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The Oil and Gas Potential and Exploration Opportunities in Belize

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Presentation Outline

1. Belize Country Profile
2. Exploration History
3. Current Petroleum Industry
4. The Geology and Petroleum Potential of Belize
5. Exploration Opportunities
6. Revision of the Regulatory Framework and Fiscal System
7. Why Invest in Belize
8. Green Energy Initiatives

Belize Country Profile

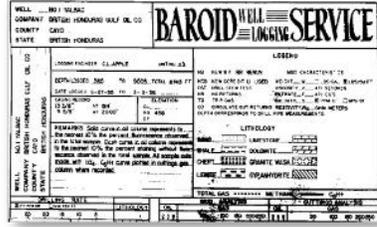
- ▶ Belize is an English speaking nation with a stable democracy located in Central America.
- ▶ Belize has an area of 22,966 square kilometers including its offshore territory.
- ▶ Belize has a population of 441,471 as of July 2022.
- ▶ The GDP is US\$1.8 Billion as at 2021.
- ▶ The first commercial oil discovery was made in 2005.
- ▶ The oil produced in Belize is sold locally as well as exported to the U.S Gulf Coast and overland to Guatemala.
- ▶ Belize has road transportation routes to Mexico and Guatemala and one petroleum export terminal in southern Belize.
- ▶ There is currently one producer and five small independent oil companies with exploration licenses.



Exploration History



Offshore oil seeps observed on Ambergris Caye



First exploration well drilled - the Yalbac #1 Well



Onshore exploration and drilling accelerated



First oil and gas production



Second commercial discovery made - the Never Delay Oil Field

1800s

1930

1955

1960s

2000s

2005

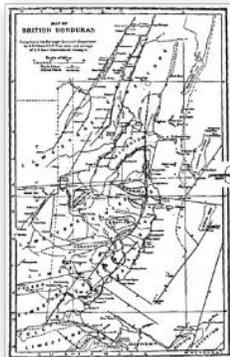
2006

2007

2009

2022

Exploration began with new geological mapping



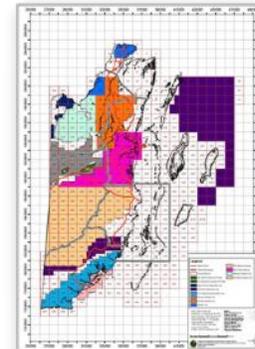
Majors such as Shell, Exxon, Texaco and Chevron started to explore



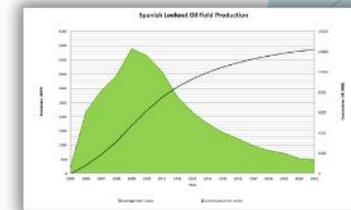
First commercial discovery made - the Spanish Lookout Oil Field



Aggressive exploration interest and PSA bidding

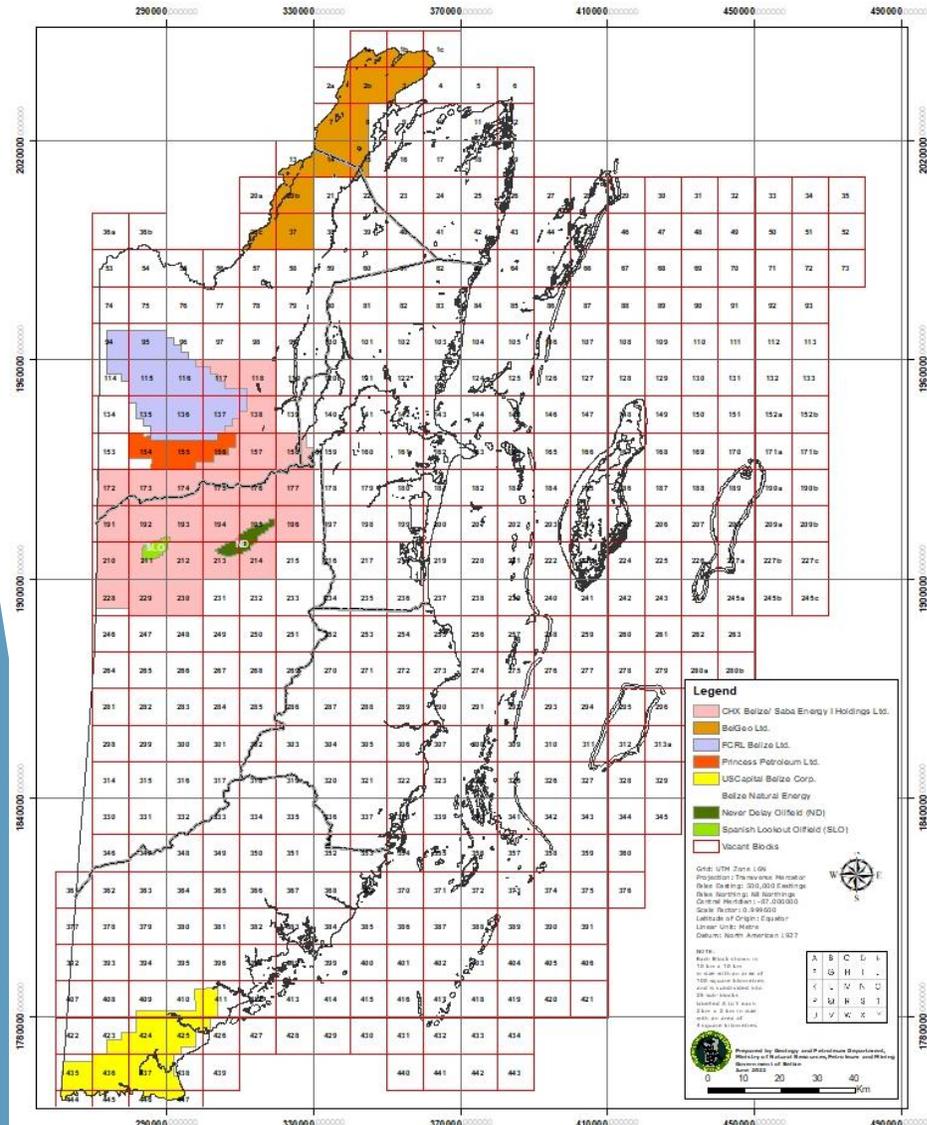


Cumulative production in excess of 12 MMSTB



Current Petroleum Industry

Belize Petroleum Contracts Map



Petroleum Companies in Belize

Producers:

