

A photograph of an offshore oil platform at night. The platform is illuminated with yellow lights, and a tall flare stack in the center is emitting a bright orange flame. The sky is dark and cloudy. In the bottom left corner, there is a graphic of the Ghanaian flag (red, yellow, and green horizontal stripes with a black star) overlaid on the image.

EXPLORATION AND PRODUCTION UPDATES AND OPPORTUNITIES IN GHANA'S UPSTREAM SECTOR

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Country Profile



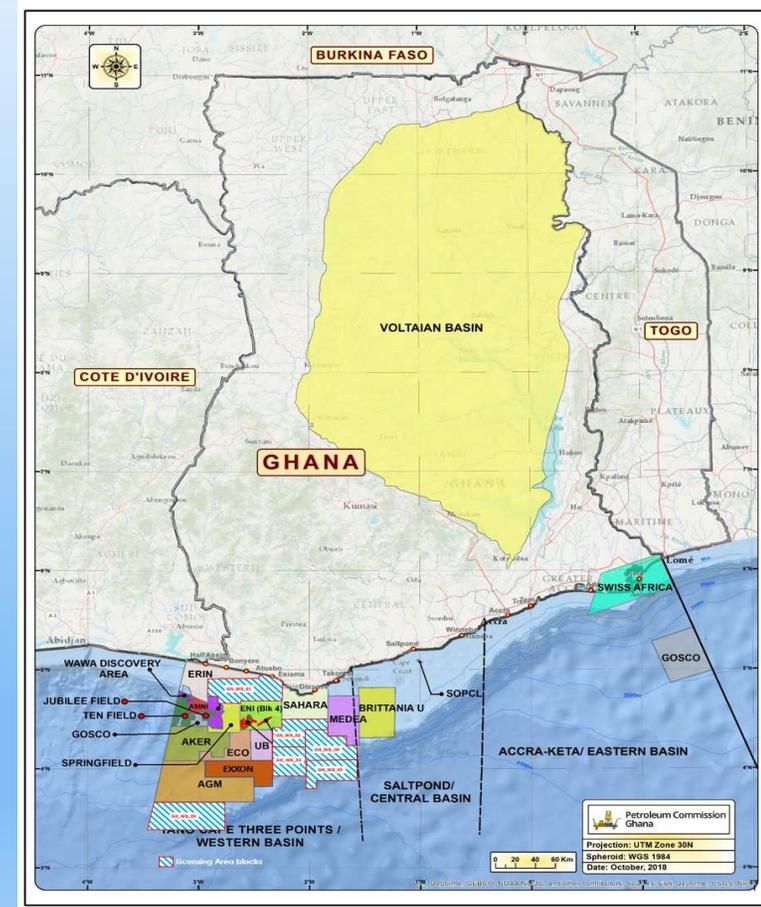
- Total land area : **238,533 sq. km**
- Capital : **Accra**
- Official language : **English**
- Currency : **Cedi**
- Population : **29 million (2018)**
- Government : **Multi-party Democracy**
- Mainstay of Economy : **Agric/Service/Mining and Petroleum**





