

INVESTMENT OPPORTUNITIES IN THE OIL AND GAS SECTOR IN SENEGAL



PETROSEN
EXPLORATION & PRODUCTION

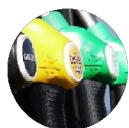


Eko Convention Center, Lagos, NIGERIA
February 13 – 15, 2024



PETROSEN
EXPLORATION & PRODUCTION

AGENDA



PETROSEN PRESENTATION



EXPLORATION HISTORY



DISCOVERIES INVENTORY



SENEGAL OPEN BLOCKS & DATA COVERAGE



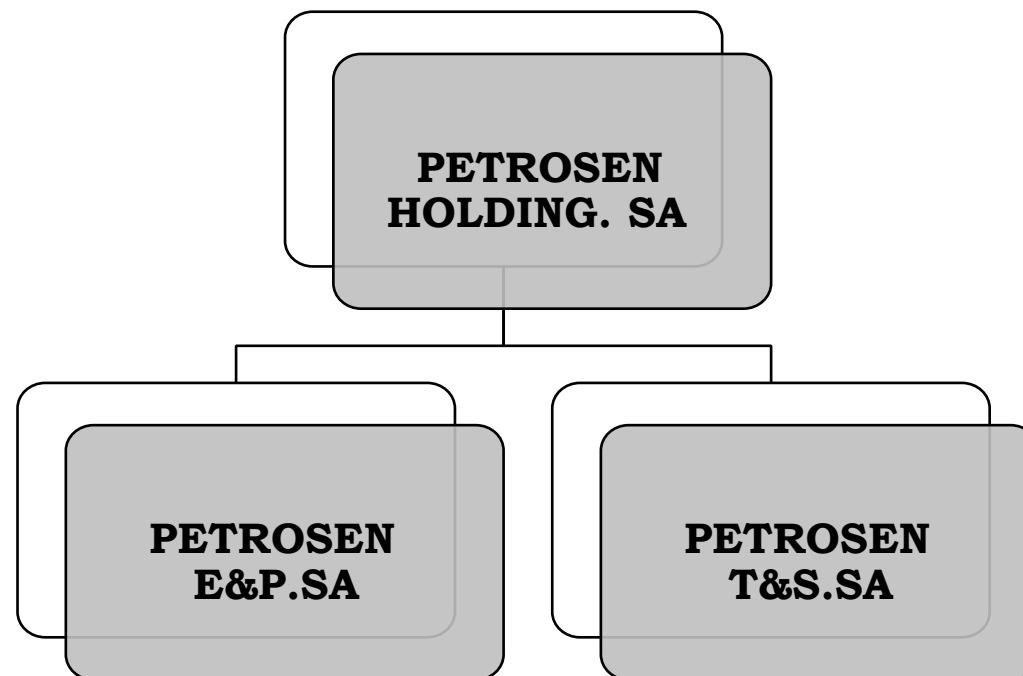
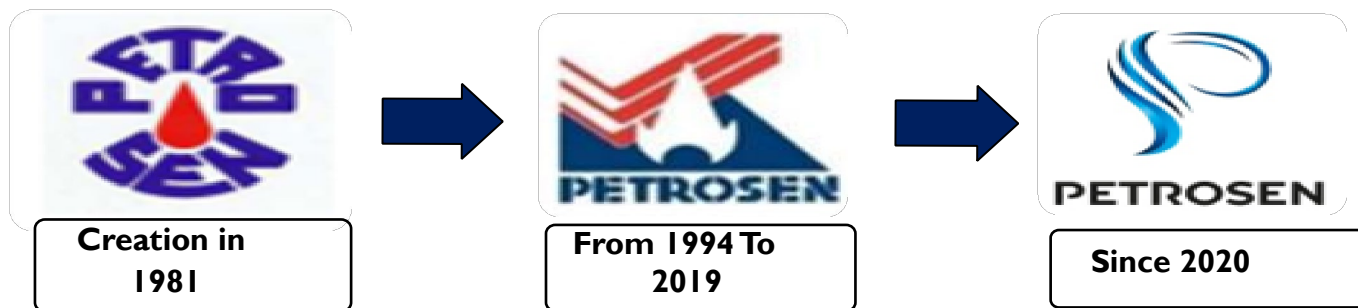
TAX & FISCAL TERMS



WHY INVEST IN SENEGAL



PETROSEN PRESENTATION





EXPLORATION HISTORY

PETROSEN
EXPLORATION & PRODUCTION

Diamniadio en 1961

Several prospects & leads identified @ Maastrichtien

Dome Flore & Gea en 1967

Almost 1 billion barrels of heavy oil identified in Oligocene foraminiferous limestones.

Gadiaga 1976 - 1997

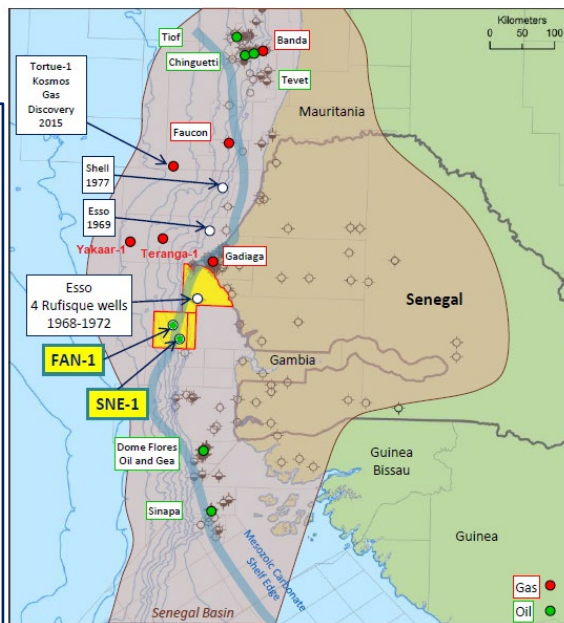
Gas reserves identified in Campanian & Lower Senonian sandstones.

Sangomar Offshore Deep 2014-2017

Oil & gas discoveries in the Cenomanian, Turonian & Albian sandstone reservoirs.

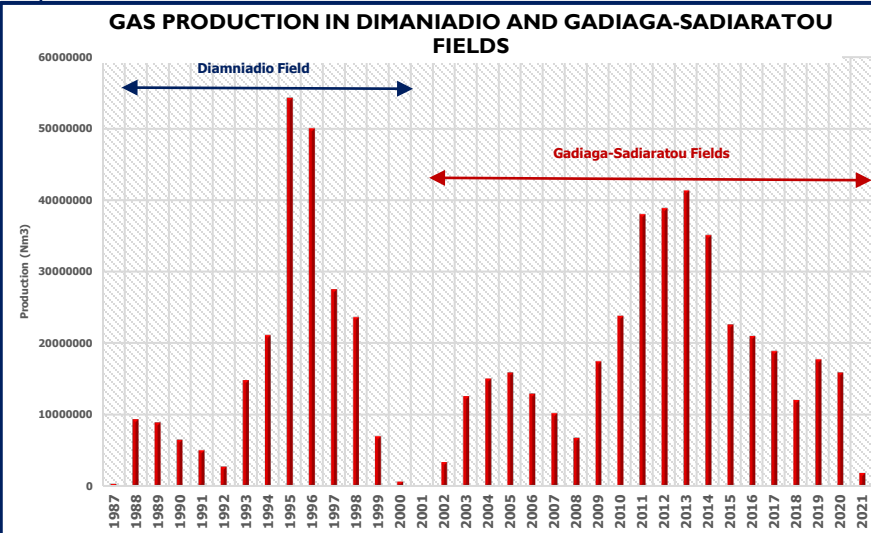
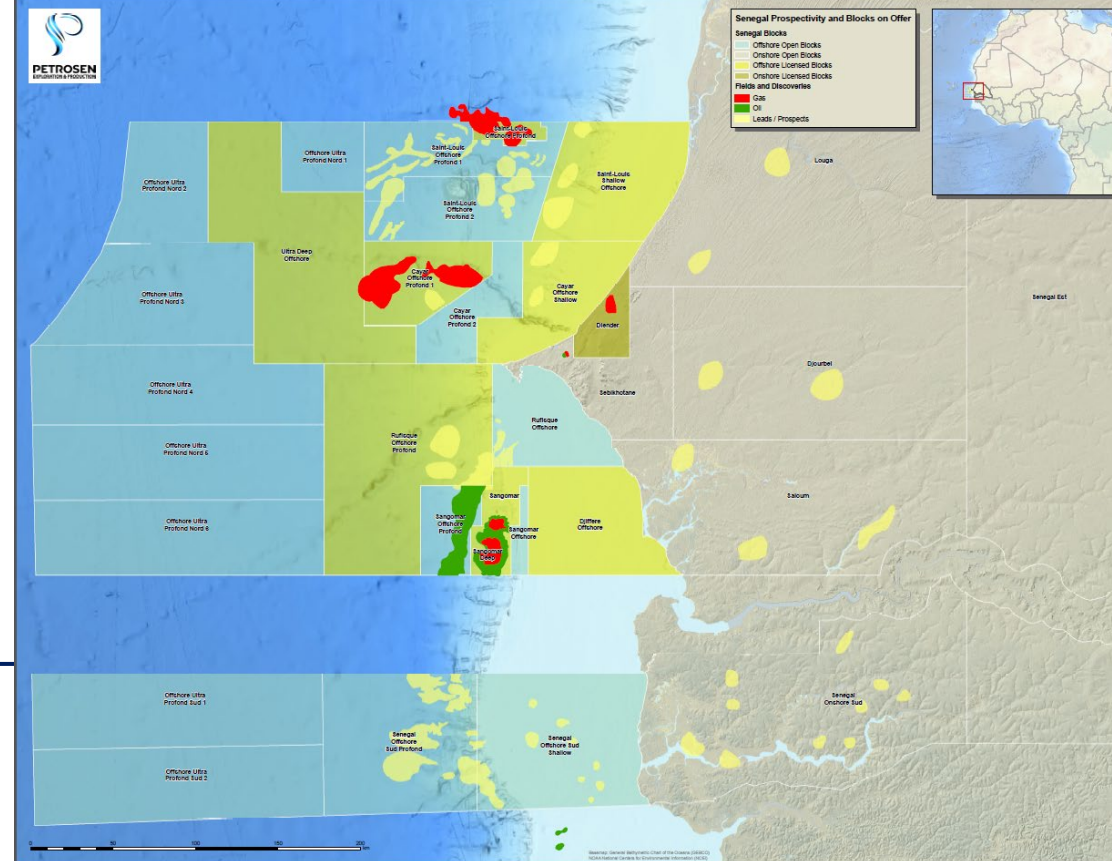
Saint Louis & Cayar offshore Deep in 2015, 2016, 2017

03 major discoveries of gas into the



Several prospects & leads to test into the basin

Hydrocarbon Discoveries, prospects & leads



- 60 900 km of 2D seismic
- 27150 km² of 3D seismic
- Excellent offshore coverage
- +180 exploration wells (1 well/ 1337 km²).
- Still an Under explored



