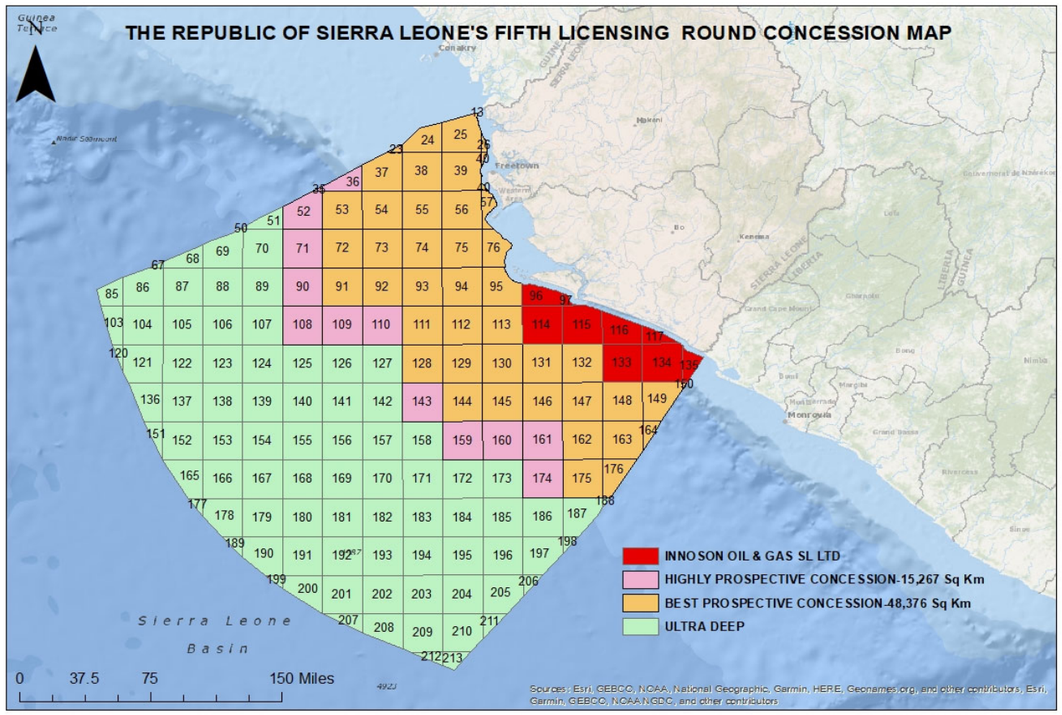
The Republic Of Sierra Leone

Fifth Offshore Licensing Round

Office of the President

19th May 2022—30th September 2022



Petroleum Directorate of Sierra Leone

Data Catalogue

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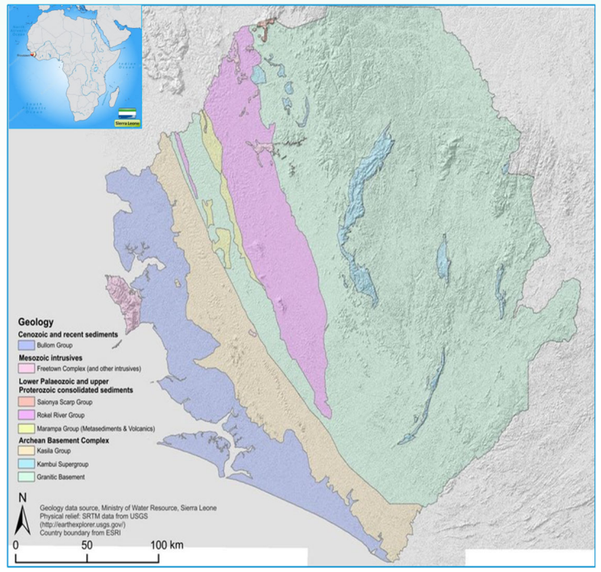
An Introduction to Sierra Leone

Sierra Leone is a West African country situated between the Republic of Guinea and the Republic of Liberia. The country has approximately 8 million people who speak the official language of English, although many local dialects derived from a tribal past are still spoken. The country has a dense tropical rainforest and wetland environment making it a host to a great diversity of flora and fauna, as well as sandy white beaches. The country was originally named Serra Leoa, which is Portuguese for 'Lioness Mountains', referring to the Lion Mountains near the capital of Freetown.



Map Of Sierra Leone

Following a study in 2016, about 12% of the population of Sierra Leone had access to electricity, of that 12%, 10% was in the capital Freetown, from the remaining 90% of the country, which equates to 7.2 million people, only 2% have access to grid-fed electricity (Energy Africa Access, 2018). With these low figures Sierra Leone is placed at 183 out of 187 in the development index, creating a real need for resources to be discovered, harnessed and distributed. There is however a positive view on the future for Sierra Leone from a hydrocarbon perspective.

An article a decade ago stated: 'Following the recent major discoveries in West Africa, a new focus has been placed on the conjugate margin in northern Brazil, where over the entire 2200km margin only 20 wells have been drilled in water depths greater than 500 m. Using the analogy from equatorial African discoveries, it appears that the highest potential may be in the deep waters on the slope and continental rise of the Brazilian margin.' (GeoExpro, 2011)


Turtle Island

An Introduction to Sierra Leone

Fast-forwarding to 2022, we are now looking for the discoveries along the northern South American coastline to see where the highest potential could lie in West Africa. Sierra Leone, which has more than 400 km of Atlantic coastline can be tectonically-reconstructed back to fit with the Guyana Basin.

Obviously, the exploration success in that region has led to truly world class oil discoveries (9 Bbbls at the date of publication, but with ever-growing satellite discoveries could be as large as 15 Bbbls), which should be waiting in their eastern twin in Africa.

ExxonMobil in Guyana have achieved great success, and Suriname is also surprising the oil industry with four recent similar discoveries by Apache and Petronas. However, French Guiana had the maiden discovery in the Zaedyus well before Guyana and Suriname, with recoverable resources estimated of 250 mmbbls.

The organic-rich source rocks that charge the Liza field complex (producing 120,000 bopd) and the surrounding discoveries from the Canje Formation (Late Cretaceous) were deposited at the same time as the similar source rocks that charge the Sierra Leonean discoveries of Venus and Jupiter (drilled by Anadarko in the early part of the last decade).

These source rocks were deposited in this unique environment created after the rifting of the two continents. Further to the south in the West African margin, in Republic of Côte d'Ivoire and Ghana, the same age source rocks are deemed responsible for the sourcing of oil in several discoveries, among which Jubilee is the most important (producing 82,000 bopd in 2020).

The same successful petroleum system seems to be present along the entire South American margin of the Equatorial Atlantic Ocean. Interpretation of recently acquired high-resolution seismic data in the Foz do Amazonas and Pará-Maranhão Basins in northern Brazil indicates that the potential for the replication of the success in the neighbouring countries is highly likely.

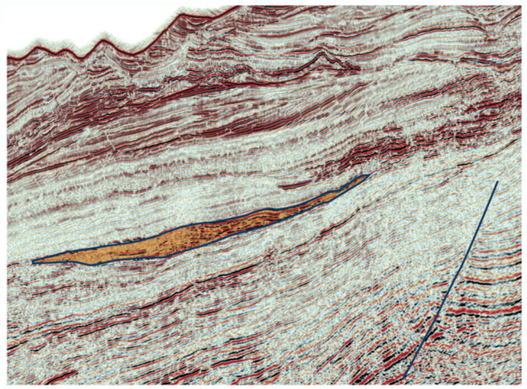


Figure 1 PSTM image showing the Venus non commercial discovery (2009) drilled in 1800 m of water.

Tens of prospects of stratigraphic traps encompassing slope submarine fans and channels of Late Cretaceous age were mapped and their dimensions are greater than those in Guyana and Suriname.

Previous Exploration in Sierra Leone

Sierra Leone has a mature mining industry with extraction in minerals which include diamonds, bauxite, gold, iron ore, platinum, zircon plus other heavy minerals, but the tectonic and thermal regimes that produce these precious mineral resources in the onshore realm also provide the perfect environments for promising petroleum potential.

Offshore exploration started in the 1980s with wells drilled by Amoco and Mobil finding oil shows in the shallow water. The first-deep water wells drilled from 2009 onwards resulted in the discoveries of Venus (Figure 1), Jupiter and Mercury. These wells targeted Late Cretaceous fan systems that had class II/III AVO anomalies and proved that all petroleum system elements were in place and the thermal regime was suited for oil generation at the critical moments.

The oils recovered to surface were described as 'light sweet crude oil with a gravity of between 34° and 42° API' (Reuters, 2010) with a secondary target of the Mercury well recovering 24° heavier crude in a shallower reservoir (Tullow Press Release, 2010).

Though these recent discoveries were non-commercial the initial early positive confirmation are great indicators of what lies in wait. The first commercial well in the conjugate Guyana Basin was the 23rd well drilled in the basin, so with only eight wells having been drilled offshore Sierra Leone so far, there is already more positivity despite the sparsity of the drilling with only one of the eight previous wells coming up dry.

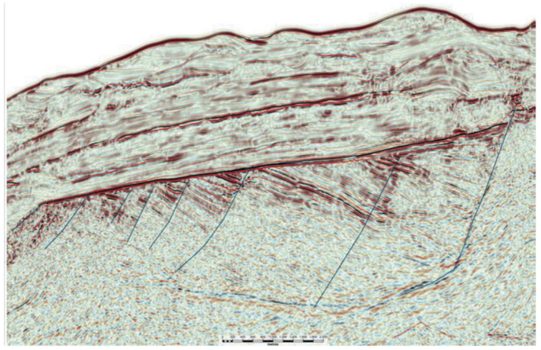


Figure 2 2D PSTM seismic data indicating untested potential in the northern domain of the Sierra Leone basin in particular in the syn-rift section

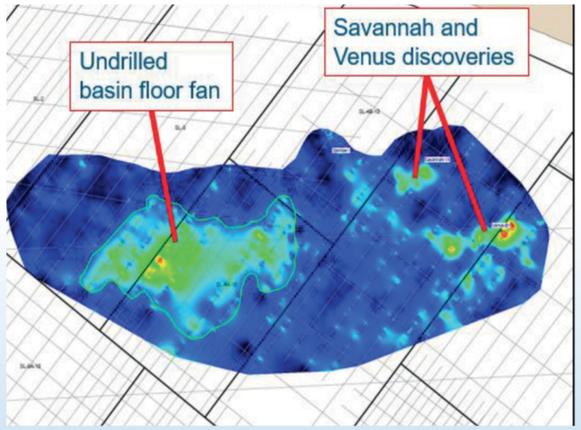
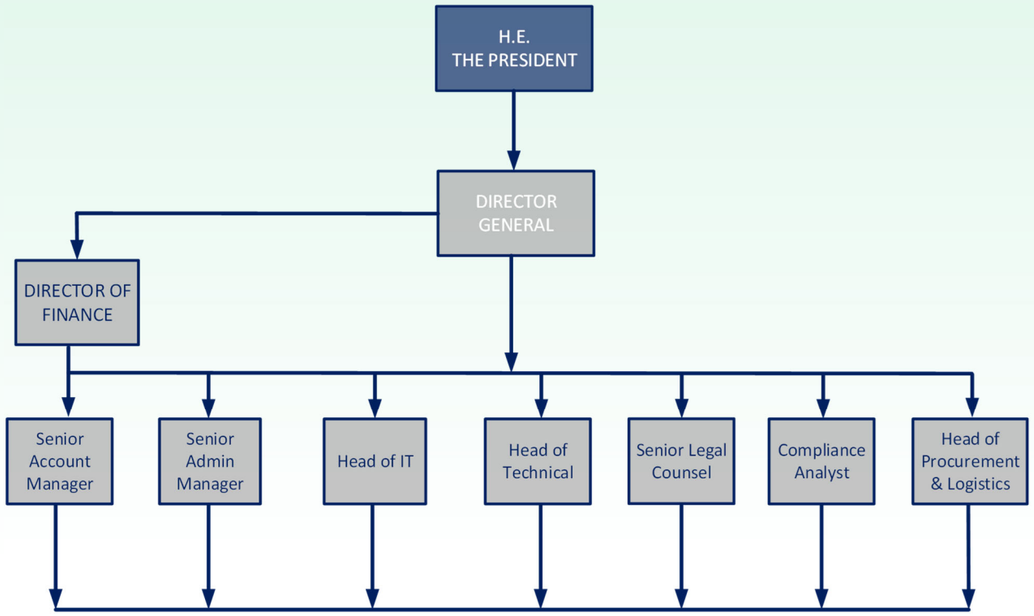


Figure 3 Undrilled basin floor fans many times bigger than the sub-commercial proven up dip siblings. The saddle structure provides the up dip disconnect limiting the up dip migration of hydrocarbons to further charge the Savannah and Venus discoveries

Petroleum Directorate of Sierra Leone (PDSL)



Who We Are

- Due to its unique position directly under the Office of the President, the Director General reports directly to the President of the Republic of Sierra Leone.
- This set up reduces bureaucracy and promotes efficiency which is in the best interest of the State and investor.

