

# bewleven oil & gas

Morgan Stanley E&P Conference 11 January 2011

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**Opening Remarks** 



# **Vision & Strategy**

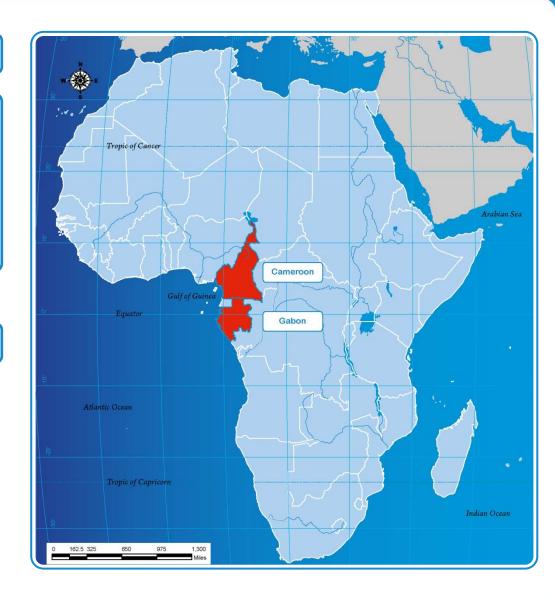


#### **Vision**

"It is our vision to build an African focused exploration and production company which in time becomes renowned for its ability to consistently create and realise material shareholder value through exploration led organic growth and niche acquisitions."

#### Strategy - Regional Focus on West Africa

- Strategy focused on creating and realising value through material exploration success.
- Seek value adding partnerships as appropriate.
- Fostering strong external partnerships and in-country relationships.
- Strong technical and management teams with successful track record.



# **Company Overview**

Two operating areas: Cameroon and Gabon



#### **Company Assets**

- 7 Blocks (5 in Cameroon and 2 in Gabon).
- 4 offshore shallow water, 3 onshore.
- 6 operated, 1 non operated.
- Overall P50 contingent resource base 163 mmboe\* (net).
- Extensive 3D & 2D seismic database; expanded significantly during 2010.
- Substantial prospect inventory developed across portfolio.
- Extensive 2010/11 drilling & seismic campaigns.

#### **Corporate**

- Etinde farm-out transaction with Vitol E&P Limited (Vitol) completed June 2010; revised option arrangement agreed end September 2010.
- Group cash balance at 31 December 2010 ~\$190m; additional \$35m anticipated on EOV disposal.
- Well placed to fund current planned work programme; significant financing flexibility.

Nigeria Bomono Permit Acreage: 2,328 km2 Onshore **Equity Interest** Etinde Permit Operator: Acreage: 2,316 km2 Bowleven Group Shallow Offshore Equity Interest: Cameroon **Bowleven Group** Gulf of Guinea **Equatorial Guinea** 100km Gabon Epaemeno Permit Acreage: 1,340 km2 **EOV Permit** Onshore Acreage: 105 km2 Shallow Offshore Operator: Addax **Bowleven Group** 

<sup>\*</sup> Source: Annual Report & Accounts 2010.

<sup>†</sup> Etinde Permit comprises MLHP 5,6 & 7; Bowleven 75% operator, Vitol 25% (Vitol have option to acquire a further 10% in MLHP-7 only).

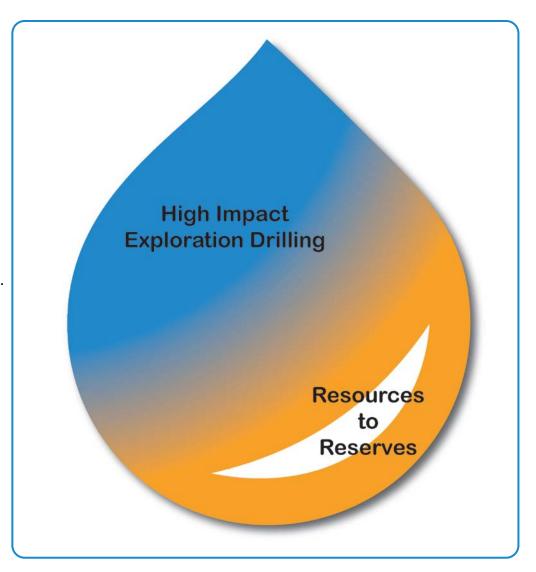
# **Company Overview**

Two operating areas: Cameroon and Gabon



#### **Asset Strategy for 2010/2011**

- To move resources to reserves on Etinde Permit (appraisal activity on IE and IF); targeting transfer of >100mmboe (gross).
- High impact exploration drilling on Etinde Permit (including Miocene and Cretaceous-Turonian plays, offshore shallow water).



