

**IN THE SECOND SESSION OF THE SIXTH
PARLIAMENT OF THE FOURTH REPUBLIC
OF GHANA**



**REPORT OF THE COMMITTEE ON
MINES & ENERGY**

ON THE

**ANNUAL PUBLIC REPORT OF THE
PETROLEUM COMMISSION ON PETROLEUM
RESOURCES AND ACTIVITIES IN GHANA
FOR THE YEAR 2012**

DECEMBER, 2014

**REPORT OF THE COMMITTEE ON MINES AND ENERGY ON THE 2012
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ACTITIVIES IN GHANA**

1.0 INTRODUCTION

The 2012 Annual Public Report of the Petroleum Commission on Petroleum Resources and Activities in Ghana was laid in Parliament by the Hon. Minister for Energy and Petroleum, Mr. Emmanuel Armah Kofi Buah on Wednesday, 16th July, 2014 in accordance with Section 18(3) of the Petroleum Commission Act, 2011 (Act 821).

The Annual Public Report was subsequently referred by the Rt. Hon. Speaker to the Select Committee on Mines and Energy for consideration and report pursuant to Orders 156 and 188 of the Standing Orders of the House.

2.0 DELIBERATIONS

The Committee met with the Chief Executive of the Petroleum Commission and other Officials of the Petroleum Commission to consider the report.

The Committee is grateful to the Officials for attending upon the Committee and for assisting the Committee in its deliberations.

3.0 REFERENCE DOCUMENTS

The Committee referred to the following documents during its deliberations:

- i. The 1992 Constitution of the Republic of Ghana;
- ii. The Standing Orders of Parliament; and
- iii. The Petroleum Commission Act, 2011 (Act, 821).

4.0 BACKGROUND INFORMATION

After the discovery of the Jubilee Oil in 2007, petroleum exploration activities Offshore Ghana intensified leading to the discovery of other significant oil reserves.

To ensure the efficient regulation of the petroleum upstream industry, the Petroleum Commission was established by the Petroleum Commission Act,

2011 (Act 821) in accordance with Article 269(1) of the 1992 Constitution of the Republic of Ghana. The objects of the Commission as spelt out under Section 2 of Act 821 are “to manage and regulate the utilization of petroleum resources and to coordinate policies related to them”.

In the performance of its mandate, the Petroleum Commission is required by Section 3(k) of Act 821 to publish in the gazette an annual public report on petroleum resources and activities in the country.

The Section 18(3) of the Act 821 further obliges the Minister for Energy and Petroleum to submit the annual public report to Parliament. It was in furtherance of this statutory imperative that the Hon. Minister of Energy and Petroleum laid in Parliament the 2012 Annual Report of the Petroleum Commission on the petroleum resources and activities in the country for the consideration of the august House.

5.0 AREAS FOR PETROLEUM EXPLORATION AND PRODUCTION

Ghana’s Offshore Sedimentary Basin covers up to a water depth of 3,500 meters and a total area of approximately 60,000 square kilometres (sq.km). Out of this area, about 24,000 sq.km (40%) was covered by Petroleum Agreements with the rest 36,000 (60%) technically available for exploration and production operations.

As at the end of 2012, a total of nine (9) Petroleum Exploration and Production Agreements had been granted. These concessions cover various parts of the Sedimentary Basin as shown in the attached Map (Appendix I). A total of Five (5) were negotiated Petroleum Agreements awaiting ratification by Parliament.

No reconnaissance license was issued during the year under review though an application had been made by the Acorn Geophysical.

6.0 PETROLEUM EXPLORATION ACTIVITIES

The petroleum exploration activities conducted in 2012 were as follows:

6.1 South Deepwater Tano Block (SDWT) and Relinquished Portions of West Cape Three Points Block (WCTP)

The GNPC contracted EzDataRoom from Zebra Data Sciences in UK to organize a web-portal service to provide a secure and efficient online data rooms. This was done by using their proprietary web-data-view software for remote viewing of documents, real 3D Seismic Data and well data over the South Deepwater Tano (SDWT) and West Cape Three Points (WCTP) Blocks.

