# **ENERGY**

### **Exploring Eastern Africa** Africa Oil and Gas Conference October 2014

STRUCTURE AND ADDRESS



# **Exploring Eastern Africa**



Who is Rift Energy?

Why East Africa?

History of an exploration asset: Block L19 Kenya

Growing the portfolio – lessons learned

# Who is Rift Energy?



- Rift Energy Corp. is a privately held Canadian company formed in 2011 with a US (Woodlands, Texas) based management team and operations headquarters.
- We are an exploration and development company focused on East Africa. Our near term strategy is to invest in 4-6 projects across different East African countries for efficient management of resources and risk.
- Our management team has extensive experience in Africa, coupled with a track record of growing early stage companies with a substantial reserve base through to profitability.
- We are on the path to acquire a solid portfolio of assets which will contain a diverse mix of risk profiles that can be translated to proven oil and gas reserves, along with strong cash flows.



# **Business Focus**



- We are focused on evaluating and acquiring onshore oil and gas concessions in East Africa.
- During the period of early stage exploration, we evaluate projects for technical and commercial risks, providing a deal flow of targeted concession areas either through farm-in opportunities or direct negotiation with the host government.
- We also have ongoing farm-out activities to find high quality partners to further the success of our assets.
- We have business development efforts ongoing in six different countries with different geologic basins and play types.



k L19 PSC signed by Rift Energy in June 2012

# **Core strengths**



### **Rift Energy's core strengths include:**

- Building mutually beneficial relationships with the host country.
- Understanding of the subsurface geology, both on a regional and local scale, applying the right tools to evaluate the geological risk in each prospective area.
- Efficient operations add the ability to fast track projects where economic conditions dictate this approach.



# Why East Africa?

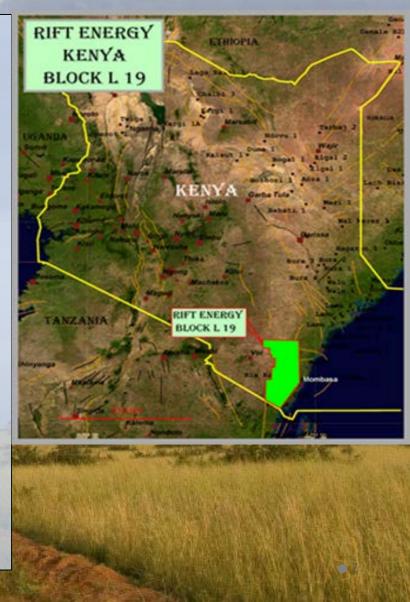


- Significant oil reserves exist in most East African countries, but a number of challenges exist:
  - Some, like South Sudan, have long term production and strong potential, but political changes have slowed the pace of development.
  - Others, like Uganda and Kenya, are relatively new and awaiting infrastructure to begin production.
  - Additionally, others like Somalia have been delayed due to political instability, but show great promise.
- East Africa has many areas which are underexplored and have great potential for significant commercial oil and gas production.
- We utilize various strategies to reduce risks and to overcome challenging operational issues.





- In June 2012, Rift Energy signed a Production Sharing Contract ("PSC") covering Block L19 in southeastern Kenya.
- Block L19 covers approximately 12,000 KM<sup>2</sup> (2.9 million acres) within the Lamu Basin. Rift has a 100% participating interest in Block L19 and has completed the initial 2 year phase of its exploration program.
- Next 2 year phase is additional seismic or a well.
- Block L-19 Kenya initial data included:
  - Regional geological data
  - Single well drilled in 1961
    - Oil shows, limited technical data
  - No seismic data found
  - Some analogs
  - Data for simple economic models





The goal of our technical work program covering Block L19 is to reduce the risks for hydrocarbon exploration.

We conduct ongoing technical studies through the "Evaluation Telescope" to understand the geological risk when evaluating the potential and risk at each level of hydrocarbon exploration.

We address the regional, basin, prospect and reservoir risks using different combinations of technology at each step.

The principle geological risks in exploration across all stages are generally associated with following items:

- 1) The presence of a reservoir and trap;
- 2) The presence of hydrocarbons to charge the trap; and
- 3) The relative timing of the trap and hydrocarbon formation.



Basin and regional modeling of petroleum systems provide some insight into these risks. Airborne Gravity and Magnetic Surveys provide a large scale picture of the regional and basin risks.

