

**Resource Evaluation Report  
On The  
Corentyne Petroleum Prospecting License,  
Guyana, South America**

**Effective Date: 17 May 2012**

**Prepared According To  
National Instrument 51-101**

**Prepared on Behalf of  
CGX Energy Inc.**



**17 May 2012**

**Submitted By:**



**GUSTAVSON ASSOCIATES**

5757 CENTRAL AVE. SUITE D BOULDER, COLORADO 80301 USA

**Independent Qualified Reserves Evaluators**

**Resource Evaluation Report  
On The  
Corentyne Petroleum Prospecting License,  
Guyana, South America**

**Effective Date: 17 May 2012**

**Prepared According To  
National Instrument 51-101**

**Prepared on Behalf of  
CGX Energy Inc.**

**17 May 2012**

A handwritten signature in blue ink, appearing to read "Letha C. Lencioni", written over a horizontal line.

**Letha C. Lencioni  
Registered Petroleum Engineer  
State of Colorado #29506**



**GUSTAVSON ASSOCIATES**

5757 CENTRAL AVE. SUITE D BOULDER, COLORADO 80301 USA

**Independent Qualified Reserves Evaluators**

# **1 TABLE OF CONTENTS**

	<u>PAGE</u>
1 TABLE OF CONTENTS.....	1
2 EXECUTIVE SUMMARY .....	3
3 INTRODUCTION .....	8
3.1 AUTHORIZATION.....	8
3.2 INTENDED PURPOSE AND USERS OF REPORT .....	8
3.3 OWNER CONTACT AND PROPERTY INSPECTION .....	8
3.4 SCOPE OF WORK .....	8
3.5 APPLICABLE STANDARDS .....	9
3.6 ASSUMPTIONS AND LIMITING CONDITIONS .....	9
3.7 INDEPENDENCE/DISCLAIMER OF INTEREST .....	9
4 REQUIRED DISCLOSURES REGARDING PROSPECTS.....	10
4.1 LOCATION AND BASIN NAME .....	10
4.2 CGX ENERGY’S GROSS AND NET INTEREST IN THE PROPERTY .....	12
4.3 EXPIRY DATE OF INTEREST .....	13
4.4 DESCRIPTION OF TARGET ZONES .....	13
4.4.1 The Eagle Turonian.....	18
4.4.1.1 Lower Turonian .....	19
4.4.1.2 Upper Turonian.....	20
4.4.2 Campanian .....	22
4.4.3 Albian.....	22
4.5 DISTANCE TO THE NEAREST COMMERCIAL PRODUCTION.....	23
4.6 PRODUCT TYPES REASONABLY EXPECTED .....	24
4.7 RANGE OF POOL OR FIELD SIZES.....	24
4.8 DEPTH OF THE TARGET ZONE .....	24
4.9 ESTIMATED DRILLING AND TESTING COSTS .....	25
4.10 EXPECTED TIMING OF DRILLING AND COMPLETION .....	25
4.11 EXPECTED MARKETING AND TRANSPORTATION ARRANGEMENTS.....	25
4.12 IDENTITY AND RELEVANT EXPERIENCE OF THE OPERATOR.....	25
4.13 RISKS AND PROBABILITY OF SUCCESS .....	26
5 PROBABILISTIC RESOURCE ANALYSIS .....	29
5.1 GENERAL.....	29
5.2 INPUT PARAMETERS .....	29
5.3 PROBABILISTIC SIMULATION .....	33
5.4 RESULTS .....	33
6 REFERENCES .....	37
7 CONSENT LETTER .....	38
8 CERTIFICATE OF QUALIFICATION.....	39

## **LIST OF FIGURES**

<u>FIGURE</u>	<u>PAGE</u>
Figure 2-1 Illustration of Reserve and Resource Classification System.....	6
Figure 4-1 Location of Guyana-Suriname Basin in South America ( <i>Source, CGX 2007</i> ).....	10
Figure 4-2 Index Map of Guyana, South America .....	11
Figure 4-3 Depiction of the Early Atlantic Basin .....	14
Figure 4-4 – Index Map of the 3D Seismic Inversion Analysis Areas .....	16
Figure 4-5 – Detail Map Showing the 3D outline and the Prospective Areas in the Corentyne Offshore PPL and Georgetown PPL .....	17
Figure 4-6 Composite Dip Line and Depositional Model for the Corentyne Offshore PPL .....	18
Figure 4-7 Lower Turonian Isopachous.....	19
Figure 4-8 Horizontal Slice from Attribute Analysis .....	20
Figure 4-9 Vertical slice (line A – B Fig 4-9) through Attribute Analysis Seismic Volume .....	21
Figure 4-10 Upper Turonian Isopachous .....	21
Figure 4-11 Stratigraphic Column for the Guyana-Suriname Basin .....	23
Figure 5-1 Example Area Distribution .....	30
Figure 5-2 Temperature Profile Based on Abary-1 Well.....	32
Figure 5-3 Pressure Gradient vs. Depth, Abary Well .....	32
Figure 5-4 Distribution of Prospective Resources, Eagle Lower Turonian .....	35
Figure 5-5 Distribution of Prospective Resources, Eagle Upper Turonian .....	35

## **LIST OF TABLES**

<u>TABLE</u>	<u>PAGE</u>
Table 4-1 Range of Probability of Success (POS) for the Turonian Prospect.....	27
Table 5-1 Summary of Input Parameters .....	31
Table 5-2 Summary of Mean Oil Formation Volume Factors.....	31
Table 5-3 Summary of Resource Estimates.....	34

## **2 EXECUTIVE SUMMARY**

Gustavson Associates LLC (the Consultant) has been retained by CGX Energy Inc. (the Client) to prepare a Report under the Standards of the Canadian Securities Administrators National Instrument 51-101 regarding the resource estimates for the Corentyne Offshore Petroleum Prospecting License (PPL). The resource estimates in this report have changed from the resource estimates stated in the Gustavson Associates LLC Resource Evaluation Report dated 15 April, 2011, since new material data from the Eagle #1 well has been acquired since the last report. This license area is located approximately 200 kilometers northeast of Georgetown, Guyana, South America in the Guyana-Suriname Basin.

As of 17 May, 2012, CGX holds an interest in four Petroleum Agreements (PA) offshore and onshore Guyana covering approximately 31,762 square kilometers (7.8 million acres) gross with approximately 25,237 square kilometers (6.2 million acres) net. Each PA corresponds to a separate PPL with the exception of the Corentyne PA that is split into two PPL's, the Annex PPL which is owned 100% by CGX Resources Inc. and the Corentyne PPL which is split into two components; the offshore exploration rights that are owned 100% by CGX Resources Inc. and the onshore exploration rights that are owned 100% by ON Energy Inc. CGX has a 25% working interest (WI) in the Georgetown PPL. CGX also has a 62% WI in both the Corentyne Onshore PPL and the Berbice PPL through its subsidiary ON Energy Inc. This Report is limited to a report on the potential undiscovered oil and gas prospective resources underlying the Corentyne PPL. The Corentyne Offshore PPL covers approximately 6,220 square kilometers (1.5 million acres) gross and net. In June of 2010, 32.2% of the original 9,180 square kilometers (2.3 million acres) was relinquished by CGX per the terms of the Petroleum Agreement. This relinquished area has no impact on the prospect areas that are the subject of this report.

The offshore Guyana-Suriname Basin is a large area containing a thick package of Jurassic to Recent age sedimentary rocks of alluvial to deep marine clastic origins and some carbonates. The basin contains a world class Late Cretaceous or Cenomanian age Type II<sup>1</sup> marine source rock, known as the Canje Formation that is thermally mature and is generating oil and gas. The

---

<sup>1</sup> A marine planktonic anoxic source rock that is prone to generating both oil and gas.

Canje Formation is considered to be the source for the CGX prospective resources. Oil shows of 35° API gravity, numerous gas shows, and up-dip heavy oil accumulations in nearby Suriname, reflect the presence of active hydrocarbon systems.

Although few wells had been drilled in the offshore Guyana-Suriname Basin prior to 1980, there has been recent drilling in the area. CGX has finished drilling the Eagle #1 well on the Corentyne Offshore PPL in 2012. Inpex has drilled the Aitkanti 1 well less than 100 kilometers southeast of the Eagle #1 well location. Murphy Oil Corporation has drilled two wells in offshore Suriname located approximately 320 kilometers east of the CGX prospects. These wells confirmed the presence of reservoir quality sands in the target section of the CGX prospects and Tullow has drilled the Zaedyus 1 well in offshore French Guiana which has discovered oil.

A relatively dense coverage of 2-D seismic data, acquired from 1981 to 1999, is available over the shallow-water marine shelf portion of the basin, where the average water depth is 75 meters. A 3-D seismic data set was acquired in 2008 and 2009 by CGX over part of the Corentyne Offshore PPL and by CGX and their partners over the Georgetown PPL. In late 2008 CGX acquired 505 square kilometers of 3-D seismic data designed to cover the prospects identified by 2-D seismic data. The 3-D seismic and the subsequent processing and interpretation has provided a more detailed picture of the prospective resource prospects and leads in the Corentyne Offshore PPL. The seismic processing included Pre-Stack Time Migration, Pre-Stack Depth Migration, Velocity, and Inversion volumes. On the Corentyne block, a 1,140 square kilometer 3-D seismic data set was acquired by CGX (100%) in late 2011 and early 2012 to better define the updip termination of the Eagle Deep Turonian and the two Albian prospects at Crabwood and Kabukali. As of the effective date of this report the seismic data was still being processed.

The CGX Eagle Tertiary-1 (EGT-1) well was drilled to a total depth of 4,328 meters (14,200 feet) into the upper Cretaceous section. Poor oil and minor gas shows were described through the objective Eocene and Maastrichtian geologic zones. These shows indicate that the petroleum system in the Guyana-Suriname basin is active and that hydrocarbons have been generated and migrated through the pre-Miocene section drilled by the EGT-1 well. Logs provided encouraging results with high resistivities correlating with sandstones that had encountered oil shows.

The Eagle Deep well is planned to be drilled to a maximum depth of 6,500 meters (21,325 feet) total depth (TD) in a water depth of 80 meters (260 feet) at an estimated cost of US\$160MM to test the Turonian target.

A dispute between Guyana and Suriname concerning the location of the Maritime Boundary was resolved through the binding settlement under the United Nations Convention on Law of the Sea to which both countries are full signatories on September 20, 2007 resulting in a stable environment for future operations in the area. Operators of other offshore licenses in both Guyana and Suriname, including Exxon, Murphy, Inpex, Repsol and others have recently acquired new 2-D and/or 3-D seismic data. The potential size of conventional accumulations, both in stratigraphic and in combination stratigraphic and structural traps, is in the range of 1,900 to 12,835 hectares (4,690 to 31,716 acres). The basin can best be characterized as being a moderate to high-risk, high-reward exploration area in a favorable political and economic environment. Infrastructure is relatively limited at present, given the small population, agrarian economy, and relatively undeveloped nature of the Guyana mainland in South America.

A probabilistic prospective resource estimate of the prospects in the Corentyne Offshore PPL yielded results as shown below.

Prospect	Prospective Oil Resources, Millions of Barrels		
	Low Estimate	Best Estimate	High Estimate
Eagle Lower Turonian	187	1,269	3,340
Eagle Upper Turonian	144	1,241	3,949
<b>Sum of Prospects</b>	331	2,510	7,289

In addition, leads have been defined but no Prospective Resources assigned, for the Eagle Campanian.