Following the provision of the on-line data rooms, three (3) Companies - Statoil, AGM Petroleum and White Rose Energy Ventures reviewed the on-line data and submitted bids subsequently. AGM Petroleum was selected to partner GNPC to apply for the Block. The decision was arrived at after the evaluation of the bids submitted by the interested companies. Consequent to this, a Petroleum Agreement was negotiated with AGM Petroleum and forwarded to the Minister for Energy and Petroleum for further action.

6.2 Kosmos – West Cape Three Points Block (WCTP)

In 2012, Kosmos explored and drilled exploration wells within the West Cape Three Points Block. It also reprocessed the WCTP Verista Data acquired from the Teak Field. The Company further initiated an inversion project over the Banda Field; and conducted geological interpretation of seismic data from the Mahogany and Akasa Fields.

6.3 Hess Exploration –Deepwater Tano Cape Three Points Block

At the beginning of 2012, HESS continued the interpretation of the Contract Area 3D merged volume with the maturation of leads and prospects for the exploration inventory. The Company also evaluated for its drilling campaign, play types, reservoir analysis, analogue data, scoping economics and development concepts.

A total of five (5) Exploration Wells were drilled within this contract area in 2012. The drilling campaign led to the discovery of hydrocarbon pools in one or more stratigraphic levels. The summary of the net pay calculations for each of the discoveries are as shown in Table 1.

Table 1: Summary of Net Pay Calculations for the Discoveries DTCTP

Well Name	Net Feet of Pay	Hydrocarbon Type	Water Depth (feet)
1. Paradise-1	415	Oil and Gas Condensate	6,040
2. Hickory North-1	98	Gas Condensate	6,455
3. Beech-1	146	Oil	5,623
4. Almond-1	53	Oil	7,251
5. Pecan-1	245	Oil	8,245

6.4 LUKOIL/VANCO (Cape Three Points Deep Water Block –CTPDW)

The LUKOIL completed evaluation of the electromagnetic data it had acquired from the Cape Three Points Deep Water Block in 2011. The Operator also completed detailed technical review of the existing prospects and lead inventory. The Company also selected three (3) prospects namely Panther, Tiger and Jaguar for Front End Engineering and Design (FEED) studies.

6.5 TAP Oil Ltd/AFEX/CMI (Offshore Accra Block)

The Operators of the Offshore Accra Block (TAP Oil, AFEX and CMI), opened a data room process which led to farming-out part of their interest to OPHIR. OPHIR, the new Operator of the Block, was due to drill its first exploration well by the Second Quarter of 2013.

6.6 ENI, Afren Plc (Offshore Keta Block)

ENI drilled the Nunya-1X Exploratory Well at a water depth of about 1,687 meters. This Well was found to be dry. However, two (2) good reservoir quality sands were encountered in the objective zone. The Company also acquired approximately 1,500 sq. km of 3D Seismic Data over the eastern portion of the Block which was expected to be processed and interpreted in 2013.

6.7 Tullow Ghana Ltd, Anadarko and Sabre, Kosmos Energy, Ghana Group (Deepwater Tano Block)

The Contractor Group for the Deepwater Tano Block (DWT) met all its exploration obligations. The Contractor agreed with the GNPC to conduct additional work by drilling the Okure Exploration Well (OKURE- 1WELL). The drilling exercise led to the discovery of 17meters of laminated hydrocarbon section with 4.4meters of net oil pay. The discovery was about 100 psi over pressured with respect to the Ntomme oil accumulation.

The Wawa-1 Vertical Exploration Well was also drilled to a total depth of 3326.3 meters. The operation led to the discovery of 10.3m of oil pay and 23.4m of gas pay within the Turonian fan and Turonian Deep intervals. This pay was found to have stacked in at least seven separate accumulations that are not in communication with each other.

6.8 Oranto (Offshore Saltpond Block)

In the year 2012, the Operator of the Block requested an extension of the Initial Exploration Period to enable it mature the leads into prospects.

7.0 APPRAISAL AND PRE-DEVELOPMENT ACTIVITIES

In the year 2012, appraisal activities were continued in some of the announced discoveries including the Tweneboa-Enyenra-Ntomme (TEN) Complex, Teak, Akasa, Sankofa and Gye-Nyame discoveries. Most advanced of these appraisal programmes were the TEN and Sankofa-Gye-Nyame Projects. The statuses of the projects are summarized in Table 2 below.