Additional information and risk reduction at the prospect and reservoir level is acquired through specific analysis addressing trap and reservoir risks and integrating multiple studies; especially those associated with charge and timing of hydrocarbons in order to understand the range of factors associated with the presence of hydrocarbon reservoirs.

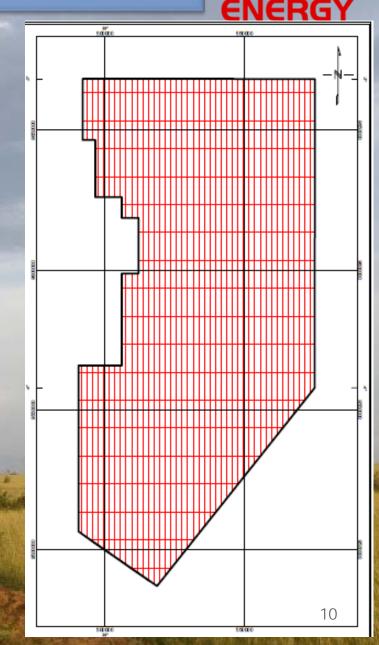
The proprietary studies that we completed during the Initial Exploration Period include:

- 1. Airborne gravity and magnetic survey;
- 2. Analysis of recovered cores from the Ria Kalui well;
- 3. Geochemical imaging ; and
- 4. 2-D seismic acquisition, processing and interpretation.

Each of these technologies and their impact on risk reduction will be discussed.

## **Building a Technical Framework: Block L19**

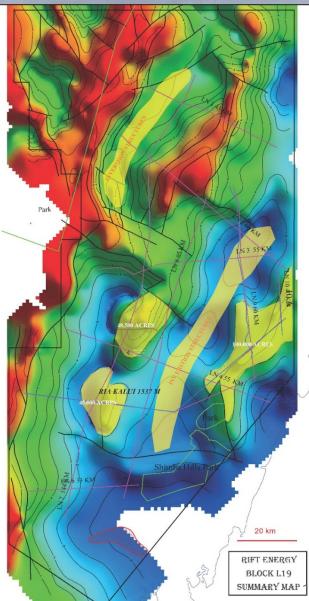
- 1) Aerial Gravity and Magnetic Survey
  - Data was collected across the entire block at 2kmx 10km spacing.
  - An interpreted depth to basement map indicated a large basement structure over 50 km in length traversing the block with several separate prospective structural closures.
  - The resulting map formed the basic framework for our first phase of exploration.



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### **Building a Technical Framework: Block L19**

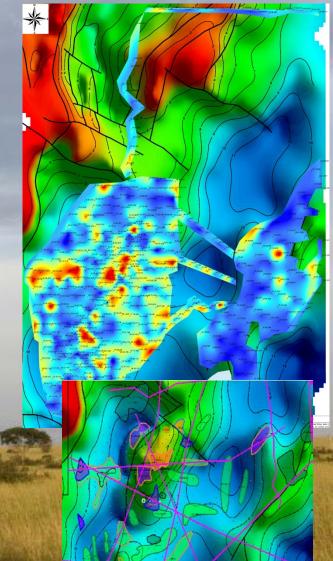
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### 2) Geochemical Survey

- To determine if these potential structures were charged with hydrocarbons, a surface geochemical survey using Amplified Geochemical Imaging was performed.
- The objectives of the Geochemical Survey were to:
  - Identify the presence and location of possible hydrocarbons.
  - Identify the phase of any potential hydrocarbons present.
  - Provide hydrocarbon mapping information that could optimize the location of proposed 2-D seismic lines to be shot over the block.



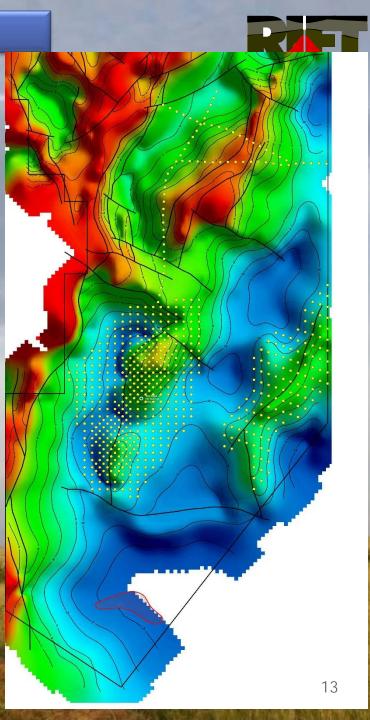
### Geochemical Study

The data was acquired using a proprietary membrane in a similar form also used with GORE-TEX® fabrics. The membrane has pores engineered small enough to keep soil particles and water from entering that are about 1000 times larger than the molecules of interest.