1. Belize Natural Energy (only producer)

Exploration:

1. USCapital Belize Corp.
2. Viva Energy
3. Princess Petroleum Ltd.
4. BelGeo Ltd.
5. FCRL Belize (Firecreek)

Service Companies in Belize:

1. Horizon Well Logging Services
2. Hoover Oilfield Services

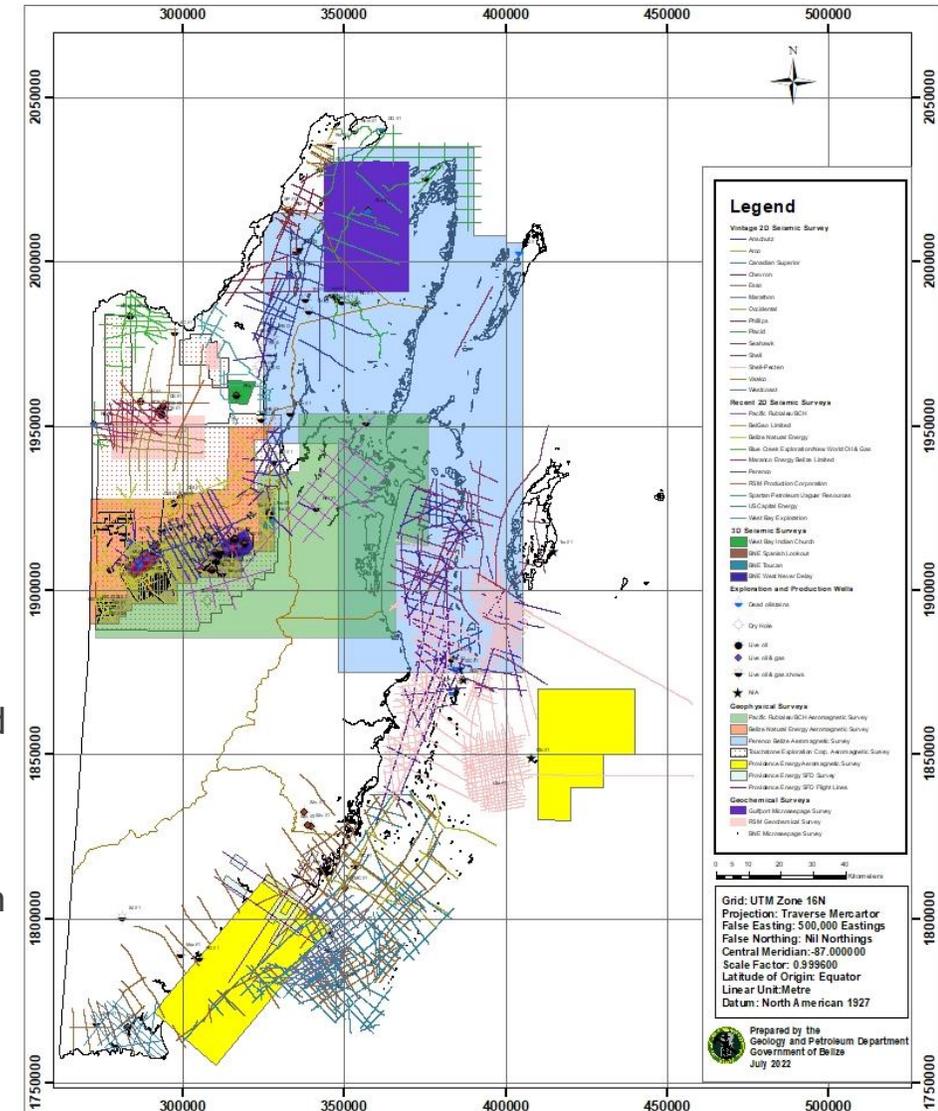
Data Providers:

All public seismic, aeromagnetic and gravity data are available from Lynx at: <http://www.belizeseismic.com/>

All public well data is available from TGS at:

<https://map.tgs.com/specsheets/well-data-Belize.pdf>

Geophysical & Geochemical Surveys and Wells Drilled in Belize



Grid: UTM Zone 16N
 Projection: Traverse Mercator
 False Easting: 500,000 Eastings
 False Northing: Nil Northings
 Central Meridian: -87.000000
 Scale Factor: 0.999600
 Latitude of Origin: Equator
 Linear Unit: Metre
 Datum: North American 1927

Prepared by the
 Geology and Petroleum Department
 Government of Belize
 July 2022

Petroleum Regulatory Framework

The Belize Petroleum Act

Income and
Business
Tax Act

Environmental
Protection
Act

The Belize Petroleum Regulations

PSA

- The Petroleum Act and Petroleum Regulations are the governing legislation for the oil and gas industry. These are currently being revised along with the model Production Sharing Agreement (PSA).
- The Geology and Petroleum Department is the regulator for the oil and gas industry.
- The Income and Business Tax Act and the Environmental Protection Act and Regulations also govern the petroleum industry in relation to taxation on petroleum production and environmental management.
- PSAs are issued to qualified petroleum companies to carry out petroleum exploration and production through either:
 1. Competitive bidding or,
 2. Direct negotiation.