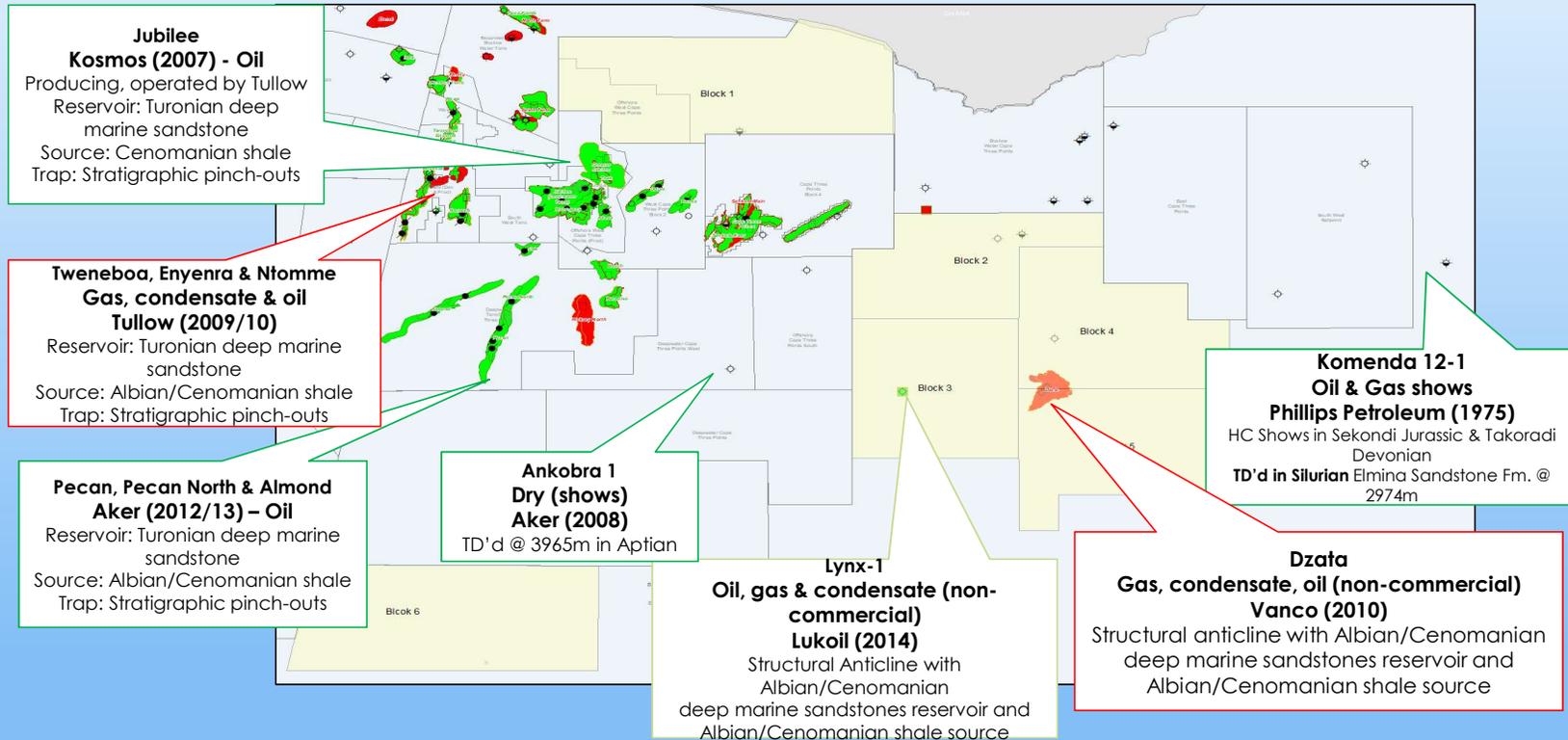
Exploration Overview

- Ghana has four sedimentary basins (Three offshore and one onshore).
- The offshore basins cover an area of ~ 63,000 sq. km at 3,000m bathymetry and estimated proven reserves of 1035 mmbo and 1.72 Tcf gas.
- The onshore basin covers ~103,600 sq. km and is currently being explored to establish its prospectivity.





Exploration Overview





Petroleum System

Reservoir

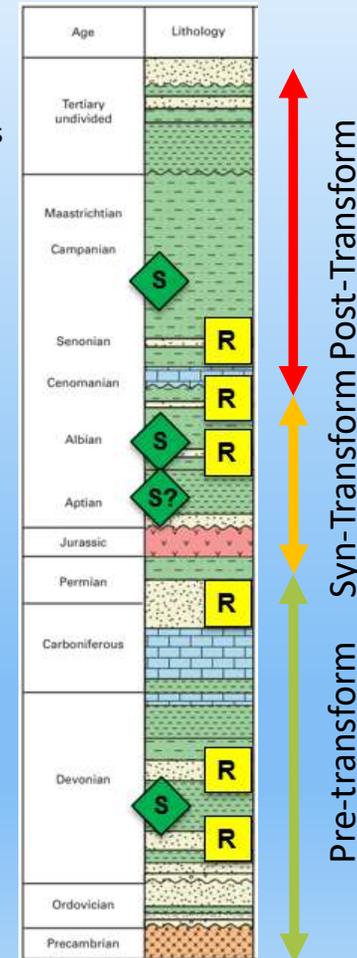
- Lower Cretaceous (Albian) shallow marine and continental sandstone in intracontinental horsts and grabens
 - Good quality Albian reservoirs preserved on lower relief folds
- Upper Cretaceous (Turonian-Campanian) shallow to deep marine sandstone
 - High quality Campanian turbidites
- Upper Cretaceous (Cenomanian) shallow marine carbonate along Tano shelf and RTZ ridge (Paleohighs)