PETROSEN
EXPLORATION & PRODUCTION

RECENT DISCOVERIES



**GREAT TORTUE
AHMEYIM**



SANGOMAR



YAKAAR - TERANGA

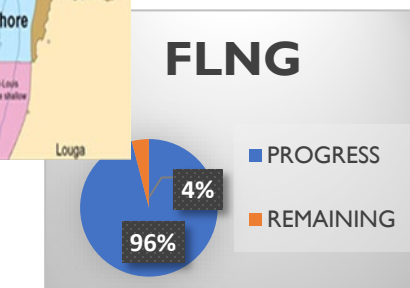
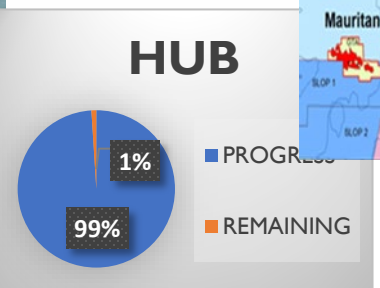
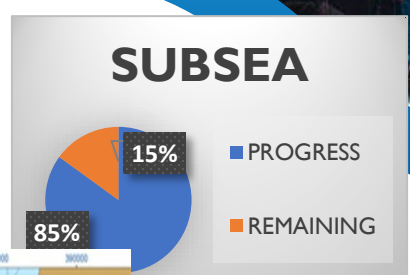
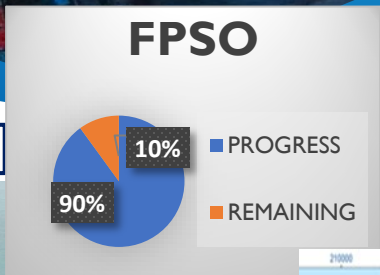


GREAT TORTUE AHMEYIM

PETROSEN
EXPLORATION & PRODUCTION



Drilling Campaign Completed for **Phase I**



Subsea operations on progress



Hub-terminal : On finalization



FPSO : Moving to site

Phase I : 4,8 Billion dollars of investment

- 2.5 mtpa of GNL
- 70 mmscfd of domestic gas (MAU&SEN)
- 10 mtpa of GNL : global objectif(All phases)

Phases Futures: Start from 2026-2027

- FID : December 2018
- Execution Rate: **90%**
- First Gas : **Q3-2024**

- 20 TCF of Gas
- BP, KOSMOS
- PETROSEN, SMHPM

Local Content:

- +137.800** Beneficiaries of social program
- +1600** directs & indirects jobs.
- +277** companies & SME associated



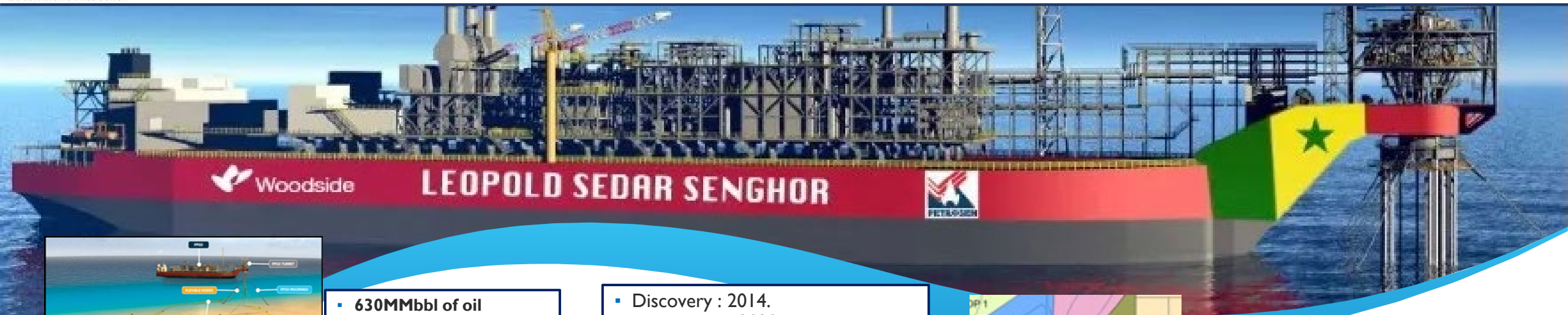
FLNG : On site: Q1- 2024



SANGOMAR



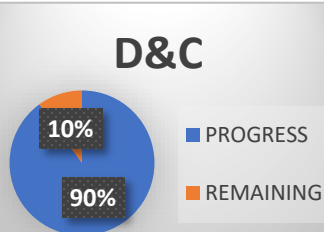
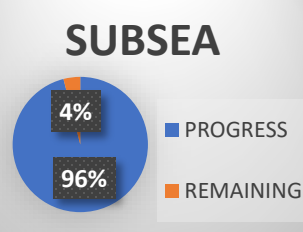
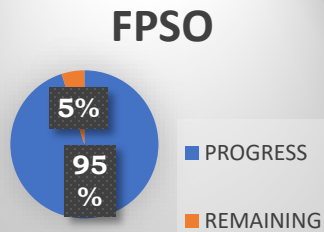
PETROSEN
EXPLORATION & PRODUCTION



Development Concept (Drilling Rig + FPSO)

- 630MMbbl of oil
- 4TCF of gas
- Woodside 82%
- PETROSEN 18%

- Discovery : 2014.
- FID : january 2020
- Execution Rate: **94%**
- **First Oil : Q2-2024**



Drilling Campaign ongoing with 02 rigs (24 wells forecasted)

- ❖ Phase I : **4,6 Billion USD** Expected
 - **Production Rate:** 100 000bpd
 - **Domestic Gas :** 60 – 90 Mscf/d
 - **GPL :** 200 – 340 t/d
 - **C5+ :** 80 – 150 t/d
 - **SNE North Discovery:** 83 Mbd with 378 bcf of gas
- ❖ **Phases Futures:** Gas Production for gas to power



FPSO : On site @ the Sangomar field



Subsea Activities: Operated by Seven Vega, Seven sisters & Stornes vessels

- Local Content :** exemples
- Forecasted Expenses: **420 Billiards USD, 173 Billion USD** already expended in local projects.
 - Rate of local suppliers in the project: **33%**
 - Rate of hires: **50%**



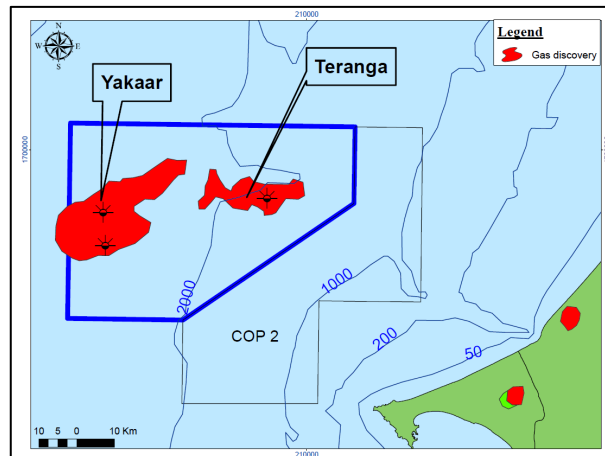
YAKAAR - TERANGA



PETROSEN
EXPLORATION & PRODUCTION

CAYAR OFFSHORE PROFOND

- Teranga-1 well: 2016
- Gas Ressources: 5 Tcf
- Yakaar-1 Gas well: 2017
- Yakaar-2 Gas well: 2019
- Ressources in place : 15 Tcf BP
- Developpement wells forecasted for 2024

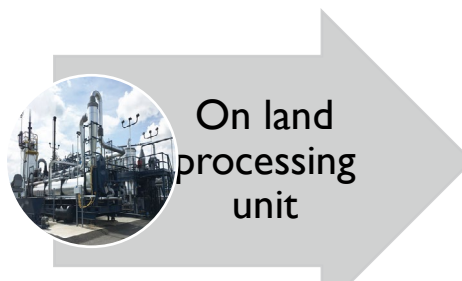
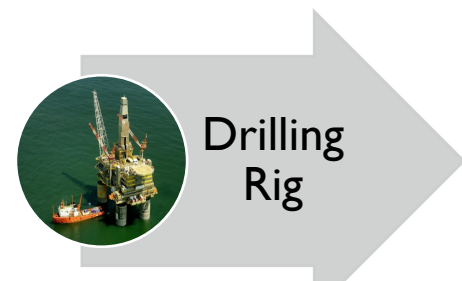
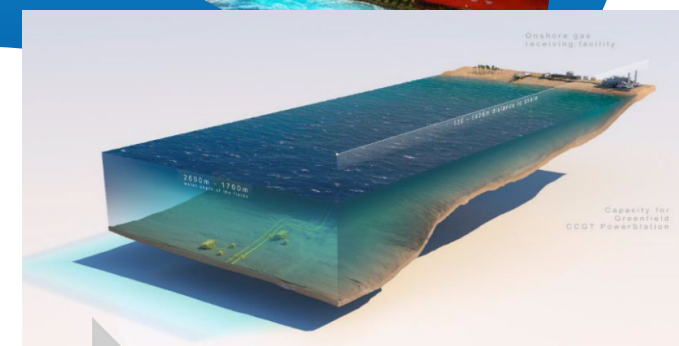
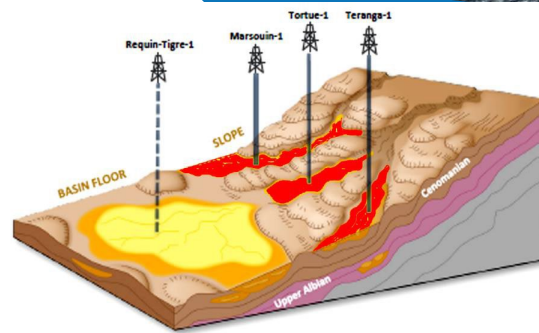


Development Phase I

- FID forecasted for 2024 (150 mmscf/d of gas supply equivalent to 1 TCF for 20 ans)
- Total Investment : 2-3 Billion USD

PERSPECTIVES

- Power availability at low cost
- Local content development with unit plant on land
- Local industry development (fertilizers & methanol unit plant)