Geology of Belize

► There are 4 geological provinces in Belize:

1. Corozal Basin
2. Maya Mountains
3. Belize Basin
4. Offshore

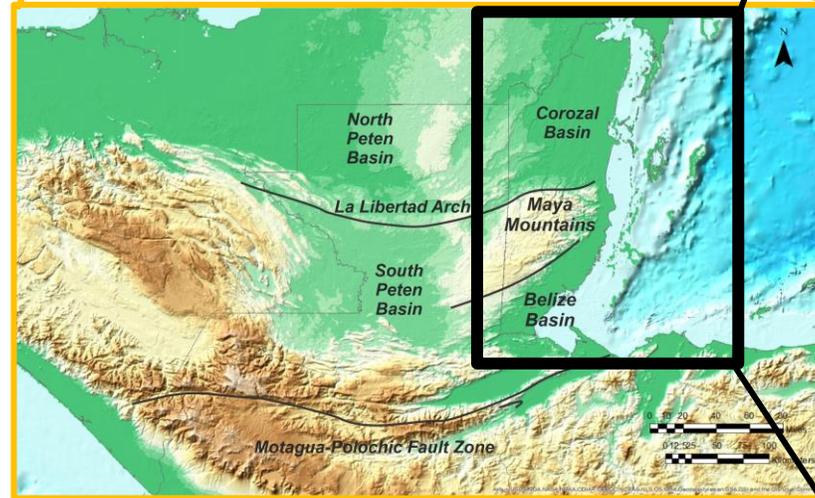
► The Corozal Basin is dominated by strike-slip faulting but is considerably less deformed than the Belize Basin

► Faults and folds in the Corozal Basin trend E-W to NE-SW

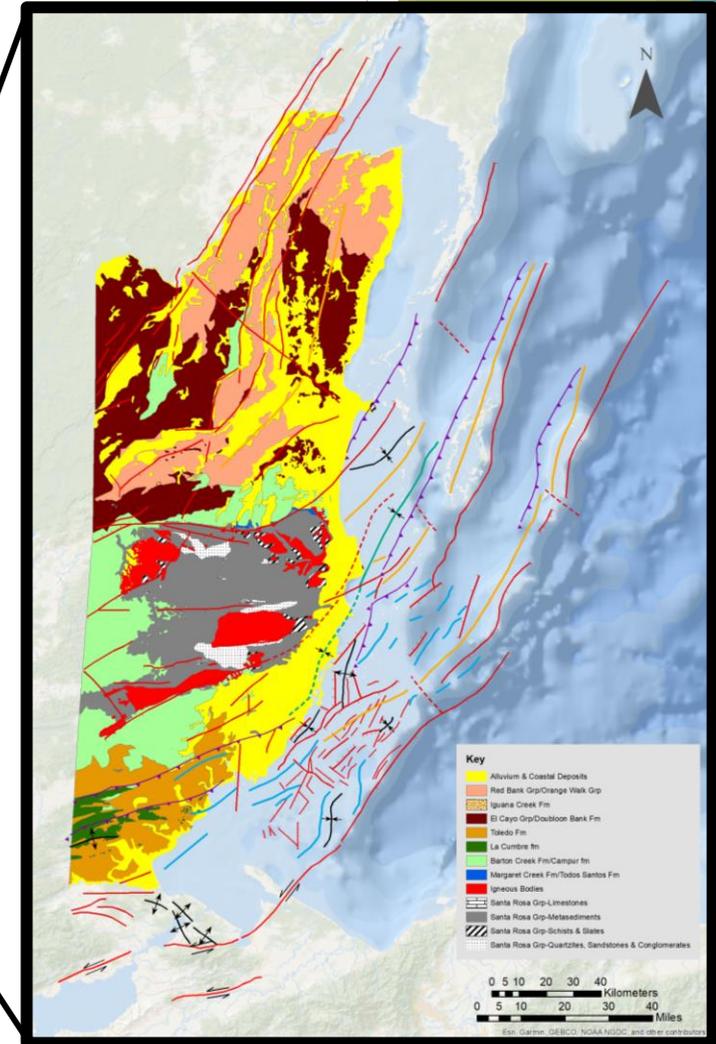
► The Belize Basin is dominated by NE-SW thrust faulting

► These features are considered to be predominantly of Cenozoic age and caused by multiple phases of tectonic activity

Tectonic map of the Caribbean

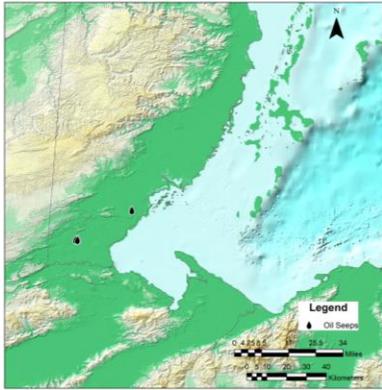


Geological Provinces of Belize and Neighboring Areas



Geological Map of Belize (adapted from Cornec 2005 and Purdy et al 2003)