Source:

- Lower Cretaceous (Aptian-Albian) lacustrine to marine shales in intracontinental grabens
- Upper Cretaceous regional marine shales
 - Both Type I to II-III, presence & maturity not a major risk (South of the RTZ presence and maturity higher risk)
- Potential source rocks in Paleozoic, Middle Devonian, marine to brackish water shales

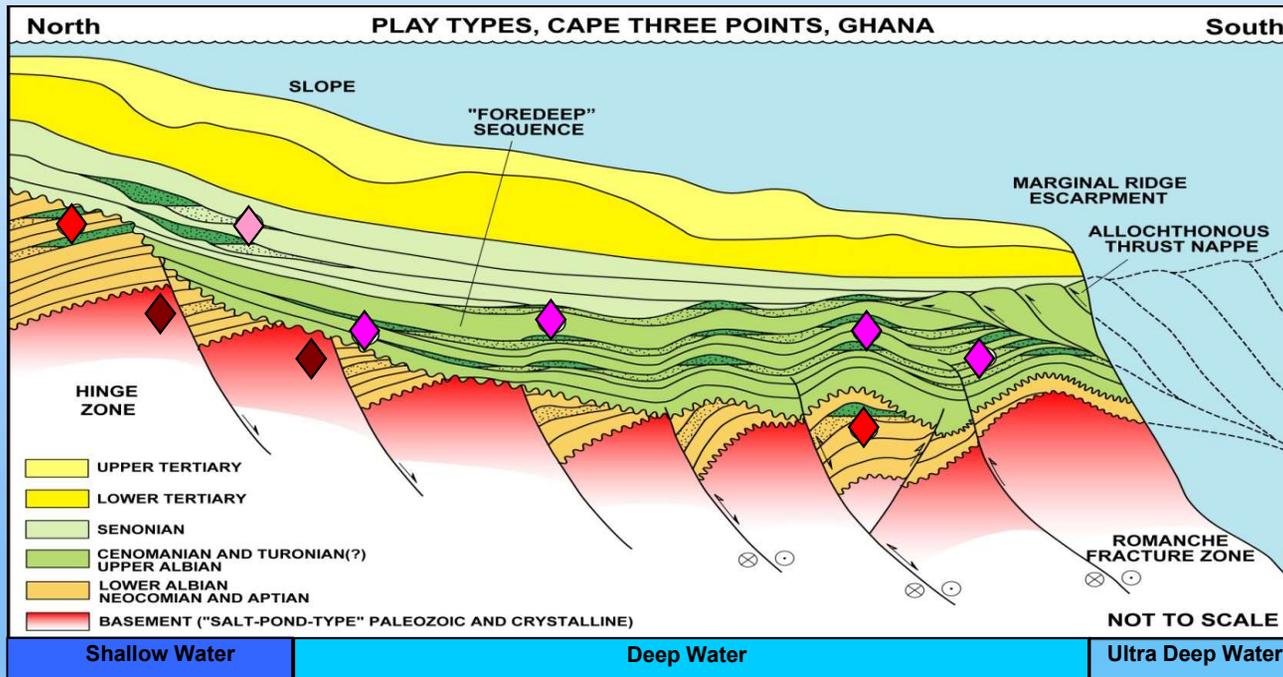
Migration and Trapping:

- Structural and stratigraphic trapping:
 - Inverted ridges
 - Fault bounded 3 way dip stratigraphic trap
- Multiple charges from different source rocks
- Short migration routes from source kitchens