All of the resources in this report are Prospective Resources. These resources are classified as Prospective Resources based on the commercial risk as defined by the Society of Petroleum Evaluation Engineers, (Calgary Chapter): *Canadian Oil and Gas Evaluation Handbook, Second*

*Edition*, Volume 1, September 1, 2007, pg 5-9 to 5-10. Prospective Resources are defined as “those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective resources have both an associated chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity.”<sup>2</sup> There is no certainty that any portion of the resources will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the resources. Figure 2-1 illustrates how Prospective Resources fit into an overall scheme of reserve and resource classification.

SPE/WPC/AAPG  
joint definitions

PETROLEUM-INITIALLY-IN-PLACE	Discovered Petroleum-Initially-in-Place	COMMERCIAL	PRODUCTION			
			<div>RESERVES</div> <div>Proved (1P)   Proved + Probable (2P)   Proved + Probable + Possible (3P)</div>			Producing
						Being developed
		SUB COMMERCIAL	<div>CONTINGENT RESOURCES</div> <div>Low Estimate   Best Estimate   High Estimate</div>			Development planned
	Technology proved					
			Technology not proved			Non commercial
		Unrecoverable				
	Undiscovered Petroleum-Initially-in-Place	<div>PROSPECTIVE RESOURCES</div> <div>Low Estimate   Best Estimate   High Estimate</div>			PROSPECT	
					LEAD	
					PLAY	
		Unrecoverable				

**Figure 2-1 Illustration of Reserve and Resource Classification System**  
(after SPE/WPC/AAPG PRMS<sup>3</sup>)

<sup>2</sup> Society of Petroleum Evaluation Engineers, (Calgary Chapter): *Canadian Oil and Gas Evaluation Handbook*, Second Edition, Volume 1, September 1, 2007, pg 5-7.

<sup>3</sup> [http://www.spe.org/industry/reserves/docs/Petroleum\\_Resources\\_Management\\_System\\_2007.pdf](http://www.spe.org/industry/reserves/docs/Petroleum_Resources_Management_System_2007.pdf) . Although this diagram is from the Society of Petroleum Engineers', et.al, Petroleum Resource Management System documentation, the COGE Handbook shows a similar diagram.



In order to assign recoverable resources, a development plan consisting of one or more projects needs to be defined. Estimates of recoverable quantities are stated in terms of the sales products derived from a development program, assuming commercial development. It must be recognized that reserves, contingent resources and prospective resources involve different risks associated with achieving commerciality. The likelihood that a project will achieve commerciality is referred to as the “chance of commerciality.” The risk of commerciality for Prospective Resources is that not all exploration projects will result in discoveries. The chance that an exploration project will result in the discovery of petroleum is referred to as the “chance of discovery.” Thus, for an undiscovered accumulation the chance of commerciality is the product of two risk components – the chance of discovery and the chance of development.

The Low Estimate column represents the  $P_{90}$  values from the probabilistic analysis (in other words, the value is greater than or equal to the  $P_{90}$  value 90% of the time), while the Best Estimate represents the  $P_{50}$  and the High Estimate represents the  $P_{10}$ .<sup>4</sup> We have assumed the prospects will encounter oil, but they could alternatively encounter gas. Associated gas would also be present, but has not been reported here due to the larger uncertainties, not only in the quantities of but also in the market for and/or disposition of this gas. Note that these estimates do not include consideration for the risk of failure in exploring for these resources.

This report does not include an estimate of fair market value of the Corentyne Offshore PPL.

---

<sup>4</sup> Society of Petroleum Evaluation Engineers, (Calgary Chapter): *Canadian Oil and Gas Evaluation Handbook, Second Edition*, Volume 1, September 1, 2007, pg 5-7.

### **3 INTRODUCTION**

#### **3.1 AUTHORIZATION**

Gustavson Associates LLC (the Consultant) has been retained by CGX Energy Inc. (the Client) to prepare a Report under the Standards of the Canadian Securities Administrators National Instrument 51-101 regarding the Prospective Resources underlying the Corentyne Offshore PPL. The Guyana-Suriname Basin is a relatively large, yet unexplored area of offshore Guyana in water depths that range from shallow to deep marine. The CGX Energy Inc. Corentyne Offshore PPL is located in the offshore areas of the Guyana basin bordering Suriname on the relatively shallow marine continental shelf in water depths ranging from 0 to 1,250 meters.

#### **3.2 INTENDED PURPOSE AND USERS OF REPORT**

The purpose of this Report is to support the Client's filing with the Ontario Securities Commission and for potential partners and investors.

#### **3.3 OWNER CONTACT AND PROPERTY INSPECTION**

This Consultant has had frequent contact with the Client. This Consultant has not personally inspected the subject property. This Consultant visited the data room in Calgary to evaluate the 3-D seismic data and to review the current status of the project.

#### **3.4 SCOPE OF WORK**

This Report is intended to describe and quantify the Prospective Resources contained within the Corentyne Offshore PPL located in the Guyana-Suriname Basin offshore Guyana, South America.

### 3.5 APPLICABLE STANDARDS

This Report has been prepared in accordance with Canadian National Instrument 51-101. The National Instrument requires disclosure of specific information concerning prospects, as will be provided in the Section 4 of this Report.

### 3.6 ASSUMPTIONS AND LIMITING CONDITIONS

This Report is limited to a discussion of the potential undiscovered oil and gas Prospective Resources of the subject property. This Report does not attempt to place a value thereon.

Gustavson Associates reserves the right to revise its opinions of reserves and resources, if new information is deemed sufficiently credible to do so.

The accuracy of any estimate is a function of available time, data and of geological, engineering and commercial interpretation and judgment. While the resource estimates presented herein are believed to be reasonable, they should be viewed with the understanding that additional analysis or new data may justify their revision and we reserve the right to make such revision.

### 3.7 INDEPENDENCE/DISCLAIMER OF INTEREST

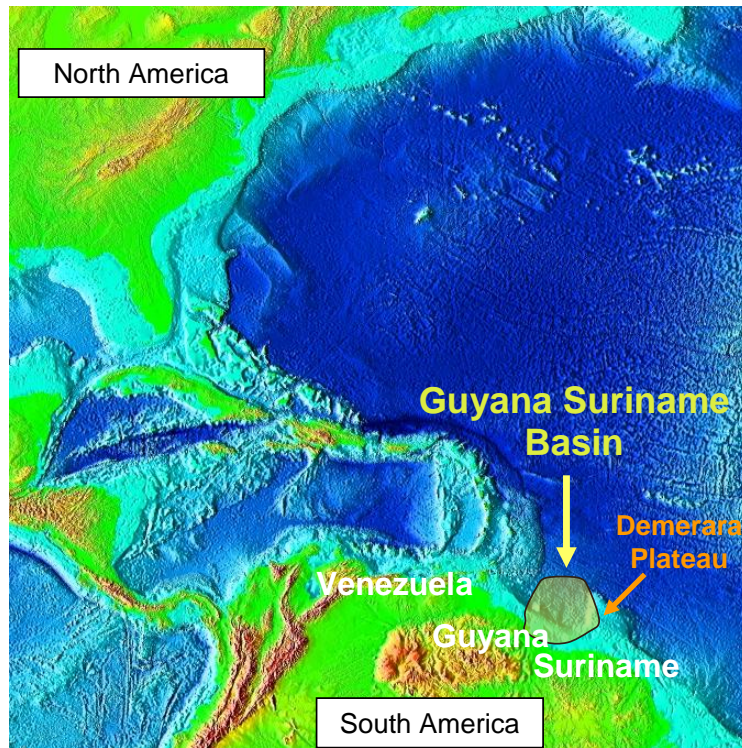
Gustavson Associates LLC has acted independently in the preparation of this Report. The company and its employees have no direct or indirect ownership in the property appraised or the area of study described. Ms. Letha Lencioni is signing off on this Report, which has been prepared by her as a Qualified Reserves Evaluator, with the assistance of others on the Gustavson staff.

Our fee for this Report and the other services that may be provided is not dependent on the amount of resources estimated.

## 4 REQUIRED DISCLOSURES REGARDING PROSPECTS

### 4.1 LOCATION AND BASIN NAME

The Guyana-Suriname Basin is located in northeastern South America east to northeast of Georgetown, Guyana (Figure 4-1).



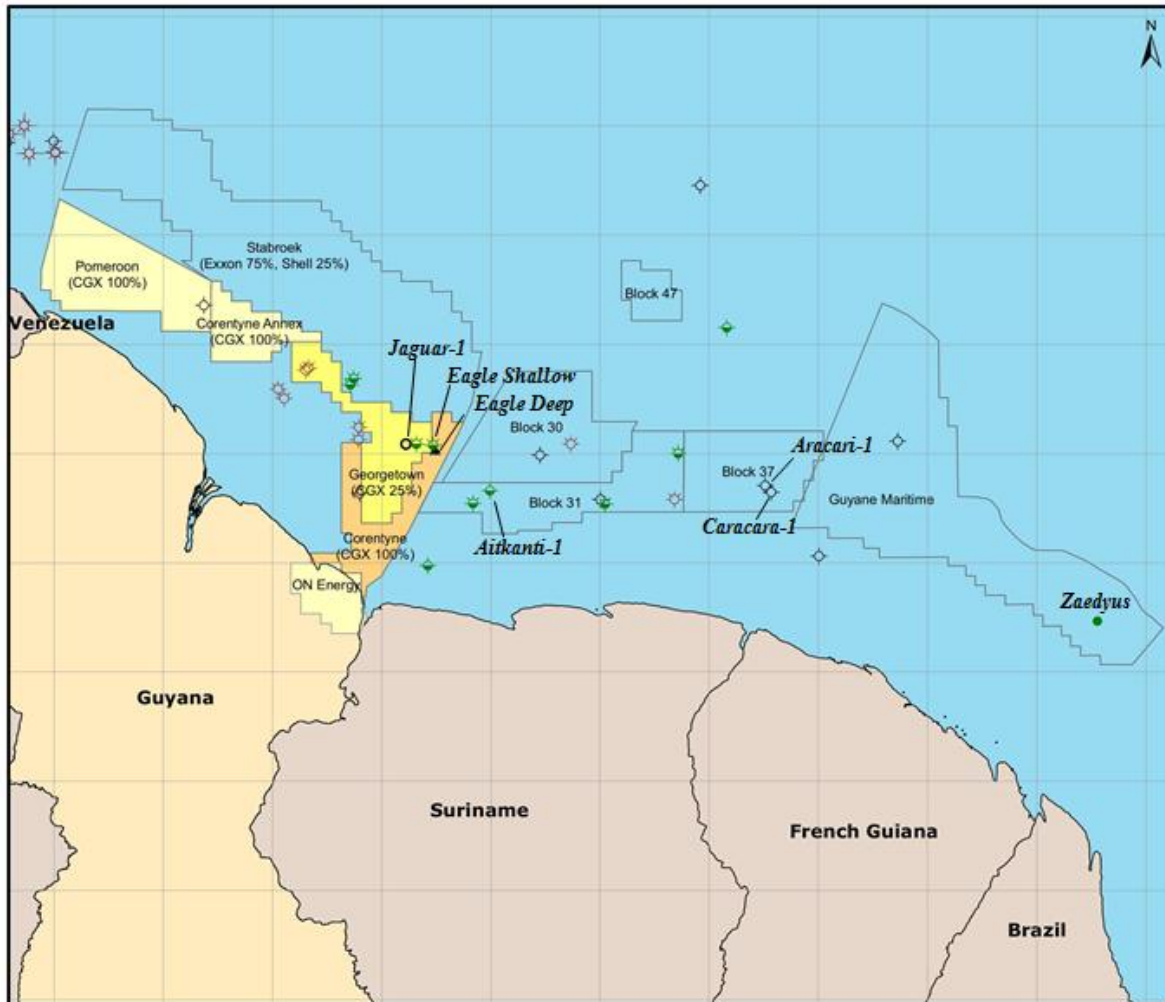
**Figure 4-1 Location of Guyana-Suriname Basin in South America (Source, CGX 2007)**

An index map, Figure 4-2, of the offshore northeast South America shows the general location of CGX Energy Inc.'s PPLs. This study focuses on the CGX Corentyne Offshore PPL only. A maritime border dispute between Suriname and Guyana for their offshore territorial waters is now resolved. The resolution extends out to the 200 nautical mile continental shelf edge as determined by the mutually binding determination under the UNCLOS Treaty and the ITLOS organization<sup>5</sup> award made on September 20, 2007. The new boundary is depicted on Figure 4-2 as the ITLOS Marine Boundary Award. The ITLOS resolution reduced the original area of the

---

<sup>5</sup> International Tribunal for the Law of the Sea

Corentyne Offshore PPL by approximately 674 square kilometers or 7% as opposed to a substantially larger area claimed by Suriname.