Petroleum Potential of the Belize Basin

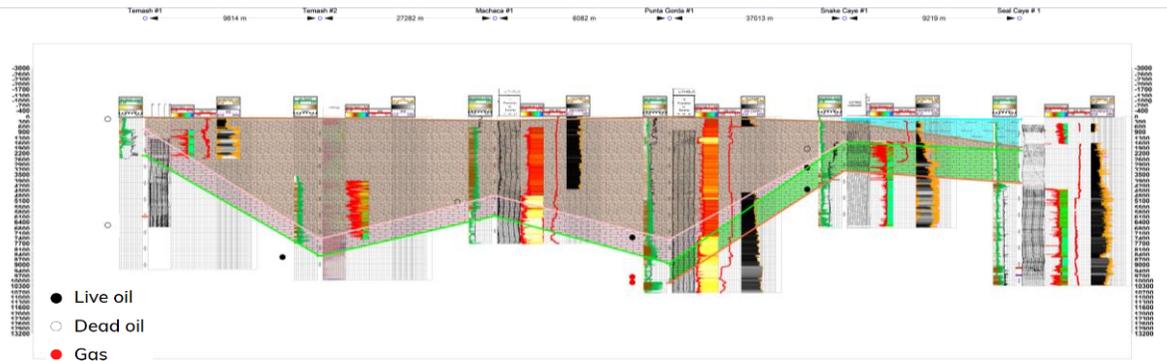


Map Showing Locations of Oil Seeps in the Belize Basin

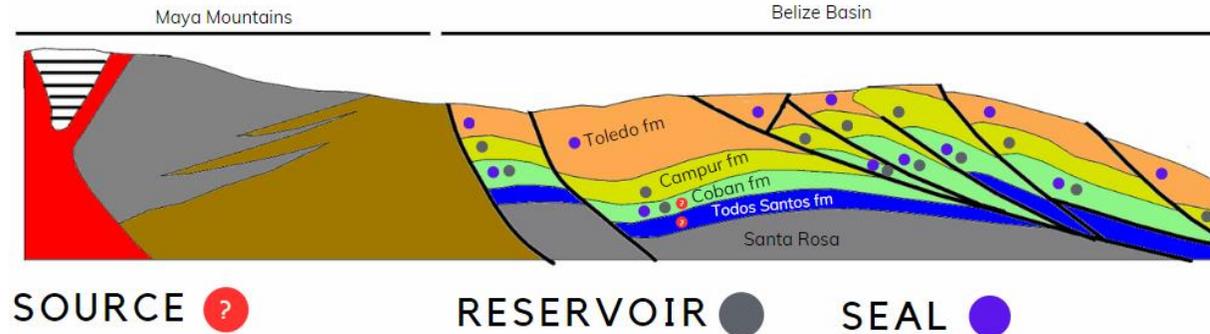


Oil Seeps in the Belize Basin

- ▶ There is evidence of an active petroleum system in the Belize Basin
- ▶ There are abundant oil seeps
- ▶ Hydrocarbon shows are common during drilling



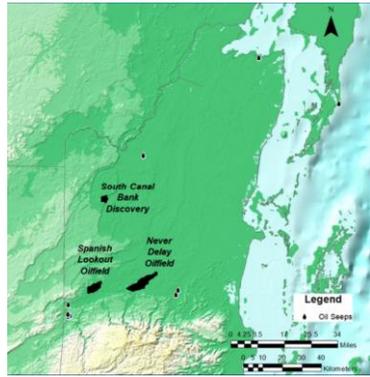
Most wells drilled in the Belize Basin have recorded hydrocarbon shows in the Cretaceous carbonates



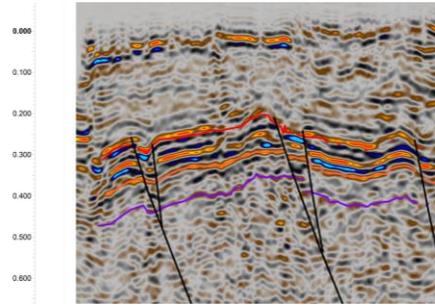
Geological Cross Section Across the Belize Basin Showing the Petroleum System Elements

- ▶ The source rock in the Belize basin remains unknown and further investigation is required to identify the oil kitchen
- ▶ Reservoir: Upper Cretaceous massive, light-brown to gray, highly fractured limestones of the Campur Formation and Lower Cretaceous sucrosic dolomites of the Coban Formation
- ▶ Seal: Claystones of the Toledo Formation and anhydrites of the Coban Formation are the possible seal rocks in the Belize Basin
- ▶ The play concept and stratigraphy is similar to that of the South Peten Basin in Guatemala

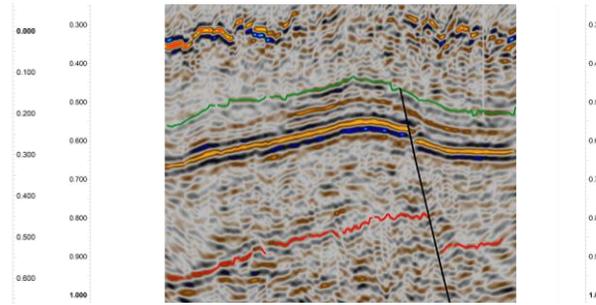
Petroleum Potential of the Corozal Basin



Map of Producing Oil Fields, 2013 Heavy Oil Discovery and Oil Seeps in the Corozal Basin

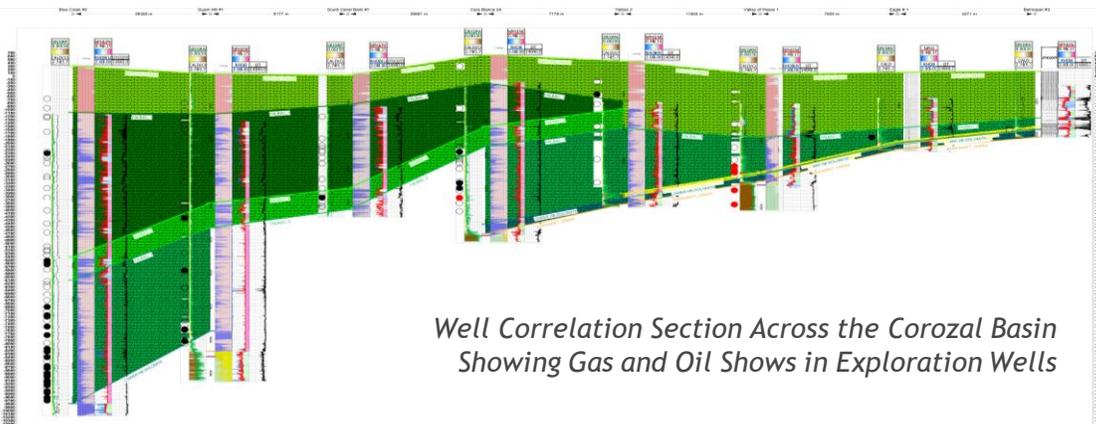


Seismic Section Across the Never Delay Oil Field in the Corozal Basin showing Trap Associated with a Possible Inversion Structure

