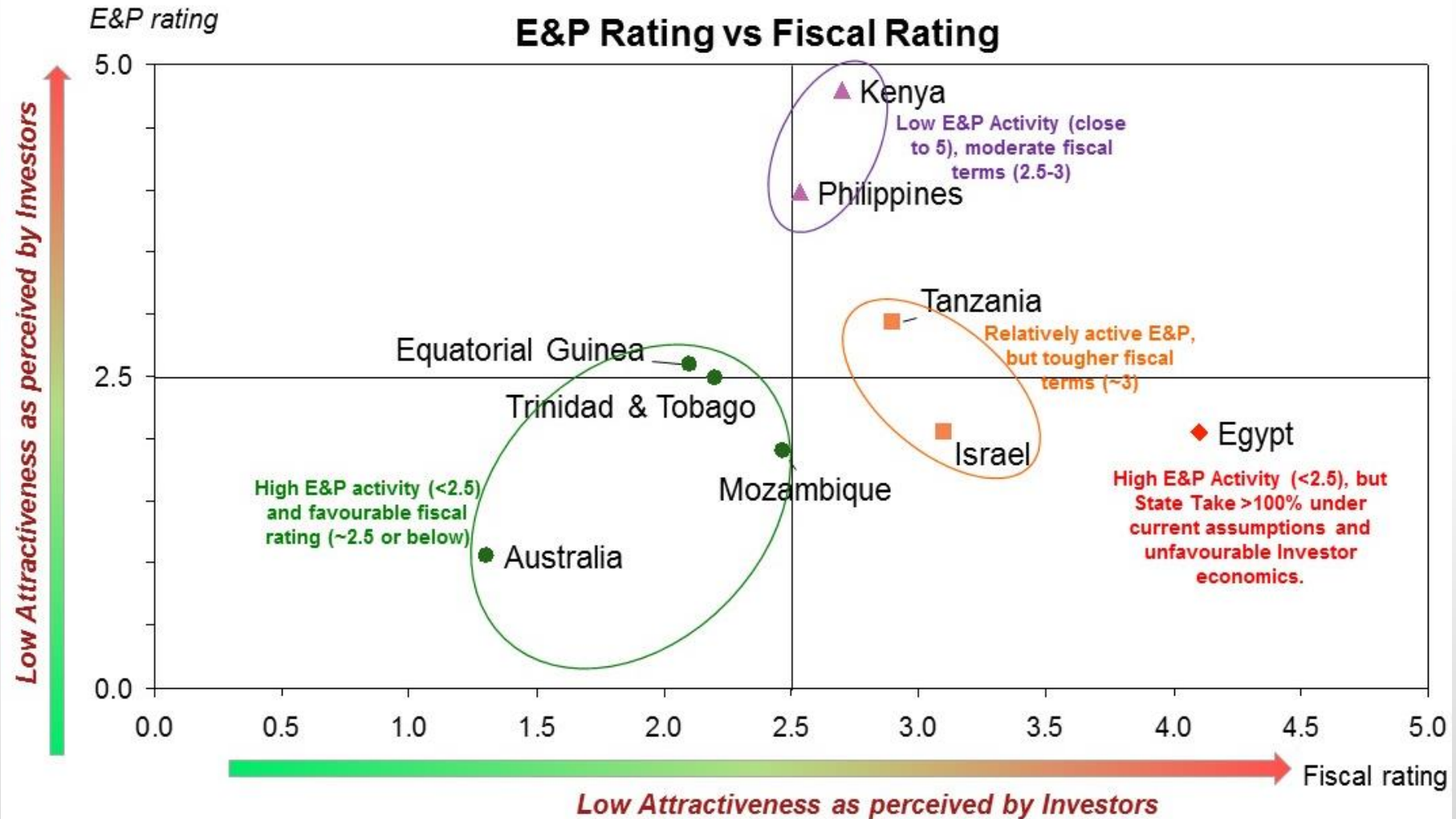
Mozambique Basin, gas produced and remaining in-place for each resource class