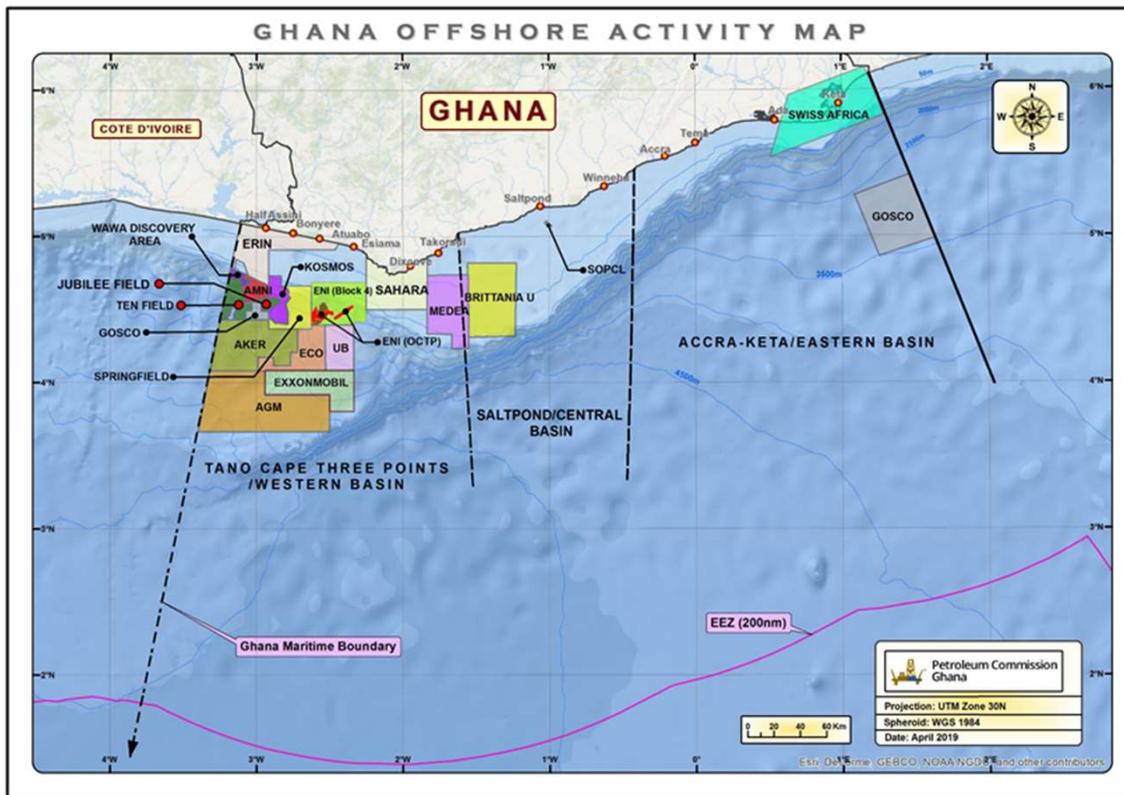
Schematic Cross Section of Play Types



- ◆ Oldest reservoir rocks are Devonian-Carboniferous sandstones trapped in tilted fault blocks
- ◆ Lower Cretaceous syn-transform distributed on the shelf and deeper waters, trapped in 4-way dip closures and tilted fault blocks – Espoir analogue
- ◆ Upper Cretaceous (Late Albian-Cenomanian) syn-transform unit marginal marine and turbidite sandstones, primarily trapped in 4-way dip closures – Belier Analogue
- ◆ Upper Cretaceous (Cenomanian-Maastrichtian) post-transform ponded turbidites sands and clastic fans, trapped in up-dip pinchouts



Current Acreage Position



Key Upstream Players

1. Tullow Ghana Limited
2. Kosmos Ghana Limited
3. ENI Ghana
4. Medea Energy
5. Eco Atlantic Oil & Gas
6. Springfield E & P
7. Erin Energy
8. Amni International
9. Sahara Energy Fields
10. Aker Energy
11. AGM Petroleum
12. Swiss Africa
13. GOSCO
14. Britannia-U
15. UB Resources
16. ExxonMobil



Fiscal Regime

Basically we have Tax-Royalty System with a component of Production Sharing (hybrid system) with the following fiscal components:

- Royalties
- Initial Interest (mandatory min.15%)
- Additional Interest
- Corporate Income Tax (max 50%)
- Local Content Fund (1% All Contract)
- Bonuses (Signature, Production)
- Training Allowances
- Research & Technology Transfer Allowance
- Decommissioning Fund