Due to their small relative size, the hydrocarbon molecules from the reservoir can move essentially vertically through all rocks and stratigraphic structures and pass through the membrane to be captured on the adsorbent material.

640 samples were deployed across the block.





### Geochemical Study (continued)

The samples were deployed for 20 days and were subsequently collected and sent back to the laboratory to be analyzed. As a result of the laboratory analysis, significant zones of various hydrocarbon types were detected.

The results confirm an active hydrocarbon kitchen and the presence of a related source/reservoir/seal group within the basin on Block L19.

These hydrocarbon signatures overlay basement structural highs or are located in rift troughs similar to those found in other productive Rift Basins.









### 3) Cores recovered from Ria Kulai well

- The Ria Kalui well was drilled in 1961 and 1962 by Mehta Oil Exploration company to a depth of 1,561 meters. The well was suspended and subsequently abandoned due to the death of the drilling manager.
- Oil shows were noted in the geological reports. Cores recovered at the well site show "live oil" in lab analysis. Resulting conclusion: a proven hydrocarbon system within Block L19.
- There is greater than 20,000 feet of potential sedimentary indicated in undrilled zones below the TD of the Ria Kalui well and in the flanking rift troughs.

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	Introduction.	NAIROJ
	0.P.L. 1, has been con 1962, to 30th June, 19 No. 1 (B. 525, 750 N.	cal investigation within the area of ttinued during the period 1st April, 362., by core drilling at Ria Kalui 9,564,900).
	During to 3127' to 4042' a depth the hole 4042' on the	this period drilling continued from 1 of 915' making the total depth of 30th of June, 1962.
	Geological Information	1.
	3127' - 32424'	<u>Grit/Siltatons</u> , light gray quartza- findapathio variably coarse to fine grainod, locally finely pabbly. Occasional very thin (2") black shaly <u>Siltotono</u> intercalations and inclusions. Generally compact and unbroken, some vertical oracks around 3183'.
	Markor 25/RK/1 at 3242	2' S.D.L. 27322' TOP OF BLACK SHALY SILTSTONE.
	3243 <u>à</u> ' - 3250	<u>Siltatone</u> , black, shaly, fine grauffed breken and shattered. Some light gray <u>Siltatone</u> intercalations. Indistance organic remains.
	3250' 3313'	<u>Grit/Siltstone</u> , light grey, quartzo- faldspathic fine to medium coarse grained with occasional very thin black shaly <u>Siltstone</u> intercalations.
	Marker 26/RK/1 at 3313	S.D.D. 2662' TOP OF BLACK SHALY SILTSTONE,
	3313' - 3343'	Siltstone, black shaly, locally gritty, broken with vertical cracks or joint planes. Some indistant organic fragments.
	Marker 27/RK/1 at 3343	"S.D.L. 2632' TOP OF DARK GREY GRIT/SILTSTONE,
alca da E C E	Real Change at a fair	<u>Grit/Siltstong</u> dark grey to block at the top grading downwarks into light grey, quartso-foldopathic, fine to medium - coarse grained. Unbroken with very thin block shaly <u>Siltstone</u> intercalations.
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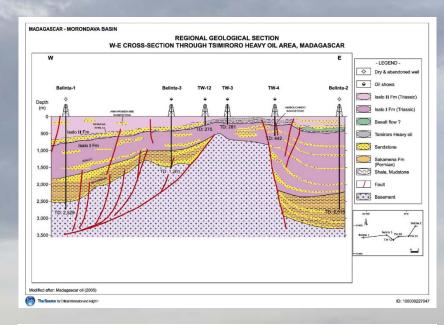
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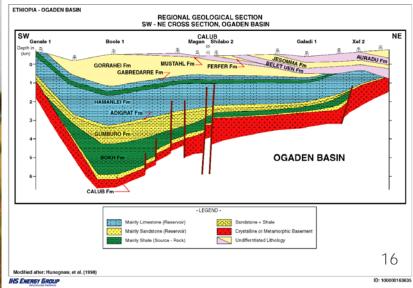
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# 4) Analogs refined throughout the exploration process

- Analogs allow us to show the validity of the play types and the presence of hydrocarbons in similar geology.
- Multiple analog basins in the region, including oil and gas discoveries in Madagascar and Ethiopia, both yielding similar characteristics such as trap types and the same age of reservoir rocks.