State Take as a Percentage of Undiscounted Total Net Project Cash Flows

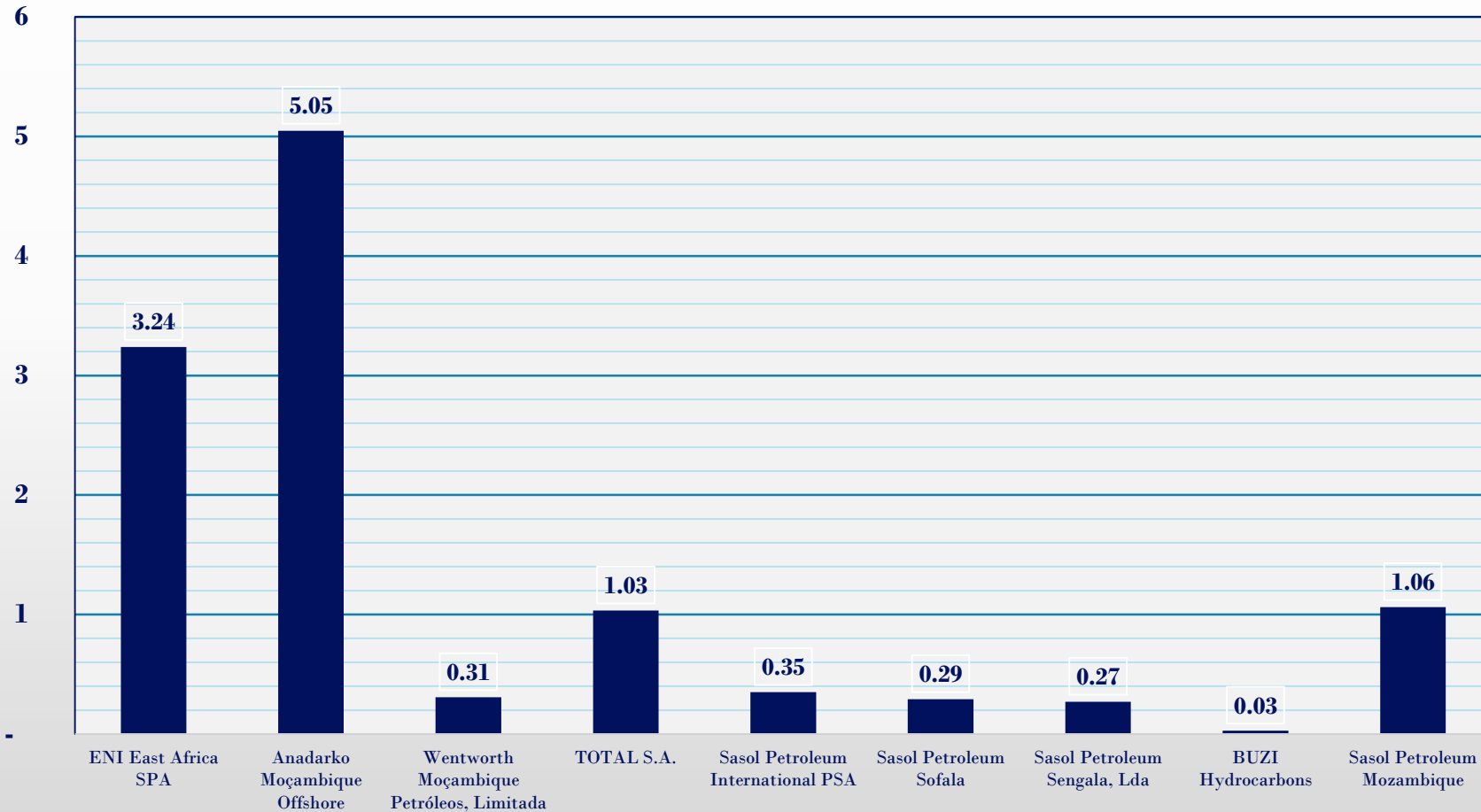


E&P Activity vs Fiscal Rating

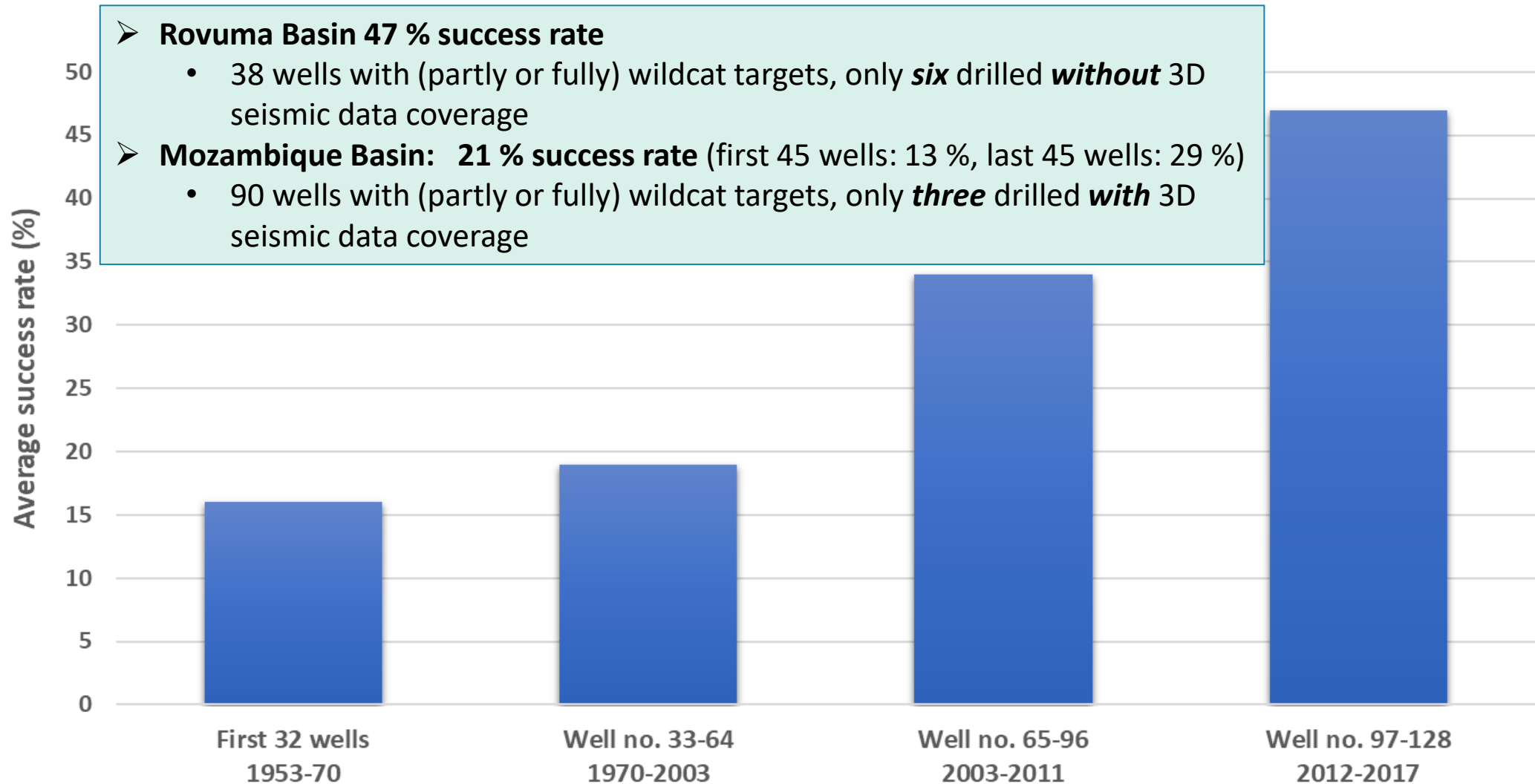


Investments in Oil & Gas Sector

Total Investments (bi USD) (2004-2017)