Table 2: Status of Discoveries as at December, 2012

Discoveries Under Appraisal	Discoveries Yet to be Appraised	Discoveries Pending Plan of Development Approval	Discoveries Not Meriting Appraisal/ Non Commercial
ENI Cenomanian Oil and the Campanian non-associated gas discoveries	HESS discoveries, VANCO/LUKOIL	TEN and Jubilee Full field Development	Banda and Odum

8.0 RESOURCE STATUS

The total estimated proven oil reserve as at end of year 2012 was 869.52 million barrels. These reserves were declared from Saltpond, Jubilee, TEN, South and North Tano Fields. The total Stock Tank Oil-In-Place (STOIIP) from these Oil Fields in addition to Sankofa, Mahogany, Akasa and Teak Fields stood at 2927.41 Million Barrels (MMbbl).

The total estimated associated gas reserve was 138.831 Million Barrels of Oil Equivalent (MMBOE). The reserves were declared from Saltpond, Jubilee, TEN, South and North Tano, Mahogany, Akasa and Teak Fields. The associated gas initially in place (GIIP) at the Sankofa field was 18.730 MMBOE.

The total estimated non-associated gas reserve was 301.246 Million Barrels of Oil Equivalent (MMBOE). These were reserves from Saltpond, Tweneboa, Sankofa-Gye-Nyame and the 3-AX Structure Fields. The total non-associated gas initially-in-place (GIIP) from these Fields was estimated at 461.354 MMBOE.

The details of the country's resource status are presented in the attached Appendix II.

9.0 PETROLEUM PRODUCTION ACTIVITIES

In the year 2012, petroleum production activities were carried out at two oil fields. These fields were the Jubilee and Saltpond Fields.

9.1 JUBILEE FIELD

Crude Oil Production

During the year 2012, Crude oil production from the Jubilee Field improved significantly as a result of remedial work (acidization) conducted on the production wells. This led to a cumulative crude oil production of 26,351,278 barrels for the year 2012. The corresponding average daily production for the year was 72,000 barrels.

Since the commencement of production from the Jubilee Field up until December, 2012, a total of 50,883,386 barrels of crude oil was lifted by the Jubilee Partners including the Ghana group (GNPC and Government of Ghana). The highest and lowest daily production achieved was 112,468 barrels per day and 20,089 barrels per day which was recorded on the 26th December, 2012 and 15th December, 2010 respectively.

Out of the fifty-two liftings, the Ghana Group lifted nine (9) times totaling 8,861,223 barrels. This represents 17.41% of the total liftings. The breakdown of the liftings by the Jubilee Partners as at 31st December, 2012 is presented in Table 3.

Table 3: Cumulative Crude Oil Liftings by Jubilee Partners as at 31st December, 2012

Company	No. of Liftings	Volume (bbls)	Percentage (%)
Tullow Ghana Ltd	18	17,376,668	34.15
Anadarko and Sabre	13	12,770,170	25.10
Kosmos Energy	12	11,875,375	23.34
Ghana Group	9	8,861,223	17.41
Total	52	50,883,386	100.00

Injection Fluid (Water and Gas)

The cumulative associated gas produced from the Jubilee field as at 31st December, 2012 was 65,780 Million Standard Cubic Feet (MMSCF). Out of this, 5,524 MMSCF was utilized as gas fuel while 43,750 MMSCF was re-injected.

The volume of water injected cumulatively also stood at 115,487,913 barrels.

Production Challenges Encountered during 2012

During the year 2012, the Operators of the Jubilee Field encountered two major challenges which derailed efforts at achieving the crude oil production target of 120,000 barrels per day. Six (6) of the nine (9) production wells could not achieve production levels as planned due to small sand thickness encountered. Productivity also declined in some of the Phase 1 Wells as a result of fines migration (tiny sand particles dislodged from the surrounded rocks as a result of oil flowing into the well) which plugged the frac pac and screens used to line the wellbore thereby preventing oil from flowing into the boreholes.