What We do

- Custodian of all upstream and midstream oil and gas activities for the State.
- Create, Review and Amend Petroleum Law for the State.
- Facilitate Licensing Rounds and Direct Negotiations and Negotiate Petroleum Agreements.
- Regulate upstream activities on behalf of the State.

PDSL Data Room

Our Mission is to :

"Facilitate the optimal exploration, development and production of Sierra Leone's Potential Petroleum Resources for the long term benefit of its people, through the development of regulatory guidelines and monitoring contract compliance, having due regard for the economy, the environment, safety, technology, as well as balancing the interests of the nation and investor"

Petroleum Directorate of Sierra Leone (PDSL)

The Petroleum Directorate stands out as one of the few institutions to run a successful Licensing Round amidst the global threat of the Covid -19 pandemic, and awarded acreage.

Six companies prequalified during the Fourth Licensing Round process and two provisional licences were awarded to Innoson Oil and Gas and Cluff Energy Africa at the end of a successful bid evaluation.

Negotiations were completed with Innoson and award of license signed and ratified, making Innoson an existing operator in the Sierra Leone Basin.

The ability of PDSL to cope with the disruption of the world economic markets during the global pandemic that halted and delayed many other activities, is a testament to the professionalism and reliable investment climate that the PDSL has created and it is keen to grow with stability. Part of this approach has been through the adoption of the Extractive Industries Transparency Initiative (EITI), which creates a transparent, and fair investment platform that is publicly visible (https://eiti.org/sierra-leone).

Recent Changes

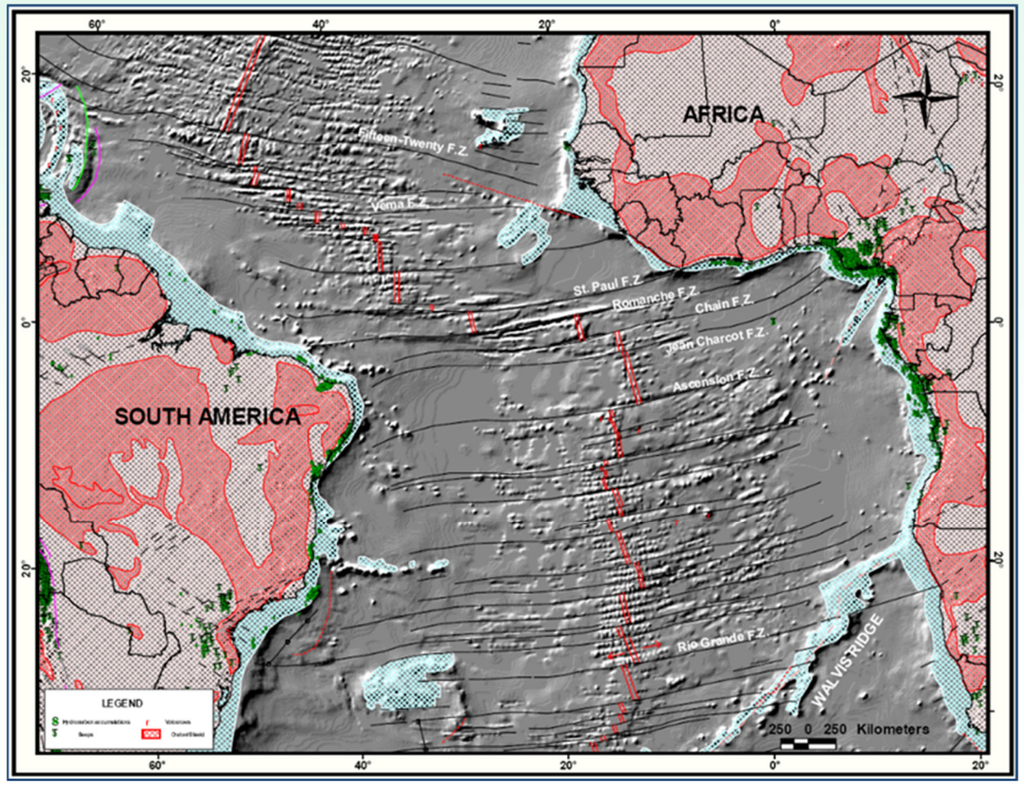
At the end of 2020 TGS entered into a long-term collaboration with the Petroleum Directorate of Sierra Leone (PDSL), which under the direction of **Foday B.L. Mansaray II** has the ambition to bring commercial hydrocarbon industry success to its nation.

The new partnership enables TGS to be able to work closely with the in-country experts from the PDSL and review the previous exploration data holistically, while bringing in TGS' additional knowledge from complementary datasets in the neighbouring basins and on the conjugate margin.

By working both sides of this prolific margin, TGS is well placed to help the PDSL reach its aim of delivering a commercial discovery.

The new collaboration is multifaceted and puts in place a long-term strategy for reprocessing and refreshing legacy datasets, alongside acquisition of new data. Interpretation of the legacy datasets in Sierra Leone and coupling with surrounding datasets in appropriate basins highlights that additional information is key to advancing the subsurface understanding.

Geological History

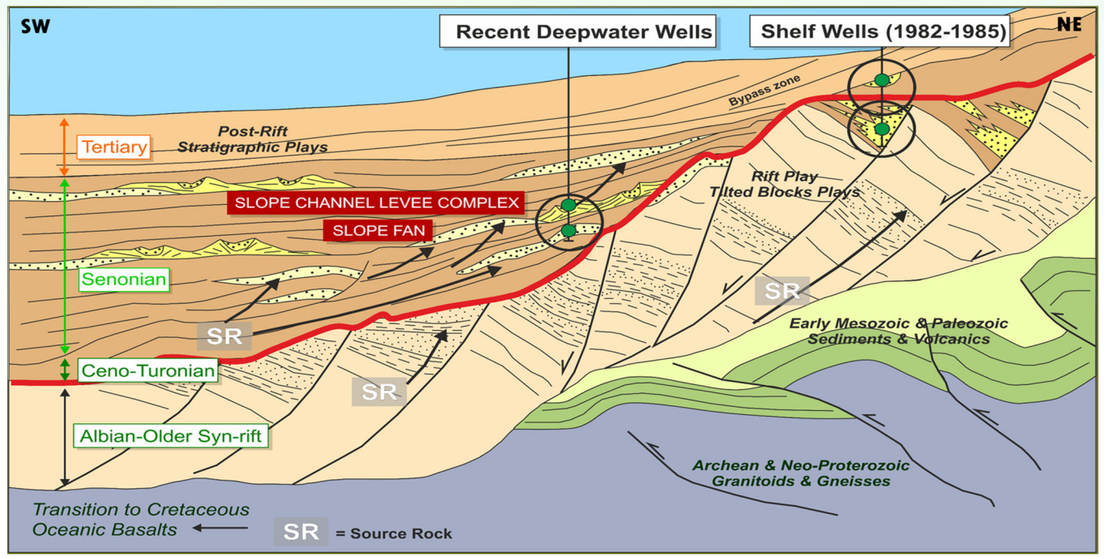


Breakup of Africa and South America and the tectonic evolution of the Equatorial Atlantic from Brownfield & Charpentier 2006, modified from Mascle et al. 1988]

- The pre-rift consists of faulting of the Palaeozoic to Jurassic strata with associated volcanics.
- From late Jurassic to early Cretaceous period there was active rifting, coincident with tectonic subsidence of the stretched continental crust. This created extensional faulting and continental siliciclastic deposition took place in the resultant grabens. From the Aptian to Turonian, the fluvial and lacustrine environment progressed to a shallow marine environment as the Sierra Leone Basin was finally separated from its conjugate the Guyana Basin; the beginning of the passive margin phase.
- Significant amounts of alluvial, fluvial and lacustrine sediments were deposited, and shallow marine incursions flooded the more subsided parts of the rifted terrain in the mid-Albian time.
- Immediately after the onset of seafloor spreading, the marine realm transgressed and drowned the inner shelf and slope. The continued seafloor expansion developed oceanward, deepening with rotation of the rifted fault blocks and a full deep marine depositional environment established itself on the new crust in the proto-Atlantic basin.

The Petroleum System

The prospectivity of the offshore waters of Sierra Leone is supported by an inventory of extremely high quality geological and geophysical data archive. With eight [8] wells drilled to date and the chance of success for a discovery at 50%, the existence of a working petroleum system and the chance of a commercial discovery are fairly high.



Offshore Sierra Leone margin

Source Rocks

- Aptian-Early Cenomanian {Lacustrine Shales Type—II/III}
- Cenomanian-Turonian {Marine Shales—Type-II}
  - Hydrogen Index
    - SL: 482-795
    - Guyana: 450-613

Total Organic Carbon (TOC):

- SL: 4-20%
- Guyana: 4-10%(Liza-1)

Source Rocks have been proven on the conjugate margin.

Reservoirs

- Reservoir sequences in the Aptian, Albian, Cenomanian, Maastrichtian and Eocene
- Net sand thickness estimated at 1500m for all sequences
- Average porosity expected to exceed 15% for all sequences.