Success Rates through time (1953-2017)



New Concessions Areas - 2018

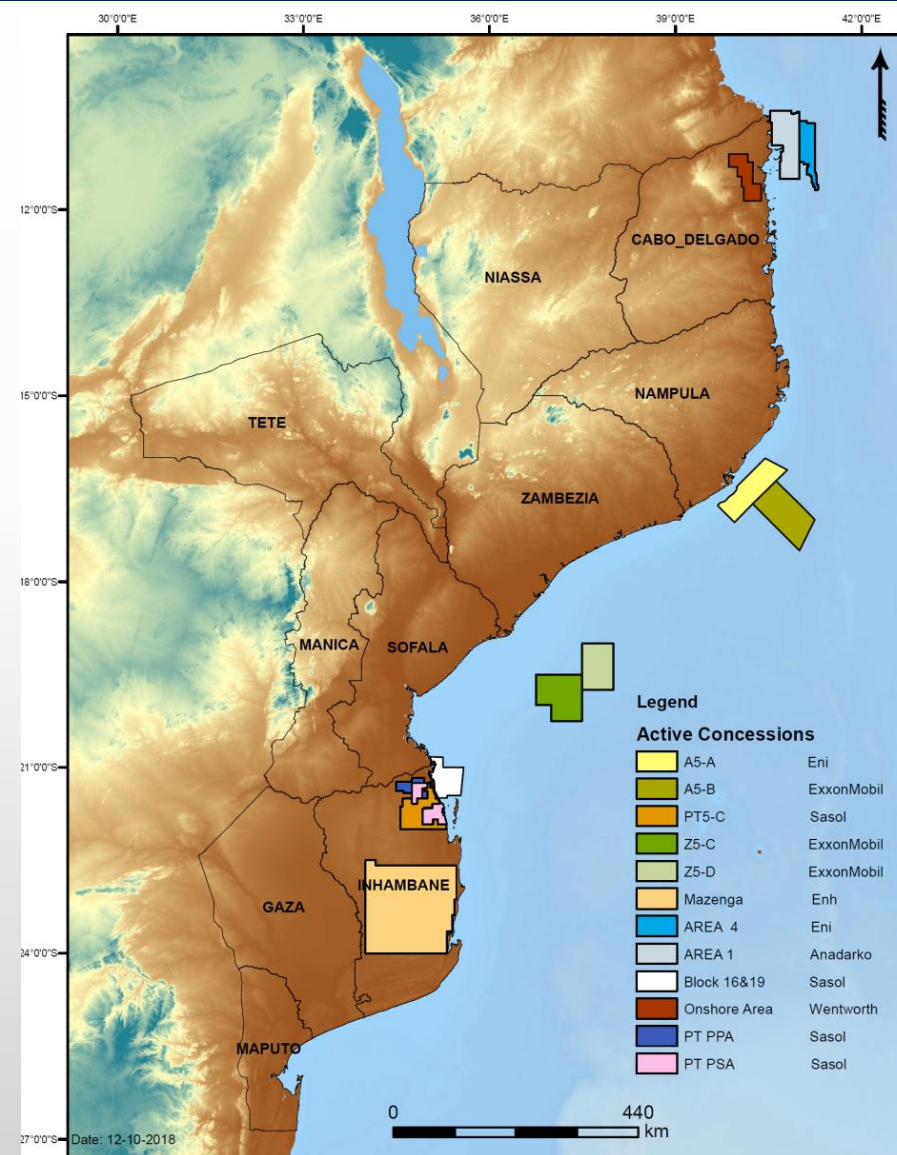
- Angoche Area A5-A
- Angoche Area A5-B
- Zambezi Area Z5-C
- Zambezi Area Z5-D
- Pande/Temane Area PT5-C
- Mazenga