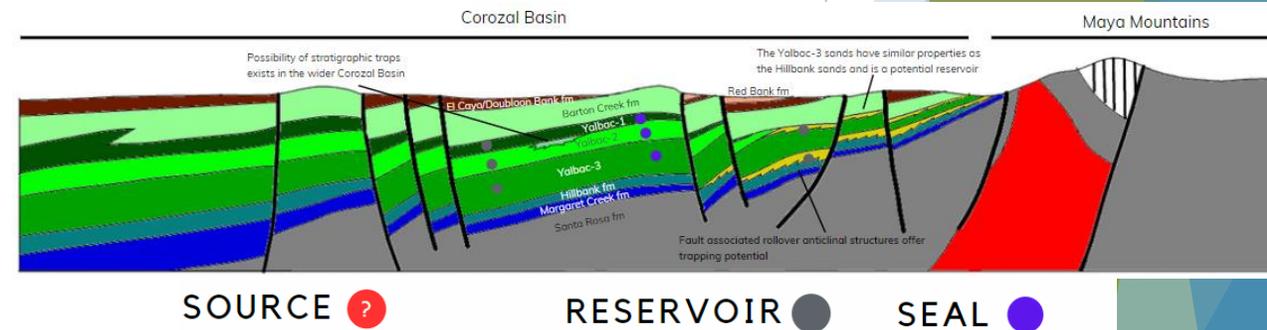


Seismic Section Across the Spanish Lookout Oil Field in the Corozal Basin showing Footwall Trap in a Tilted Fault Block

- ▶ The Corozal Basin is a proven hydrocarbon basin
- ▶ There are oil seeps in the southern part of the basin near the producing oil fields