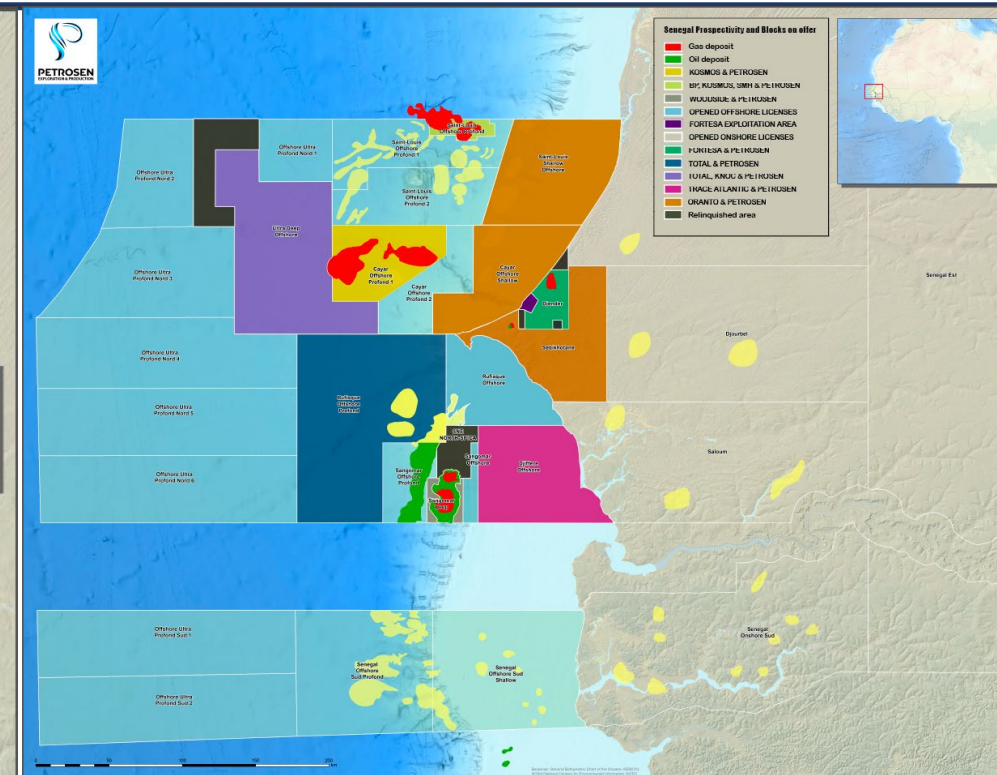
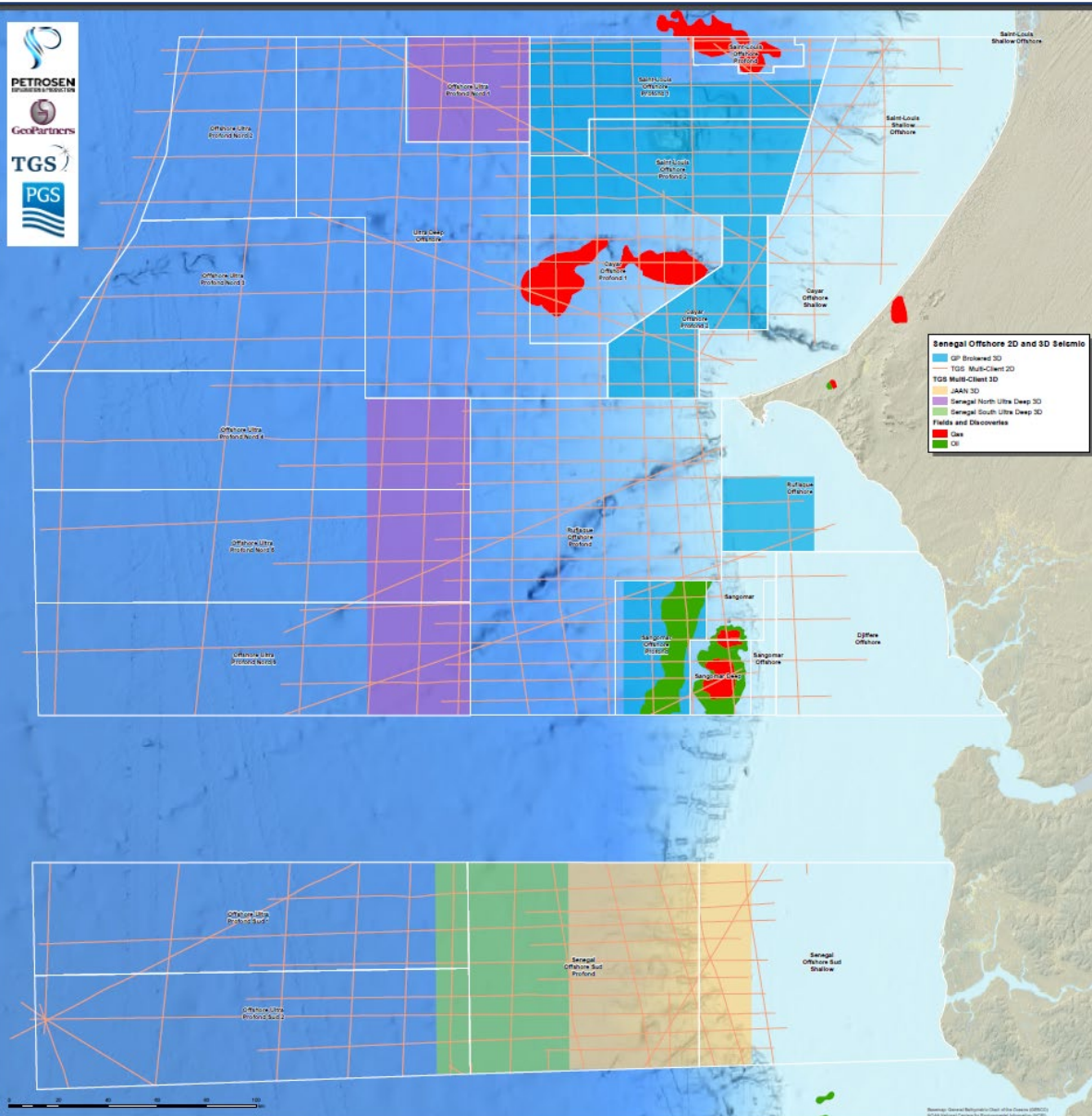




SENEGAL OFFSHORE SEDIMENTARY BASIN DATA COVERAGE



PETROSEN
EXPLORATION & PRODUCTION



SENEGAL OFFSHORE SEDIMENTARY BASIN DATA COVERAGE

Multi-client Data base

- 14379 Km seismic 2D
- 26 220 Sq. Km 3D
- 63 000 Multi-beam data

16 Offshore & 05 Onshore Open blocks

- The Senegalese onshore basin extends over nearly 60,000 km² and covers five (05) blocks: Louga, Diourbel, Saloum, Senegal Onshore South and Senegal East.
- Two sub-basins have been identified in the Senegal East block.



PROVEN CRETACEOUS PROSPECTIVITY



PETROSEN
EXPLORATION & PRODUCTION

Highly comparable to large discoveries in Senegal and in the deeper offshore of Mauritania:

FAN-1: Lower to mid-Cretaceous fan systems

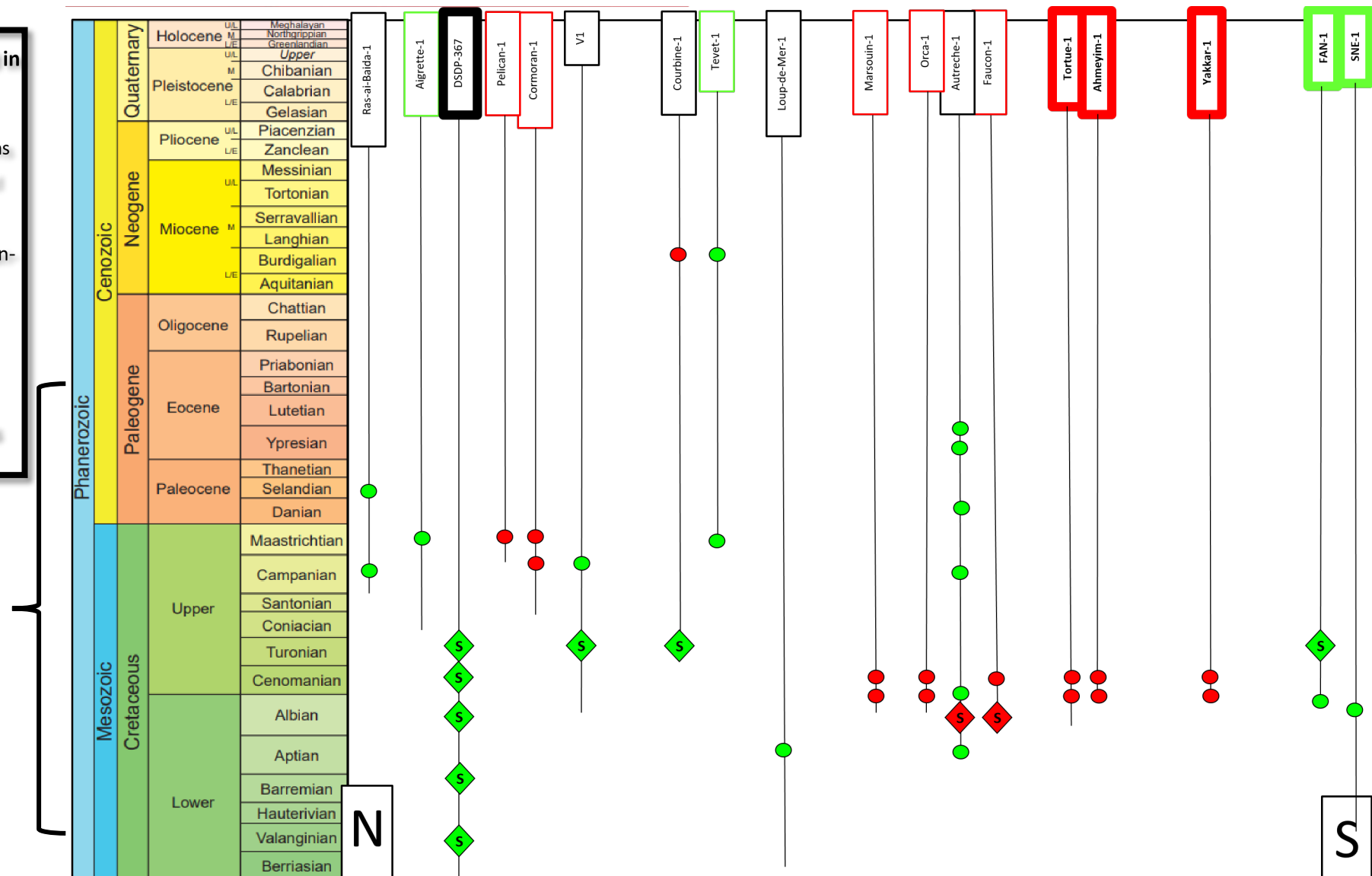
SNE-1: Lower to mid-Cretaceous clastic shelf systems

Greater Tortue-Ahmeyim: Canyon-confined stacked clastic systems of Albian-Cenomanian age