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# **Asset Overview**

Cameroon – Etinde & Bomono



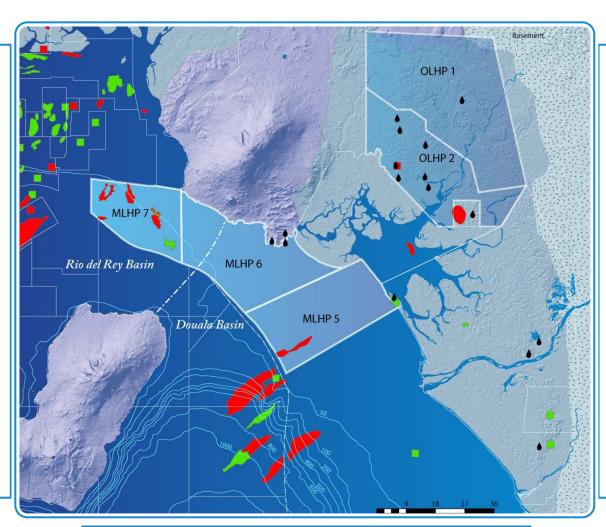
#### **Cameroon Overview**

Relatively underexplored - an emerging oil story



#### Rio del Rey Basin

- MLHP 7.
- Shallow offshore area.
- Highly prospective acreage within a proven active hydrocarbon system.
- Tertiary oil and gascondensate discoveries.
- Established portfolio of additional Tertiary prospects.
- Maturing exploration with transition into an appraisal/development phase.



#### Douala Basin

- MLHP 5 & 6, OLHP 1 & 2.
- Onshore and shallow offshore areas.
- Highly prospective acreage
- Number of onshore oil seeps.
- Tertiary and Cretaceous leads.
- Onshore early exploration phase on 2D dataset.
- Offshore mature prospects portfolio on 3D dataset.
- Additional infill 3D coverage acquired in 2010.

Cretaceous Turonian plays accessible in onshore area and shallow waters.

# **Cameroon Exploration**

Recent Douala Basin E&P Activity



#### Seismic

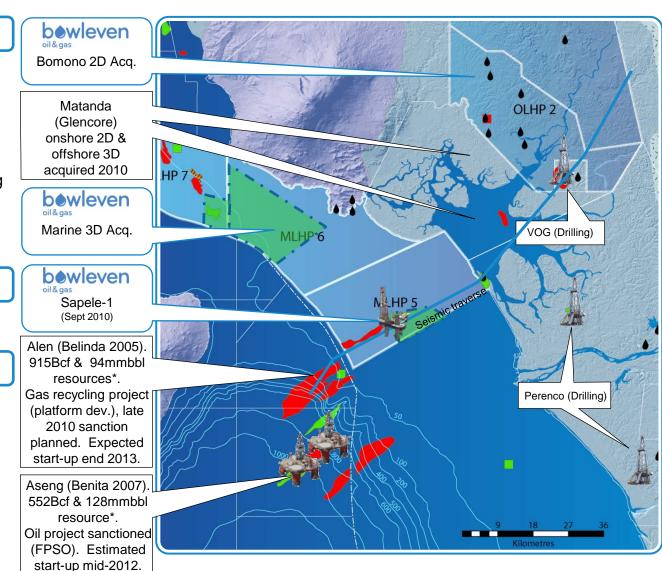
- Bowleven acquired 285Km 2D in OLHP-2 (Bomono) during 2010. Preparation for further 150Km underway.
- Glencore acquired 2D in Matanda.
- Bowleven 658km² 3D (mainly Douala Basin) acquired in Etinde (MLHP-5, 6, and 7) during 2010.
- Noble Energy 3D acquired across blocks to the southeast of MLHP-5.

#### **Exploration Drilling**

Bowleven Sapele-1 drilling ongoing.