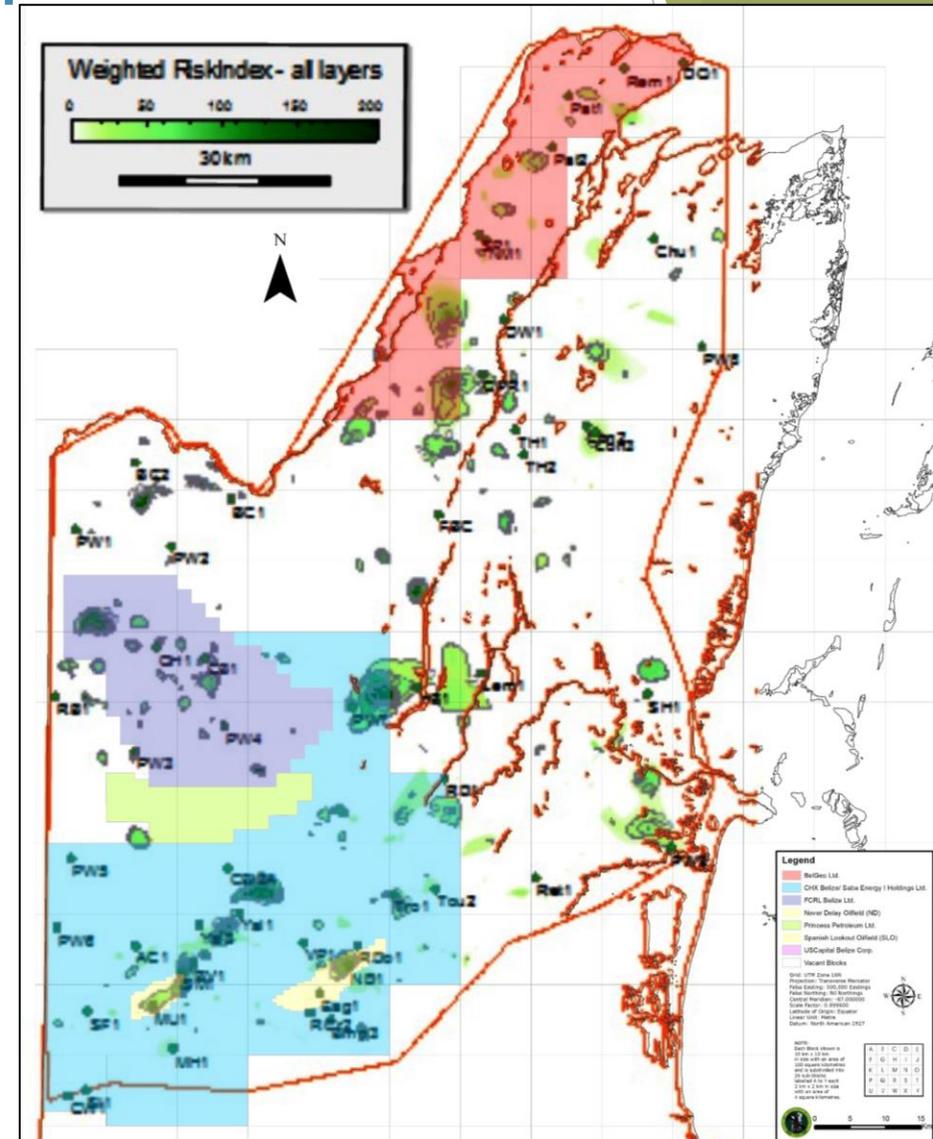
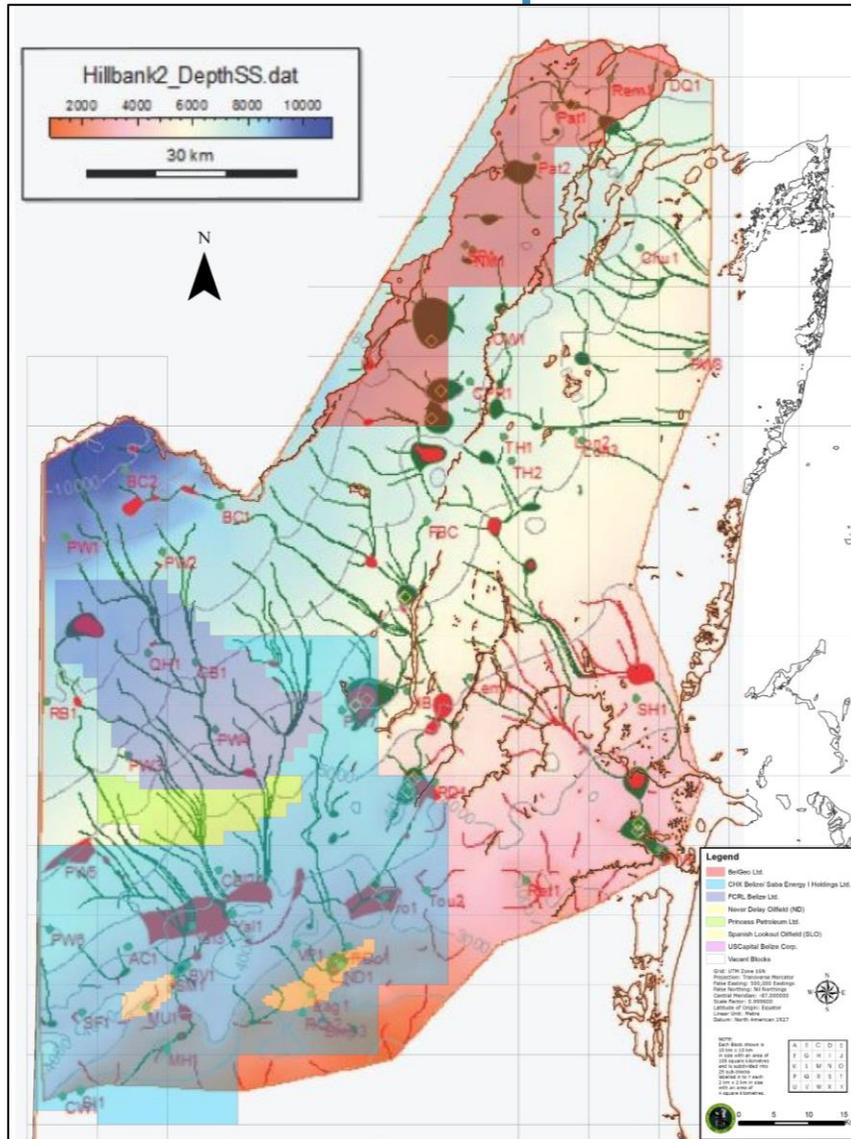
Well Correlation Section Across the Corozal Basin Showing Gas and Oil Shows in Exploration Wells



Geological Cross Section Across the Corozal Basin Showing the Petroleum System Elements

- ▶ Geochemical analysis in the Corozal Basin has not identified any potential local mature source rock candidates. Recent geochemical analysis has identified three oil families and has correlated them to oils in Guatemala and Mexico
- ▶ Reservoir:
 - Lower Cretaceous Yalbac dolomites which are dolomitized mudstones, peloidal wackestones and ooid grainstones with porosities of 6-15%, permeabilities of 100-10000 md and oil saturation greater than 20%
 - Lower Cretaceous Hillbank sandstones which are coarse-grained, subarkosic to arkosic sandstones up to 20 ft. thick, with porosities of 6-25%, permeabilities up to 10000 md and oil saturation greater than 20%
- ▶ Seal: nodular to massive, finely crystalline, felted salina anhydrites of the Yalbac Formation
- ▶ The play concept and stratigraphy is similar to that of the North Peten Basin in Guatemala

Exploration Opportunities



- Recent modelling of the Corozal Basin shows possible migration pathways and potential hydrocarbon accumulation in the basin
- There are areas with potential located in vacant exploration blocks

Revision of the Regulatory Framework and Fiscal System

- The current fiscal system used in Belize is a hybrid of a royalty/tax and production sharing system with a working interest option for the Government in commercial fields
- The Government is currently revising the fiscal system to secure an equitable take of the economic rent while maintaining an attractive investment environment

EXISTING FISCAL SYSTEM		PROPOSED NEW FISCAL SYSTEM	
Royalty	Negotiable (Minimum of 7.5% for Oil and 5% for Gas)	Maintain Negotiable Rates	
Production Share	Based on production	None	
State Participation	Negotiable (10% or higher)	None	
Corporate Income Tax	40%	40%	
Winfall Profits Tax	Petroleum Surcharge (20 Tiers based on Oil Price)	Additional Profits Tax (3 Tiers based on Rate of Return)	

Why Invest in Belize?