It was refreshing to note that GNPC and the Jubilee Partners implemented selected strategies which included managing existing wells by bull heading, Side Tracking, and Acidization. Additional new wells were also drilled under the Jubilee Phase 1A Plan of Development approved by the Minister. The Jubilee Partners also redesigned the completion packages for the new production wells to mitigate the clogging of the wellbore.

FPSO Optimization

During the period, the FPSO performed well. Despite this, some challenges were encountered which affected the realization of the production rate of 120,000 barrels per day. The challenges included the acquisition of critical spares, subsea integrity management, topside integrity management and debottlenecking of water and gas injection systems. The work scope to address the challenges were drawn and budgeted for and the relevant sub-contractors were also selected to execute the work.

9.2 SALTPOND FIELD

Saltpond Offshore Producing Company Ltd (SOPL), a Joint Venture between GNPC and Lushann Eternit Energy Ghana Ltd has operated the Saltpond Field. Currently, production is on-going in two (2) wells with an average daily oil production of about 300 barrels. An average daily gas production of 3.7 million standard cubic feet was flared.

For the year, 2012, a total of 105,464.00 barrels of oil was produced by the SOPL. Royalty payments totaling One Hundred and Four Thousand, One Hundred and Ninety-three United States Dollars (US\$104,193.00) was paid to Government by the end of the year, 2012.

10.0 TAXES INCLUDING ROYALTY AND ACREAGE FEES

During 2012, a total amount of Two Hundred and Seventy-two Million, Five Hundred and Sixty-two Thousand, Four Hundred and Eighty-two Ghana Cedis (GH¢272,562,482.00) was collected as payments of royalties from the Contractors operating the Saltpond and Jubilee Fields.

A total amount of Two Hundred and Seventy-Two Million, Three Hundred and Sixty-five Thousand, Five Hundred and Fifty Ghana Cedis (GH¢272,365,515.00) was paid by Contractors operating the Jubilee Field while One Hundred and Ninety-six Thousand, Nine Hundred and Sixty-seven Ghana Cedis (GH¢196,967) was paid by Contractors operating the Saltpond Field. The royalties accounted for 28% of total receipts for the period reflecting the 5% royalty agreed in the respective Petroleum Agreements.

In fulfillment of the requirement of Section 6 of the Petroleum Revenue Management Act, 2011 (Act 815), an amount of Five Hundred and Sixty-Seven Thousand, Seven Hundred and Eighteen United States Dollars Thirteen Cents (US\$567,718.13) was also collected as payment for surface rental fees during the year.

The Contractors did not pay corporate taxes because they did not obtain taxable profit. In addition, the Contractors did not realize any Additional Oil Entitlement (AOE) due to lower production than expected production and also as a result of losses carried from 2011.

11.0 HEALTH, SAFETY AND ENVIRONMENT (HSE)

During the year 2012, the Petroleum Commission took steps to ensure compliance with health, safety and environmental standards in the conduct petroleum activities. Daily drilling reports were submitted to the Commission by Tullow Ghana Ltd (the Jubilee Field Operator) and Eni Ghana Exploration and Production Ltd. The Commission also held safety meetings with the Operators and muster drills were held weekly by the various Departments on the FPSO Kwame Nkrumah. This ensured that activities undertaken were in accordance with best industry practice.

The Commission continued to implement measures to ensure that Operators of Oil fields in Ghana complied with Government's policy directive on zero gas flaring or non-venting of natural gas produced within Ghana unless necessary in operations and also discourage re-injection of natural gas.

12.0 LOCAL CONTENT AND SOCIAL RESPONSIBILITIES

During the year under review, the Commission took over the registration of all oil and gas service providers and operators in the upstream petroleum industry from the GNPC pursuant to its establishing Act. It also developed a new pricing regime for such registration in consultation with relevant stakeholders in the industry.

As part of its Corporate Social Responsibility (CSR), the Commission undertook a community engagement exercise to ascertain the socio-economic impact of upstream petroleum activities on livelihoods of Fisher folk (specifically in the Western Region) and to gather information on the level of interaction between IOCs and relevant stakeholders.

The Commission organized a Local Content Forum which provided an opportunity for stakeholders to engage with the Commission on Local Content issues. The Draft Local Content Regulations was submitted to the Ministry of Justice and Attorney General's Department, was laid before Parliament. The Regulations however could not mature since Parliament rose before the statutory 21 days elapsed.