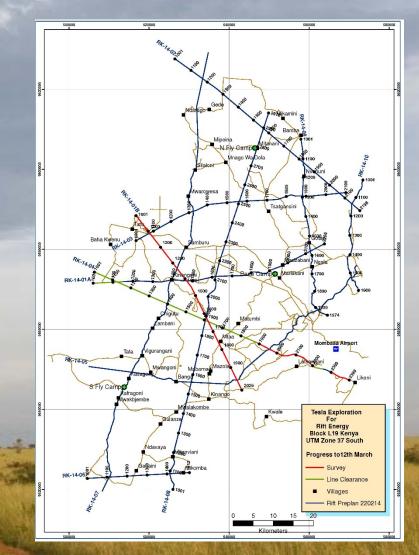






### 5) 2-D seismic program

- Our work commitment on the block requires at least 500 line Km of 2-D seismic during the first exploration period.
- Based on the previous technical studies, a 2-D seismic program was designed to test as much of Block L19 as possible and cover the various play types and leads identified in the earlier work.
- A program of 724 Line KM of 2-D seismic was designed and acquired, completed in June of this year.



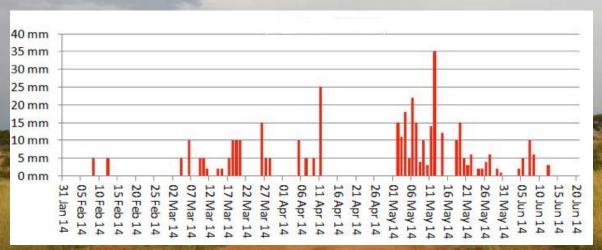
### 2D Seismic Survey: weather effect



Weather caused some operational issues on the project. The graph shows the daily rainfall in Mariakani, but amounts varied widely across the block.

Numerous stuck vehicles occurred during the most rainy days, causing operational delays, but no degrading of data quality.



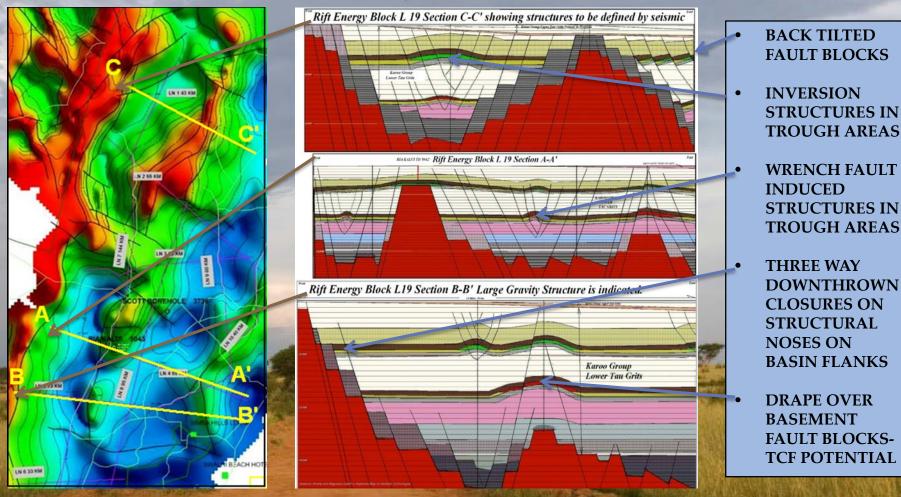




### 2D Seismic Survey: mapping structural traps



Prior to seismic mapping, expected geological models and trap types were developed showing possible structure and trap styles expected to be identified by the 2D seismic survey.