Stable Democracy

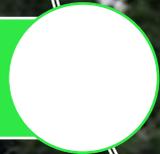
Attractive Regulatory and Fiscal Systems

Growing Energy Demand in LAC

Proven Onshore Hydrocarbon Potential

Low Cost Exploration and Production

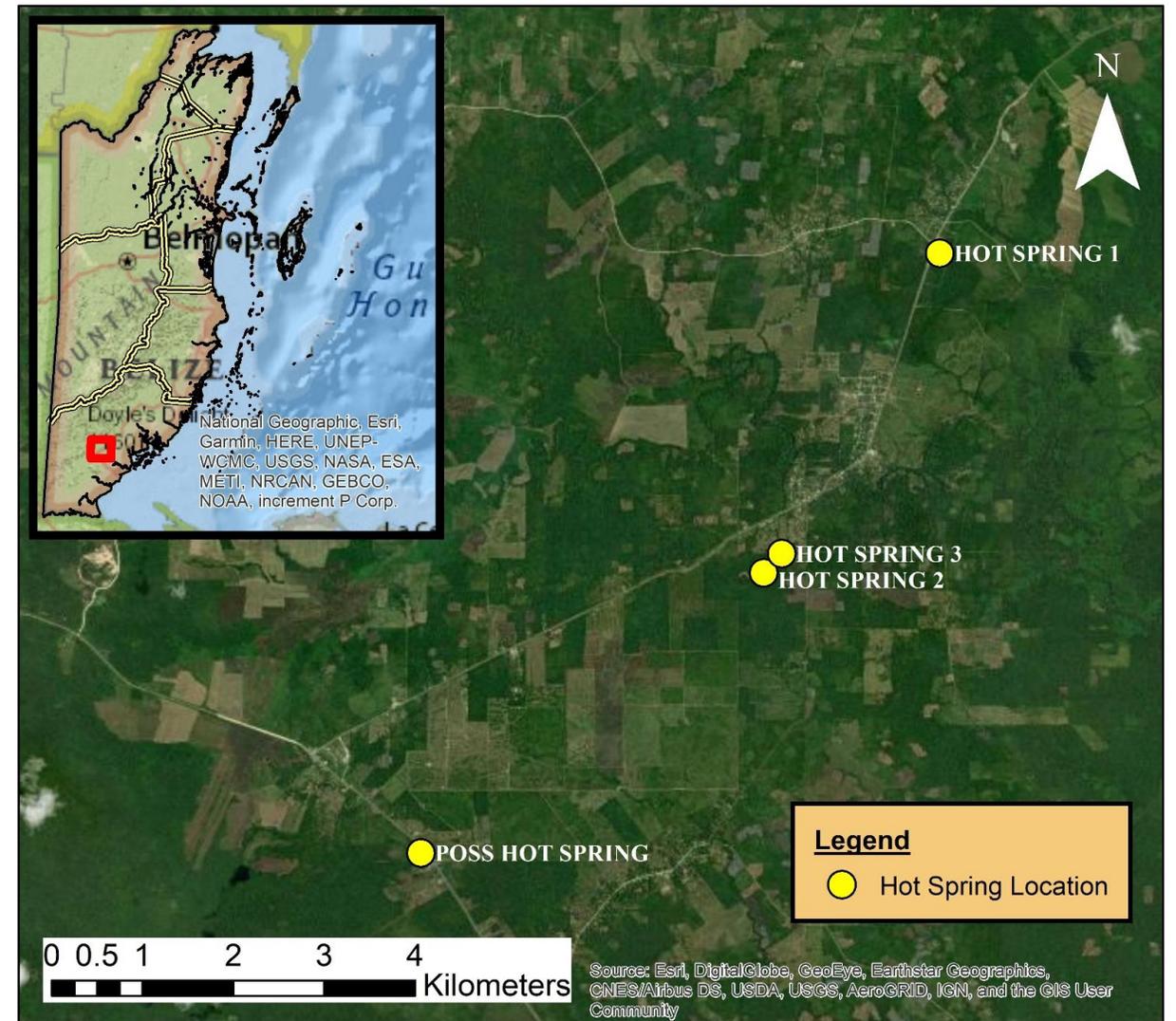
Supporting Infrastructure



Green Energy Initiatives - Potential Geothermal Resources

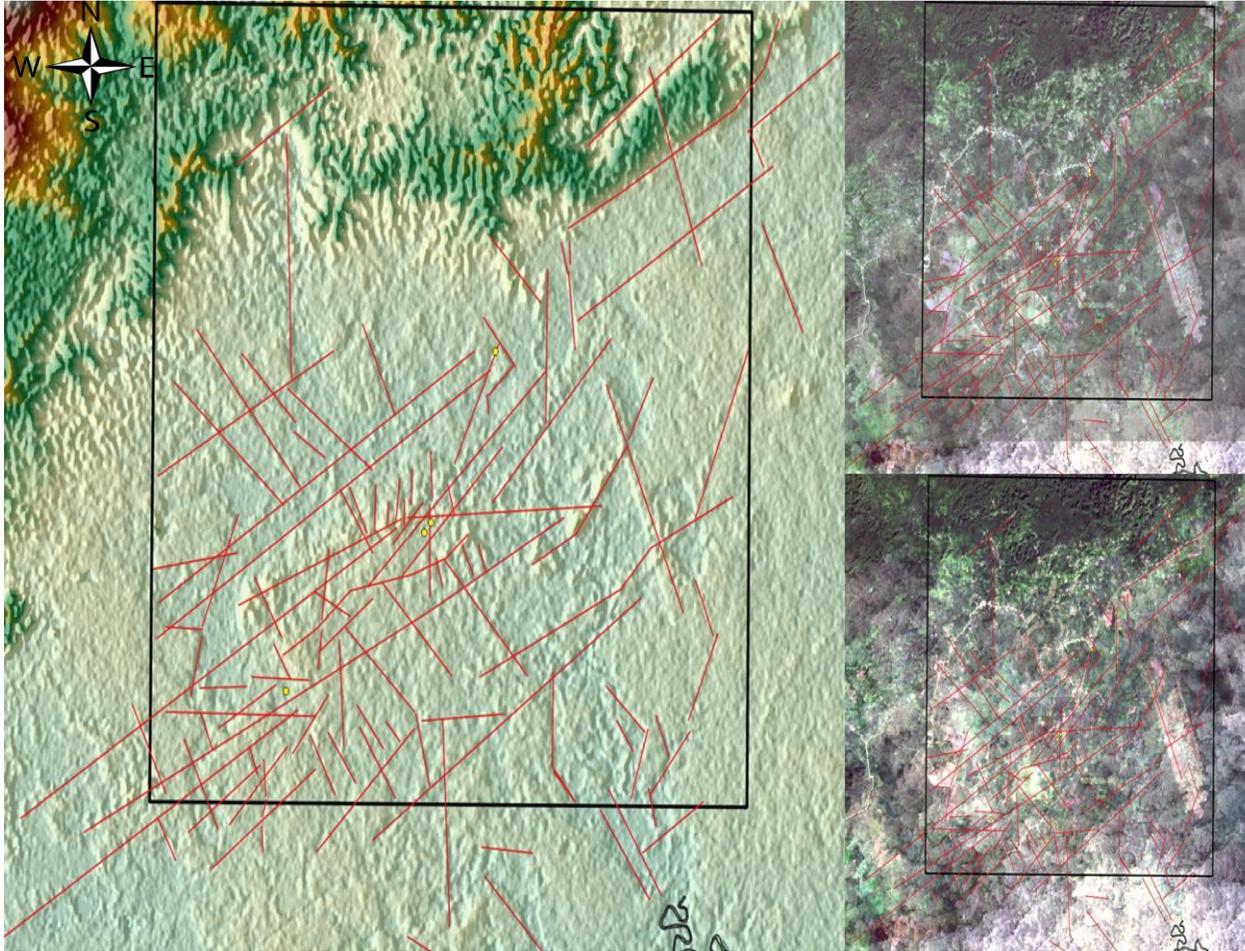
- ▶ The Energy Unit of Belize, in collaboration with the German Federal Institute for Geosciences and Natural Resources (BGR) and the Costa Rican Institute of Electricity (ICE), is carrying out the assessment of geothermal resources in Belize with a focus on direct use applications that highlight community involvement and development
- ▶ Four (4) low enthalpy (85-95° Fahrenheit) hot springs were identified in Southern Belize