**Figure 4-2 Index Map of Guyana, South America**

CGX's offshore exploration permits are shown with ownership (CGX has a 62.0% WI in the ON Energy Berbice permit that is onshore Guyana). Note: updated Guyana-Suriname international boundary (black line), (ITLOS September 2007 award).

The Guyana-Suriname Basin is a large under-explored basin containing a thick sequence of Jurassic to Recent age sedimentary rocks that have the potential to hold large conventional accumulations of hydrocarbons. The basin contains a well-documented oil-prone source rock, the Canje Formation, which has generated oil and gas. Oil samples of 35° API gravity oil were recovered from Abary-1, which was drilled in 1975 by Shell Oil, along with evidence of oil, gas, and over-pressuring. Tullow Oil plc (Tullow) announced that the Zaedyus exploration well

(GM-ES-1) in offshore French Guiana has made an oil discovery having encountered 72 meters (236 feet) of net oil pay in two turbidite fans. The well was drilled in water depths of 2,048 meters (6,719 feet) and has been drilled to a depth of 5,711 meters (18,737 feet). A total of twenty-seven wells have been drilled to a maximum depth of 5,711 meters (18,737 feet) beyond the near shore in Guyana, French Guiana and Suriname to date.

The CGX Eagle Tertiary-1 (EGT-1) well was drilled to a total depth of 4,328 meters (14,200 feet) into the upper Cretaceous section. Poor oil and minor gas shows were described through the objective Eocene and Maastrichtian geologic zones. These shows indicate that the petroleum system in the Guyana-Suriname basin is active and that hydrocarbons have been generated and migrated through the pre-Miocene section drilled by the EGT-1 well. Logs provided encouraging results with high resistivities correlating with sandstones that had encountered oil shows.

The exploration potential of this basin would be characterized as moderate- to high-risk. The political and economic environments are stable promoting a low-risk operating environment.

The Republic of Guyana is the only country in South America where English is the official language due to British rule from 1814-1966. Independence was acquired in 1966 and the government is a Democracy with a legal system based on English Common Law. Guyana maintains strong ties to Canada, the United States of America and the United Kingdom. The population is approximately 764,000 in a country about the size of Great Britain at about 214,969 square kilometers (83,000 square miles). The current leader is President Donald Ramotar who was first elected in 2011. The capital city of Guyana is Georgetown and generally the country is considered an attractive place to do business.

#### 4.2 CGX ENERGY'S GROSS AND NET INTEREST IN THE PROPERTY

CGX Energy Inc. has interest in four Petroleum Agreements (PA) (Figure 4-2) comprising a total of 31,762 gross square kilometers or 7,848,659 gross acres in the Guyana portion of the Guyana-Suriname Basin. The total licensing comprises 25,237 net square kilometers or 6,236,094 net acres. Each PA corresponds to a separate PPL with the exception of the Corentyne PA that is

split into the offshore exploration rights that are owned 100% by CGX Resources Inc. and the onshore exploration rights that are owned 100% by ON Energy Inc. In the Corentyne Offshore PPL, which is the subject area of this report, CGX has a 100% WI in 6,220 square kilometers or 1,537,098 acres. Under the terms of the PPL, the Guyana government is entitled to a 1% royalty interest that is included in the government's share of the profit oil.

#### 4.3 EXPIRY DATE OF INTEREST

In June 2010, 32.2% of the Corentyne Offshore PPL was relinquished at the start of the Second Renewal Phase 1 per the Corentyne Offshore PPL. This relinquishment was a total of 2,960 square kilometers or 731,432 acres. The minimum work program for the Second Renewal Period Phase 1 was fulfilled by drilling the EGT-1 well to test the Tertiary Eocene and Upper Cretaceous Maastrichtian. The Corentyne PPL was renewed in December 2011 into the Second Renewal Phase 2 by committing to drill another exploration well. The Corentyne Offshore PPL terminates in June 2013.

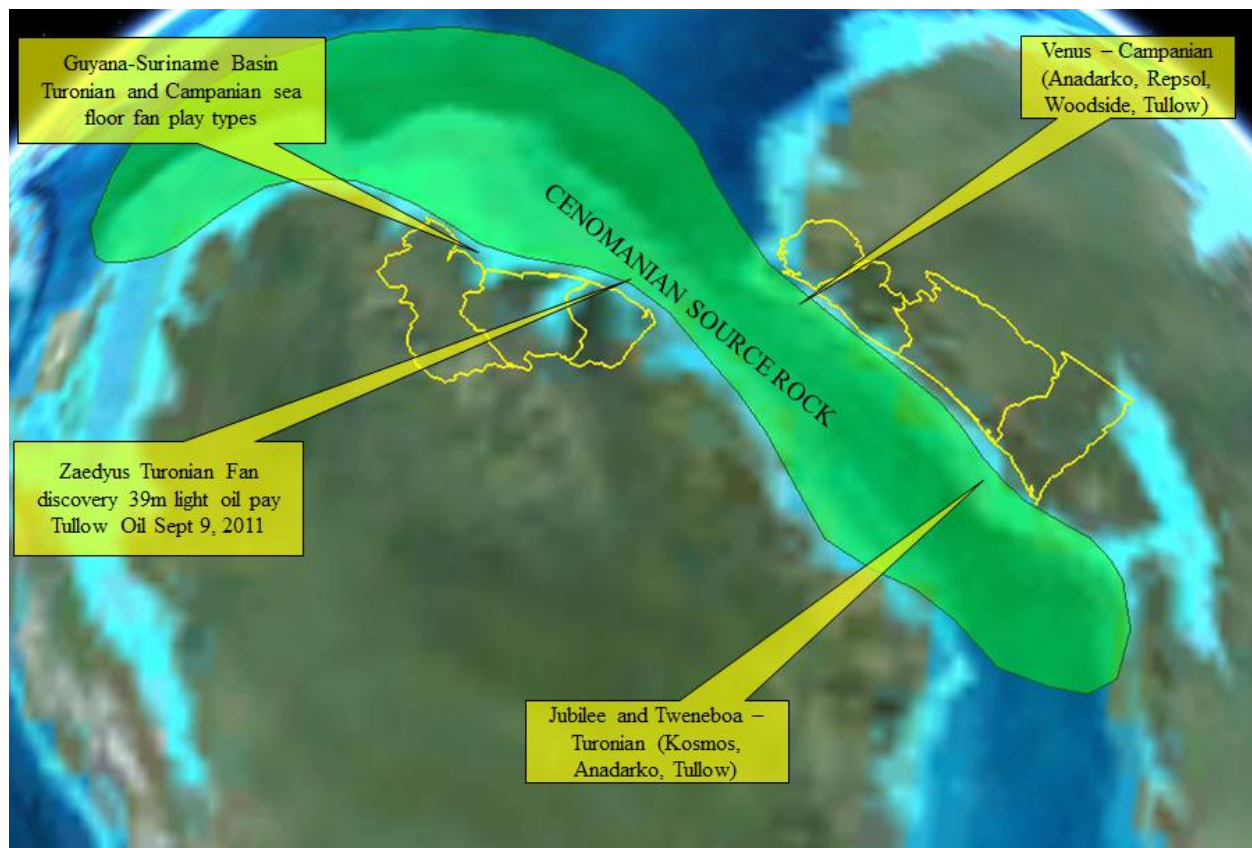
If a commercial discovery is made, CGX has the right to convert the Discovery Area plus reasonable surrounding acreage to a Production License, subtracting this area from the Contract Area. The term of a Production License is 20 years, renewable for an additional 10 years. After commercial production begins, the Licensee is allowed to recover all capital and operating costs from "cost oil", which for the first three years is up to 75% of production and thereafter up to 65% of production. The Licensee's share of the remaining production or "Profit oil" for the first five years is 50% of the first 40,000 barrels of oil per day and 47% for additional productions; and thereafter 45% in full satisfaction of all income taxes and royalties.

#### 4.4 DESCRIPTION OF TARGET ZONES

The Guyana-Suriname Basin is under-explored and features thick sediments and an analogous Cenomanian age source rock that is a proven hydrocarbon source on both sides of the Atlantic. Recent Cretaceous age discoveries have been made in southern Atlantic Margin Basins offshore West Africa and offshore Brazil with reserves of 100's of Millions to greater than a Billion



barrels of crude oil. Examples of these large discovered accumulations include Jubilee and Tweneboa discoveries in Ghana; Venus discovery in Sierra Leone; and Tupi and several of the giant fields of the Campos and Santos Basins of Brazil. The same Cenomanian source rock, as illustrated by Figure 4-3, is seen in the area of the large discoveries and producing areas in western Africa and northern South America as well as the Guyana-Suriname Basin. As the Atlantic basin continued to spread over time, the source rock would have been split by the mid-Atlantic ridge and preserved on both sides of the Atlantic.



**Figure 4-3 Depiction of the Early Atlantic Basin**

During source rock deposition at Turonian – Campanian (Mid Cretaceous) time showing similar depositional setting and geological timing to recent World Class West African discoveries.

CGX acquired new 3D seismic data and has been able to identify numerous Upper Cretaceous targets in Guyana. The 3D data acquired by CGX in the Offshore Corentyne PPL and CGX and their partners in the Georgetown PPL have been processed and interpreted at this time. The following is a list of the data volumes that CGX is using for the exploration effort.