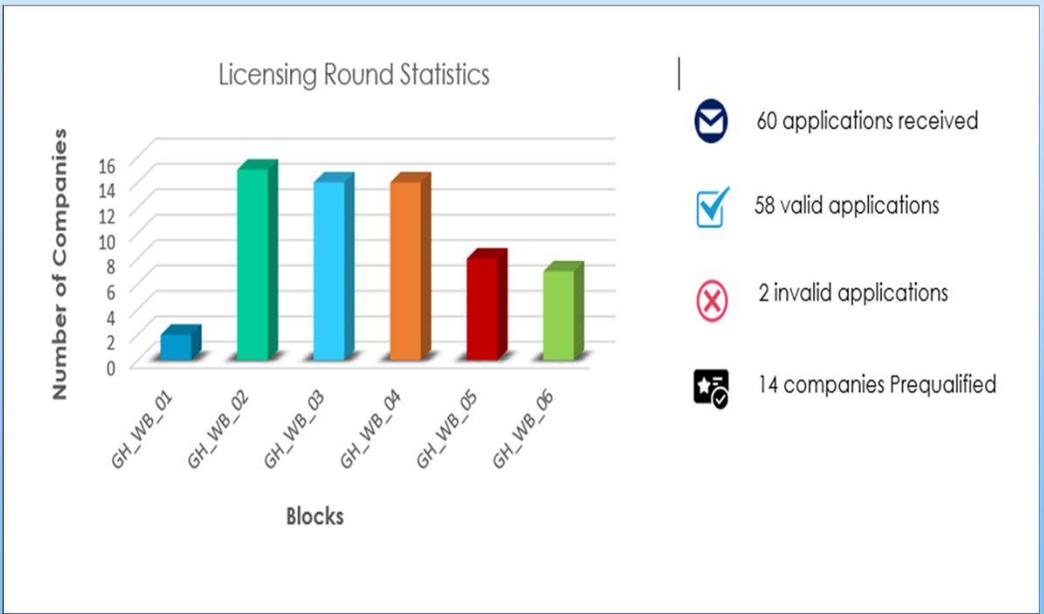
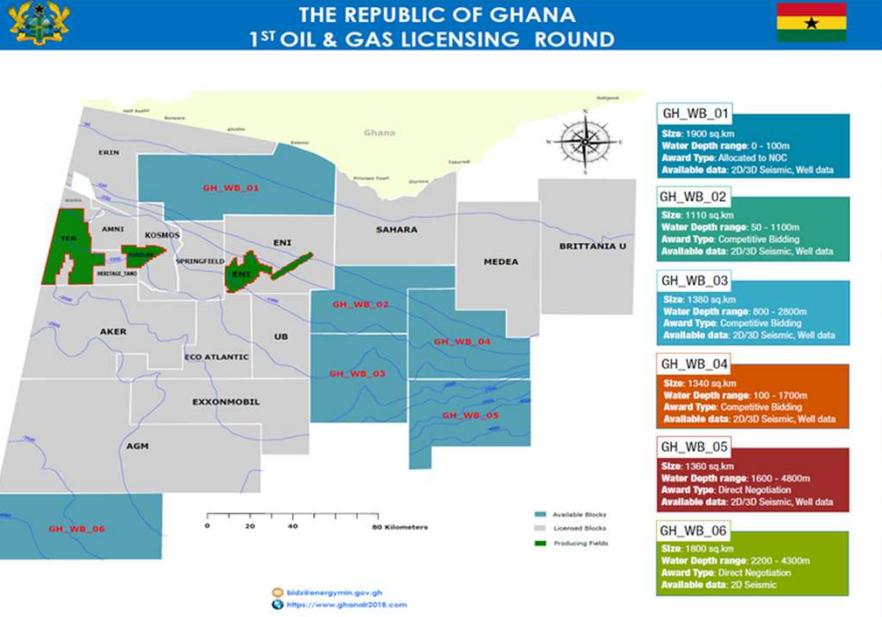


Legal & Regulatory Framework

- 1992 Constitution of Ghana
- Petroleum (Exploration and Production) Act 2016, Act 919
- Petroleum (E&P) General Regulations 2018, (L.I. 2359)
- General Model Petroleum Agreement
- Local Content & Local Participation Regulations, L.I. 2204
- Petroleum E&P - Data Management Regulations, 2017 (L.I. 2257)
- Petroleum E&P – HSE Regulations 2017 (L.I. 2258)