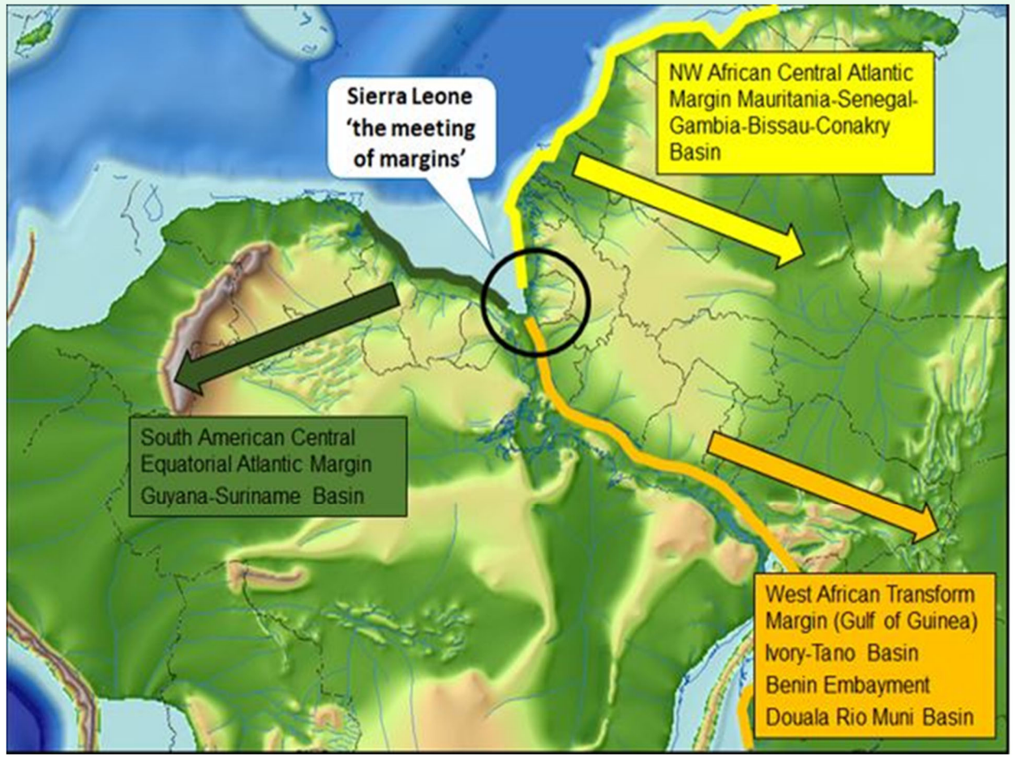
Traps

- Structural, stratigraphic and combination traps

Seals

- Lateral Transformational Shales (effective seals), regional hemi-pelagic shales and sealing faults.

The Petroleum System—Conjugate Analogues



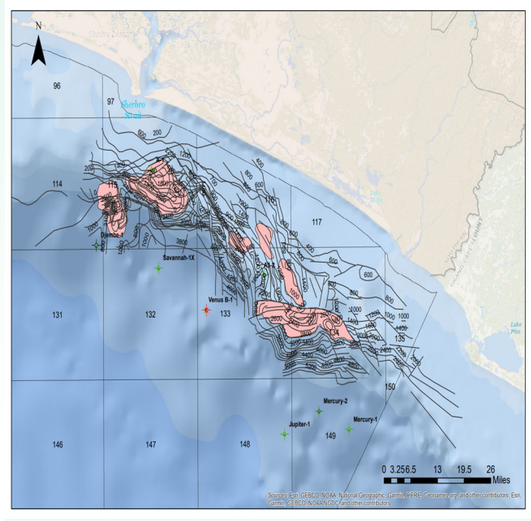
- The Conjugate margin analogues—there is a lot of industry interest in the oil discoveries since 2014 offshore Senegal/Mauritania/Guinea Bissau and Guyana in South America, which are of similar age to the prospective plays of Sierra Leone.
- Sierra Leone hosts highly prospective Upper and Lower Cretaceous Structural and Stratigraphic plays with light sweet oil tested in some of these intervals.

Country	Field/Discovery	Type	Age	Reservoir
Guyana	Liza (2015)	oil	Upper Cretaceous	sandstone
Guyana	Payara (2016)	oil	Upper Cretaceous	sandstone
Guyana	Snoek (2017)	oil	Upper Cretaceous	sandstone

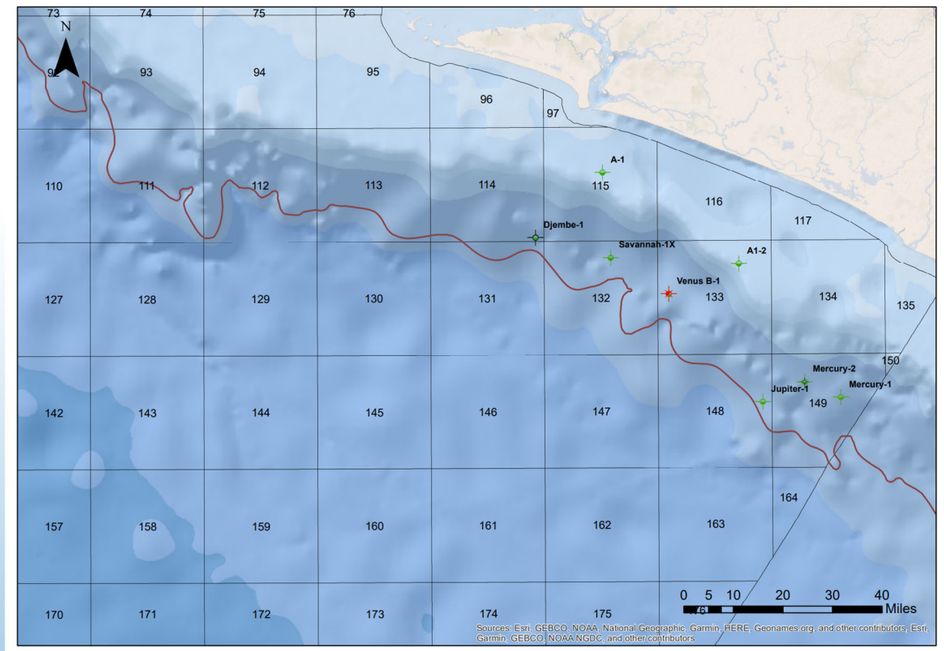
Exploration History

Exploration History

- Exploration began in the early 1980s, with initial work focused on shallow waters, with acquisition of 2D seismic & gravimetric surveys offshore.
- Subsequent drilling of A-1 (Mobil) and A1-2 (Amoco) between 1982-85 on the inner shelf (<100m water depth) encountered hydrocarbon shows.
- More exploration work followed with the acquisition of speculative 2D data (5,800 sq. km) by TGS-NOPEC between 2000-01, which sparked another exploration cycle.
- From the early 1980's to present, eight wells have been drilled within the offshore Sierra Leone basin
- The source rock potential of the basin has been identified in the Aptian, Turonian and Cenomanian intervals of the Cretaceous.

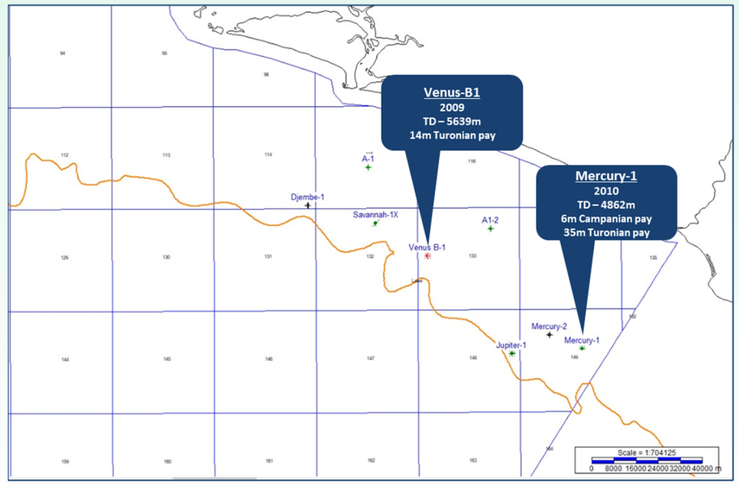


Time structure map of shallow water areas offshore Sierra Leone.



Well Locations Offshore Sierra Leone

Undeveloped Discoveries



1. Venus – B1 (2009) - Anadarko

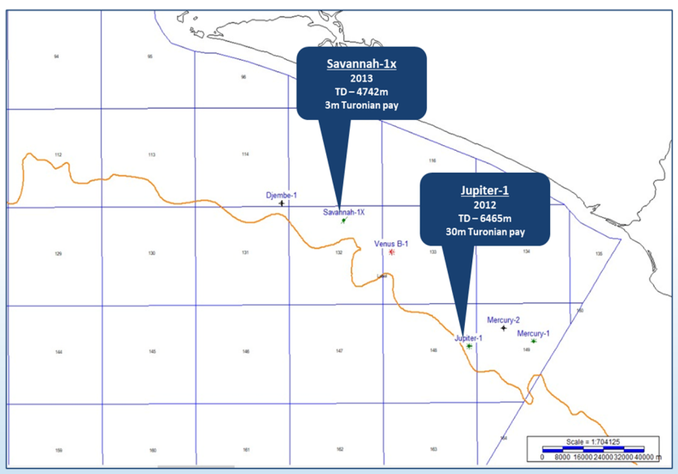
Water Depth: **1,800m**, TD: 5,636m in Albian

* Hydrocarbons: ~**14m net oil pay** (condensate) in Cretaceous age sediments
* Good quality reservoir sand(channel/fan)
* Several good reservoir quality intervals all way down to TD.

2. Mercury – 1 (2010) - Anadarko

Water Depth: **1,600m**, TD: 4,862m in Albian

* **41m net oil pay** in Cretaceous age fan system.
* 35m net oil pay of in primary objective—light sweet crude (34° – 42° API oil) 6.4m
* 6.4m of 24° API oil in a shallower secondary objective.



3. Jupiter-1 (2011) - Anadarko

Water Depth: **2,199m**, TD: 6,465m

* The well intersected ~ **30m of pay** (condensate) in the primary Upper Cretaceous objective and encountered an OWC.

4. Savannah-1X (2013) - Lukoil

Water Depth: **2,153m**, TD 4,737m

* The well intersected ~**3m oil pay** in the primary objective.
* Tested numerous high-quality reservoirs.

Prospectivity (Shallow Water)

New Plays up Dip

In Figure 4 we can see a series of tilted fault blocks with high amplitude, high-frequency banding, indicative of clastic sediments that were deposited in the pre-rift environment before they were faulted and rotated during the mid-Albian continental break-up.

The stark unconformity eroded the tops of these fault blocks and provided a thick sealing shale layer that forms the perfect top seal for these rotated traps, providing confidence that they were faulted and rotated during the mid-Albian continental break-up. This thick top seal is comprised of the Apto-Albian and Turonian world-class source rocks that have both been tested in the previous exploration campaigns and have been prolific in the nearby production in the Ivorian and Tano basins (i.e. Jubilee field, 82,000 bpd in 2020, proven reserves 3Bbbls, source: Tullow).

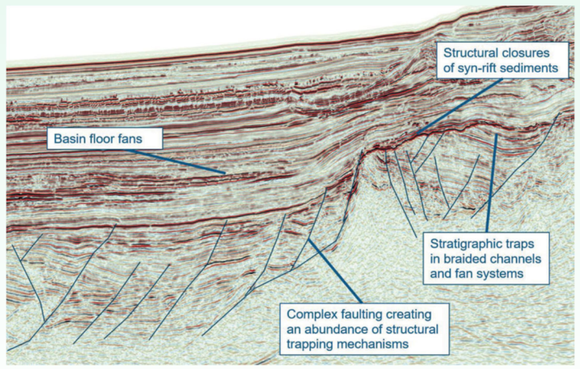
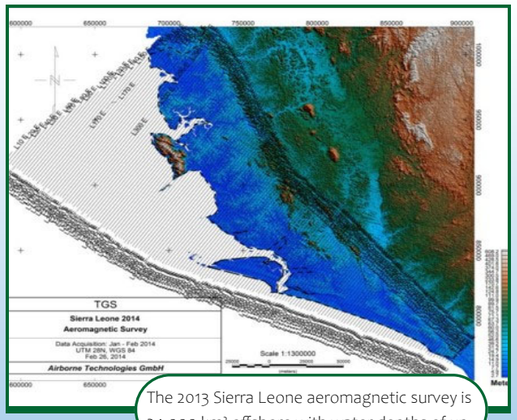
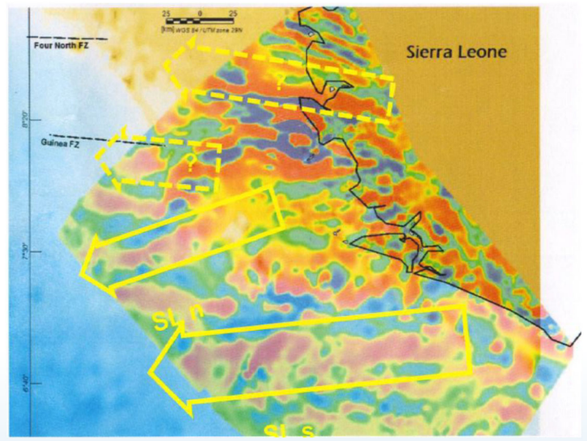