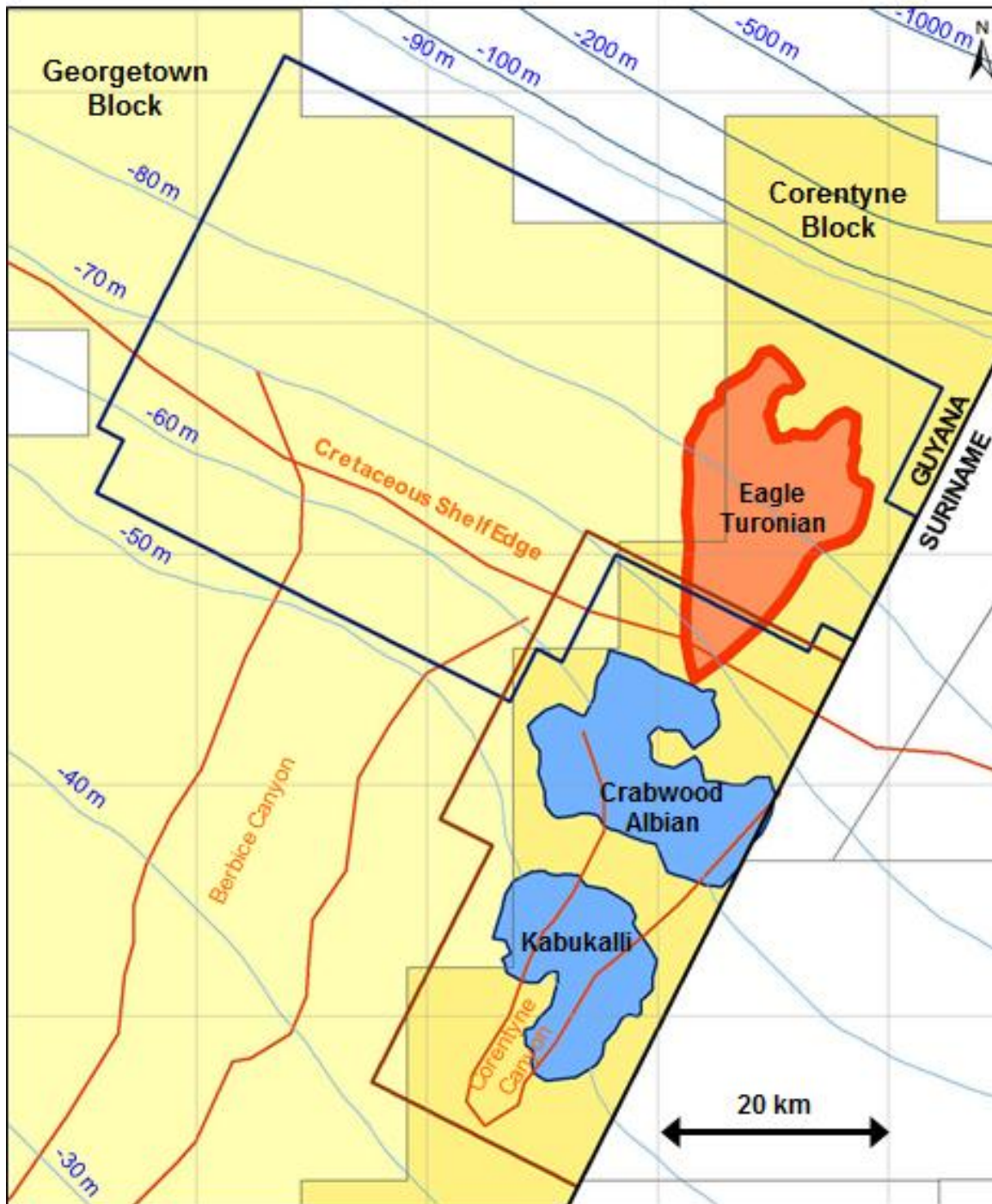
- Pre Stack Time Migration by CGG Veritas
- Pre Stack Time Migration by PGS Georgetown
- Pre Stack Depth Migration by CGG Veritas
- Pre Stack Depth Migration by REPSOL Georgetown
- AVO and Inversion by Rock Solid Images
- Pre Stack Time Migration by Data Modeling Inc.
- Interval Velocity by Data Modeling Inc
- GMI pore pressure prediction

The areas within the 3D volumes that were used for the inversion and AVO analysis are shown in Figure 4-4. A seismic petrophysical model study and subsequent pre-stack seismic inversion study was undertaken in late 2009 with Rock Solid Images (RSI) from Houston, Texas to study the predicted petrophysical response of reservoir fluids on Campanian/Turonian age sediments. The North Coronie #1 and Abary #1 well logs were used for this modeling with shear sonic velocity ( $V_s$ ) estimated using Greenburg Castagna methods. Results from the model study suggested lithology and fluid discrimination would be possible using seismic derived petrophysical attributes. Possible lithological discrimination between Campanian and the Turonian intervals were also modeled and attributed to porosity variations between the two potential reservoir zones.



**Figure 4-4 – Index Map of the 3D Seismic Inversion Analysis Areas**

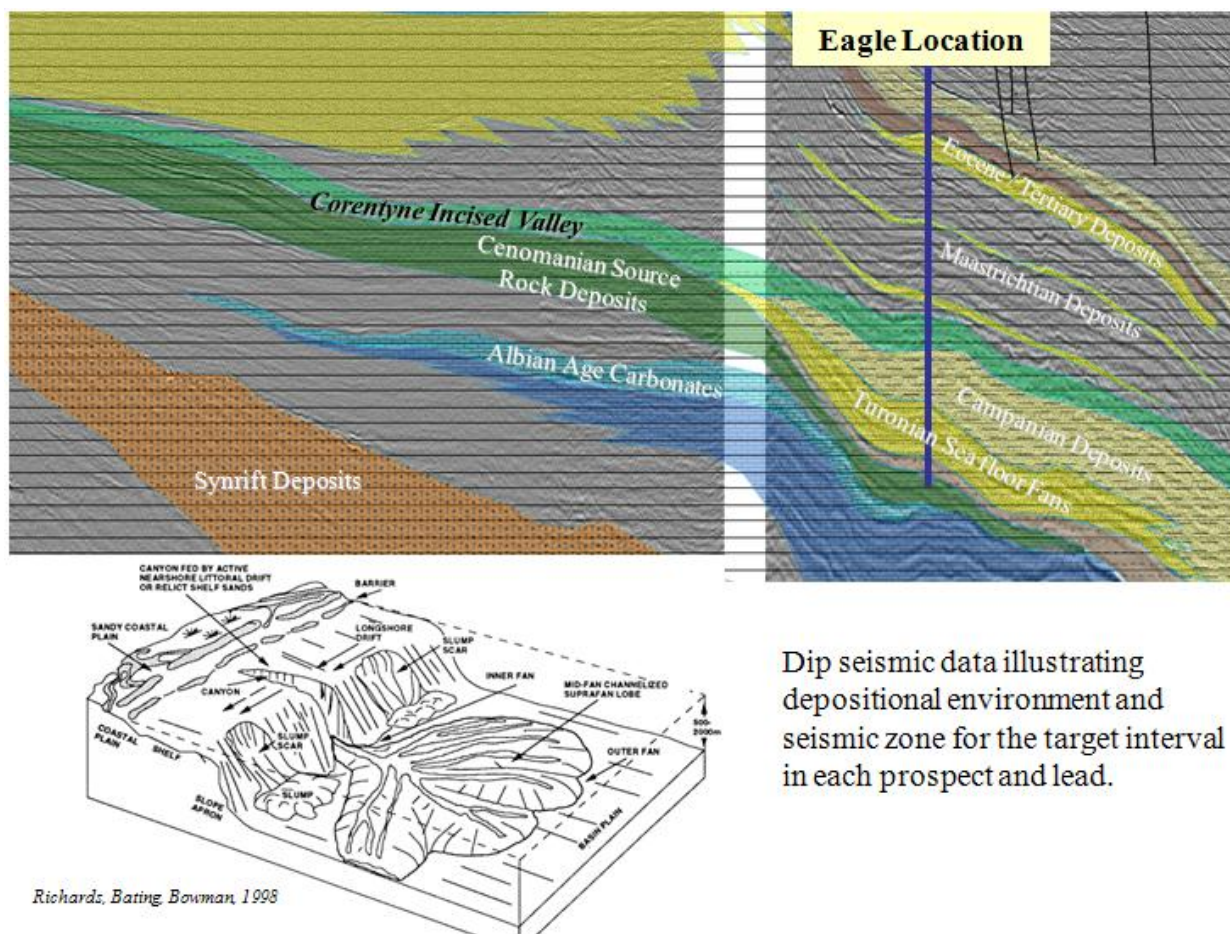
A subset of the Corentyne 3D seismic program, the RSI – Cretaceous Analysis Area (Figure 4-4) was inverted and results interpreted thereby identifying several distinct lobes of hydrocarbon charged reservoir within the Turonian section. A down-dip hydrocarbon contact point was not identified from this current seismic inversion analysis. PSTM Common Depth Point (CDP) gather analysis confirms the presence of predicted offset response generated from the predicted Class I / Class II reservoir interval. Comparison of the PSTM CDP gathers at the Eagle prospect location to PSTM CDP gathers from a 2D seismic tie at North Coronie further support the interpretation of hydrocarbon charged Class II reservoir at the Eagle prospect location.



**Figure 4-5 – Detail Map Showing the 3D outline and the Prospective Areas in the Corentyne Offshore PPL and Georgetown PPL**

CGX is further refining their attribute analysis with additional AVO work. The preliminary results are very encouraging.

The proposed Eagle Deep well that is planned to be drilled in the Corentyne Offshore PPL will evaluate the Upper and Lower Turonian, and the Cenomanian Canje Formation source rock depending on encouraging results from the Jaguar well in the Georgetown block. The intent is to obtain samples and other petrophysical and side wall core or formation data in order to better understand the source beds and reservoirs of this area. The prospects to be tested by the Eagle Deep well are seen in Figure 4-5 and Figure 4-6.



Dip seismic data illustrating depositional environment and seismic zone for the target interval in each prospect and lead.

**Figure 4-6 Composite Dip Line and Depositional Model for the Corentyne Offshore PPL**

#### 4.4.1 The Eagle Turonian

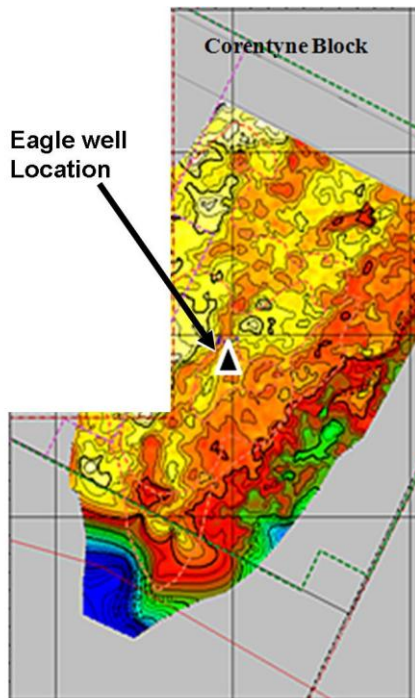
The Eagle Turonian, the primary prospect of the Corentyne Offshore PPL (a portion is also on the Georgetown PPL), is divided into two units (upper and lower). These rock volumes are separated by a flooding surface that acts as an internal seal, sealing the top of the lower interval



and the bottom of the upper interval. This sea floor fan is sourced from the Corentyne incised valley. The Turonian section is composed of sand-rich sea floor fan sequences deposited at the base of slope prospects are composed of sand-rich sea floor fan (SFF) sequences deposited at the base of slope near the mouth of the Berbice Canyon and the Corentyne incised valley, respectively. The sea floor fans lie directly on top of Cenomanian source beds (Figure 4-6). The target reservoir package pinches out both laterally and up dip via a stratigraphic or facies pinch out. Turonian sands were penetrated by the North Coronie #1 well directly above the regional anoxic event source rock known as the Lower Cenomanian Canje formation.