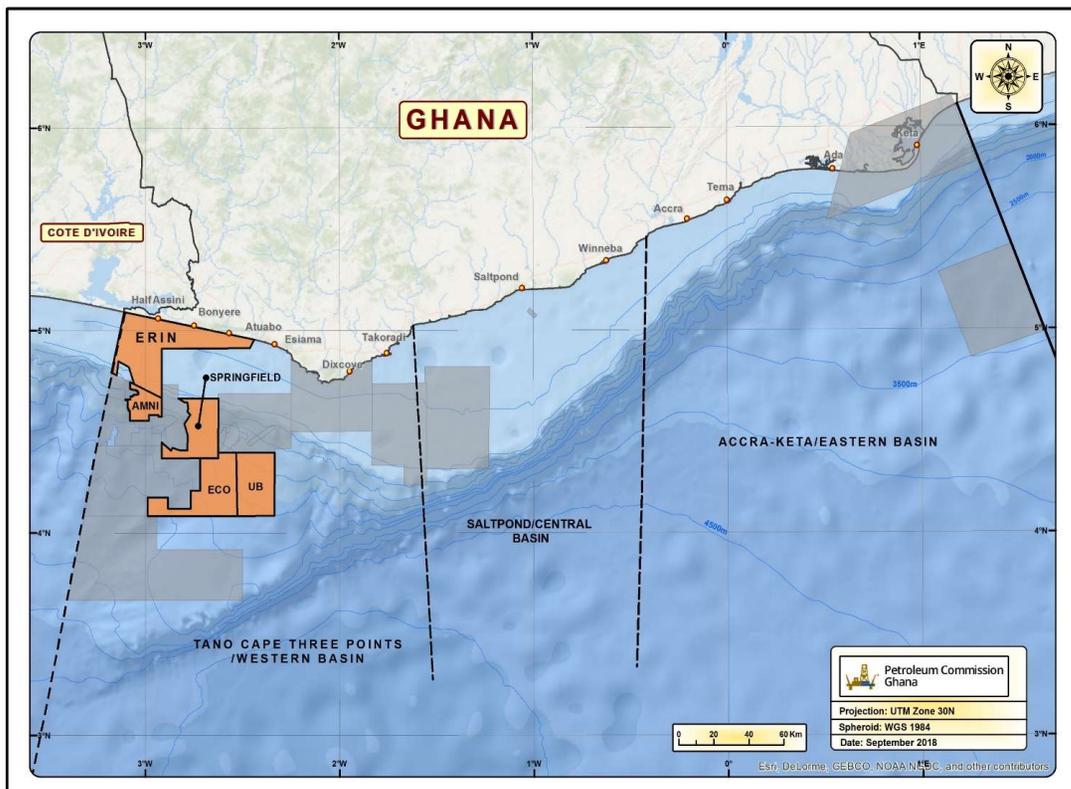


First Licensing Round Updates





Farm-in Opportunities



Eco Atlantic Oil & Gas



Springfield E & P



Erin Energy



Amni International



UB Resources





Investment Opportunities – Goods & Services

- Rig Operations
- Dedicated shore base with a mini harbor
- Banking & Financial/Insurance Services
- Welding and Fabrication
- Telecommunication, Weather forecasting, Search & Rescue facilities
- LNG Pressure Vessels
- Construction/Fabrication works
- Pipeline Manufacturing from Steel
- Material Supply Services
- General Consultancy Services
- IT/Communication Services
- Hospital/Medical Services
- Automobile Services
- Protocol/Logistics Services
- Sanitation Services
- Manpower Supply
- Haulage/Freight/Clearing & Forwarding
- Hospitality Services



Summary

- Jubilee - New era in petroleum exploration in Ghana.
- Oil and gas production in Ghana is expected to hit over 250,000 bbls/d and 300mmscf by 2021.
- Management of Ghana's Petroleum Resources is in accordance with the Principles of Good Governance and Transparency.
- Robust Regulatory framework provides an enabling environment for increased private participation and investment in Upstream Petroleum Operations in Ghana.
- Conducive sociopolitical environment provides limitless upstream opportunities in a dynamic and steadily advancing economy.
- Exploration opportunities for open acreages, farm-in and the provision of services.
- Ghana continues to be the most attractive destination for upstream investment in West Africa.



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THANK YOU