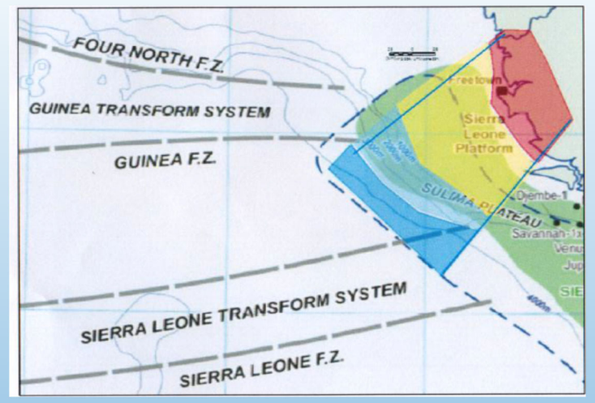
Figure 4 3D PSTM seismic example indicating untested potential of the perched basins in the syn-rift. In the post-rift basin floor fans and deep-water channels are the main reservoir. Numerous paleao-pockmarks are evidenced along with the BSR in the shallower section

- Rifted fault blocks present in proximal offshore area of Sierra Leone basin.
- Targets are up dip of deep water discoveries & provide significant prospectivity with reduced drilling costs.
- Prolongations of the Sierra Leone FZs onto the shelf and onshore are clearly visible as ridges in the high pass filtered magnetic merge.

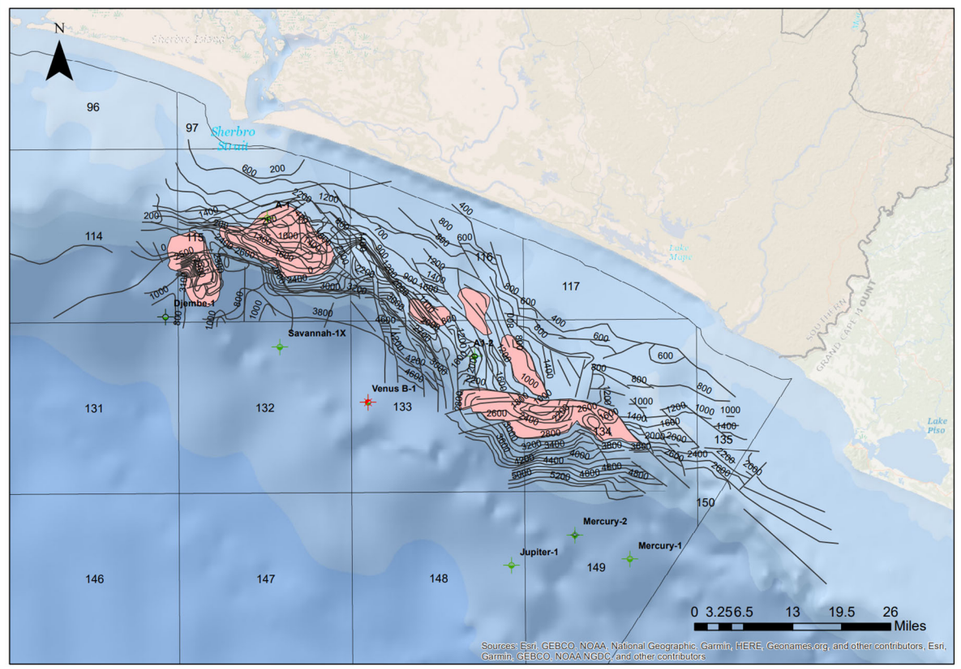


The 2013 Sierra Leone aeromagnetic survey is 24,000 km² offshore with water depths of up

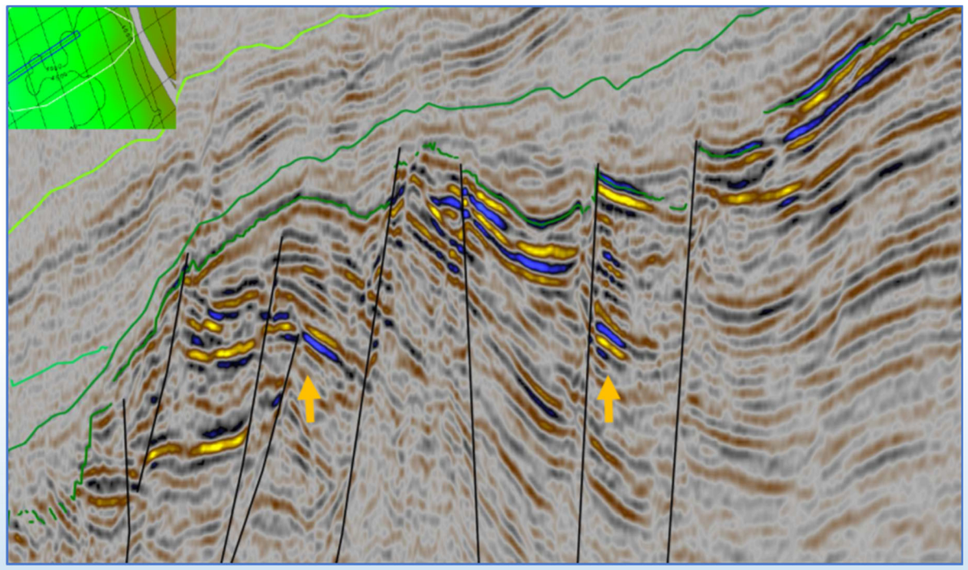




Prospectivity (Shallow Water)



Re-digitalized 80's data with ArcGIS [PDSL, 2022]



Rotated Fault Blocks into Fault Seal

- Targets in water depths of less than 150m
- Additional seal and traps due to Sierra Leone Fracture zones extending onto shore, as detected in high pass filtered magnetics.

Prospectivity (Deep-water)

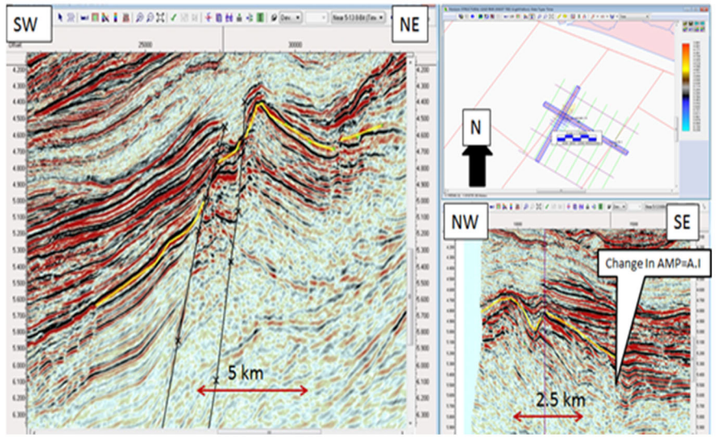
What we can expect going forward

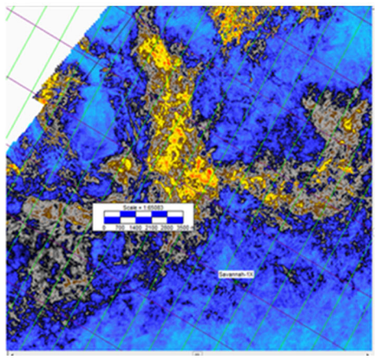
So far there have been eight wells to test the deep-water setting in the continental slope. All have been submarine fan systems with prominent AVO anomalies. There is further evidence to suggest that there are also completely untested opportunities for commercial discoveries in the basin floor as well as in the more proximal northern domain of the Sierra Leone basin.

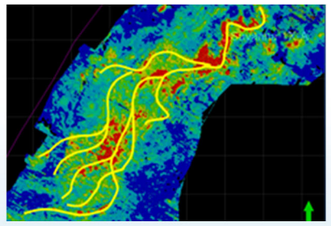
Moving down-dip

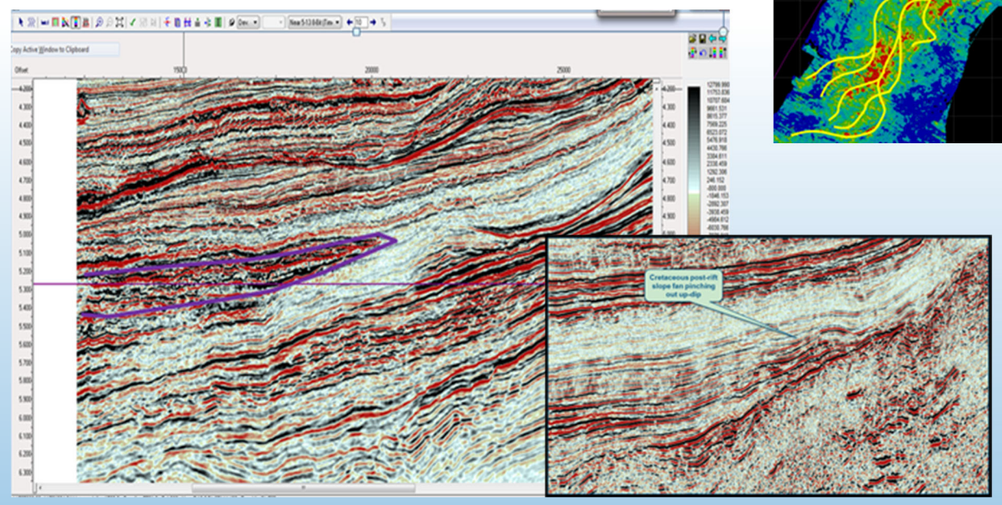
"Go deeper" has been the mantra of the industry over the last decade and technical drilling capabilities have progressed so much that water depths of 4000 m are now in sight (Total's Venus and Ondjaba wells in Namibia and Angola in 2021). This opens up the basin floor domain in the Sierra Leone offshore, where larger lobate sand bodies are more distal, providing better sorted reservoirs, with greater connectivity and ultimately larger spatial areas. They constitute the real prize for chasing the proven plays into deeper water.

Structural and stratigraphic plays as well as proven hydrocarbons in deep-water cretaceous turbidite plays identified in deep-water by PDSL indicates abundant remaining potential.