#### 4.4.1.1 Lower Turonian

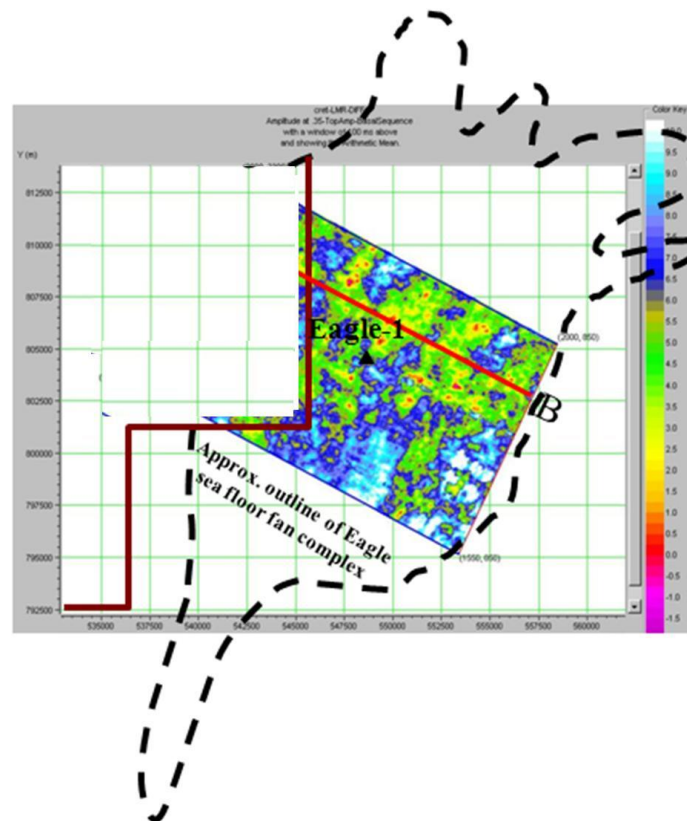
The isopachous map of the Lower Turonian generated from the PSDM 3D seismic volume is seen in Figure 4-7 with the location of the proposed Eagle 1 well. The thickest sediments are the yellow to orange colored areas. The prospective area on the Corentyne Offshore PPL is interpreted to be in excess of 129 square kilometers (32,000 acres) with a gross thickness of 368 meters (1,207 feet) and a net potential pay thickness of more than 213 meters (700 feet). Based on the North Coronie #1 well a porosity range of 15 to 20% was assumed.



**Figure 4-7 Lower Turonian Isopachous**

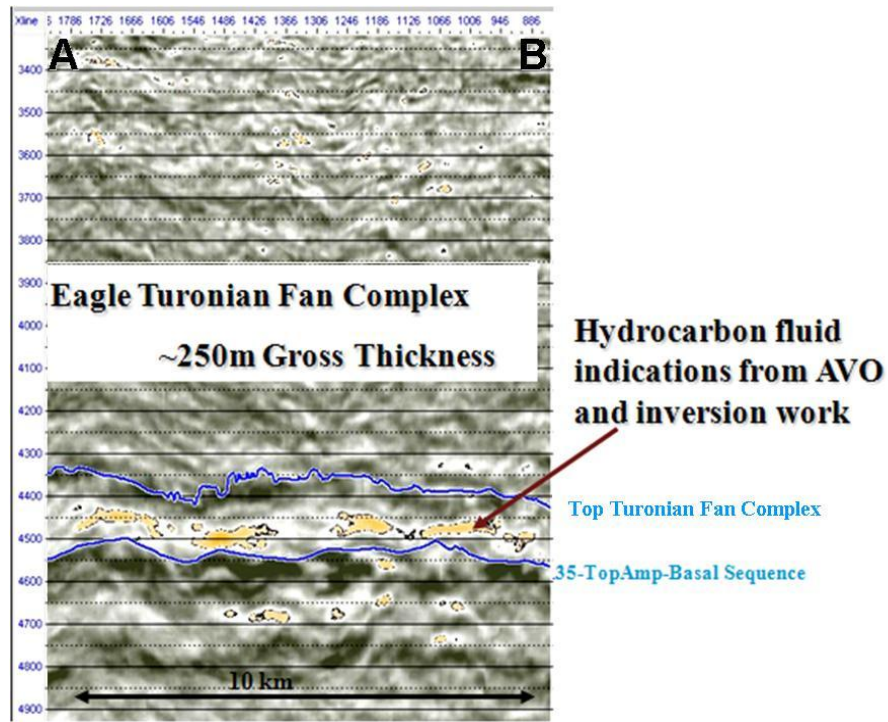
#### 4.4.1.2 Upper Turonian

The RSI inversion volume horizontal slice through the Upper Turonian is seen in Figure 4-8 and a vertical slice along line AB (Figure 4-8) is depicted in Figure 4-9. The yellow colored areas on the vertical section between the blue lines are representative of areas of compressible fluids and inferred to be the presence of hydrocarbons. In Figure 4-8 the green to red areas also correspond to areas that are inferred to show the presence of hydrocarbons.

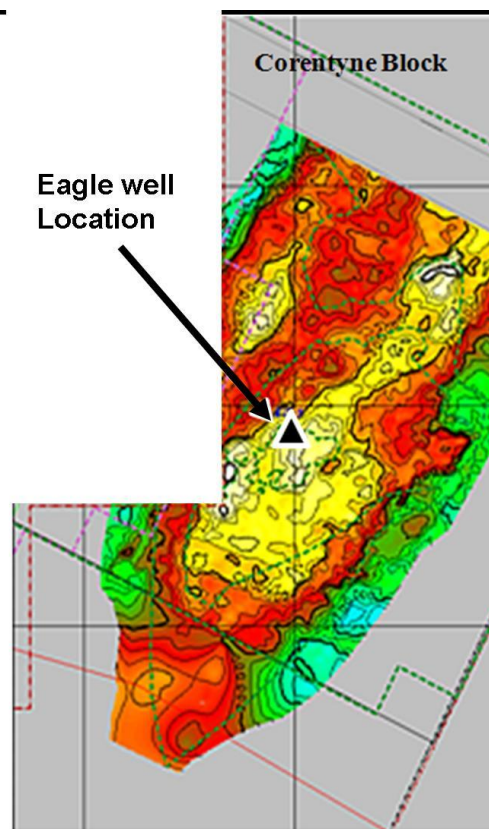


**Figure 4-8 Horizontal Slice from Attribute Analysis**

The Upper Turonian isopachous map generated from the PSDM 3D seismic volume is depicted in Figure 4-10. The yellow areas would indicate the thickest parts of the section. The prospective area on the Corentyne Offshore PPL is interpreted to be in excess of 186 square kilometers (46,000 acres) with a gross thickness of 297 meters (975 feet) and a net potential pay thickness of more than 177 meters (580 feet). Based on the North Coronie #1 well a porosity range of 15 to 20% was assumed. This section is predicted to be over-pressured.



**Figure 4-9 Vertical slice (line A – B Fig 4-9) through Attribute Analysis Seismic Volume**



**Figure 4-10 Upper Turonian Isopachous**

#### 4.4.2 Campanian

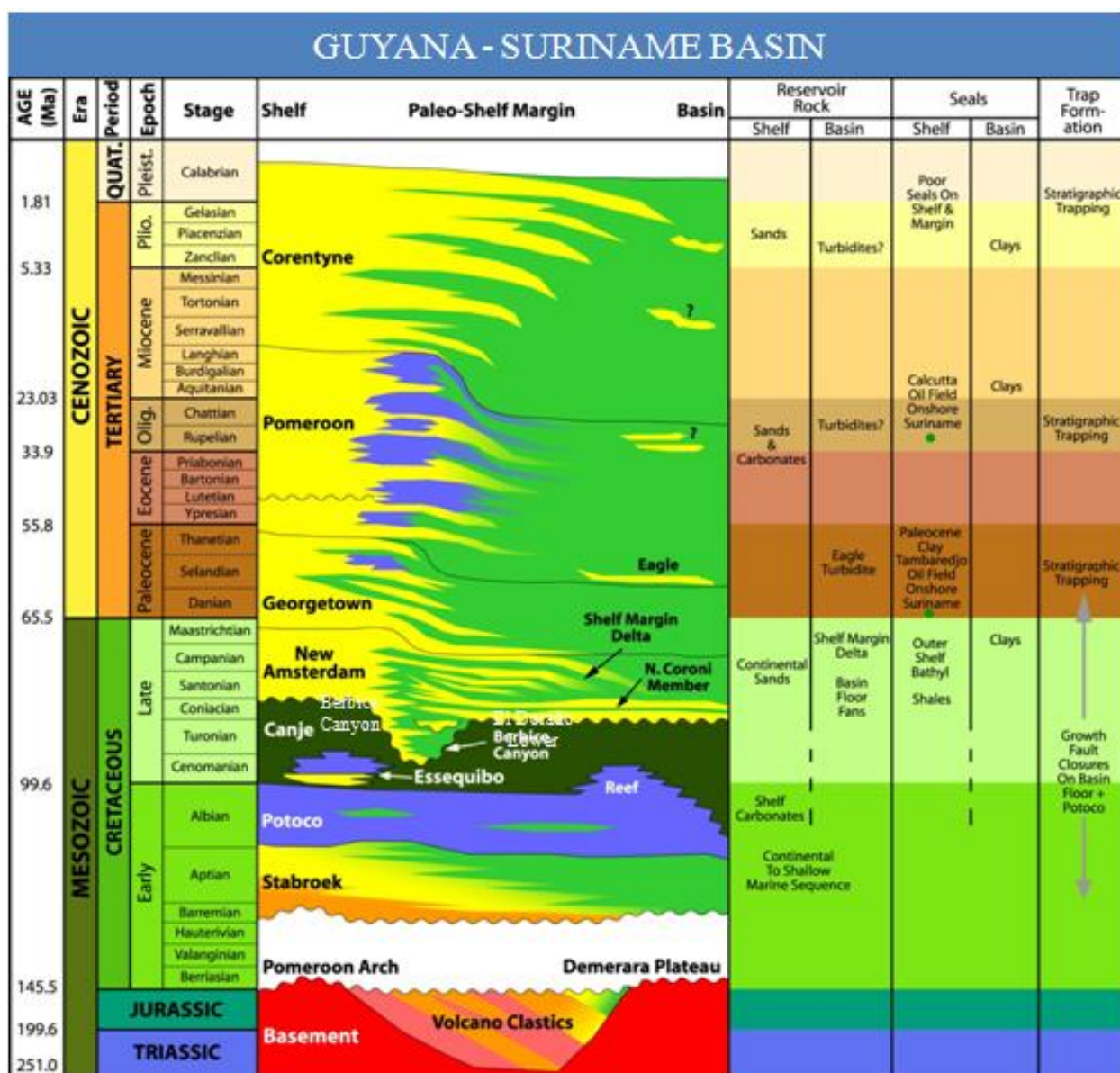
Most of this prospective section is located on the Georgetown PPL so the Campanian has been treated as a Lead with no Prospective Resources assigned. The prospective area on the Corentyne Offshore PPL is interpreted to be in excess of 77 square kilometers (19,000 acres) with a gross thickness of 609 meters (2,000 feet) and a net potential pay thickness of more than 213 meters (700 feet). A porosity range of 15 to 20% was assumed for this section although observed seismic interval velocities on the DMI interval velocity data are consistent with sand porosities in the 20 to 25% range which is predicted to be over-pressured similar to the Turonian.

The Campanian is interpreted as a large four-way stacked structure offsetting the deeper Eagle Turonian structure. The Campanian section is largely over-pressured as is demonstrated by the significant interval velocity inversion supported by a pore pressure prediction study done for CGX by GMI during January 2010. There is a lack of strong reflectivity on the seismic that is probably caused by the thin sands encased in shales that have similar velocities and densities based on the North Coronie #1 well.