Proven source rock of Cenomanian-Turonian and Aptian-Albian age

Untested potential in Jurassic and Lower Cretaceous carbonates

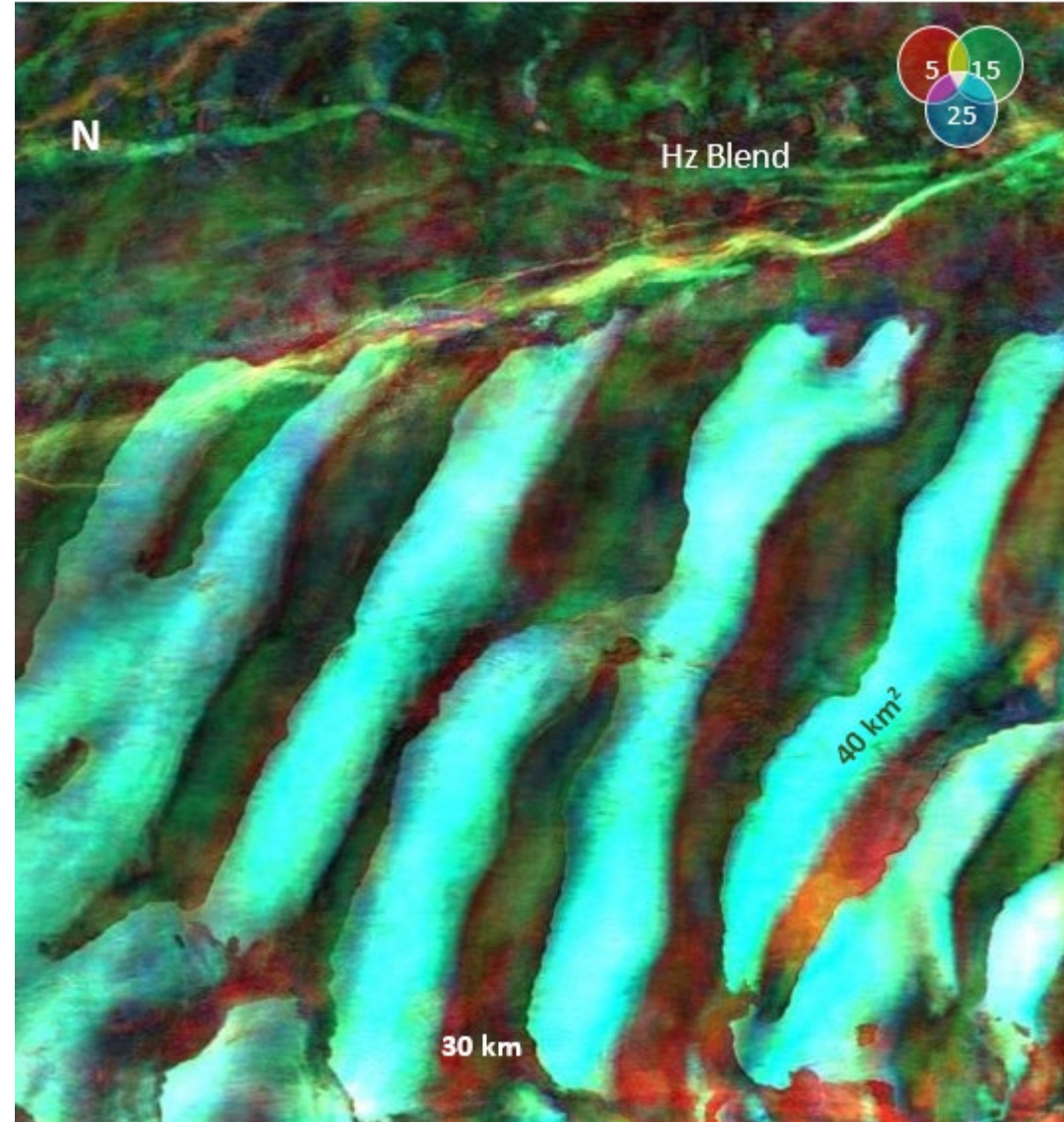
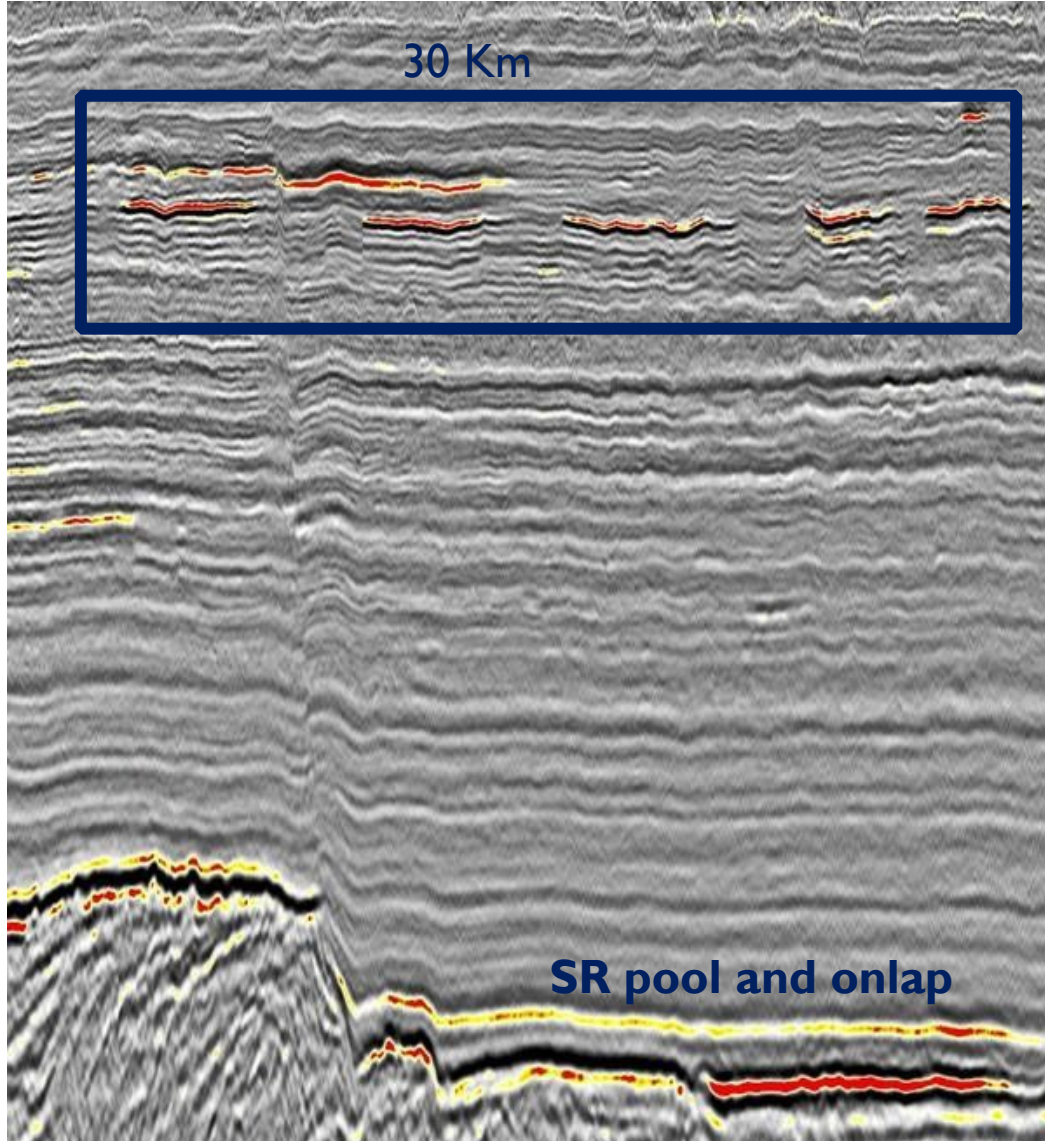
Need to understand the whole margin to fully comprehend the down-dip Cretaceous clastic systems





PETROSEN
EXPLORATION & PRODUCTION

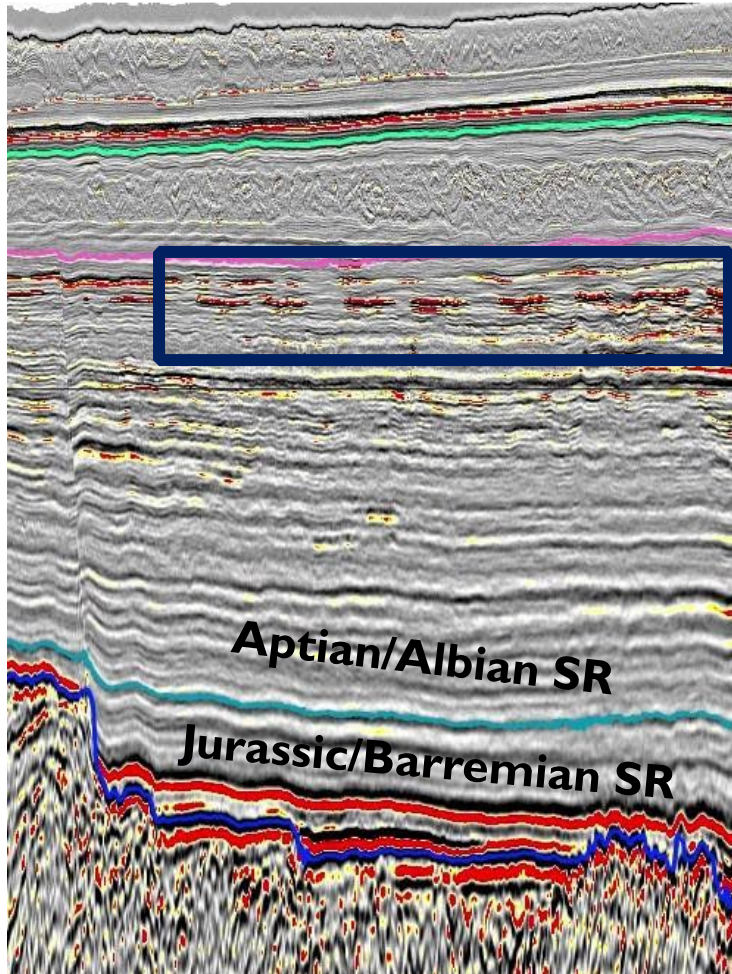
Targets Senegal offshore North 3D: Large scale sediment waves