ExxonMobil

ExxonMobil

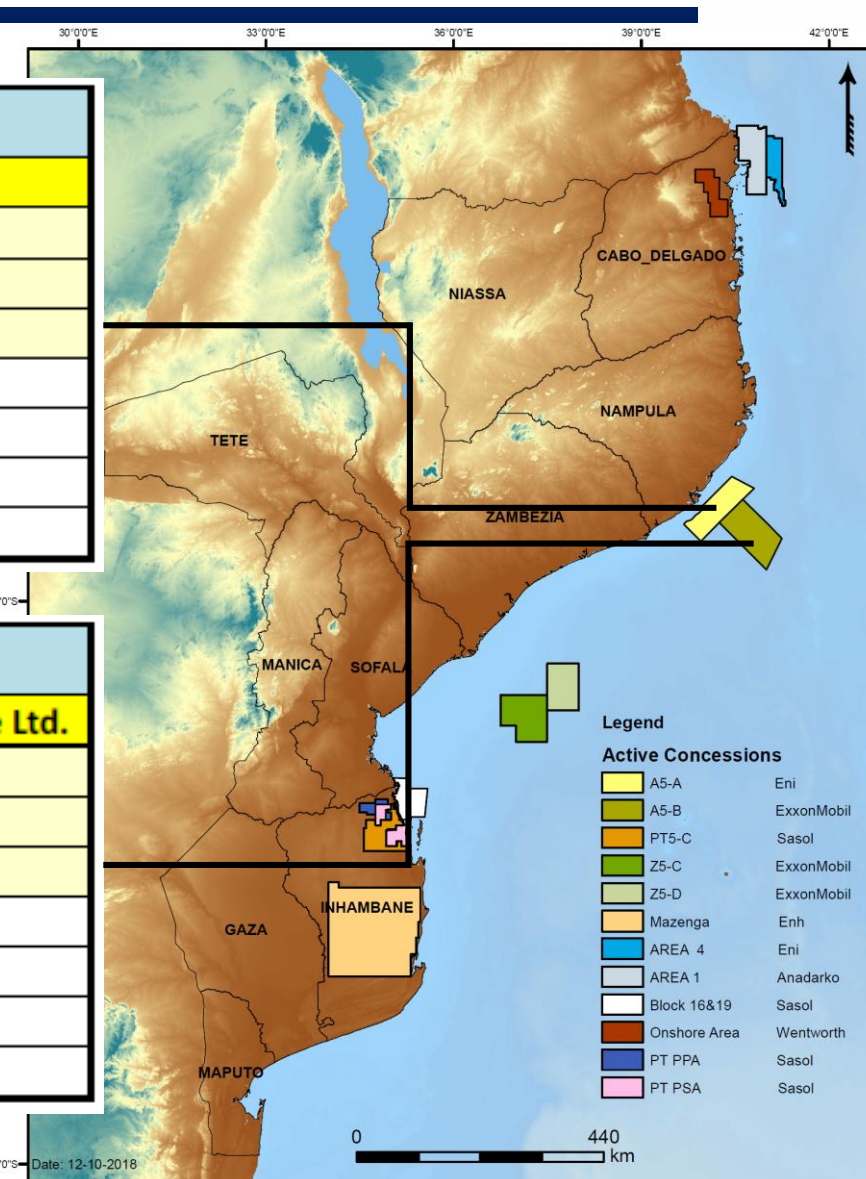
ExxonMobil



Angoche Area

OFFSHORE - ANGOCHE	%	AREA A5-A (5,145 Sq Km)
Operator	34.0	eni Mozambico S.p.A
Partner	25.5	Sasol Petroleum Mozambique Exploration Ltd.
Partner	25.5	Statoil Holding Netherlands B.V.
ENH Carried Interest:	15.0	ENH
First Period Duration:		4 Years
First Period Financial Commitment:		115 M\$
First Period Work commitment		3 Wells
First Period Work commitment		4,400 sq km of 3D seismic

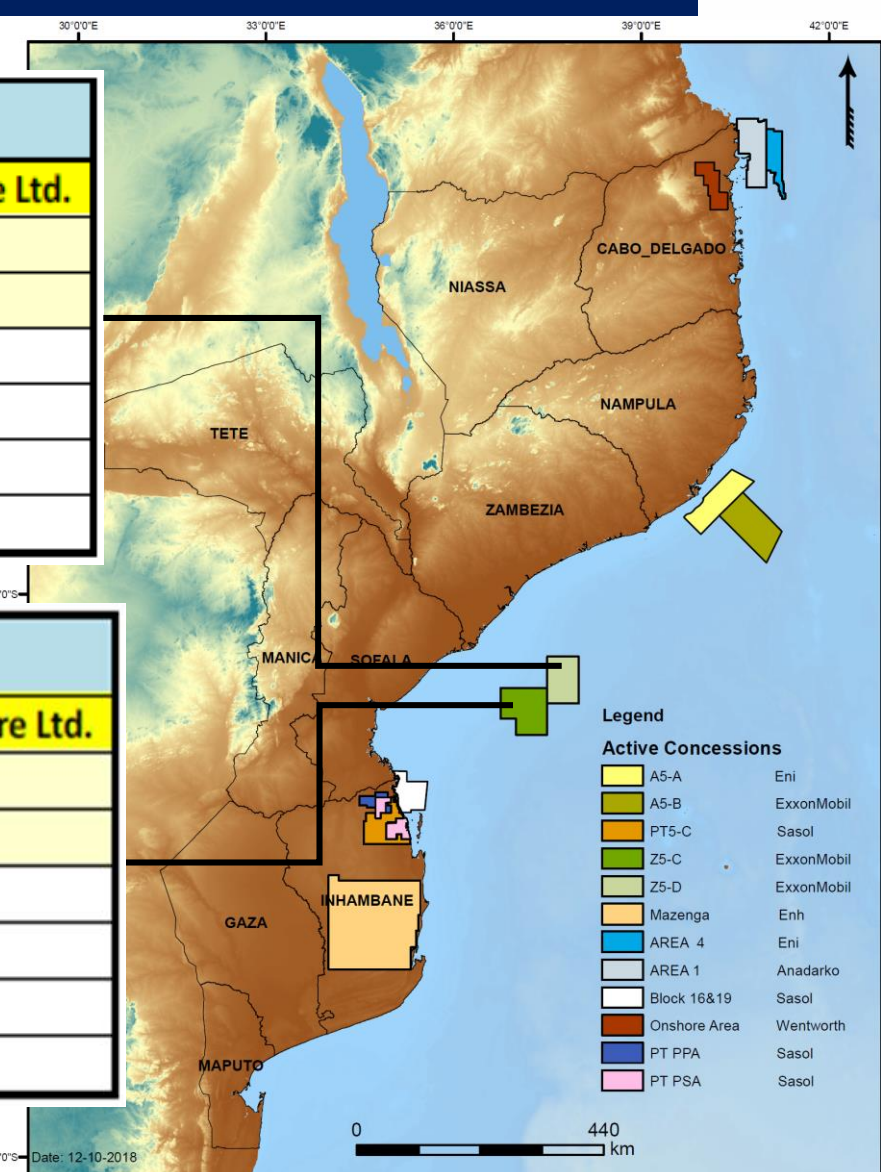
OFFSHORE - ANGOCHE	%	AREA A5-B (6,080 Sq Km)
Operator	60.0	ExxonMobil Exploration and Production Mozambique Offshore Ltd.
Partner	20.0	RN-Exploration LLC (Rosneft)
Partner	(20)	(Up to 20% available to Total/Sonangol subject to negotiation)
ENH Carried Interest:	20.0	ENH
First Period Duration:		4 Years
First Period Financial Commitment:		257 M\$
First Period Work commitment		2 Wells
First Period Work commitment		8,000 sq km of 3D seismic