13.0 CHALLENGES OF THE COMMISSION

In its quest to regulate and manage the utilization of petroleum resources and to coordinate the policies in relation to them, the Commission encountered a number of challenges in the year under review.

- 13.1 The Commission was not provided with the requisite funding to undertake its responsibilities outlined in Act 821. This, according to the Commission had affected its acquisition of operational logistics. Hence, as an interim funding measure, it had to procure a loan facility from the National Petroleum Authority which is yet to be redeemed.
- 13.2 The Commission also lacked appropriate accommodation for its staff and operations. Even though the Ministry of Finance and Economic Planning approved a contracting loan facility from UBA for the Commission to purchase a building to serve as office complex, the Commission has been facing challenges in servicing the mortgage.
- 13.3 Again, the Commission faced the challenge of employing critical skilled personnel. As knowledge-based industry characterized by massive poaching and competition, the Commission has been saddled with the issue of finding critical technical staff within and outside the boundaries of Ghanaian areas of petroleum engineering and petroleum geosciences.
- 13.4 The lack of relevant Legislative Instruments for full implementation of its activities also posed a challenge to the Commission. Critical among the Instruments is LI to empower the Commission to charge fees for its services provided to Operators in the industry. This greatly affected the work of the Commission as this is one of the sources IGF to support the budget of the Commission.

14.0 OBSERVATIONS

The following observation were made by the Committee during its deliberations:

14.1 Funding for the Petroleum Commission

The Committee identified the funding challenges of the Petroleum Commission as a serious issue which undermined the performance of the Commission during the year 2012. It also noted with grave concern the fact that its previous recommendation through the august House to the Ministry of Finance to resolve the issue had not been implemented.

When asked about the status of the Committee's directive to pursue a more sustainable funding source as contained in Act 815, the Commission informed the Committee that the Ministry of Finance rejected the proposal and urged the Commission to adopt the Minerals Commission's funding model. The Committee however disagreed with the recommendation of the Ministry indicating that the Minerals Commission funding model cannot be replicated in a critical sector such as the petroleum sector. The Committee was of the view that the regulatory environment of the upstream petroleum industry is quite different from that of the mining industry. The Committee urges the House to consider the inclusion of the Petroleum Commission as recipient of funds under the Act 815 when the Act 815 comes up for amendment.

As a short term measure, the Committee urges the Petroleum Commission and the Ministry of Finance to speed up the on-going consultations for the possibility of GNPC to cede its exploration levy to the Commission. The Committee also urges the Commission to expedite action on the making of Legislative Instruments that will empower the Commission to generate funds internally to support its activities.

14.2 Reserve Estimation Project

The Committee acknowledged the efforts of the Petroleum Commission aimed at providing enough data on the country's petroleum reserves through its Reserve Estimation Project. It however urges the Commission to be aggressive in its future reserve estimation project, particularly in the Voltaian Basin where data is scanty. This, the Committee believed would assist in the long term development planning of the State, and as well strengthen the position of the State during Petroleum Agreement negotiations in order to secure enhanced benefits for the State.

The Committee also urges the Commission to establish incentive packages and also utilize opportunities provided at Petroleum Conferences around the world to attract more International and Local Oil Companies to invest and undertake more exploration activities in the country's resource basins. It further called for an effective institutional collaboration between the Commission, the Geological Survey Department, and other state agencies during future reserve estimation projects to enhance their respective institutional capacity and efficient use of resources.

14.3 Recruitment and Retention of Critical Staff

The Committee expressed grave concern over the inability of the Commission to recruit and retain critical technical staff such as reservoir engineers, instrumentation engineers, petroleum engineers, completion engineers and geophysicists among others to assist in the activities of the Commission. The Committee was informed that the Commission encounter difficulties in the recruitment and retention of critical staff due to inadequate funds.

As a way to address the issue, the Committee was informed that the Commission was in consultation with Tullow Ghana, KOSMOS, GNPC and the Ministry of Energy and Petroleum to design an internship programme which would allow Ghanaians with technical knowledge but limited experience to acquire practical skills. While commending this effort, the Committee urges the Commission to come up with career guidance and awareness strategies to encourage Ghanaians to pursue requisite technical subjects in the oil and gas industry that are in high demand. The Committee further urges close collaboration between the Commission and scholarship entities to ensure that their awards are aligned to technical skills gap in the petroleum industry.