#### 4.4.3 Albian

Two areas that are interpreted to be carbonate reefs on the Corentyne Offshore PPL are being investigated. These leads are based solely on 2D data. CGX has no plans to shoot a 3-D over these areas but may acquire additional 2-D seismic data if the opportunity to acquire the data cost effectively presents itself. The Kabukalli prospect area on the Corentyne Offshore PPL is interpreted to be in excess of 105 square kilometers (26,000 acres) with a gross thickness of more than 274 meters (900 feet) and a net potential pay thickness of more than 84 meters (275 feet). The Crabwood prospect area on the Corentyne Offshore PPL is interpreted to be in excess of 93 square kilometers (23,000 acres) with a gross thickness of more than 274 meters (900 feet) and a net potential pay thickness of more than 84 meters (275 feet). A porosity of 17% is assumed for this section. These leads are being evaluated by DeGolyer and MacNaughton in another report.





**Figure 4-11 Stratigraphic Column for the Guyana-Suriname Basin**

Note the Canje Fm. source bed just above the blue Potoco Fm (*Source, CGX, 2009*)

The stratigraphic column in Figure 4-11 shows the relative positions of the prospective sections.

#### 4.5 DISTANCE TO THE NEAREST COMMERCIAL PRODUCTION

The nearest hydrocarbon production is located onshore in Suriname in the Tambaredjo and Calcutta fields. These fields are approximately 200 km southeast of the prospective areas on the Corentyne Offshore PPL. Approximately 600 km to the northwest, in the Deltana Platform area

of offshore Venezuela, numerous recent gas discoveries range in size from 0.5 to 7 trillion cubic feet of gas (TCF) and are in the process of undergoing commercial development.

Based on data supplied by Mobil (Kuich and others, 1994) and Staatsolie (2006) production of heavy oil in Suriname is from Paleocene and Eocene fluvial sandstones. Oil in place estimates total approximately 1 billion barrels of oil (BBO). Remaining proven reserves ( $P_{90}$ ) at year-end 2006 were 88 million barrels (MMBO) (Staatsolie, 2006): 57 MMBO in the Tambaredjo field; 13 MMBO in the Calcutta field; and 18 MMBO in the Tambaredjo Northwest area. Total probable reserves ( $P_{50}$ - $P_{90}$ ) were 54 MMBO at year-end (Staatsolie, 2006). Cumulative production of heavy oil through 2006 was 62.3 MMBO. During 2009, production onshore Suriname was approximately 16,000 barrels of oil per day.

#### 4.6 PRODUCT TYPES REASONABLY EXPECTED

Burial depth and maturation is sufficient for the generation of oil and gas from the Canje Formation. The Abary-1 well had shows of gas and oil; therefore, we expect that oil and gas are equally likely. For this study we assumed reservoirs are filled with oil.

#### 4.7 RANGE OF POOL OR FIELD SIZES

This consultant has conducted a probabilistic resource analysis as to the size of hydrocarbon accumulations in the Corentyne Offshore PPL of the Guyana-Suriname Basin over three of the current seven seismic leads. This analysis, which is presented in detail in Section 5 of this Report, resulted in estimates of Prospective Resources for the Corentyne Offshore PPL ranging from 0.3 billion BO to 7.3 billion BO (Table 5-3), for the two individual prospects.

#### 4.8 DEPTH OF THE TARGET ZONE

Target depths for the tops of the Upper Turonian, and Lower Turonian Prospects are at 5,670 meters, and 6,000 meters, respectively.

#### 4.9 ESTIMATED DRILLING AND TESTING COSTS

Estimated drilling and testing costs for this area to test the Turonian provided by the Client are US\$160 million for an exploratory well based on recent drilling. The Eagle Deep well is being designed to drill to a maximum depth of 6,500 meters (21,325 feet). The well location will be in 80 meters (260 feet) of water.

#### 4.10 EXPECTED TIMING OF DRILLING AND COMPLETION

The Eagle Deep well to test the Turonian is scheduled to commence drilling late in 2012 or first quarter 2013. CGX anticipates that the location of the well will move updip so as to reach the Turonian top shallower than the existing prognosis and the TD could be at 6,096 meters (20,000 feet), about 305 meters (1000 feet) shallower than earlier planned. However, CGX is waiting to finalize the processing of the 3D seismic acquired in 2011 to find the best location and create an accurate prognosis for the well.

#### 4.11 EXPECTED MARKETING AND TRANSPORTATION ARRANGEMENTS

Infrastructure for the transport and marketing of hydrocarbons is not present in the offshore shelf areas of Guyana and Suriname. Oil produced in the offshore Guyana area on the Corentyne Offshore PPL would be stored either in an FSP (fixed storage platform) or a guyed or anchored FSO (Floating Storage and Offloading) tanker. An oil tanker would then collect oil from the FSO or FSP and transport the oil to markets either in the Gulf of Mexico for sale in the U.S. market or other world markets (Europe, Asia, or South America). The refinery operated by Staatsolie in Suriname does not have the capacity to process large amounts of oil and the existing Guyana and Suriname markets are too small for the refining and sales of this resource.

#### 4.12 IDENTITY AND RELEVANT EXPERIENCE OF THE OPERATOR

CGX and its Guyanese onshore operating subsidiary, ON Energy, have extensive operating experience in Guyana. CGX and ON Energy drilled five wells, three in the onshore portions of

the Guyana-Suriname Basin and two wells, the Horseshoe-1 and the EGT-1, in the offshore portion. CGX was in the initial process of setting up and drilling an offshore well, Eagle-1 in 2000, when the Surinamese Navy intervened and stopped drilling due to a boundary dispute with Guyana. That dispute was resolved September 20, 2007. The Georgetown PPL is operated by REPSOL (a large international oil company). CGX initiated and completed work on the collection, processing, and interpretation of 2D seismic data over the Corentyne Offshore PPL. On the Georgetown PPL CGX independently processed and interpreted the 2D seismic data. CGX with the assistance of GeoSeis acquired, processed and interpreted the 3D seismic data in the Corentyne Offshore PPL and also made an independent interpretation of the 3D data gathered over the Georgetown PPL. CGX is the only company in the area to have access to both the Corentyne and the Georgetown 3D surveys. On the Corentyne block, an 1140 sq. km. 3D seismic program was acquired by CGX 100% in late 2011 and early 2012 to better define the updip termination of the Eagle Deep Turonian and the two Albian prospects at Crabwood and Kabukali. As of the effective date of this report the seismic data was still being processed.

#### 4.13 RISKS AND PROBABILITY OF SUCCESS

This is a frontier exploration project that carries an exploratory risk profile. The risk for this project is still very high even though 3D seismic has been acquired and analyzed. The modeling, such as the inversion and interval velocity work, that has been done mitigates some of the risk of finding reservoir quality rock. Until a well is drilled that confirms the presence of hydrocarbons in commercial quantities, the models cannot be proven. The estimated Probability of Success (POS) for this project is on the order of 7.8% to as high as 57.6% for the Turonian targets, not an unusual risk profile for frontier exploration projects around the world. These risk profiles are based on the multiple geological uncertainties that are associated with these plays and that are briefly summarized below.

The quantification of risk for these plays can be characterized with the following variables:

Trap: defined as the presence of a structure or stratigraphic unit that could act as a repository for hydrocarbons;

Seal: defined as an impermeable barrier that would prevent hydrocarbons from leaking out of the structure or stratigraphic unit;

Reservoir: defined as the rock that is in a favorable position having sufficient void space present with matrix porosity and permeability to accumulate hydrocarbons in sufficient quantities to be commercial;

Presence of Source Rock to generate hydrocarbons: defined as the occurrence of hydrocarbon source rocks that have or are generating hydrocarbons during a time that is favorable for accumulation in a structural or stratigraphic trap.

Table 4-1 shows the range of the Probability of Success (POS) or favorability that the above-defined variables would occur for the Turonian Prospect. The Overall POS is the product of all four variables.

The target Turonian reservoir rock has been encountered in the nearby North Coronie #1 well, so that the risk for this Turonian prospect is reduced.

**Table 4-1 Range of Probability of Success (POS) for the Turonian Prospect**

Probability of Success (POS)	Range, %		Comments
	Min	Max	
Structural / Stratigraphic Trap	45	90	Seismically defined stratigraphic or facies pinch out
Seal	50	80	Highstand shale
Reservoir	50	80	Submarine fan, reservoir drilled in N Coronie #1, 15-20% porosity.
Presence of HC due to source rocks that are mature	70	100	RSI inversion inferred presence of hydrocarbons, directly above thermally mature oil prone source beds
<b>Overall</b>	<b>7.8</b>	<b>57.6</b>	

With increasing depth, two-way time on the 2D and 3D seismic data, the lower frequency response of the seismic data limits the ability to define and “image” fan reservoir systems. The evidence of over-pressuring and extensive gas and oil shows in the Abary-1 and Eagle 1 wells reinforce the observation of an active hydrocarbon system in this portion of the Guyana-Suriname Basin.

The probability of success for an exploration well in this portion of the Guyana-Suriname Basin is moderate at present. Unfortunately as is demonstrated in the Abary-1 well, over-pressuring and engineering/drilling problems prevented Shell Oil from successfully drilling this well deeper and testing for hydrocarbons. With a new approach to these problems, basically an improved drilling program prepared for these potential problems, the probability of success will be better.

## **5 PROBABILISTIC RESOURCE ANALYSIS**

### **5.1 GENERAL**

A probabilistic resource analysis is most applicable for projects such as evaluating the potential resources of the subject area, where a great deal of uncertainty exists in the reservoir parameters. The uncertainty in the reservoir data is quantified by probability distributions, and an iterative approach yields an expected probability distribution for potential resources. This approach allows consideration of most likely resources for planning purposes, while gaining an understanding of what volumes of resources may have higher certainty, and what potential upside may be for the project.

The analysis for this project was carried out considering uncertainty for all parameters in the volumetric equations. For the area evaluated, insufficient data were available to estimate or confirm detailed probability distributions for the reservoir parameters. Therefore, triangular probability distributions, with input of minimum, maximum, and most likely values, were generally used.

All the estimates described herein represent the potential size of hydrocarbon deposits in the four prospect areas if discovered to be present in economic quantity. The risk of failure has not been incorporated into this analysis.