- ▶ Exploration and investigation initiatives such as lineament mapping, water sampling campaign and geochemical analysis of the hot springs will be conducted to further classify these geothermal occurrences

Hot Spring Locations Toledo District, Belize

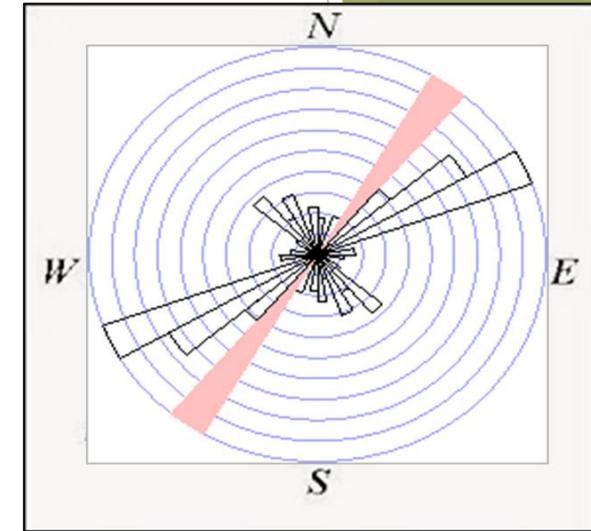


Green Energy Initiatives- Potential Geothermal Resources

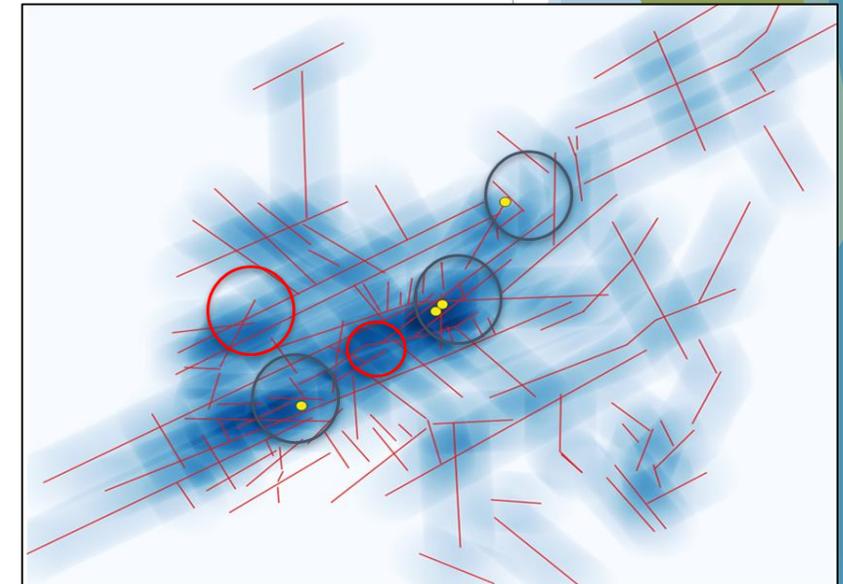
Results of Preliminary Lineament Mapping Exercise



Lineament Mapping was done with Remote Sensing Data



Rose Diagram Showing Predominant NE-SW Trending Faults



Lineament Density Map Showing Hot Spring Locations and Other Prospective Areas (Red Circles)



Thank You

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