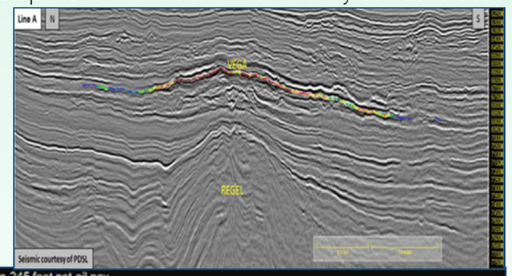


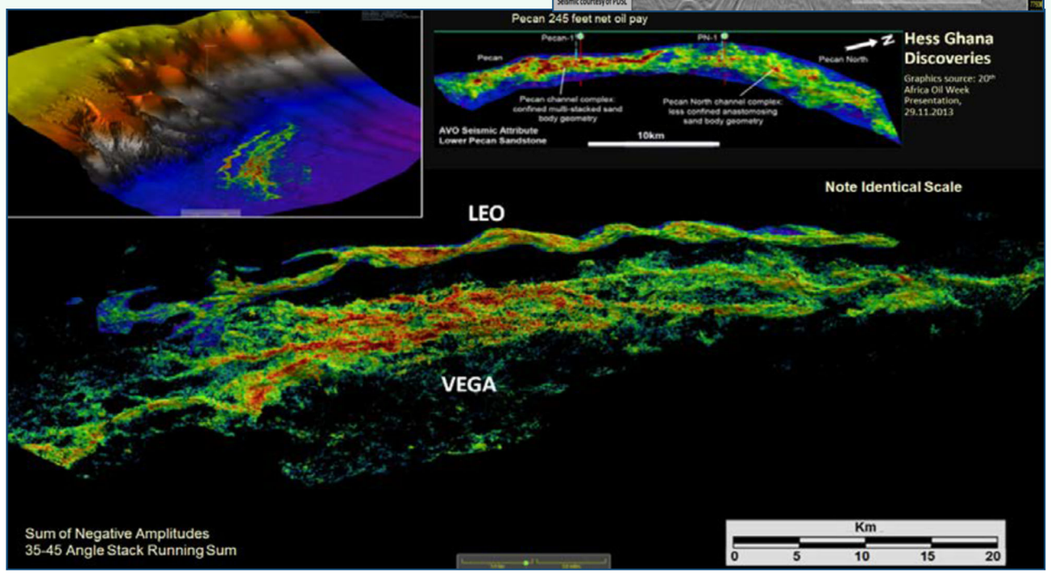


Prospectivity (Deep-water)

The current knowledge is that submarine fan development in the basin was mainly concentrated over the :

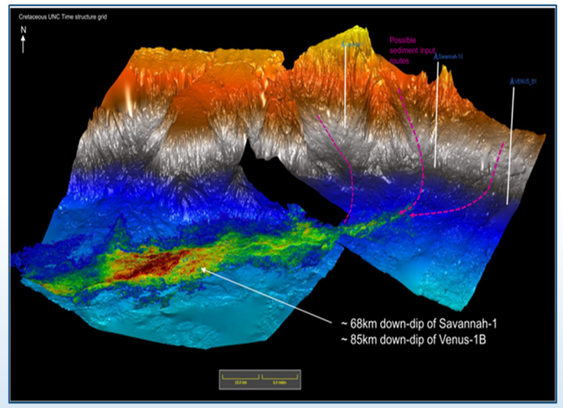
- Late Albian Unconformity (MCU)
- Santonian Unconformity, and
- Base Tertiary Unconformity (K/T Boundary)

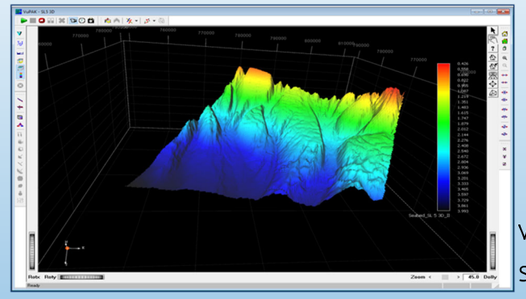




Geo-body Mapping from Vega & Leo Prospects [African Petroleum; 2017]

- Numerous untested deep water turbidite and basin floor fan plays.
- Low-angle down dip fans have potential to set up really large traps.
- Excellent quality reservoirs in Santonian and Campanian sediments.
- Down dip reservoir quality predicted to significantly improve due to reduce overburden, better sorting and low reservoir temperature.





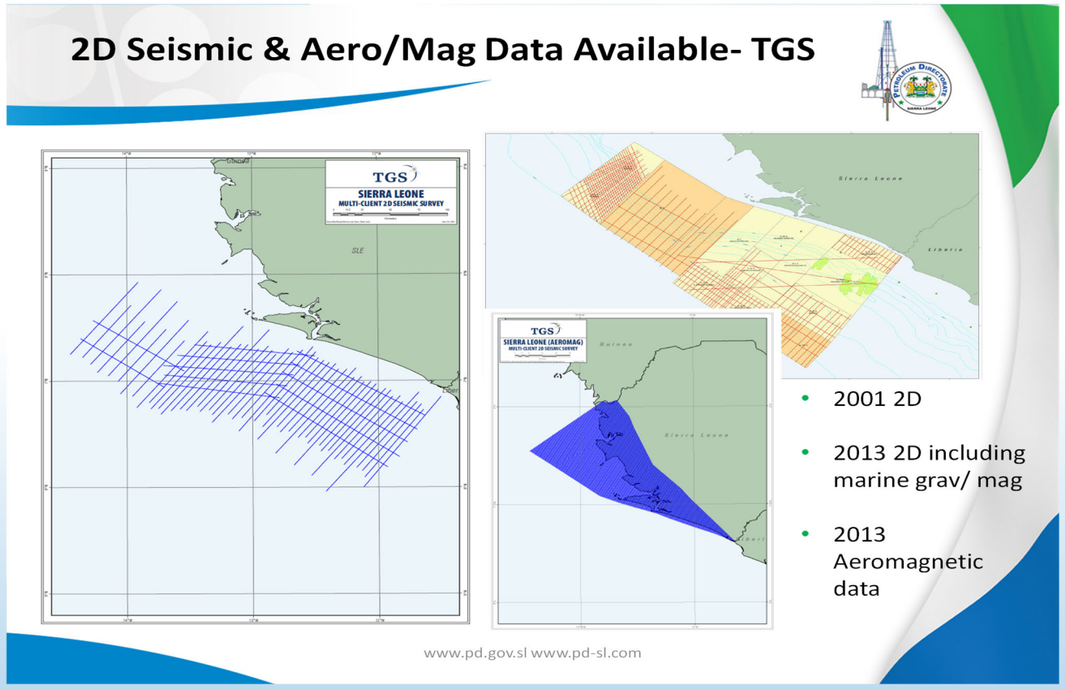
Vupak [Kingdom Software] rendering of the Seafloor around the Savannah Well Offshore Sierra Leone Wells

Data Coverage—2D Seismic

Over 29,000 line km of high quality released 2D seismic data is available to license, providing extensive coverage of offshore Sierra Leone.

These surveys include the TGS multi-client programs of 2001 and 2013, the MSL survey acquired by Mobil in 1980/81 and the UNCLOS survey acquired by Gardline for the EEZ program.

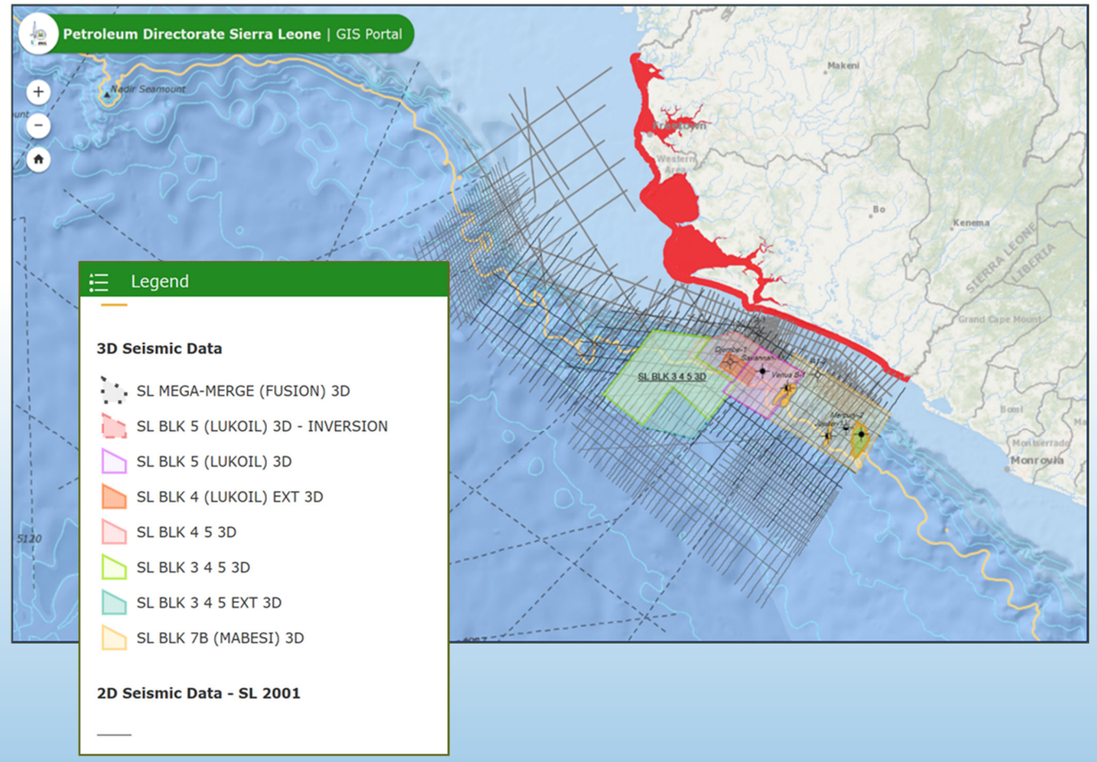
Survey Name	Coverage	Description
SL 2001 2D	5,784 line km	PSTM, Angle Stacks and PSDM processing available
SLI 2013 2D	10,487 line km	PSTM, Angle Stacks and PSDM Processing available
80/81 MSL 2D	5,840 line km	Seismic data acquired on behalf of Mobil Exploration in early 1980's
UNCLOS 2D	6,998 line km	Regional 2D lines acquired to delineate the limit of the continental shelf along the coast of West Africa



Data Coverage—3D Seismic

Over 11,000 sq. km of released 3D seismic data covering offshore Sierra Leone is available to license, including previously unreleased PSDM and PSTM surveys and multi-client data covering the four hydrocarbon discoveries in Sierra Leone.

Survey	Coverage	Acquired by	Reprocessing history
SL BLK 7B (MABESI) 3D	4191 sq. km	Acquired in 2004 on behalf of Repsol	Reprocessed to PSDM by Anadarko in 2009/2010
SL BLK 4 5 3D	2649 sq. km	Acquired by TGS IN 2008	Partly reprocessed to PSDM on behalf of Lukoil in 2013/2014
SL BLK 3 4 5 EXT 3D	5080 sq. km	Acquired by TGS in stages between 2008-2014	PSTM processing and angle stacks available
SL MEGA-MERGE (FUSSION) 3D	7126 sq. km		Post-stack merge of all TGS acquired surveys in Sierra Leone: SL BLK 4 5 3D SL BLK 3 4 5 EXT 3D



Data Coverage—Well Data

Across Sierra Leone's 140,000km² of offshore waters, eight exploratory wells have been drilled. All penetrated significant thickness of normally pressured reservoir quality sandstones. Five have encountered hydrocarbons and four have produced oil to the surface. Albeit none of the eight exploratory wells were deemed commercially viable, the results prove the existence of a working hydrocarbon system.

Data from all eight offshore wells in Sierra Leone are released and available to license. These high quality well data enables investors to calibrate geological and geophysical interpretation for the offshore acreage.