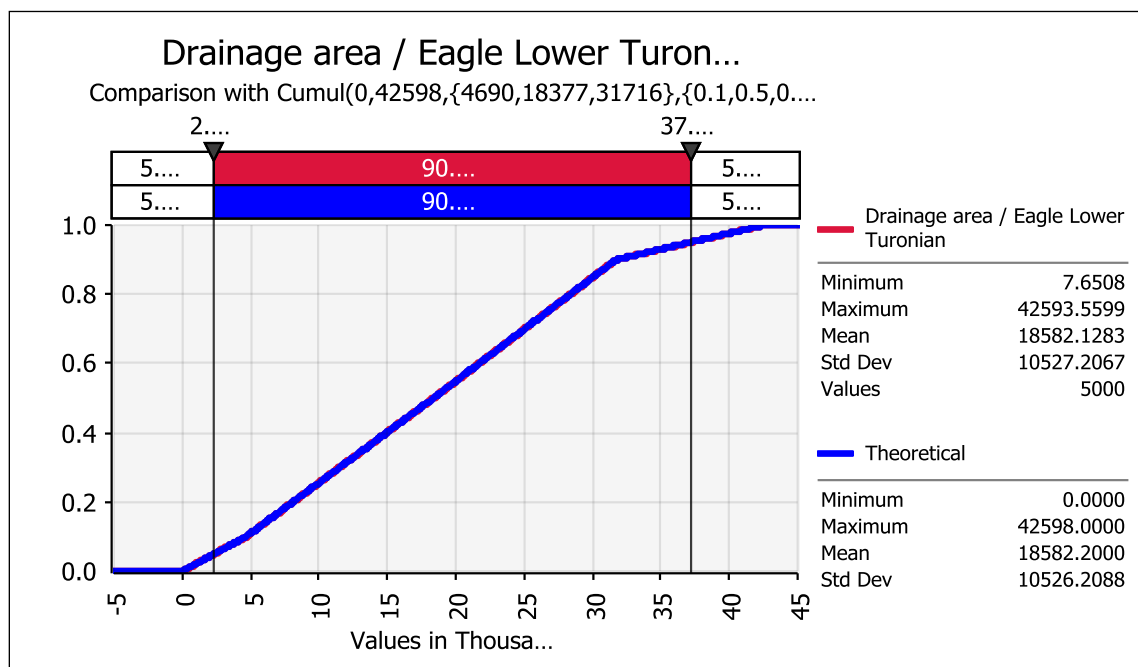
### **5.2 INPUT PARAMETERS**

This method involves estimating probability distributions for uncertain reservoir parameters and performing a statistical risk analysis involving multiple iterations of reserve calculations generated by random numbers and the specified distributions of reservoir parameters.

The parameters for these input distributions were selected based on a review of all available data, for this and nearby analogous areas. Note that these parameters represent average parameters over the entire lead and formation. So, for example, the porosity ranges do not represent the

range of what porosity might be in a particular well or a particular interval, but rather the reasonable range of the average porosity for the whole reservoir.

Note that triangular distributions were used for the majority of the parameters. Uniform distributions were used for the pressure gradients. For some of the distributions for area, a low end value was specified at  $P_{90}$  that resulted in a negative minimum value. These distributions were adjusted to have a distribution with various cumulative probability points specified, including a minimum of zero, the  $P_{90}$ ,  $P_{50}$ , and  $P_{10}$  as specified based on our analysis of the seismic maps, and a maximum value based on the triangular distribution originally specified. An example of one of these area distributions is shown in Figure 5-1 below.



**Figure 5-1 Example Area Distribution**

The parameters of the input distributions are shown in Table 5-1. Note that the only a small portion of the Eagle Campanian prospect is located within the Corentyne Offshore PPL. For this prospect we have simulated the entire prospect, as shown by the parameters in Table 5-1. Then we applied factors to the results to represent the fraction of the prospect located within the Corentyne Offshore PPL at each of the low, best, and high sizes (0%, 2.8%, and 30%,



respectively). For other prospects for which a small portion of the prospect extends outside the Corentyne Offshore PPL, we have simulated only the portion of the prospect within the block.

**Table 5-1 Summary of Input Parameters**

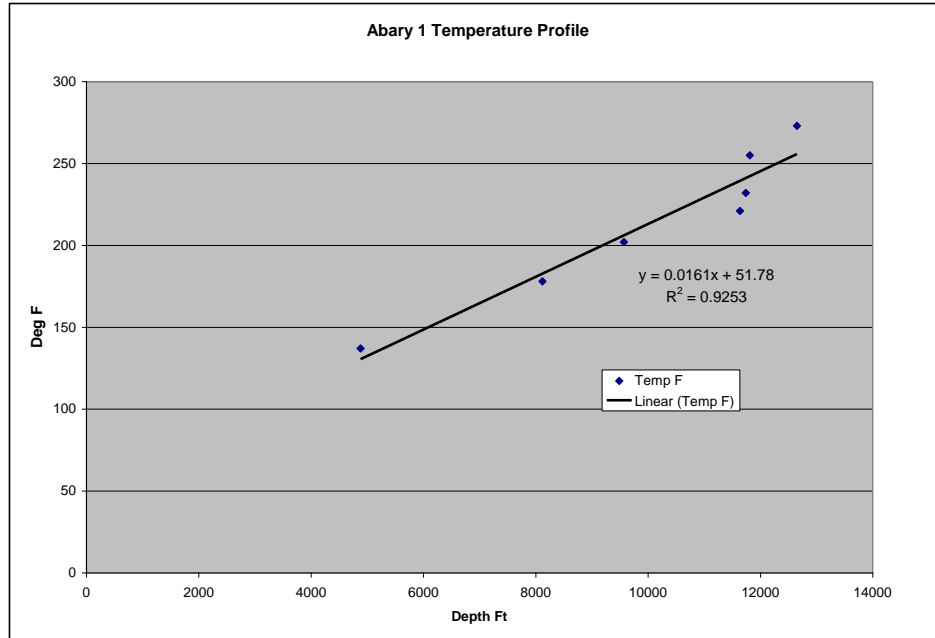
<b>Variable</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>Mean</b>
<u>Common to all Prospects:</u>				
Oil gravity, °API	35	40	45	40
Gas-Oil Ratio, SCF/bbl	500	1,000	1,500	1,000
Gas Gravity, relative to air	0.65	0.7	0.75	0.7
% Recovery	15	20	35	23.3%
<u>Eagle Lower Turonian:</u>				
Depth, feet	20,151	20,351	20,551	20,351
Porosity, %	15	17.5	20	17.5
Water Saturation, %	15	20	25	20.0
Productive Area, Acres	4,690	18,377	31,716	18,582
Net Pay, feet	92	444	796	444
<u>Eagle Upper Turonian:</u>				
Depth, feet	18,838	19,038	19,238	19,038
Porosity, %	15	17.5	20	17.5
Water Saturation, %	15	20	25	20.0
Productive Area, Acres	4,900	22,562	46,750	25,166
Net Pay, feet	46	345	644	345

The oil formation volume factor was calculated for each prospect via standard empirical formulas dependent on the pressure, temperature, API gravity, and solution gas/oil ratio. The resulting means are shown in Table 5-2.

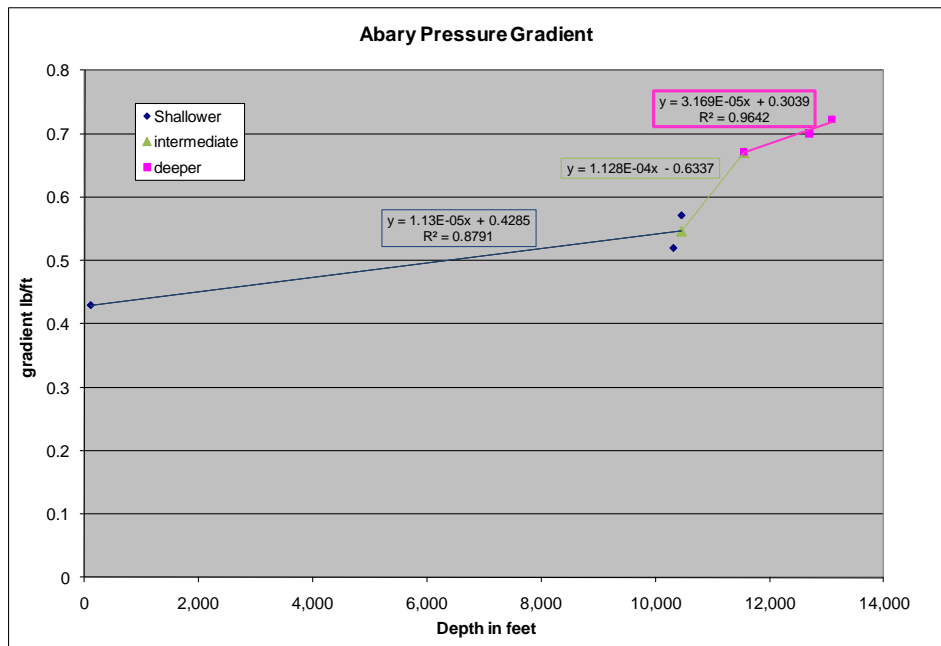
**Table 5-2 Summary of Mean Oil Formation Volume Factors**

<b>Prospect</b>	<b>Mean Bo, Reservoir Bbl / Stock Tank Bbl</b>
Eagle Lower Turonian	1.575
Eagle Upper Turonian	1.569

Areas used in this analysis represent the estimated areas of each prospect likely to be encountered within the Corentyne Offshore PPL, excluding any mapped areas outside the concession. Reservoir temperature and pressure were estimated for each of these prospects based on correlations of temperature with depth and pressure gradient with depth as seen in the Abary-1 well (Figure 5-2 and Figure 5-3).



**Figure 5-2 Temperature Profile Based on Abary-1 Well**



**Figure 5-3 Pressure Gradient vs. Depth, Abary Well**

In a probabilistic analysis, dependent relationships can be established between parameters if appropriate. For example, portions of a reservoir with the lowest effective porosity generally may be expected to have the highest connate water saturation, whereas higher porosity sections have lower water saturation.

In such a case, it is appropriate to establish an inverse relationship between porosity and water saturation, such that if a high porosity is randomly estimated in a given iteration, corresponding low water saturation is estimated. The degree of such a correlation can be controlled to be very strong or weak. This type of dependency, with a medium strength of -0.7, was used in this study for porosity with water saturation and with net/gross ratio.

Similarly, the low end of the net pay distributions for these accumulations would generally be expected to occur when the productive area is small; therefore, a strong correlation of 0.95 was assigned to net pay and productive area.

### 5.3 PROBABILISTIC SIMULATION

Probabilistic reserve analysis was performed using the Monte Carlo simulation software called “@ Risk.” This software allows for input of a variety of probability distributions for any uncertain parameter. Then the program performs a large number of iterations, either a large number specified by the user, or until a specified level of stability is achieved in the output. The results include a probability distribution for the output, sampled probability for the inputs, and sensitivity analysis showing which input parameters have the most effect on the uncertainty in each output parameter.

After distributions and relationships between input parameters were defined, a series of simulations were run wherein points from the distributions were randomly selected and used to calculate a single iteration of estimated potential resources. The iterations were repeated until stable statistics (mean and standard deviation) result from the resulting output distribution, after 5,000 iterations.

### 5.4 RESULTS

The output distributions were then used to characterize the Prospective Resources. Graphs of cumulative probability versus resources were constructed. Results for the three prospects are summarized in Table 5-3 and presented in Figure 5-4 and Figure 5-5. Key points from the

resource distribution include the 50 percent point (best estimate) the 90 percent point (low estimate) and 10 percent point (high estimate). Note that these distributions do not include consideration of the probability of success of discovering and producing commercial quantities of oil, but rather represent the likely distribution of the oil deposits, if discovered.