Zambezi Delta Area

OFFSHORE - ZAMBEZI	%	AREA Z5-C (5,821 Sq Km)
Operator	60.0	ExxonMobil Exploration and Production Mozambique Offshore Ltd.
Partner	20.0	RN-Exploration LLC (Rosneft)
ENH Carried Interest:	20.0	ENH
First Period Duration:	4 Years	
First Period Financial Commitment:	128 M\$	
First Period Work commitment	1 Well	
First Period Work commitment	1,500 km of 2D and 2,500 sq km of 3D	

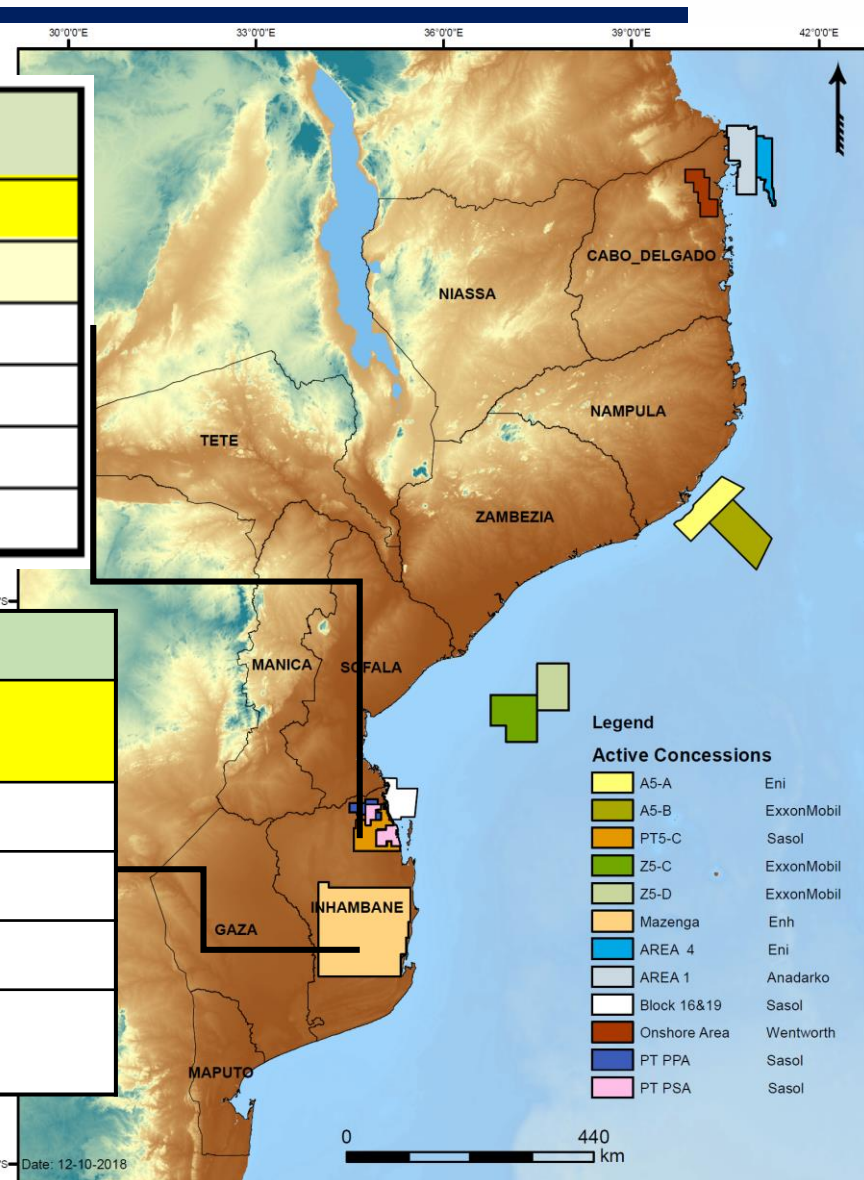
OFFSHORE - ZAMBEZI	%	AREA Z5-D (4,384 Sq Km)
Operator		ExxonMobil Exploration and Production Mozambique Offshore Ltd.
Partner	20.0	RN-Exploration LLC (Rosneft)
ENH Carried Interest:	20.0	ENH
First Period Duration:	4 Years	
First Period Financial Commitment:	142 M\$	
First Period Work commitment	2 Wells	
First Period Work commitment	3,500 sq km of 3D	