WELL NAME	YEAR DRILLED	BASIC WELL DATA PACKAGE								
		WELL LOGS								
		LAS			DLIS			PDF/TIFF		
		WIRELINE	MWD/LWD	PWD	WIRELINE	MWD/LWD	PWD	WIRELINE	MWD/LWD	PWD
A-1	1982							✓		
A1-2	1985							✓		
DJEMBE-1	2012	✓	✓					✓	✓	
JUPITER-1	2011	✓	✓		✓			✓	✓	
MERCURY-1	2010	✓	✓		✓	✓		✓	✓	
MERCURY-2	2011	✓		✓	✓		✓	✓		✓
SAVANNAH-1X	2013	✓	✓	✓	✓	✓		✓	✓	✓
VENUS-B1	2009	✓			✓					

WELL NAME	YEAR DRILLED	BASIC WELL DATA PACKAGE											
		WELL LOGS							TIME-DEPTH				
		DRILLING DATA LOG	FORM EVAL LOG	PRESSURE EVAL LOG	TEMP DATA LOG	LITHOLOGY LOG	COMPOSITE LOG	MUD LOG	CHECK-SHOT	VSP	DEVIATION	FINAL WELL REPORT	RE-ENTRY WELL REPORT
A-1	1982								✓			✓	
A1-2	1985	✓	✓	✓	✓		✓	✓		✓		✓	✓
DJEMBE-1	2012					✓	✓						
JUPITER-1	2011	✓				✓	✓	✓	✓		✓		
MERCURY-1	2010	✓		✓		✓	✓	✓	✓	✓	✓	✓	
MERCURY-2	2011						✓			✓	✓	✓ (DRAFT)	
SAVANNAH-1X	2013	✓					✓	✓		✓	✓	✓	
VENUS-B1	2009	✓	✓	✓		✓	✓	✓ (gas log)		✓		✓	

WELL NAME	YEAR DRILLED	ENHANCED WELL DATA PACKAGE												
		POST COMPLETION REPORT	PRE-DRILL REPORTS/ PROGNOSI	GEOLOGICAL REPORT	PETRO-GRAPHIC REPORT	CORE		PETRO-PHYSICS	BIOSTRAT REPORT	GEOCHEM REPORT	FLUID INC. STUDY	FLUID ANALYSIS STUDY	MISC GEOLOGICAL REPORTS	GEOHAZARD REPORT/EIA	DRILLING REPORTS
						CONVEN.	SWC								
A-1	1982	✓				✓	✓								✓
A1-2	1985					X	✓		✓	✓			✓		✓
DJEMBE-1	2012		✓			X	✓								✓
JUPITER-1	2011				✓		✓	✓	✓	✓			✓		✓
MERCURY-1	2010			✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
MERCURY-2	2011				✓	✓	✓	✓	✓	✓	✓	✓			✓ (some)
SAVANNAH-1X	2013			✓	✓	X	X		✓		✓	✓	✓		✓
VENUS-B1	2009				✓		✓	✓	✓	✓	✓	✓	✓	✓	✓

Data Coverage—Additional Data Products

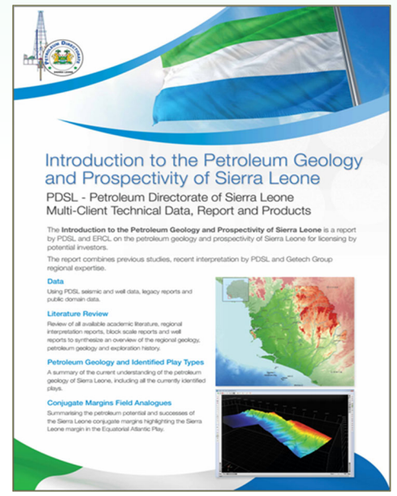
Joint Studies

Combining the local technical knowledge of PDSL and broader regional experience, a number of reports have been developed providing both first-pass information about the hydrocarbon prospectivity of the country and more detailed crustal and structural analysis; assessing Sierra Leone in a regional context.

Available PDSL and Getech studies for Sierra Leone include:

1. Introduction to the Petroleum Geology and Prospectivity of Sierra Leone

Based on PDSL's seismic and well data, legacy reports and public domain data, as well as a comprehensive literature review including all available academic literature, regional interpretation reports, block scale reports and well reports, this report combines previous studies, recent PDSL regional interpretation and regional expertise to summarize current understanding of the petroleum geology of Sierra Leone, including all identified plays.



2. Digital Atlas

Delivered in ArcGIS compatible formats, the Sierra Leone Digital Atlas is a geospatial database product comprising materials from the PDSL archives supplemented by regional information, including GIS datasets for block boundaries, seismic navigation, well locations, well headers, well summaries, bathymetry, public domain gravity & magnetic grids, hyperlinks to key figures & sections, legacy maps from past Amoco & Mobil report and DSDP/ODP wells data

3. Structural Evolution and Prospectivity [TGS]

4. Sierra Leone Structural Studies

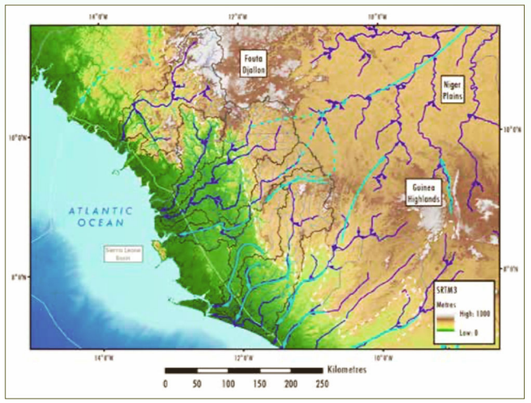
Data Coverage—Additional Data Products

Regional Reports by Getech

Underpinned by the world's largest and most extensive gravity and magnetic database, Regional Reports provide valuable insight into the geological evolution and potential hydrocarbon prospectivity of specific hydrocarbon basins.

Reports available over Sierra Leone include:

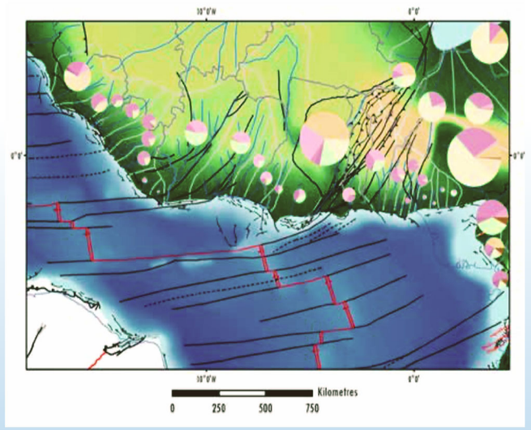
1. Palaeo-drainage and Provenance Assessment



Drainage patterns of the Corubal, Fatala, Great Scarcies, Mabole and Rokel Rivers

This Regional Report provides an evaluation of the African Equatorial Atlantic margin and investigates the palaeo-drainage history of the region. Using innovative methods of reconstructing the palaeogeology it assesses the impact that palaeo-climate and palaeo-weathering have had on the likely provenance and timing of sediment input to the offshore basins.

2. Equatorial Atlantic



This Regional Report describes the implications of the tectonics and hinterland evolution on the petroleum potential of the entire Equatorial Atlantic region. A basin-by-basin analysis of the tectonostratigraphic and palaeogeographic evolution of the margin provides answers to the key issues of source, reservoir, seal presence, quality and maturation history.

Summary of provenance lithotype assemblages in the hinterland of the Sierra Leone, Liberia, Cote d'Ivoire, Saltpond-Central, Benin, Benue Trough and Niger Delta depositional basins. Palaeodrainage and Provenance Assessment of the African Equatorial Atlantic.

Petroleum Agreement Fiscal Framework

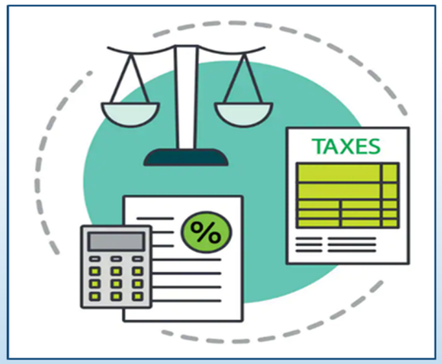
Non-Negotiable Elements

Royalty

- Sierra Leone operates a Tax-Royalty Hybrid System
- 10% on gross production for Crude Oil
- 5% for Gas

Corporate Income Tax

- 25% of Gross Profit



Petroleum Resource Rent Tax

- Superficial Tax based on excess profit:

  58—Corporate Income Tax = 44%

  100—Corporate Income Tax

- Financial modelling shows PRRT is only applicable when the price of oil is $60/bbl and above

Petroleum Agreement Fiscal Framework

Negotiable Elements

1. Paid Interest	2. License Fees	3. Training, R&D Fund	4. Technology Bonus	5. Extension Fee
✓The State maintains the option to negotiate Paid Interest	✓Negotiable ✓Set per sq.km	✓Negotiable ✓Set per graticular block		

6. Production Bonus	7. CSR	8. Assignment / Farm-out Fees	9. Signature Bonus	10. Seismic Data Acquisition
✓Negotiable ✓When total average daily production reaches a defined threshold for a period of 30 consecutive producing days	✓Negotiable ✓Set per graticular block			✓Purchase existing or New Acquisition of 2D and/or 3D Seismic Data from TGS

Break Even Price (BEP)

- The attractive fiscal regime helps, with independent fiscal economic modelling from Ventura International Energy LLC detailing the break-even price to be approximately $50/bbl for a commercial discovery in the deep-water environment, placing the country firmly in the attractive zone when compared with other African countries.

- The latest oil price rally of the last months of 2021 and early days of 2022 bodes well for the attractive opportunity offshore Sierra Leone in the near-term.

Petroleum Agreement Legal & Regulatory Framework

The contractual relationship between Investor and State is governed by the Petroleum Exploration and Production Act—PEPA 2011

- All Petroleum Rights are vested in the State – enshrined in the Sec. 7 of the Constitution of Sierra Leone, 1991 and Sec.2 of the PEPA 2011.

- Principal legislation governing upstream oil and gas operations is the PEPA 2011 and provides the Administration, Regulation and Management framework of the upstream and midstream petroleum sector.

- Due to the understanding of being a frontier nation, the legal framework governing petroleum operations in Sierra Leone is transparent, efficient and fluid and covers:

Environmental Protection Agency Act 2008

Finance Act 2020

Income Tax Act 2000

Local Content Act 2016

Petroleum Agreement Legal & Regulatory Framework

Types of Petroleum Rights

The Republic of Sierra Leone offers three types of Licenses / Permits.

1. Petroleum Exploration & Production License (Up to 30yrs)

- Pre-qualification is required
- Payment of Prequalification and Application Fees required
- Application to be an Operator is required
- Applicant must demonstrate the following:
  - ◊ Technical
  - ◊ Financial
  - ◊ HSE Capabilities

2. Reconnaissance Permit (Up to 2 Years)

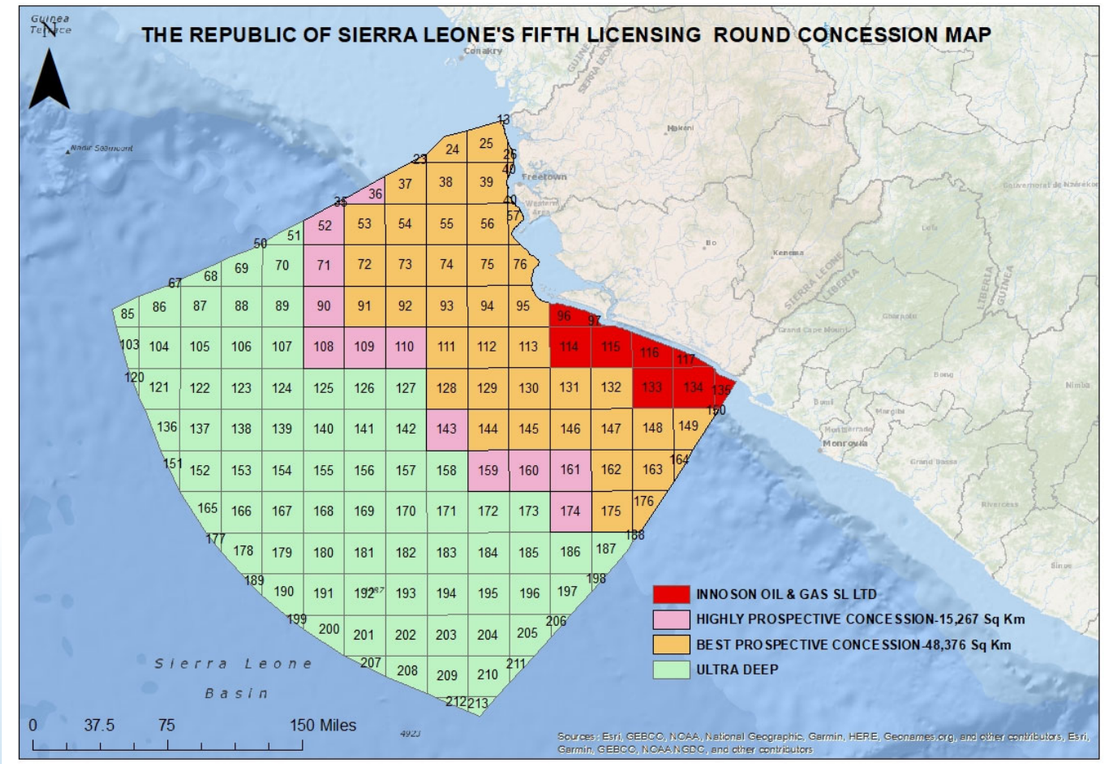
- Non-Exclusive
- Pre-qualification required
- Payment of Prequalification and Application Fees required
- Applicant must demonstrate the following:
  - ◊ Technical
  - ◊ Financial
  - ◊ HSE Capabilities

3. Permit for Laying & Operation of Pipeline

- A permit for the laying and operation of pipelines to transport petroleum produced from fields.