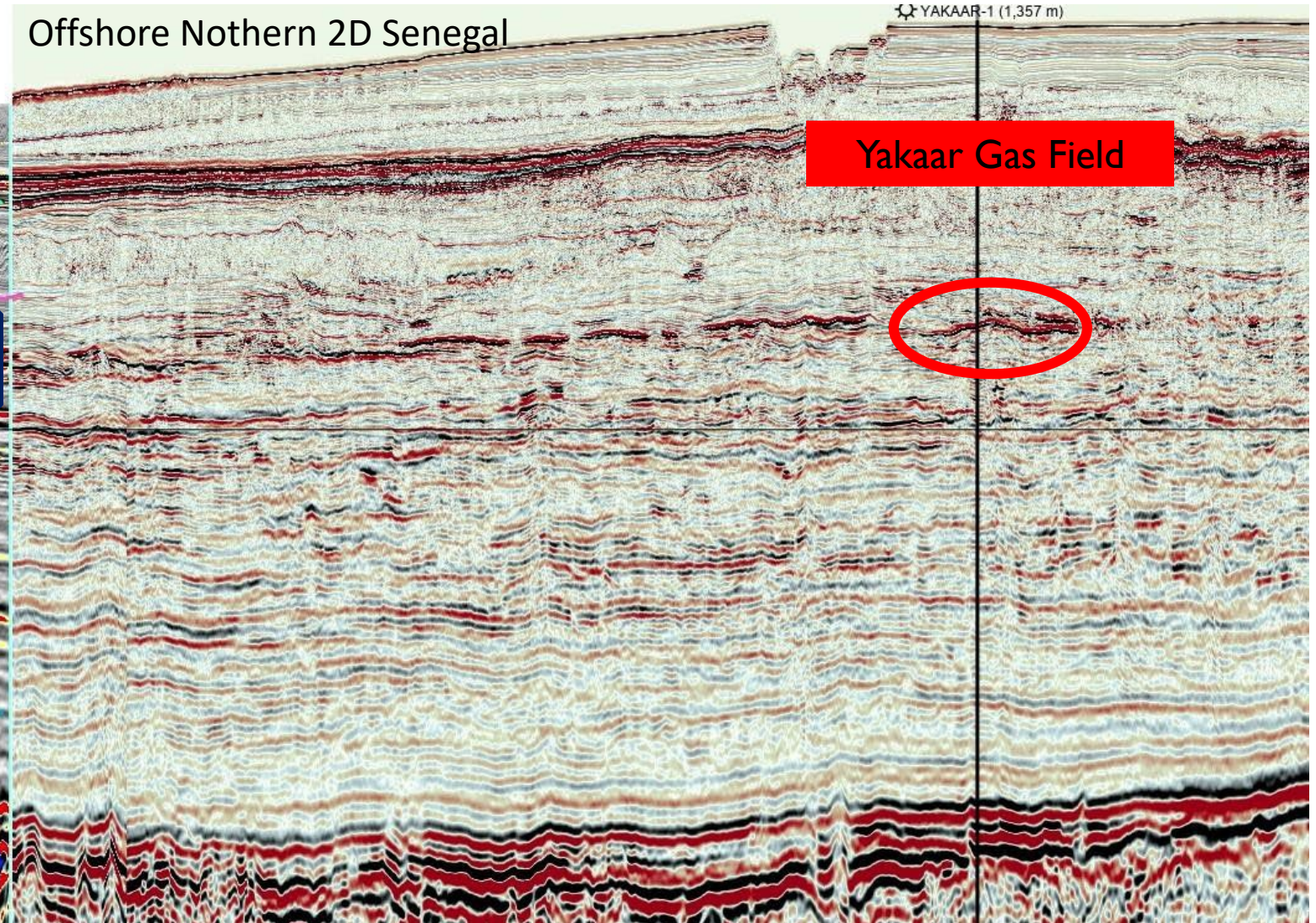


Undrilled Cretaceous Closures at Stratigraphic Level at Yakaar Reservoir

Offshore 3D northern Senegal



Offshore Northern 2D Senegal

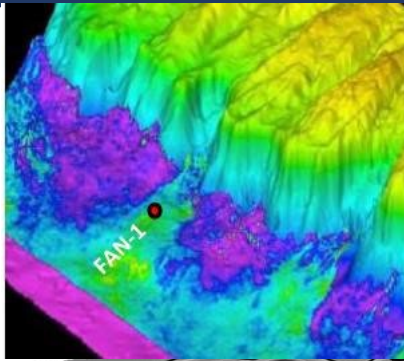




Proven Potential in the Central Offshore B Central Fan untested



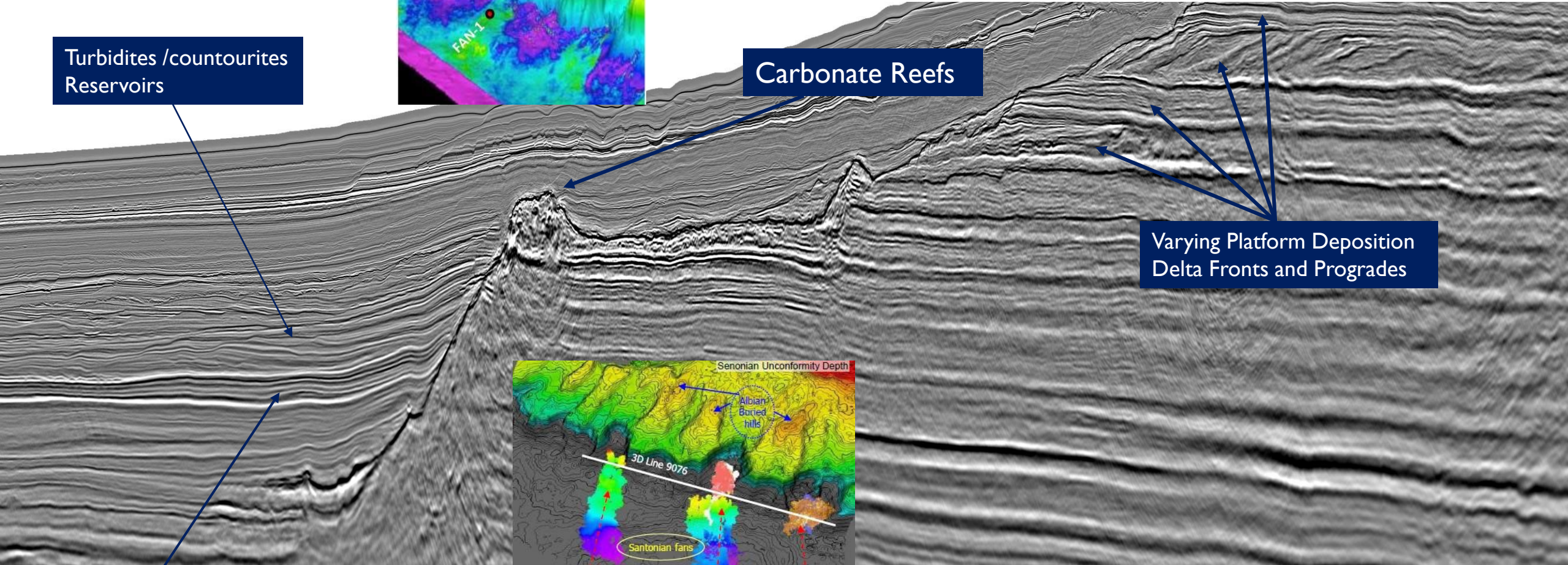
PETROSEN
EXPLORATION & PRODUCTION



Turbidites /countourites
Reservoirs

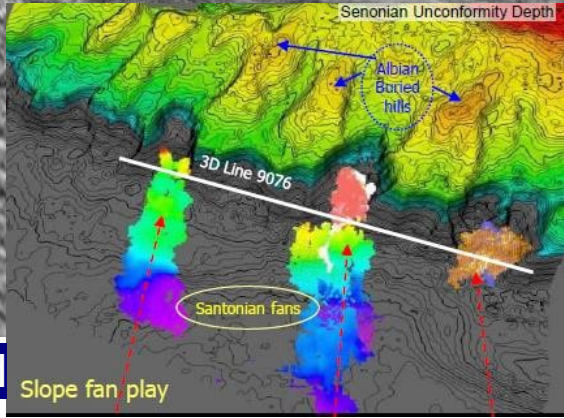
Carbonate Reefs

Varying Platform Deposition
Delta Fronts and Progrades



FAN Reservoirs

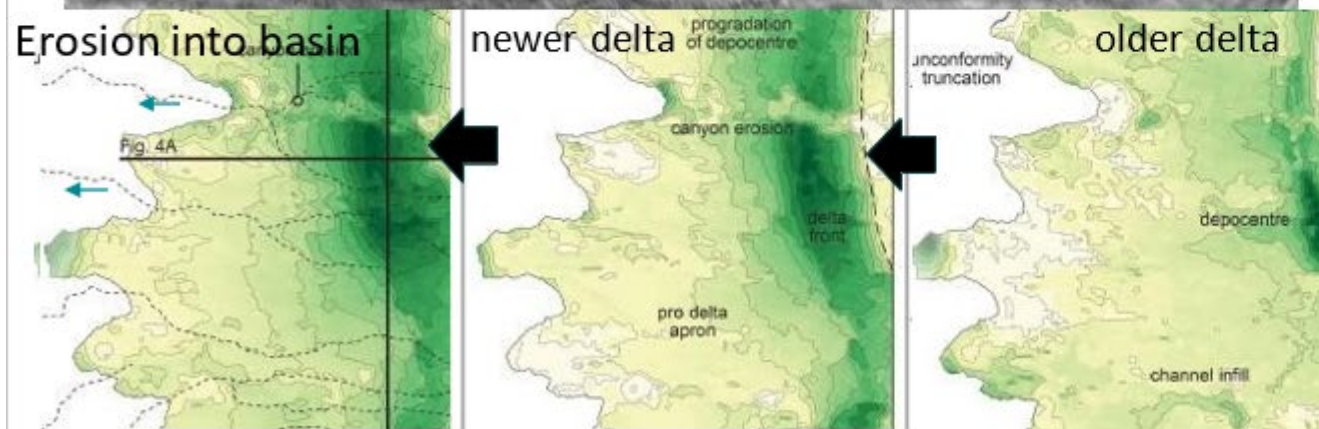
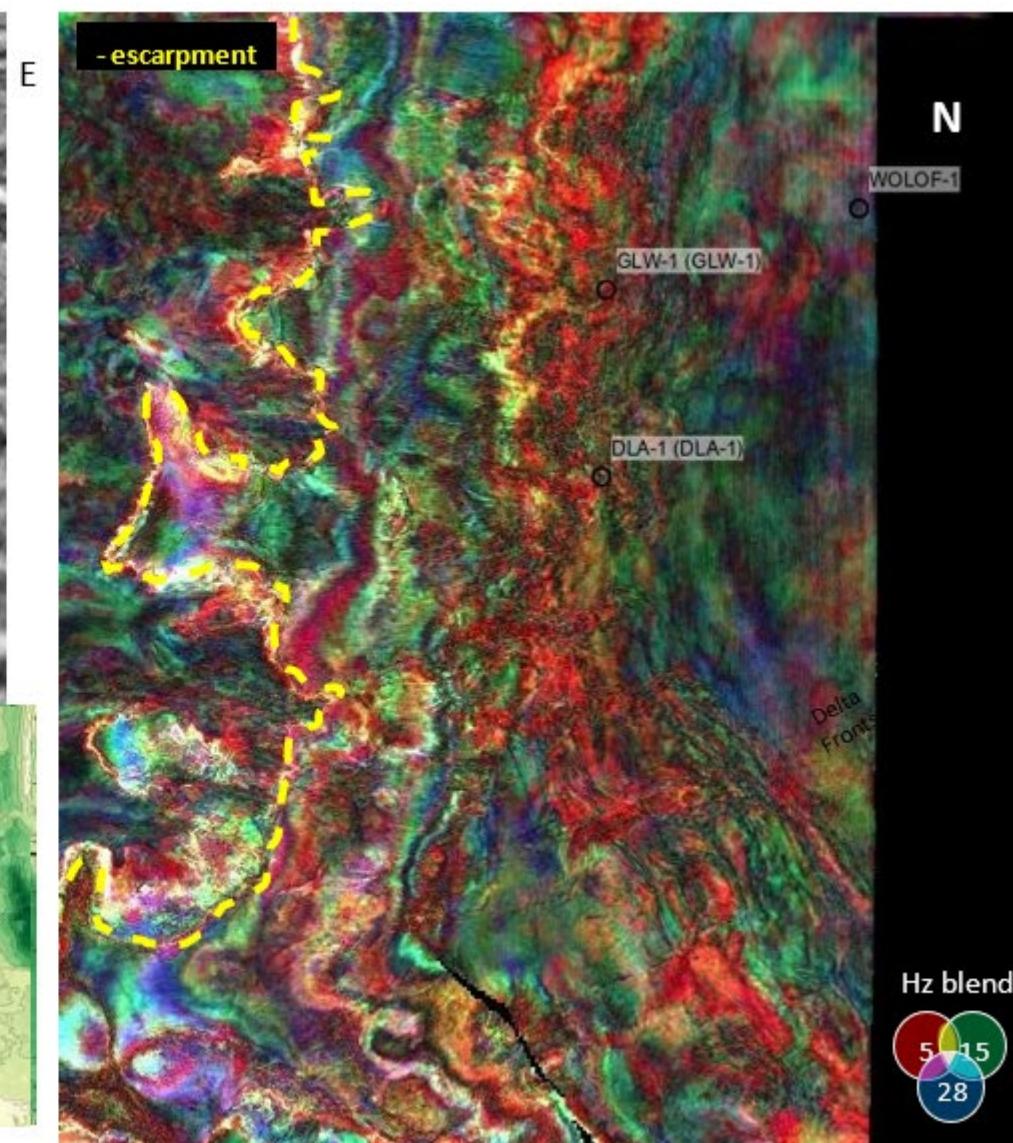
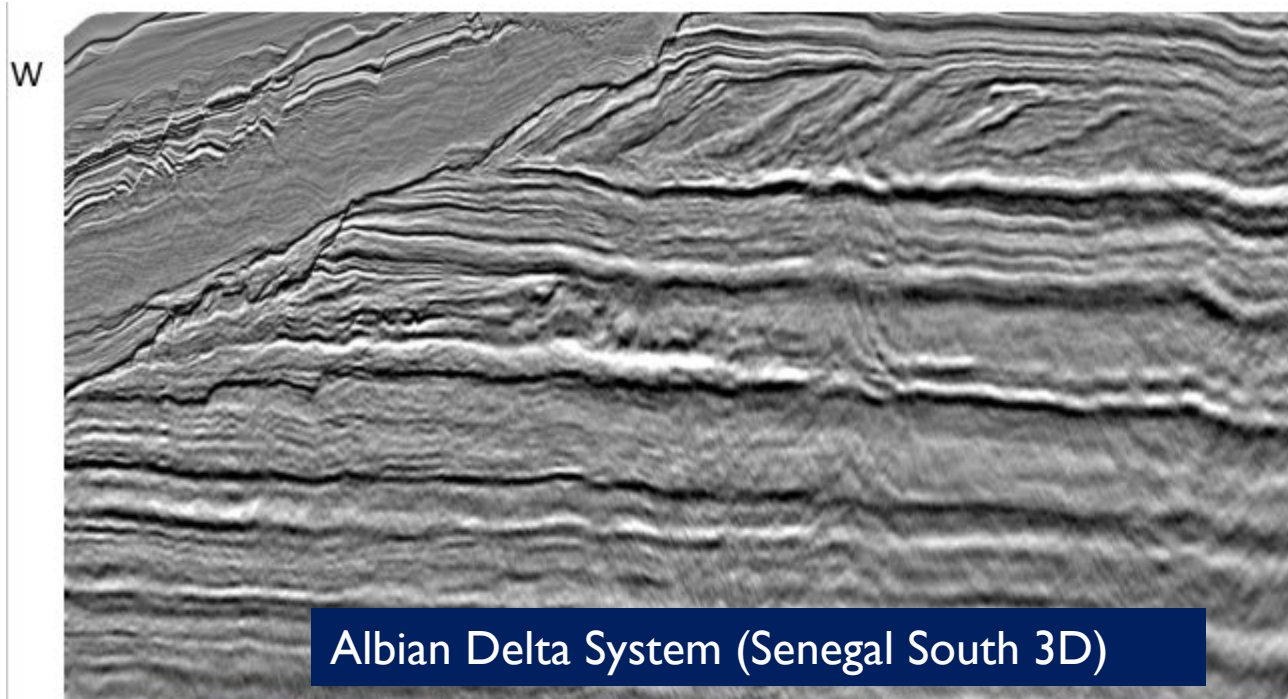
FAN Trend