Pande/Temane & Mazenga Areas

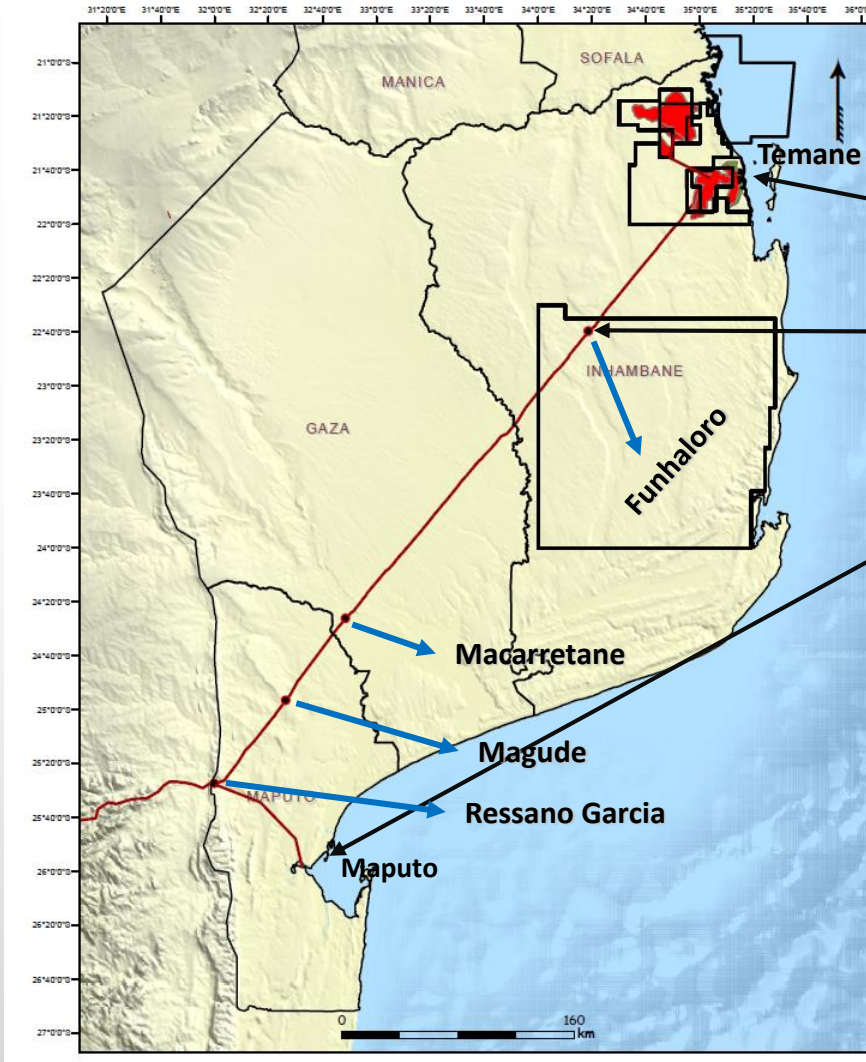
ONSHORE - PANDE TEMANE	%	AREA PT5-C (3,012 Sq Km)
Operator	70.0	Sasol Petroleum Mozambique Exploration Ltd.
ENH Carried Interest:	30.0	ENH
First Period Duration:	4 Years	
First Period Financial Commitment:	49 M\$	
First Period Work commitment	2 Onshore Wells	
First Period Work commitment	1,600 sq km of 2D	

ONSHORE – MAZENGA BLOCK	%	AREA MAZENGA (22,811.7 Sq. Km)
Operator	100	ENH
First Period Duration:	2 Years	
First Financial Commitment:	25 M\$	
First Period Work Commitment:	N/A	
First Period Work Commitment:	1,500 km of 2D 15,000 km Grav. Mag. Data	



Projects & Developments of Infrastructures

Pande & Temane Natural Gas Venture



Production started in 2004 from Pande/Temane Fields

865 km gas pipeline from Temane to Secunda (South Africa)

Capacity

- CPF: 197 MGJ/a (processing)
- ROMPCO: 212 MGJ/a @ 26" (nominal)
- MGC: 22 MGJ/a @ 8"

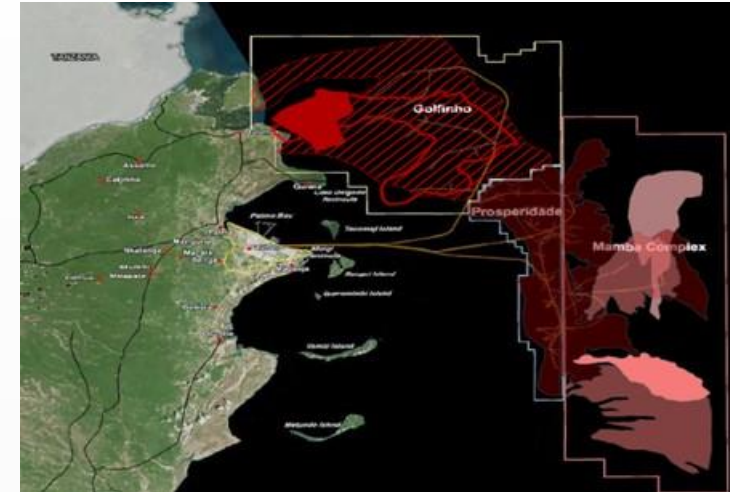
➤ Use of Natural gas in Mozambique:

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

Rovuma Basin – Area 4 Coral Field FLNG Project

Project Components

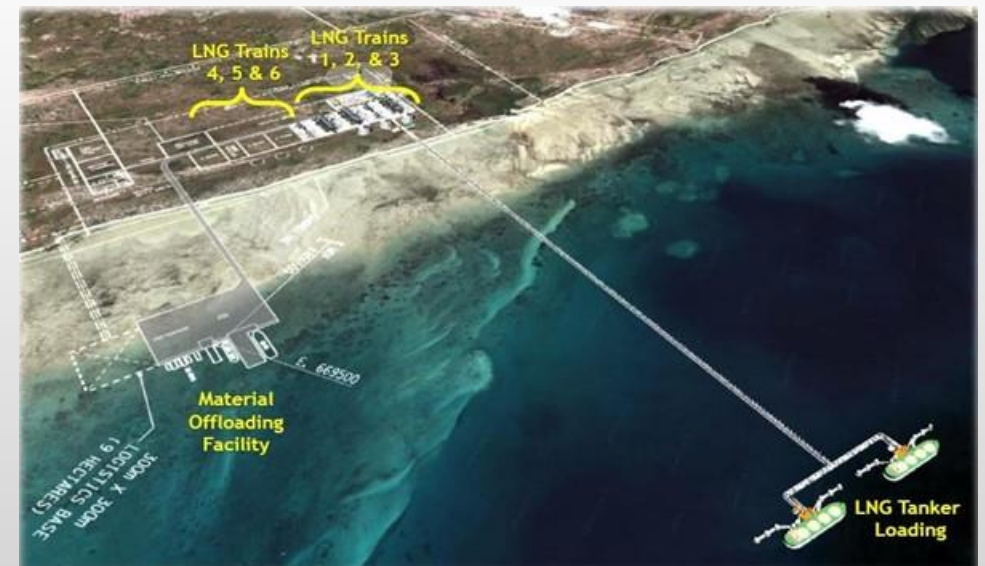
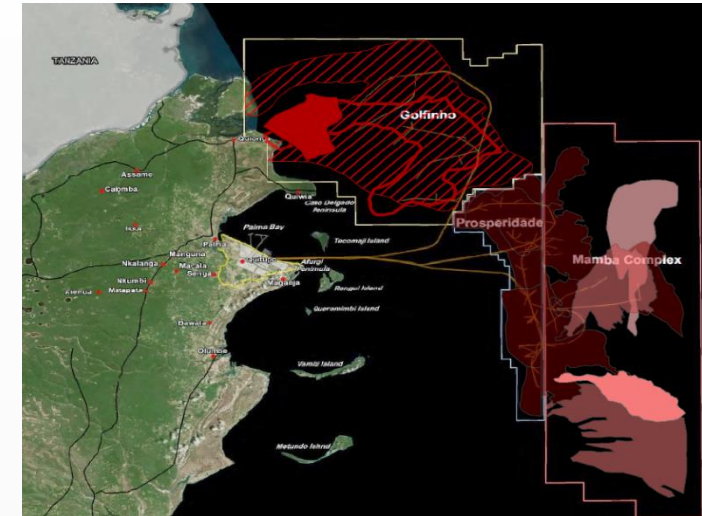
- 1 Train, 3,4 MTPA (Coral South)
- ~10 Billion USD investment
- FID reached June 17 EPCC already adjudicated
- Expected drilling of 6 development wells in 2Q 2019
- Expected first production in 2023
- Construction of FLNG started, March 2018



Rovuma Basin – Area 1 Golfinho/Atum Project

LNG Trains

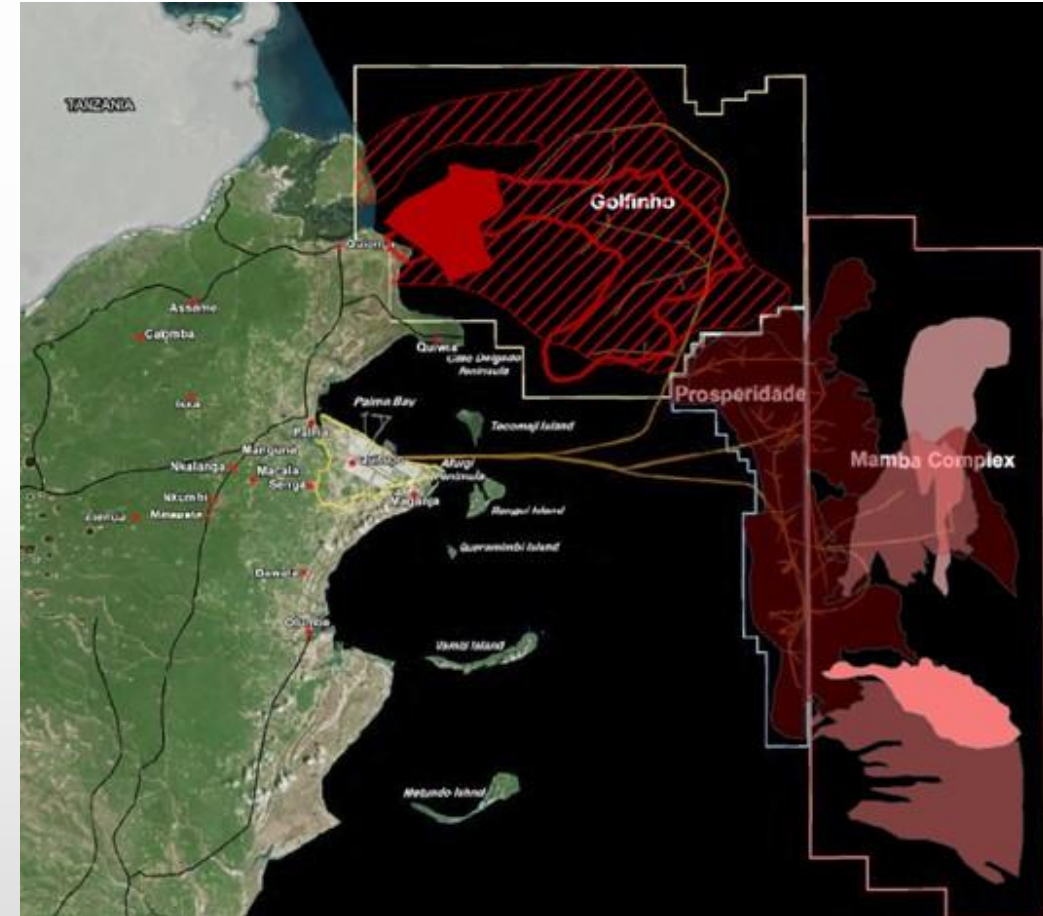
- 2 trains in 2023 (6MTPA)
- 12 wells (7’')
- Up to 25 Billion USD in investment
- FEED contract adjudicated to Chyoda/ CB&I/ Saipem (CCSJV)
- MoU for Domestic Gas
- Resettlement Plan approved
- Expected FID in 2019