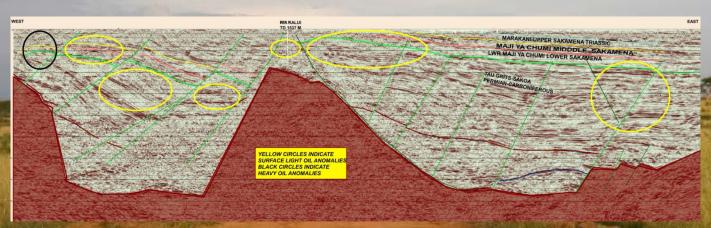
### 2D Seismic Survey: mapping structural traps

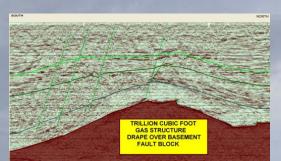


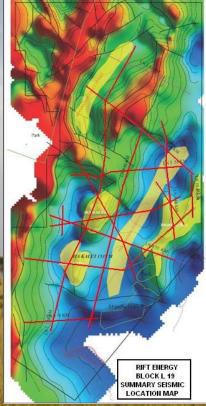
Mapping of leads and prospects are just beginning, but we are seeing a number of interesting features:

- Large structures rolling over the basement highs.
- A large amount of faulting and a number of leads are being identified around faults.
- A number of leads are aligning with the mapped anomalies from the Geochemical Survey as show on seismic line below.

This work is the early stages, but later this year we will have comprehensive mapping of the leads across Block L19.









**Milestones for the First Two Year Exploration Period:** 

• Identify a series of leads and prospects to guide further exploration programs and to reach the drillable prospect stage.

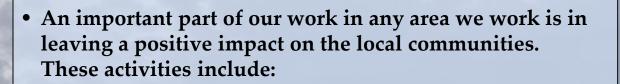
Targets going forward into second two year period:

- Complete geoscience work program to reduce exploration risk.
- Identify drilling prospects with sufficiently low enough risks and suitable economics.
- Drill prospects to reach drillable reserves.





# Assist, Support, and Protect



- Assist the local communities by supporting projects that improve the lives of the residents where we are working.
- Support the local governmental ministries in achieving their goals to help the Kenya economy grow and prosper, including training and community development projects.
- Protect the environment by minimizing the disruption from our operations in the field by strictly following local environmental regulations.
- Our social awareness activities form a backbone of the operations that allow for successful and cost effective operations throughout the lifecycle of our projects.







### **CSR** Projects

Rift Energy is committed to Community projects as part of it's work in Kenya. We continue to assist the communities in many ways with employment and procuring of local supplies where possible.

We have identified a number of community development projects where we can directly contribute to the improvement of local communities.

Our social awareness activities form a backbone of the operations that allow for successful and cost effective operations throughout our time working on.







### **Community Projects:**

We have ten projects ongoing across our block

We are building six school houses with desks. We have four water access projects

All projects are having a large positive impact on the local communities.





# **Expanding the footprint**



We look for a number of criteria in selecting new areas:

- Understanding of area hydrocarbon systems, play types, reservoir, source and seal so we can apply our risk reduction techniques to these new areas and supporting analogs of where these play types worked.
- Reasonable government relations which assure not only stable fiscal terms, but good ongoing interaction with the government ministries as we develop oil and gas assets within their country.
- Understanding of time lines and economic models so we can forecast expected financial returns as we execute the plans.
- Economic thresholds tend to be lower than for the larger independents and majors, allowing us to successfully develop those "strings of pearls" often passed over by larger companies.



# Lessons Learned

- Exploration programs must be designed to address all key exploration risks including source seal and reservoir, with risk reduction being a continuous process, with newly added data points continuously adding more knowledge about the area being studied.
- Applying multiple exploration tools are valuable both in building a prospect inventory and risk reduction.
- Analogs can be both a important screening tool for early risk assessment and for refinement of play concepts as prospects are identified.
- Strong community involvement improves operations at every step of the project.



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# Summary



- We continue to understand our concession and reduce risks as we develop leads and prospects to reach drillable status.
- We continue to evaluate new concessions in the area, with a similar risk reduction program to quickly evaluate new concession across multiple countries and geological basins within Africa.

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Concentrating on East and Central Africa, our overlying goal is to

"Build a company with a solid portfolio of assets containing a diverse mix of risk profiles, all of which will contribute to substantial shareholder growth and value"