PETROSEN
EXPLORATION & PRODUCTION

Senegal South Offshore Prospectivity: Shelf – Delta Fronts, Prospectivity





PETROSEN
EXPLORATION & PRODUCTION

Senegal Offshore South 3D: Reservoir Influx into Basin Confirmed

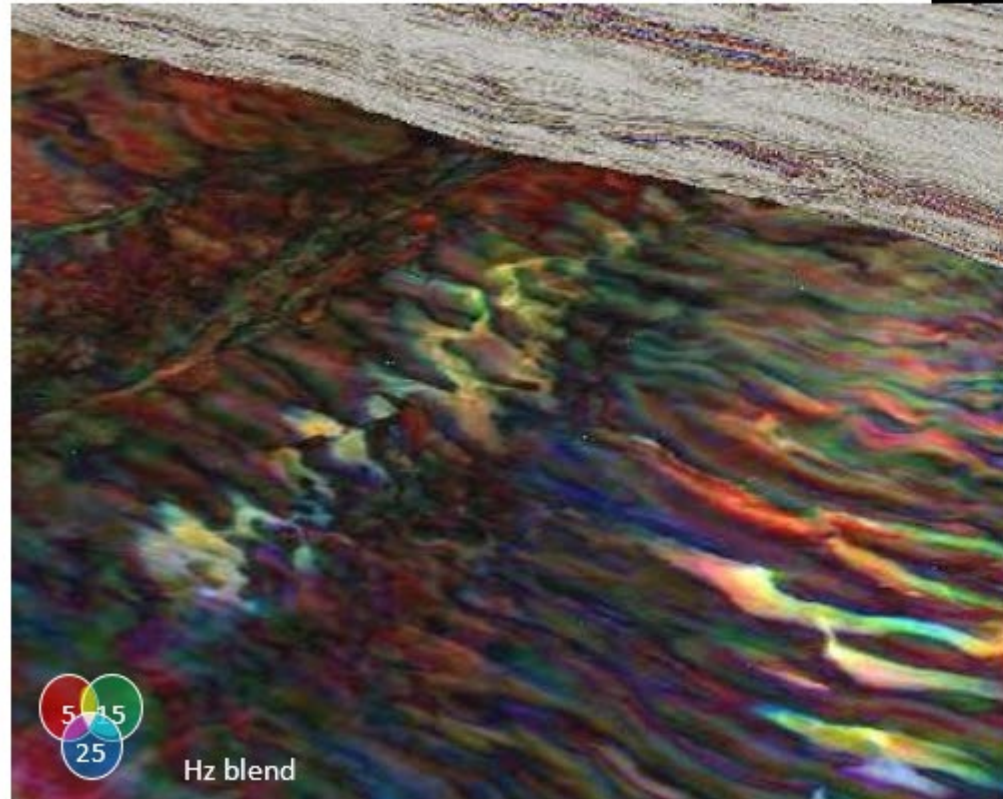


Escarpment Control Influx

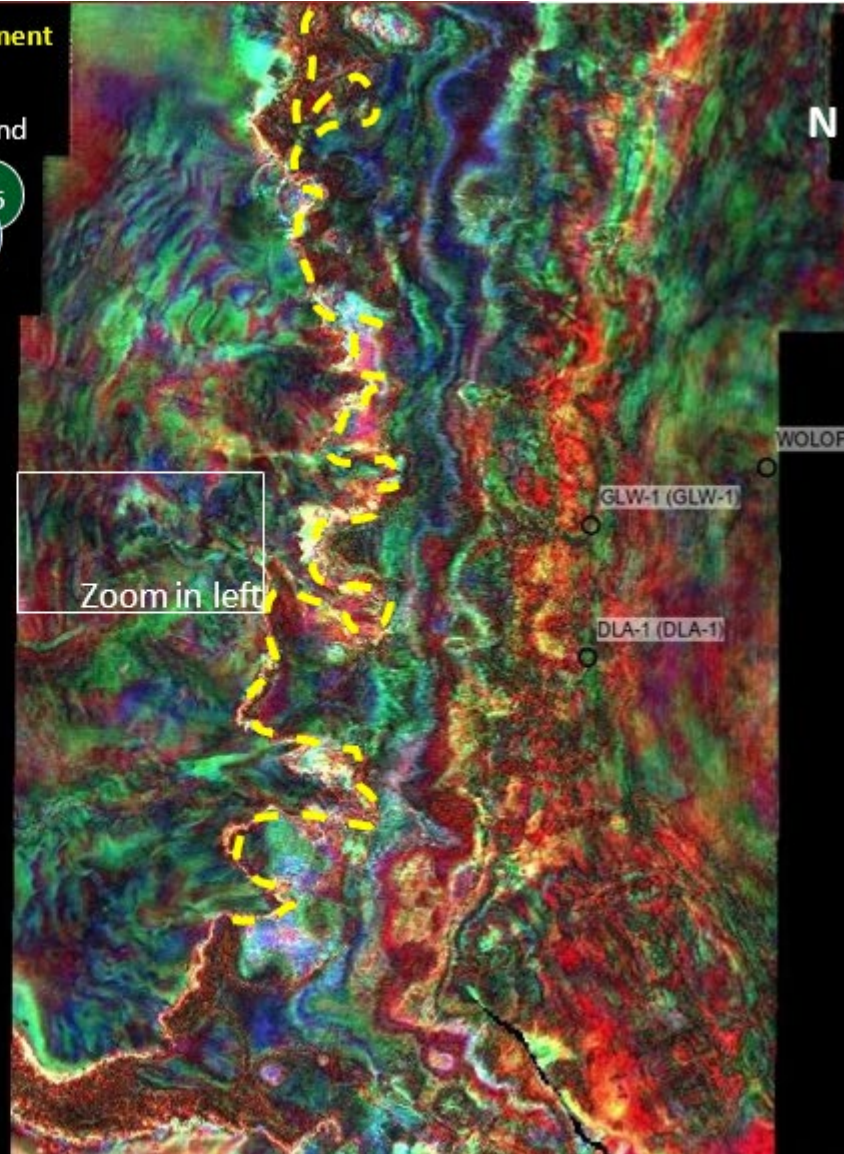


- escarpment

Hz blend



Hz blend



N

Albian/Campanian
Level

Zoom in left

GLW-1 (GLW-1)

DLA-1 (DLA-1)