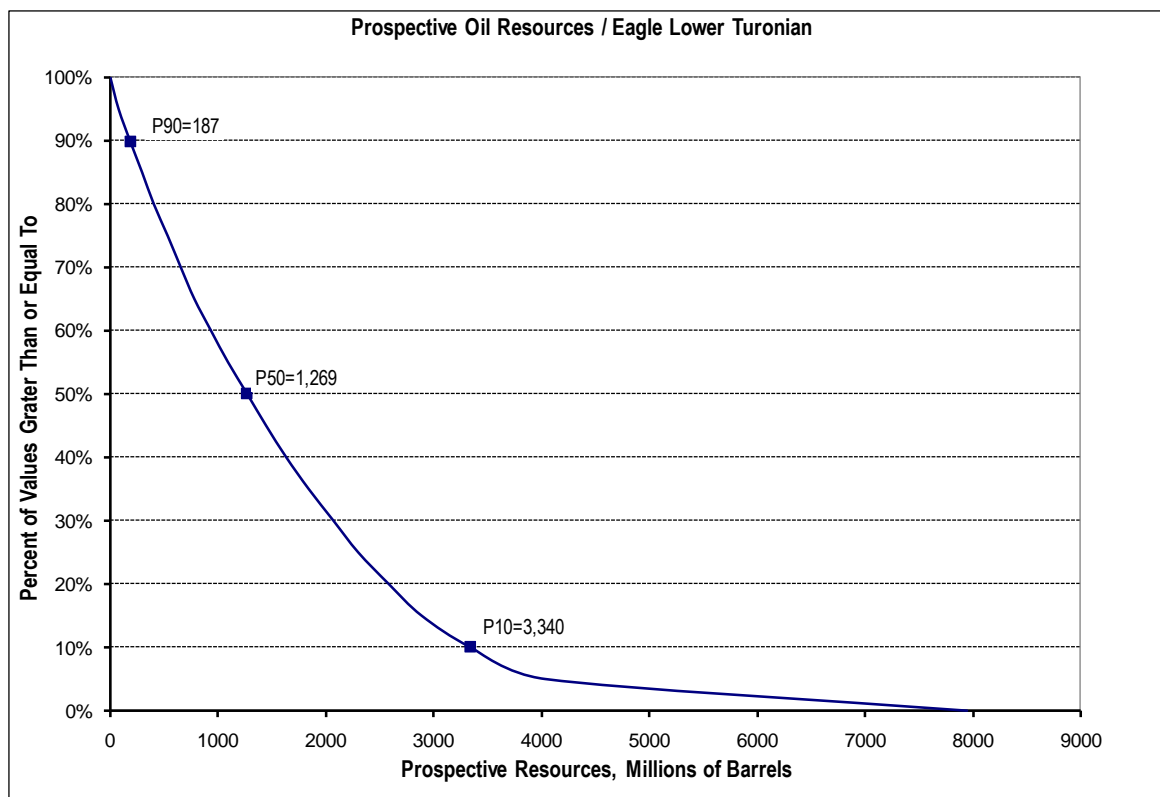
**Table 5-3 Summary of Resource Estimates**

Prospect	Prospective Oil Resources, Millions of Barrels		
	Low Estimate	Best Estimate	High Estimate
Eagle Lower Turonian	187	1,269	3,340
Eagle Upper Turonian	144	1,241	3,949
<b>Sum of Prospects</b>	<b>331</b>	<b>2,510</b>	<b>7,289</b>

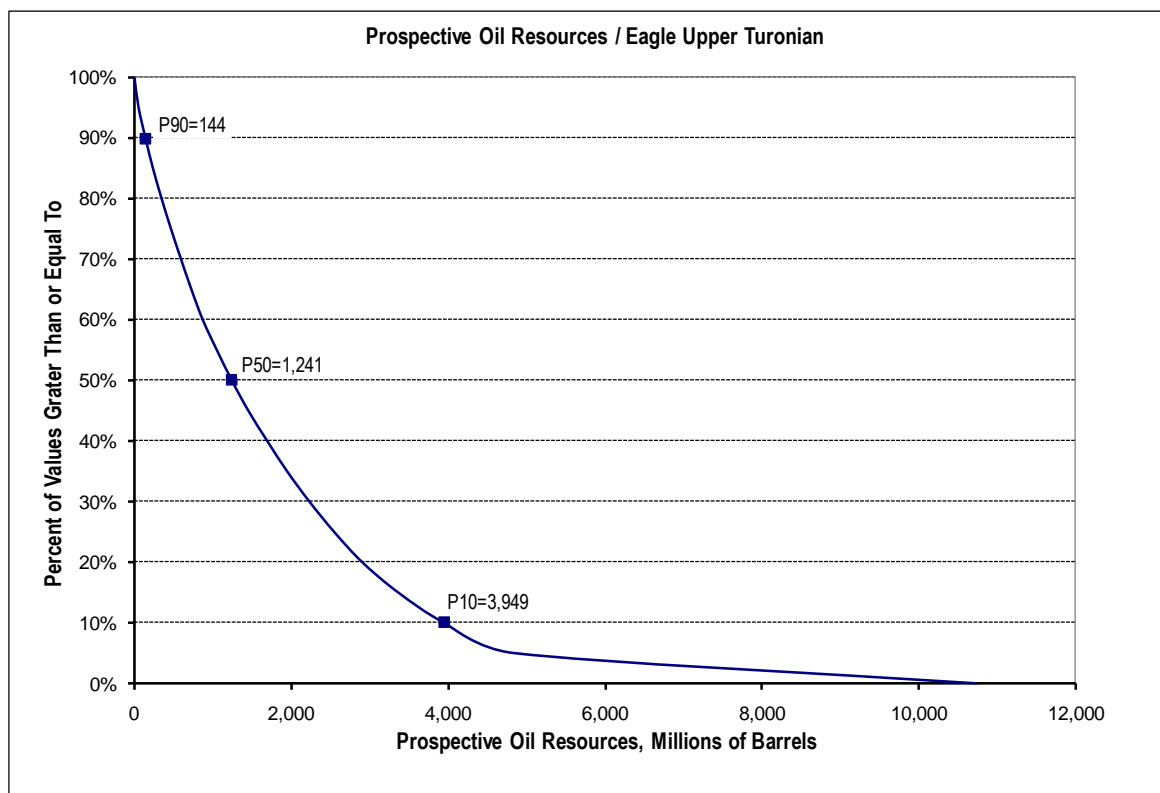
Prospective Resources are defined as “those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective resources have both an associated chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity.”<sup>6</sup> There is no certainty that any portion of the resources will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the resources.

---

<sup>6</sup> Society of Petroleum Evaluation Engineers, (Calgary Chapter): *Canadian Oil and Gas Evaluation Handbook, Second Edition*, Volume 1, September 1, 2007, pg 5-7.



**Figure 5-4 Distribution of Prospective Resources, Eagle Lower Turonian**



**Figure 5-5 Distribution of Prospective Resources, Eagle Upper Turonian**

It should be noted that these resource estimates are based upon conventional plays. Again we stress that these distributions do not include consideration of the probability of success of discovering and producing commercial quantities of oil, but rather represent the likely distribution of the oil deposits, if discovered. As discussed in Section 3 of this Report, the Abary-1 well in the area encountered shows of both oil and gas. We have assumed the prospects will encounter oil, but they could alternatively encounter gas.

It should be noted that the shape of the probability distributions all result in fairly wide spacing of values between the minimum and maximum expected resources. This is reflective of the high degree of uncertainty associated with any evaluation such as this one prior to actual field discovery, development, and production. Also note that, in general, the high probability resource estimates at the left side of these distributions represents downside risk, while the low probability estimates on the right side of the distributions represent upside potential.

## 6 REFERENCES

- Annual Report 2006, Staatsolie Maatschappij Suriname N.V. State Oil Company of Suriname, 44 p.
- Birnie, D., Geology and Hydrocarbon Prospectivity of CGX Energy Inc.'s Corentyne Block and Western Annex – Guyana-Suriname Basin, Northeastern South America, CGX Energy, Inc. Report, 28 p., 26 Figures, 5 Tables, 1 Appendix, 2002.
- Birnie, D., Geology and Prospectivity of CGX Energy Inc.'s Oil and Gas Exploration Concessions in Guyana – Guyana-Suriname Basin, Northeastern South America, CGX Energy, Inc. Report, 32 p., 12 Figures, 2004.
- Blanc, P. and Connan, J., Preservation, Degradation, and Destruction of Trapped Oil, Chapter 14, AAPG Memoir 60, pp 237-247, 1994.
- Cushing, OK WTI Spot Price FOB, <http://tonto.eia.doe.gov/dnav/pet/hist/rwtcd.htm>.
- Erbacher, J., Mosher, D.C., Malone, M.J. and others, Shipboard Scientific Party, Chapter 1, Leg 207 Summary, Proceedings of the Ocean Drilling Program, Initial Reports, V. 207, 51 p., 31 Figures, 2004.
- Gustavson Associates, Resource Evaluation Report on the Guyana Suriname Basin Project Corentyne PPL, Guyana, South America, NI51-101, 2008.
- Ginger, D., Burial and Thermal Geohistory Modeling of the Offshore Guyana Basin, Lasmo International Limited, Western Division, 67 p., 1990.
- Kuich, N.M., McKee, J.E., and Holman, C.W., Guyana Basin Regional Study, Mobil Exploration Company, 18 p., 32 Figures, 4 Tables, 11 Plates, 2 Appendices, 1994.
- International Petroleum Encyclopedia, 2006, PennWell Corporation, Tulsa, Oklahoma, USA.
- Platts Dirty Tankerwire, Vol 25, No.109 Thursday, 7 June 2007.
- Pirmez, C., Beauboeuf, R.T., Friedman, S.J., and Mohrig, D.C., Equilibrium profile and base level in submarine channels, GCS-SEPM Foundation, 20<sup>th</sup> Annual Bob F. Perkins Research Conference, pp. 782-805, 2000.
- Sancho, J., Well Completion Report, North Coronie No. 1, Elf Petroleum Suriname, N.V., 32 p., 1976.
- Society of Petroleum Evaluation Engineers, (Calgary Chapter): *Canadian Oil and Gas Evaluation Handbook, First Edition*, Volume I, June 30, 2002, 5-7.
- World Crude Oil Prices, [http://tonto.eia.doe.gov/dnav/pet/pet\\_pri\\_wco\\_k\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pri_wco_k_w.htm).

## **7 CONSENT LETTER**

Gustavson Associates LLC hereby consents to the use of all or any part of this Resource Evaluation Report for the Guyana-Suriname Basin Project located in Guyana, South America, as of 17 May 2012, in any document filed with any Canadian Securities Commission by CGX Energy Inc., a Canadian Corporation.

A handwritten signature in blue ink, appearing to read 'Letha C. Lencioni', is positioned above a horizontal line.

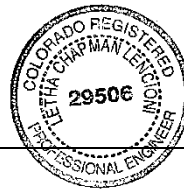
Letha C. Lencioni  
Vice-President, Petroleum Sector  
Gustavson Associates LLC



## **8 CERTIFICATE OF QUALIFICATION**

I, Letha Chapman Lencioni, Professional Engineer of 5757 Central Avenue, Suite D, Boulder, Colorado, 80301, USA, hereby certify:

1. I am an employee of Gustavson Associates, which prepared a detailed analysis of the oil and gas properties of CGX Energy Inc. The effective date of this evaluation is May 17, 2012.
2. I do not have, nor do I expect to receive, any direct or indirect interest in the securities of CGX Energy Inc. or its affiliated companies, nor any interest in the subject property.
3. I attended the University of Tulsa and I graduated with a Bachelor of Science Degree in Petroleum Engineering in 1980; I am a Registered Professional Engineer in the State of Colorado, and I have in excess of 30 years' experience in the conduct of evaluation and engineering studies relating to oil and gas fields.
4. A personal field inspection of the properties was not made; however, such an inspection was not considered necessary in view of information available from public information and records, the files of CGX Energy Inc., and the appropriate state regulatory authorities.



A handwritten signature in blue ink, appearing to read "Letha C. Lencioni", written over a horizontal line.

Letha Chapman Lencioni  
Chief Reservoir Engineer/  
Vice-President, Petroleum Sector  
Gustavson Associates, LLC  
Colorado Registered Engineer #29506