Concession Areas for Fifth Licensing Round

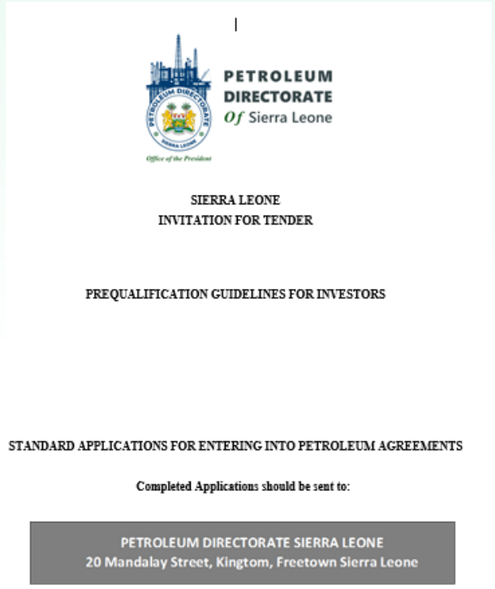
- The total offshore area of Sierra Leone covers approximately 170,000 km², with 140,000 km² of offshore open acreage available
- MSGBC and Guyana-Suriname Basins are developing oil and gas from Cretaceous reservoirs. Sierra Leone is along trend with 63,643 km² of acreage open for the Fifth Licensing Round
- After a block re-demarcation in 2018, DSL now has a series of smaller blocks that align with the ECOWAS north-south grid system. Each graticule is approximately 1360 km²
- Minimum of Three (3) Graticular Blocks constitute a Contract Area



Application Procedure

Prequalification Process

- The Petroleum Exploration and Production Act (PEPA) 2011 requires prequalification of applicants for Petroleum Rights
- Application Fee for Prequalification is US$15,000
- Petroleum Directorate will evaluate the application and then issue a "Notice of Qualification" for the Fifth Licensing Round within 10 Business days.


PETROLEUM DIRECTORATE
Of Sierra Leone

SIERRA LEONE
INVITATION FOR TENDER

PREQUALIFICATION GUIDELINES FOR INVESTORS

STANDARD APPLICATIONS FOR ENTERING INTO PETROLEUM AGREEMENTS

Completed Applications should be sent to:

PETROLEUM DIRECTORATE SIERRA LEONE
20 Mandalay Street, Kingtom, Freetown Sierra Leone

www.pd.gov.sl/application

Prequalification Criteria:

- Financial Strength
- Operational / Technical Prequalification
- QHSE Policy Statement
- Data Room Visit and Purchase of Seismic Data after ratification of Petroleum License.

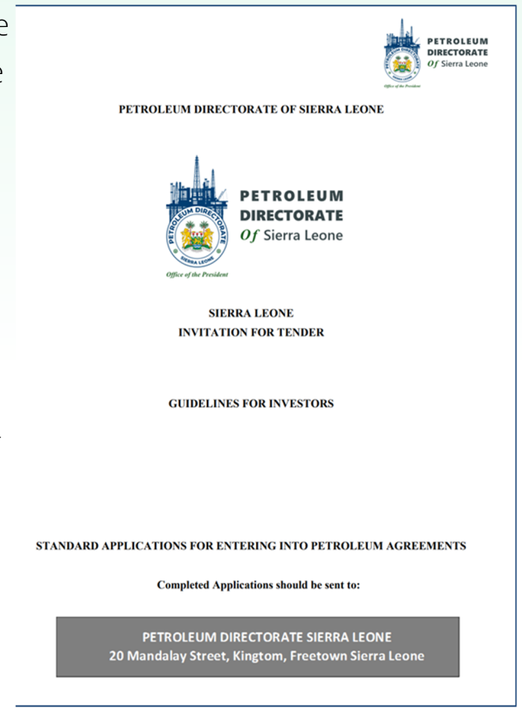
Applicant MUST clearly state their wish to apply as:

- Operator or
- Petroleum Right Holder (Partner/Non-Operator)

Application Procedure

Application for Petroleum Rights

- Application Guidelines for Investors can be found on Petroleum Directorate's website
- Applicants must have Prequalified (Note that ONLY Operators can submit a bid)
- Download Application Templates and Complete:
  - Section A – Applicant Detail & Financial Information
  - Section B – Technical Application Summary
  - Section C – Commercial Proposal
  - Section D – HSE Summary


PETROLEUM DIRECTORATE OF SIERRA LEONE

PETROLEUM DIRECTORATE
Of Sierra Leone

SIERRA LEONE
INVITATION FOR TENDER

GUIDELINES FOR INVESTORS

STANDARD APPLICATIONS FOR ENTERING INTO PETROLEUM AGREEMENTS

Completed Applications should be sent to:

PETROLEUM DIRECTORATE SIERRA LEONE
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www.pd.gov.sl/application

- Pay Application Fee US$30,000 per Contract Area (3 Graticular Blocks). (Note that a fee of US$5,000 applies for any additional graticular block above the minimum Contract Area)
- Submit Application Online at info.pd.gov.sl or In-Person

Application Procedure

Application Forms:

Section A—Applicant(s) Details and Financial information

Part I – Name(s) of Applicant(s)

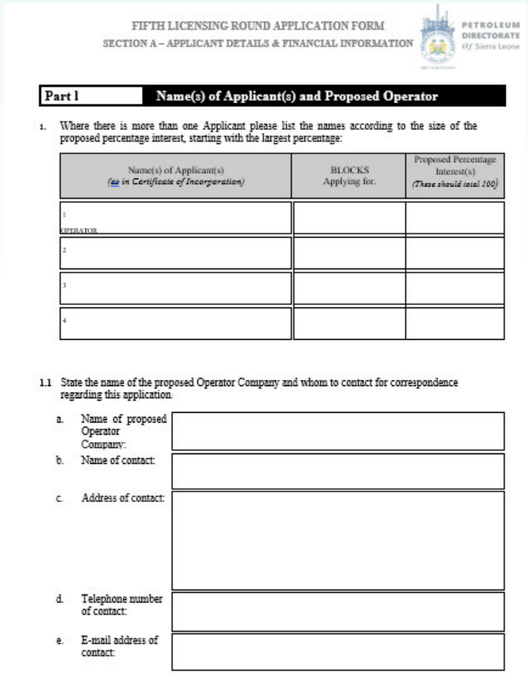
- List Details of Applicants (Operator and any Partners)

Part II – Contract Area Applied For

- Detail Contract Area applied for

Part III – Prequalification Information

- It should include a copy of each of the Applicant(s) (Operator and any Partners) Prequalification Application



FIFTH LICENSING ROUND APPLICATION FORM
SECTION A – APPLICANT DETAILS & FINANCIAL INFORMATION

PETROLEUM DIRECTORATE
Of Sierra Leone

Part I **Name(s) of Applicant(s) and Proposed Operator**

1. Where there is more than one Applicant please list the names according to the size of the proposed percentage interest, starting with the largest percentage:

Name(s) of Applicant(s) *(as in Certificate of Incorporation)*	BLOCKS Applying for.	Proposed Percentage Interest(s) *(These should total 100)*
1. OPERATOR		
2.		
3.		
4.		

1.1 State the name of the proposed Operator Company and whom to contact for correspondence regarding this application.

a.	Name of proposed Operator Company:	
b.	Name of contact:	
c.	Address of contact:	
d.	Telephone number of contact:	
e.	E-mail address of contact:	

Applicant Name Page 3 of 6

Additional Information

- A brief description of technical and industrial information available to the Applicant
- Particulars of Financial Resources:
  - Capital
  - Credit Facilities
  - Guarantees (Bank and/or Parent Company)

www.pd.gov.sl/application

Application Procedure

Application Forms:

Section B—Technical Proposal Summary

Part I – Technical Assessment

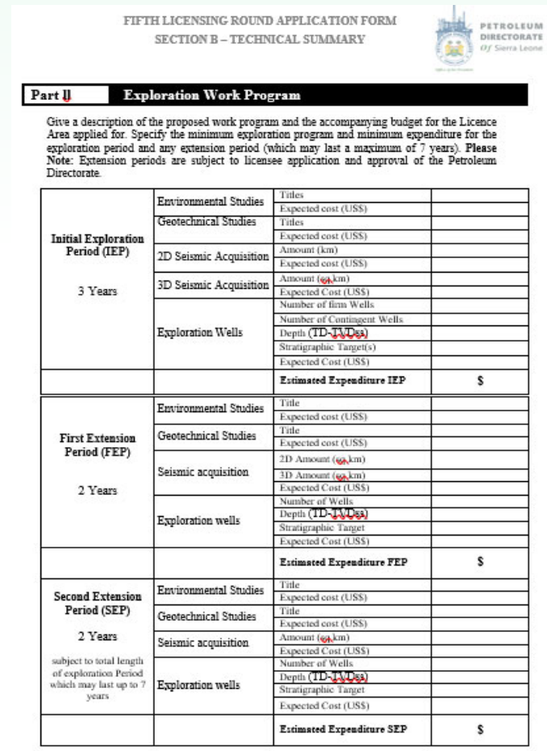
- Demonstrate Applicant's current assessment of the resource potential

Part II – Exploration Work Program

- Demonstrates Applicants future plans to undertake exploration work program and evaluate the acreage

Note:

Section B forms a crucial part of the application and evaluation criteria



FIFTH LICENSING ROUND APPLICATION FORM
SECTION B – TECHNICAL SUMMARY

PETROLEUM DIRECTORATE
Of Sierra Leone

Part II **Exploration Work Program**

Give a description of the proposed work program and the accompanying budget for the Licence Area applied for. Specify the minimum exploration program and minimum expenditure for the exploration period and any extension period (which may last a maximum of 7 years). **Please Note:** Extension periods are subject to licensee application and approval of the Petroleum Directorate.