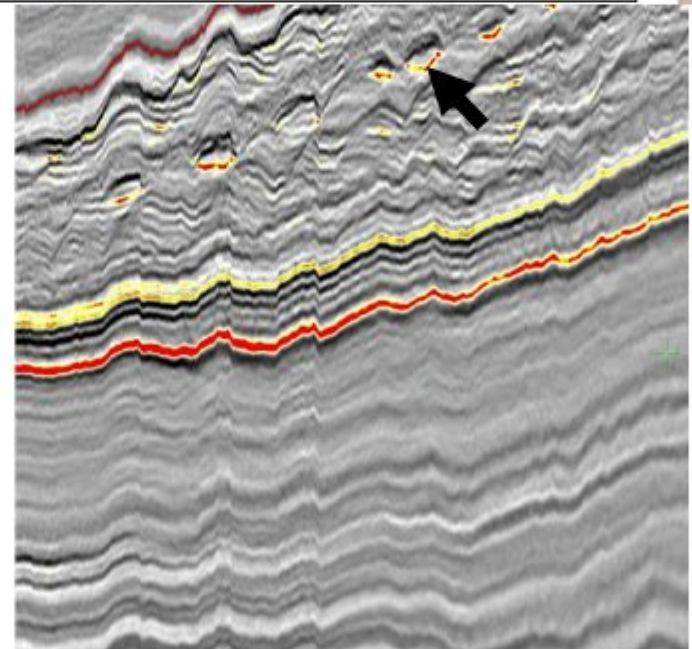
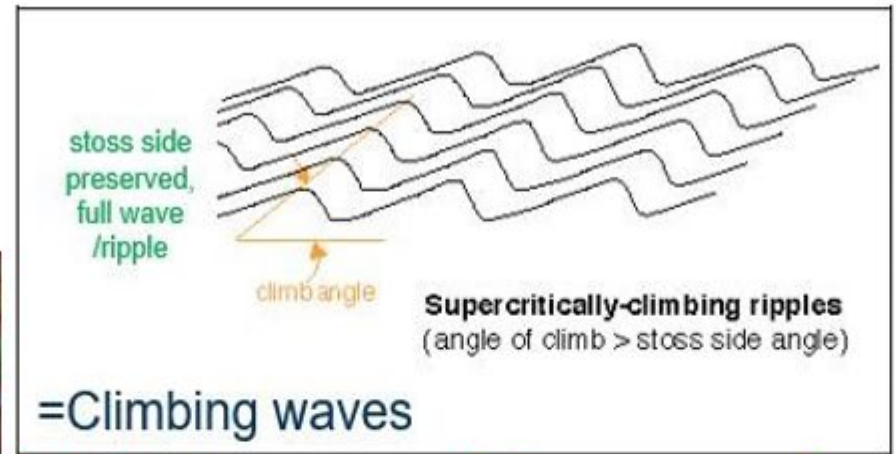
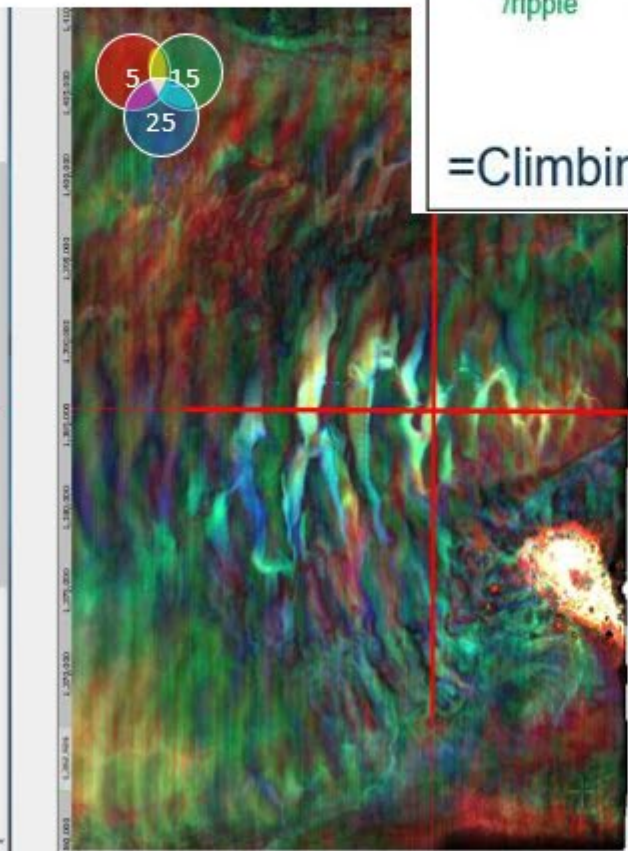
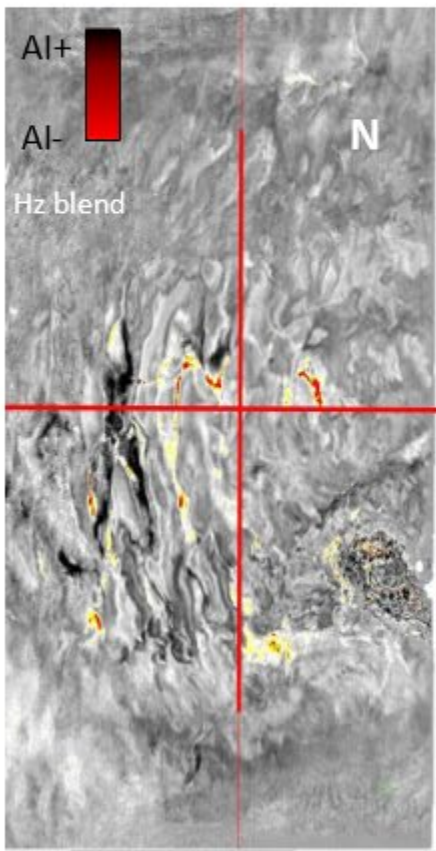
WOLOF-1



Senegal Offshore South 3D: Climbing Waves Sand Deposition



AI Attributes



A. Sutter 2008 adapted: University of British Columbia, Canada. Univ. of Oregon, Univ. of South Carolina, James Madison Univ., USA.

Albian/Campanian Level

RECENT FARM-IN OPPORTUNITIES



ST LOUIS OFFSHORE SHALLOW(SOS) & CAYAR OFFSHORE SHALLOW (COS)



PETROSEN
EXPLORATION & PRODUCTION

St Louis Offshore Shallow

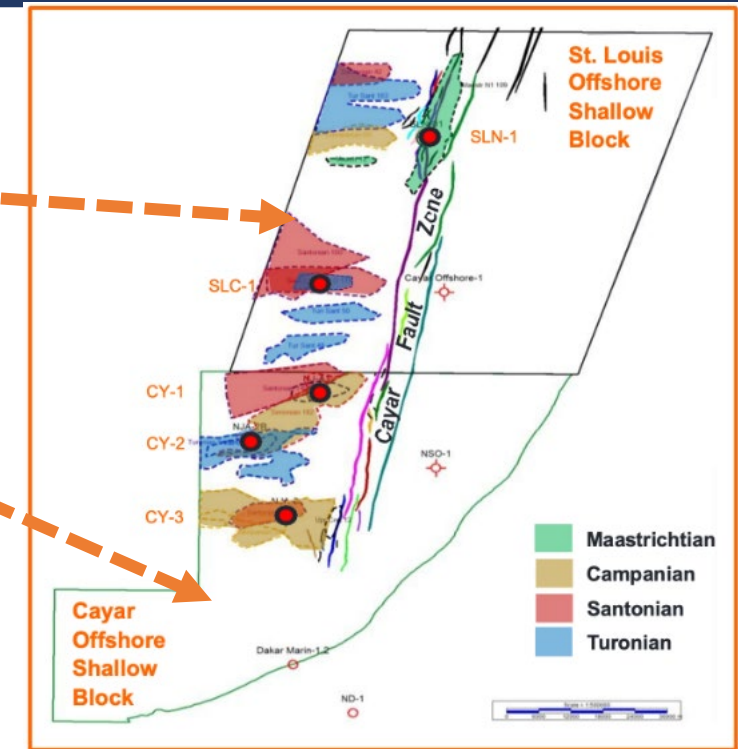
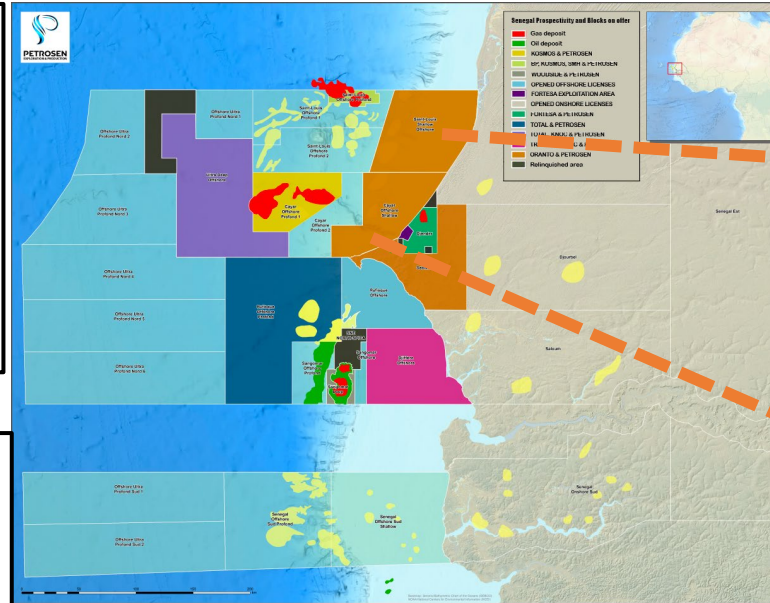
The asset was successfully awarded to ORANTO Petroleum in 2015 and covers a total area of 5,259 Sq.km. A previous well, Cayar Offshore-1 was drilled on the block by Shell in 1977.

Cayar Offshore Shallow

The asset was successfully awarded to ORANTO Petroleum in 2008 and covers a total area of 3,618 Sq.Km. A previous well NSO-1 was drilled by Shell on the block in 1969.

Commercial Terms

The current renewal exploration period for Cayar & St Louis Offshore shallow started in 2023 & ends in Mars 2026. The minimum expenditure is 25 Million USD; The back cost is 35 Million USD & cost recovery ip to 70%



Prospects Leads	Objectives	Water Depth	P50 (MMBO)
CY-1	Campanian / Santonian	360m	513
CY-2	Turonian / Campanian	560m	568
CY-3	Campanian / Santonian	225m	517
SLN-1	Maastrichtian	550m	514
SLC-1	Santonian / Turonian	723m	359

Prospectivity summary table for SOS & COS

Work Commitment for Cayar & St Louis Assets

- Subsurface Studies
- Acquire, Image & Interpret at least 500 km² 3D CSEM
- Re-Process and Re-Interpret 1200 km² 3D Seismic
- Integrate CSEM with Seismic
- Exploration well