Rovuma Basin – Area 1 and Area 4 Project

Prosperidade/Mamba Complex

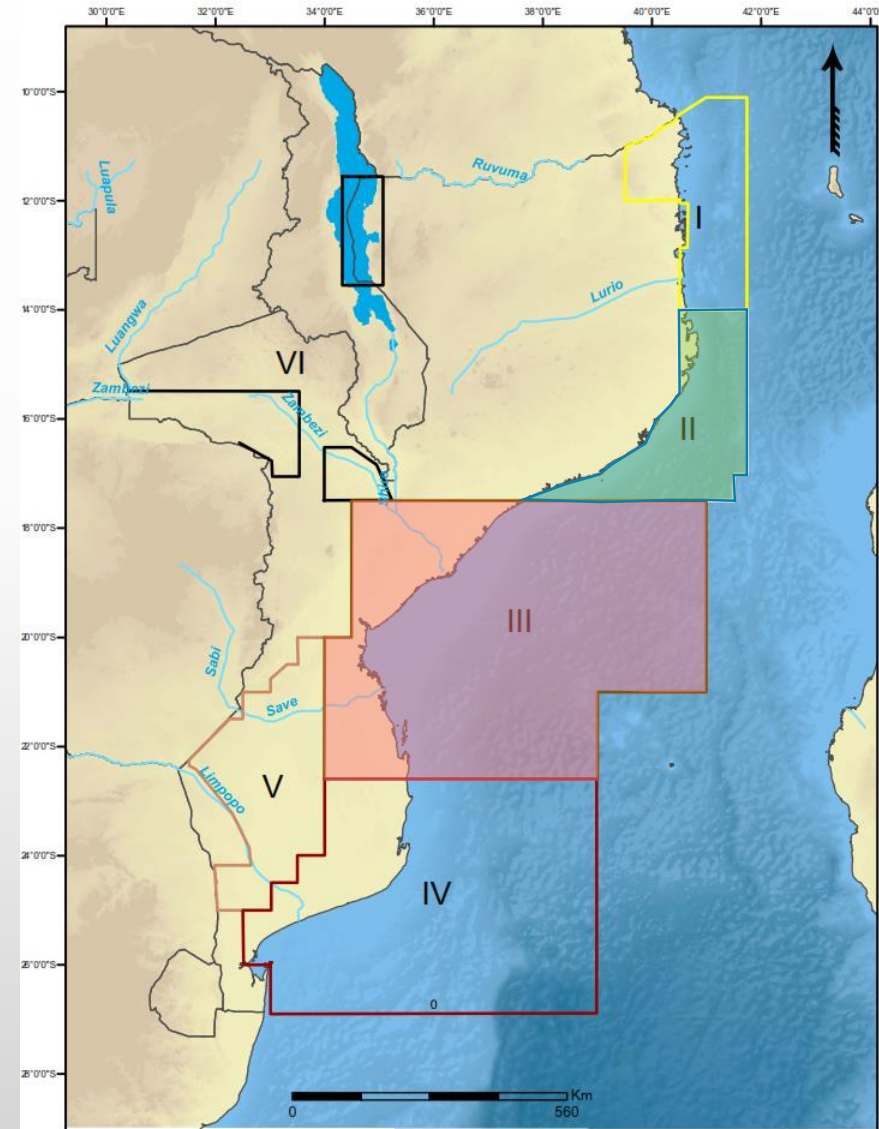
- Natural gas straddling reservoirs Mamba and Prosperidade (Oligocene and Eocene)
- Equal joint venture (MRV and AMA1) through a joint Operator
- Unitization and Unit Operating Agreement signed in 23 Nov 2015, subject to Government approval
- PoD and Master depletion Plan (MRV and AMA1) submitted for Area 4 submitted in 2018



Tender & Bidding Process

6th Bidding Round Roadmap

- Nomination Process (2 months), March & April 2019
- Launching of the bidding round – Feb. 2020
- Bid proposals submission (6 months)
- Bid evaluation (3 months)
- Announcement of Bid evaluation results (TBA)
- EPCC signature process (TBA)



Final Remarks

- Mozambique offers competitive fiscal regime in comparison with other petroleum resource rich countries;
- Approval of new Development Plans will contribute to production of infra-structures for development of gas resources, boosting the country income, and exploration interest in Mozambique;
- Further Exploration will result from the 5th Bidding Round contracts, with firm commitments of 10 wells and approximately 18000 Sq.Km of 3D seismic data;
- Conditions are in place for further frontier exploration activities after (6th Public bidding round TBA).

Thank you
Obrigado