Initial Exploration Period (IEP) 3 Years	Environmental Studies	Titles	
		Expected cost (US$)	
	Geotechnical Studies	Titles	
		Expected cost (US$)	
	2D Seismic Acquisition	Amount (km)	
		Expected cost (US$)	
	3D Seismic Acquisition	Amount (~~sq.~~km)	
		Expected Cost (US$)	
	Exploration Wells	Number of firm Wells	
		Number of Contingent Wells	
		Depth (~~TD-TVDss~~)	
		Stratigraphic Target(s)	
		Expected Cost (US$)	
		Estimated Expenditure IEP	**$**
First Extension Period (FEP) 2 Years	Environmental Studies	Title	
		Expected cost (US$)	
	Geotechnical Studies	Title	
		Expected cost (US$)	
	Seismic acquisition	2D Amount (~~sq.~~km)	
		3D Amount (~~sq.~~km)	
		Expected Cost (US$)	
	Exploration wells	Number of Wells	
		Depth (~~TD-TVDss~~)	
		Stratigraphic Target	
		Expected Cost (US$)	
		Estimated Expenditure FEP	**$**
Second Extension Period (SEP) 2 Years subject to total length of exploration Period which may last up to 7 years	Environmental Studies	Title	
		Expected cost (US$)	
	Geotechnical Studies	Title	
		Expected cost (US$)	
	Seismic acquisition	Amount (~~sq.~~km)	
		Expected Cost (US$)	
	Exploration wells	Number of Wells	
		Depth (~~TD-TVDss~~)	
		Stratigraphic Target	
		Expected Cost (US$)	
		Estimated Expenditure SEP	**$**

Applicant Name Page 6 of 6

www.pd.gov.sl/application

Application Procedure

Application Forms:

Section C—Commercial Summary

Section C contains the following:

Part I – Fees

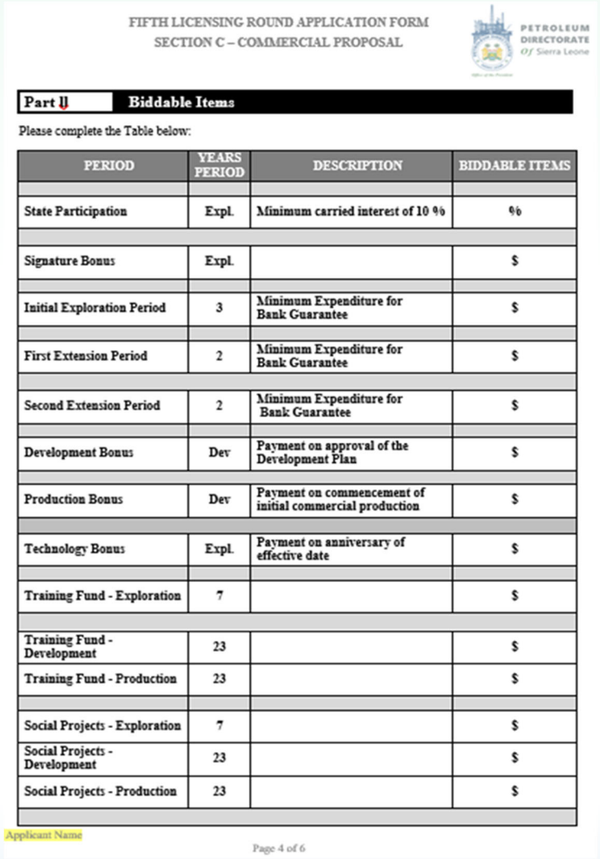
- Prequalification payment confirmation
- Licensing Round Application payment confirmation

Part II – Biddable Items

- Minimum expenditure for each period

Part III – Additional Aspects

- Applicant provides details of:
  - ⇒ Training and Development
  - ⇒ Social Projects
  - ⇒ Any other info that adds value to application



FIFTH LICENSING ROUND APPLICATION FORM
SECTION C – COMMERCIAL PROPOSAL

PETROLEUM DIRECTORATE *Of* Sierra Leone

Part II Biddable Items

Please complete the Table below:

PERIOD	YEARS PERIOD	DESCRIPTION	BIDDABLE ITEMS
State Participation	Expl.	Minimum carried interest of 10 %	%
Signature Bonus	Expl.		$
Initial Exploration Period	3	Minimum Expenditure for Bank Guarantee	$
First Extension Period	2	Minimum Expenditure for Bank Guarantee	$
Second Extension Period	2	Minimum Expenditure for Bank Guarantee	$
Development Bonus	Dev	Payment on approval of the Development Plan	$
Production Bonus	Dev	Payment on commencement of initial commercial production	$
Technology Bonus	Expl.	Payment on anniversary of effective date	$
Training Fund - Exploration	7		$
Training Fund - Development	23		$
Training Fund - Production	23		$
Social Projects - Exploration	7		$
Social Projects - Development	23		$
Social Projects - Production	23		$

Applicant Name

Page 4 of 6

www.pd.gov.sl/application

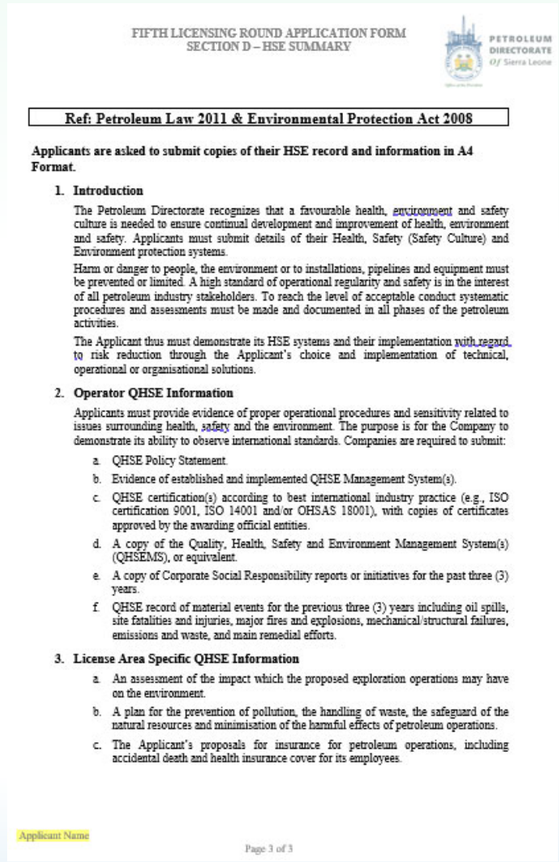
Application Procedure

Application Forms:

Section D—Health, Safety & Environment Summary

Applicant must demonstrate the following:

- Provide QHSE Policy
- Evidence of established and implemented QHSE Management System
- QHSE Certificates (ISO 9001, ISO 14001 etc)
- A copy of Corporate Social Responsibility (CSR) Reports
- QHSE record for past 3 years
- Plan for prevention of pollution
- Plan for handling of waste



FIFTH LICENSING ROUND APPLICATION FORM
SECTION D – HSE SUMMARY

PETROLEUM DIRECTORATE *Of* Sierra Leone

Ref: Petroleum Law 2011 & Environmental Protection Act 2008

Applicants are asked to submit copies of their HSE record and information in A4 Format.

1. **Introduction**

The Petroleum Directorate recognizes that a favourable health, environment and safety culture is needed to ensure continual development and improvement of health, environment and safety. Applicants must submit details of their Health, Safety (Safety Culture) and Environment protection systems.

Harm or danger to people, the environment or to installations, pipelines and equipment must be prevented or limited. A high standard of operational regularity and safety is in the interest of all petroleum industry stakeholders. To reach the level of acceptable conduct systematic procedures and assessments must be made and documented in all phases of the petroleum activities.

The Applicant thus must demonstrate its HSE systems and their implementation with regard to risk reduction through the Applicant's choice and implementation of technical, operational or organisational solutions.

2. **Operator QHSE Information**

Applicants must provide evidence of proper operational procedures and sensitivity related to issues surrounding health, safety and the environment. The purpose is for the Company to demonstrate its ability to observe international standards. Companies are required to submit:

a. QHSE Policy Statement.
b. Evidence of established and implemented QHSE Management System(s).
c. QHSE certification(s) according to best international industry practice (e.g., ISO certification 9001, ISO 14001 and/or OHSAS 18001), with copies of certificates approved by the awarding official entities.
d. A copy of the Quality, Health, Safety and Environment Management System(s) (QHSEMS), or equivalent.
e. A copy of Corporate Social Responsibility reports or initiatives for the past three (3) years.
f. QHSE record of material events for the previous three (3) years including oil spills, site fatalities and injuries, major fires and explosions, mechanical/structural failures, emissions and waste, and main remedial efforts.

3. **License Area Specific QHSE Information**

a. An assessment of the impact which the proposed exploration operations may have on the environment.
b. A plan for the prevention of pollution, the handling of waste, the safeguard of the natural resources and minimisation of the harmful effects of petroleum operations.
c. The Applicant's proposals for insurance for petroleum operations, including accidental death and health insurance cover for its employees.

Applicant Name

Page 3 of 3

www.pd.gov.sl/application

Application Procedure

Bid Evaluation

- In awarding a Petroleum License, the Petroleum Directorate must be satisfied that the Applicant has developed an exploration strategy and work program that will advance the assessment and understanding of the petroleum potential of the permit area.

- The strategy must be underpinned by a sound technical assessment of the Contract Area, along with evidence of the technical, financial and other capabilities necessary to facilitate the smooth implementation of the work program.

- Consideration may also be given to any past performance issues, either within the jurisdiction of Sierra Leone or internationally, that may impact on the ability of the Applicant to undertake the proposed work program.

Bid Evaluation Scorecard

BID EVALUATION SCORE CARD		
Sierra Leone Fifth Licensing Round		
		SCORE
Section A	FINANCIAL STRENGTH	
	TECHNICAL EXPERTISE	
Section B / C	TECHNICAL / FINANCIAL WORK PROGRAM	
	Technical Database	
	Technical Assessment	
	Exploration Work Program	
	Initial Exploration Period Spend (US$)	
	First Extension Period Spend (US$)	
	Second Extension Period (US$)	
	State Participation	
	Extension Fee	
	Signature Bonus	
	Development Bonus	
	Production Bonus	
	Training, Research & Development Fund	
	Social Projects (CSR)	
	Local Content Provision	
Section D	HEALTH, SAFETY & ENVIRONMENT	P / F
	Pass or Fail	
	Health, Safety & Environment	
TOTAL		/100

Acquisition of Petroleum License

Licensing Rounds

A Petroleum License can be acquired under a Call for Tender.

⇩

Pre-Qualification

Only pre-qualified companies may submit a bid as an operator or petroleum rights holder.

⇩

Bid Opening

Bidders will be called for the bid opening.

⇩

Negotiation & Ratification

Successful bidders will be called for negotiation. After negotiation, License will be ratified in Parliament.

⇩

License Validity

License Valid for 30yrs maximum

Exploration Period for 7yrs

- Initial - 3yrs
- 1st Extension—2yrs
- 2nd Extension—2yrs

⇩

Relinquishment

- 50% at end of Initial Exploration period
- 25% at end of 1st Extension Period
- 25% at end of 2nd Extension Period

Final Remarks

Office of the President

There are many opportunities to develop new and exciting prospects within the northern area of the Sierra Leone basin that differ from the proven system in the south.

Considering also the potential waiting down-dip, Sierra Leone has all of the subsurface requirements to be the next big African exploration hotspot - especially when the new stable and transparent above ground investment environment is fully factored in.

1. Access to acreage
2. Good fiscal conditions
3. Transparent and stable government
4. A positive investment environment
5. Good quality data with reprocessing and new data on the agenda, plus
6. The world-leading conjugate discoveries

All indicate that Sierra Leone will soon join the exclusive club of African oil-producing nations.

'Unity, Freedom and Justice' is emblazoned on the country's coat of arms, but these three words also spell a great investment opportunity to those that look into the subsurface.

Applications must be received by the Petroleum Directorate

Online or in Freetown by:

12 Noon Wednesday 30th November 2022

Office of the President

Contact Us

Office Hours

Monday – Saturday

07:00 – 17:00

Our Address

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