14.4 Delayed Submission of the 2012 Annual Public Report

The Committee finally noted with concern that the Petroleum Commission delayed unduly in submitting its 2012 Annual Public Report to Parliament for consideration. It was of the view that such an important Report meant to shape policy in the Country's petroleum sector should be submitted to Parliament with dispatch. The Committee therefore urges the

Ministry of Energy and Petroleum and Petroleum Commission to ensure that future reports are submitted to Parliament timeously.

15.0 CONCLUSION

The Committee has duly scrutinized the 2012 Annual Public Report on Petroleum Resources and Activities in Ghana and is satisfied that the Report meets the requirements of Section 3(k) of the Petroleum Commission Act, 2011 (Act 821) and other relevant laws.

The Committee commends the Petroleum Commission for diligently performing its statutory duties in the midst of serious challenges. These challenges include inadequate funding and lack of certain critical technical staff among others.

Being mindful of the onerous responsibility placed on the nascent institution, the Committee hopes that its recommendations with respect to funding the Petroleum Commission will be fully implemented.

The Committee therefore recommends to the House to adopt its Report and approve the 2012 Annual Public Interest Report of the Petroleum Commission on the Petroleum Resources and Activities in Ghana.

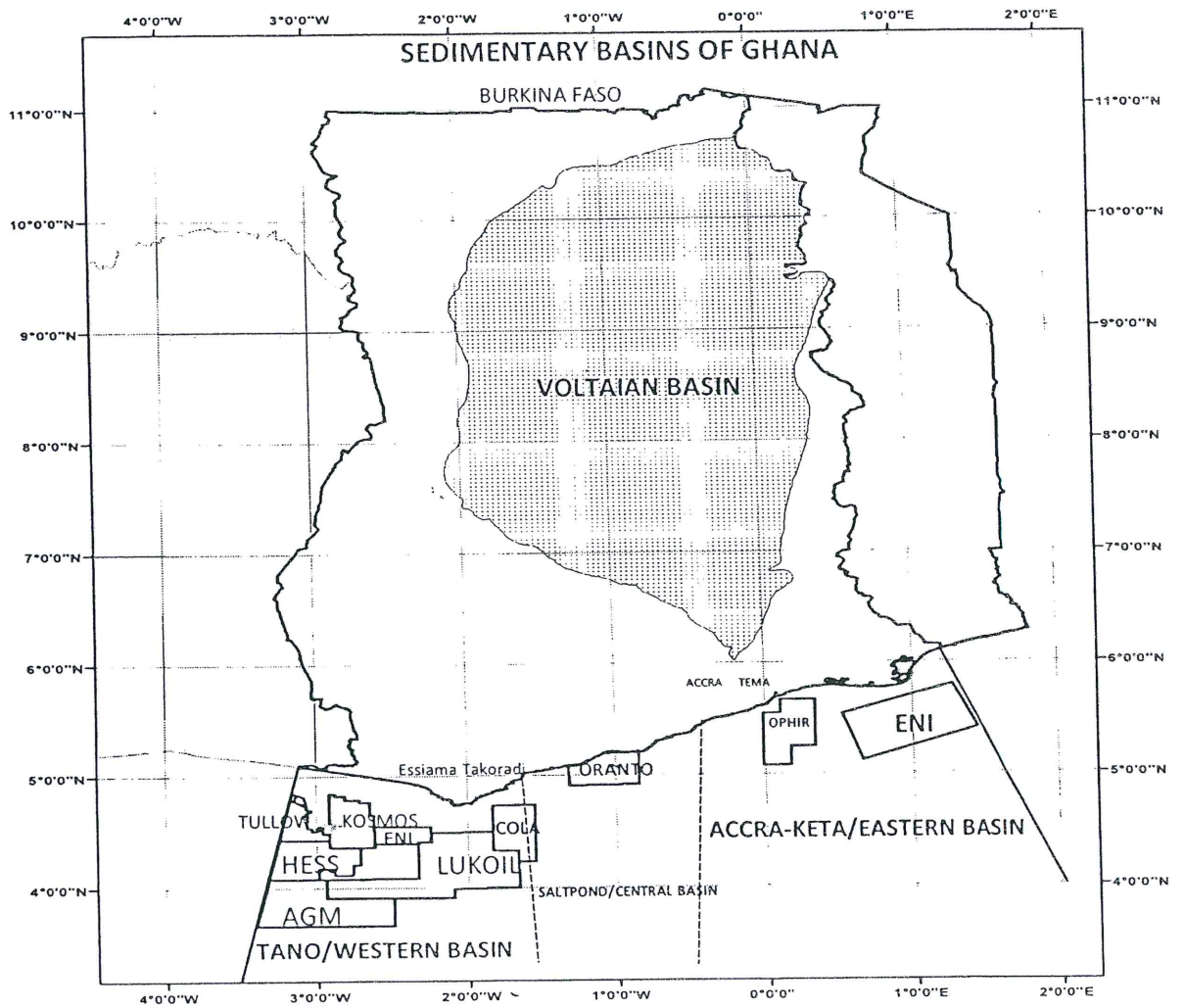
Respectfully submitted.