PETROSEN
EXPLORATION & PRODUCTION

SEBIKHOTANE



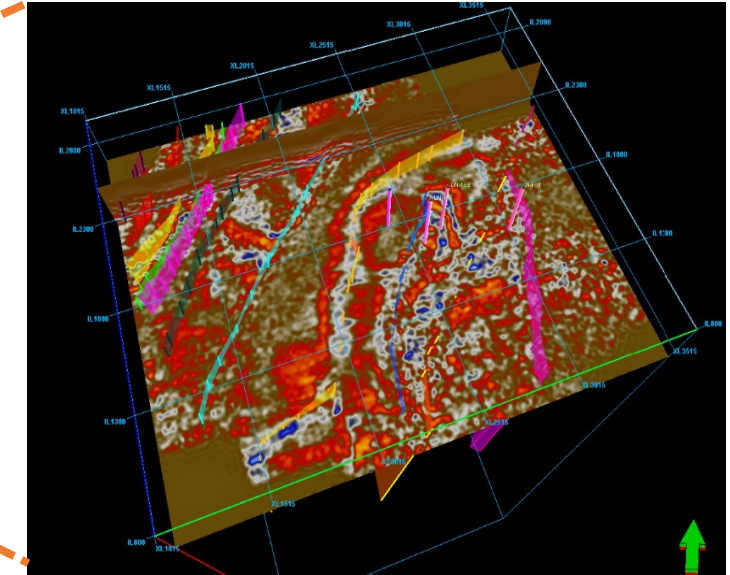
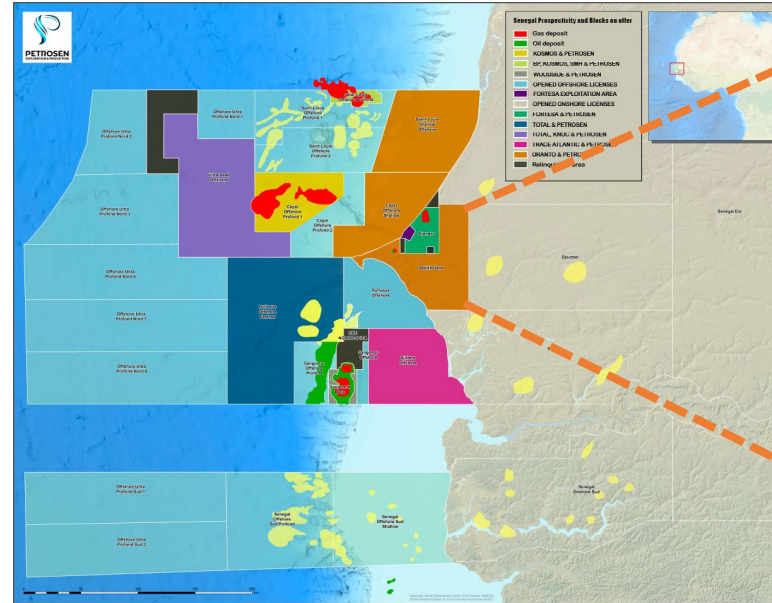
SEBIKHOTANE ONSHORE

The vintage 3D & 2D seismic & well data is being analysed & interpreted to design a geochemical campaign which will define the location of new 3D seismic surveys. The geochemical surveys are planned to take place in the second half of 2024.

Procedure & Contract

Interested companies are invited to contact Petroleum Asset Development Limited.

On completion of confidential agreement, access to the data room can be provided. A virtual data room may be available on request.



Sebikhotane 3D Data

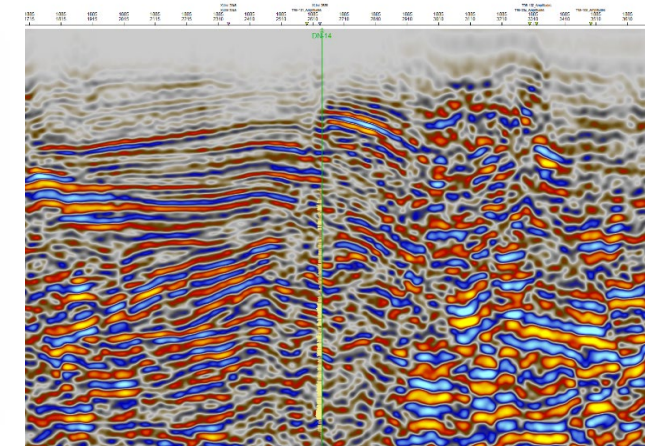
Petroleum Assets Development Limited

UK : +44 (0) 773 197 0266

NG : +234 (0) 810 757 5759

EM : ejn@petroleum-assets.com

WB : www.petroleum-assets.com



Cross section through the DN-14 former producer well

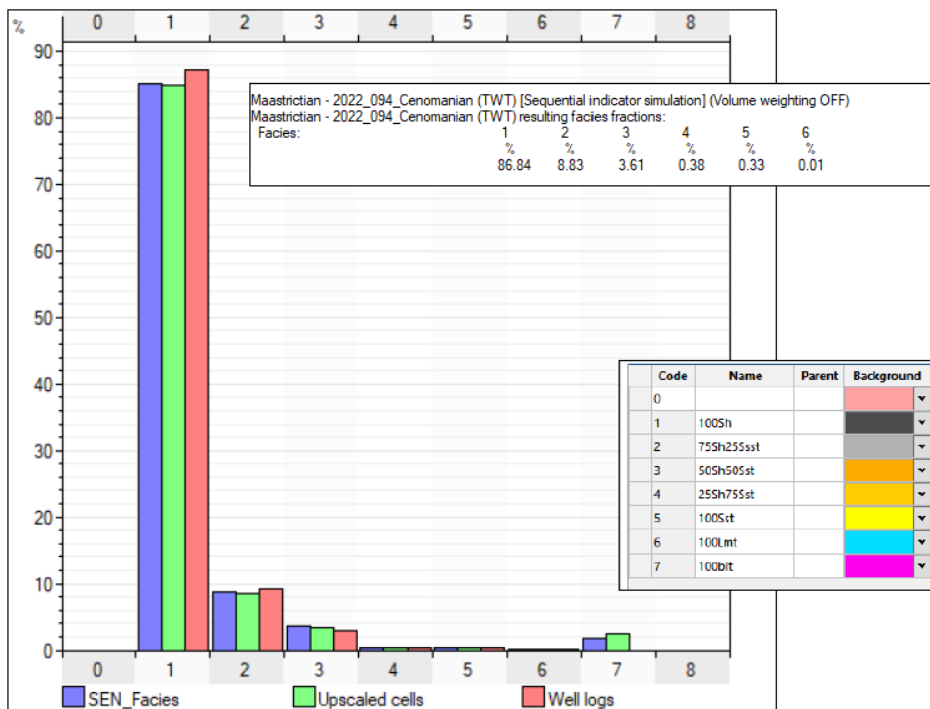


Senegal Offshore Basin: joint study results

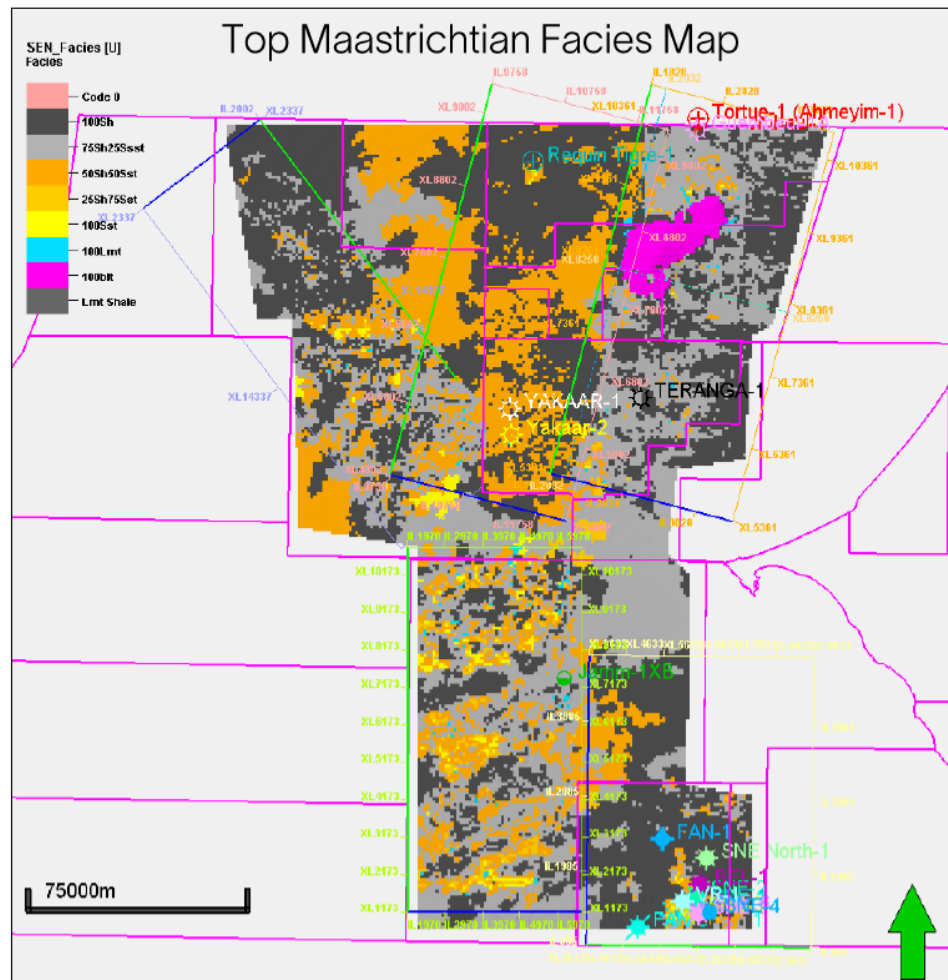
PETROSEN E&P - SLB



Maastrichtian - Cenomanian



Number of geological layers covered:	150
Nodes (nI x nJ)	203 x 270
Cells (nI x nJ)	202 x 269
Total number of 2D nodes:	54810
Total number of 2D cells:	54338
Total number of 3D cells (Simbox)	8150700
Average Zinc (along pillar)	6.02988130



Facies Modeling covering SLOP1 & SLOP2, COPI & COP2, UDO, UDO & Sangomas blocks.

Showing sand deposition from Cenomanian to Maastrichtian





TAX & FISCAL TERMS

EXPLORATION PERIOD

Initial Period: 4 Years

1st Renewal Period: 3 Years

2nd Period Period: 3 Years

EXPLOITATION PERIOD

Initial Period: 20 Years

Extension Period : 10 years

Contracting Model:
**PRODUCTION SHARING
CONTRACT (PSC)**

PETROSEN PARTICIPATION

Exploration Phases: Carried Interest
of 10%

After Commercial Discoverey: Working
Intesrest Up to 20%

FISCAL REGIME

Thirty per cent (30%) Income Tax
applied on Net Profit

TAX & FISCAL TERMS

SURFACE RENTAL

- Initial period: an annual fee of US\$30 per square Kilometre per year
- 1st Renewal: an annual fee of US\$50 per square Kilometre per year
- 2nd Renewal: an annual fee of US\$75 per square Kilometre per year

COST RECOVERY

- Shallow offshore: 60%
- Deep offshore: 65%
- Ultra-deep offshore: 70%
- Onshore: 55%

Contracting Model:
PRODUCTION SHARING CONTRACT (PSC)

ROYALTIES

<u>Hydrocarbons</u>	<u>Location</u>	<u>Royalties</u>
<u>Oil</u>	Onshore	10%
	Shallow offshore	9%
	Deep offshore	8%
	Ultra-deep offshore	7%
<u>Gas</u>		6%

PROFIT SHARING

$$R \text{ Factor} = \frac{\text{Cumulative Revenues}}{\text{Cumulative Investments}}$$

<u>R Factor</u>	<u>Share State</u>	<u>Contractor Share</u>
$R \leq 1$	40%	60%
$1 \leq R \leq 2$	45%	55%
$2 \leq R \leq 3$	55%	45%
$R \geq 3$	60%	40%



PETROSEN
EXPLORATION & PRODUCTION

WHY INVEST IN SENEGAL





THANK YOU !

For more informations see:

petrosenep@petrosen.sn or join the
team @ the PETROSEN booth.

