

Linden Energy Exploration Capabilities: History and Organization

Linden Energy Exploration LLC brings together two groups with a strong record of delivery in exploration and operations – the original team which explored offshore Guinea, and key members of Tullow Oil’s highly successful African exploration team.

The Hyperdynamics team, based in Houston, Texas, was formed in 2009 to explore one of the largest concessions in West Africa, the entire shelf of Guinea. Working as Hyperdynamics and SCS through 2017, they acquired 10,000 km 2D seismic, 7600 sq. km 3D seismic and drilled 2 deep-water wells, both of which found oil but were non-commercial.

The team has been strengthened with the inclusion of key senior members of Tullow Oil’s African exploration team, bringing an office in Cape Town, a strong track record of exploration success in Africa and significant experience in geophysical operations across the African continent.

Linden Energy Exploration Key Personnel

- Ray Leonard: President Linden Energy Exploration
- Robin Sutherland: Exploration Director
- Forrest Estep: Drillings Operations Manager
- Paolo Amoruso: Commercial Negotiations and General Counsel

Exploration Credentials

- Ray Leonard has a Bachelors Degree (Honors) in Geoscience from the University of Arizona and a M. A. in Geology from University of Texas-Austin. He held executive exploration positions with Amoco, FIOC, the Russian Oil Major YUKOS, the Hungarian National Oil Company MOL, the Kuwait Energy Company and was Chief Executive Officer of Hyperdynamics. He is currently Chief Operating Officer of Linden Energy
- Robin Sutherland is a geophysicist with a strong operational background who has spent over 30 years living and exploring within Africa in a variety of technical and business leadership roles, most recently as Tullow Oil's General Manager for Exploration in Africa. He led Tullow's exploration team during the discovery and appraisal of the Jubilee and TEN fields in Ghana before his role was expanded to cover all aspects of Tullow's exploration portfolio in the continent.

Energy Africa/Tullow basin opening discoveries



The discoveries noted above were all basin opening discoveries, made in areas with no history of oil production and no active oil industry. The original team from Energy Africa remained with the company in Cape Town when it was bought by Tullow in 2004 and members of that team are now part of the Linden Energy Exploraion group. Further oil discoveries were made by the team in known oil basins in Cote d'Ivoire, Gabon and Congo

Exploration Joint Venture Operator

- The Linden Energy Exploration team has been formed to operate exploration ventures, from negotiation of contracts with government through to exploration and appraisal drilling
- The team provides the complete solution – initial acreage evaluation and selection, JV setup, work program and budget design and implementation, geophysical operations, creation of a comprehensive prospect inventory and drilling of exploration and appraisal wells
- The team can also advise on portfolio management, bringing in partners as required to manage risk and financial exposure

Operator Qualifications

- The Linden Energy Exploration team has operated geophysical surveys across the African continent, including several large 2D and 3D seismic surveys.
- The team has drilled as operator two deep-water exploration wells offshore Guinea, the last one in 2017
- The wells were drilled in 710m and 2897 M of water, the later well the deepest water well ever drilled offshore Africa, safely and on budget.
- For the first well, Sabu's operations were managed by AGR. This did not prove satisfactory from cost management results and for the second well, Fatala, the Anglo Eurasia team operated it without hiring an outside manager. The results were much better in all respects.
- The Anglo Eurasia team provided geologic and subsurface support to the well.

Fatala1 Operations were in frontier area with no in country support. Drilling offshore Somalia, for example would be a similar challenge

Materials and equipment were mobilized to Guinea from 8 different countries on 2 continents



Fatala-1 Operations Project Summary

Planning and preparing for multi-well exploration program

1 firm well (Fatala-1)

1st follow on well contingent on Fatala results

Spud First Well: August 2017

Fatala-1 Well:

Water Depth	2897m
Total Depth	5116 TVDSS (2219m BML)
Days on location	40 days dry hole (limited evaluation, no testing)

Estimated Well Cost:	Mob/Demob:	\$ 13.1 MM
	Dry Hole:	\$ 36.8 MM
	Total:	\$ 49.9 MM

Note: plan was 42 days, cost of \$50 MM. Despite operational challenges, well drilled on time and budget.

Staffing for Fatala