.....
HON. KWABENA DONKOR (DR.)
CHAIRMAN, COMMITTEE
ON MINES & ENERGY



.....
PEACE FIAWOYIFE (MS.)
CLERK TO THE COMMITTEE



RESOURCE STATUS IN PRODUCING FIELDS

Oil			
STOIIP (MM bbls)	Reserves (MM bbls)	Recovered to date (MM bbls)	Estimated Oil Recoverable (MM bbls)
Saltpond	32.51	5.12	4.94
Jubilee	1630.00	615.00	52.40
			0.18
			562.60

Associated gas				
Reserves (Tcf)	Reserves (MMBOE)	Recovered to date (TCF)	Remaining Reserves (TCF)	
Saltpond	0.027	4.857	0.026	0.002
Jubilee	0.404	71.387	0.066	0.338

DISCOVERED RESOURCES AWAITING POD APPROVAL

Oil	
STOIIP (MM bbls)	Reserves (MM bbls)
Tweneboa	32.00
Enyenra	467.00
Ntomme	207.00

Associated gas	
Reserves (Tcf)	Reserves (MMBOE)
Tweneboa	0.000
Enyenra	0.155
Ntomme	0.097

DISCOVERED RESOURCES YET TO SUBMIT POD

Oil	
STOIIP (MM bbls)	Reserves (MM bbls)
Sankofa East - 1X (Cenomanian)	157.00
Sankofa East - 2A (Cenomanian)	154.00
Sankofa East - 2A (Campanian)	78.00
Mahogany (LM3)	20.00
Akasa (UM3)	15.00
Teak (L. Campanian)	10.00

Associated gas	
GIIP (Tcf)	GIIP (MMBOE)
Sankofa East - 2A (Campanian)	0.106
	18.730

SHALLOW WATER TANO RESERVES

	Oil	
	STOIPP (MM bbls)	Reserves (MM bbls)
North Tano	53.60	1.10
South Tano	71.30	14.30

	Associated gas	
	Reserves (Tcf)	Reserves (MMBOE)
North Tano	0.071	12.616
South Tano	0.031	5.442

Non associated gas				
	GIIP (Tcf)	GIIP (MMBOE)	Reserves (Tcf)	Reserves (MMBOE)
Saltpond	0.022	3.880	0.015	2.633

Non associated gas				
	GIIP (Tcf)	GIIP (MMBOE)	Reserves (Tcf)	Reserves (MMBOE)
Tweneboa	0.489	86.406	0.058	10.249

Non associated gas				
	GIIP (Tcf)	GIIP (MMBOE)	Reserves (Tcf)	Reserves (MMBOE)
Gye Nyame	0.478	84.463	0.373	65.881
Sankofa Main + Sankofa East	1.484	262.22	1.158	204.53

	Non associated gas			
	GIP (Tcf)	GIP (MMBOE)	Reserves (Tcf)	Reserves (MMBOE)
3-AX Structure	0.138	24.385	0.102	18.023