#### **Development/Appraisal Activity**

- Noble Energy Aseng oil project sanctioned; development drilling commenced.
- Victoria Oil & Gas Logbaba gas field development activity underway.
- Perenco Multi-well programme ongoing.

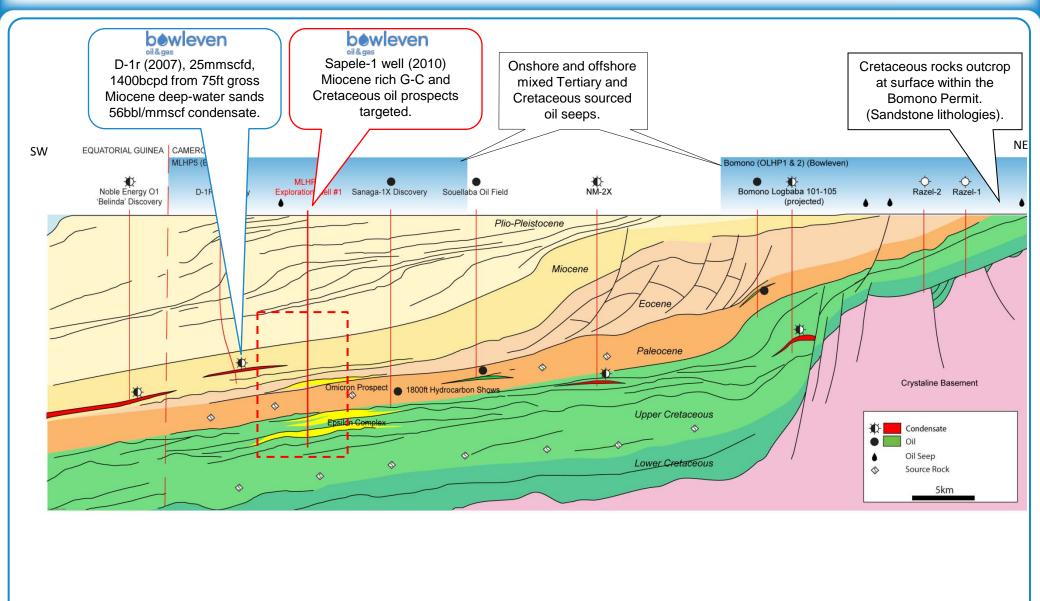


\*Gross oil and gas volumes interpolated from Noble Energy August presentation of net volumes (Block O 45%, Block I 40%).

### **Regional Geology and Play Types**

Douala Basin: An emerging hydrocarbon province





# **MLHP-5 Exploration Well – Sapele-1 (Pre Drill)**

Targeting Miocene and deeper Cretaceous fairways



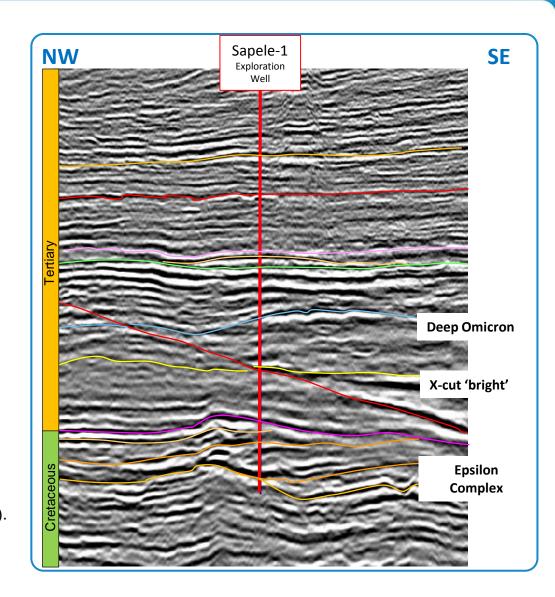
 MLHP-5 exploration well Sapele-1 alternative volumetric phase cases:

Pre-Drill Unrisked WGIIP bcf					
Prospect	P90	P10			
Upper Omicron	100	1046			
Lower Omicron	54	540			
Deep Omicron	110	934			
Cross-cut Event	45	185			
Epsilon Complex (gas)	140	5288			

- Equal probability of encountering oil through the Lower Tertiary interval and Top Cretaceous.
- Unrisked Oil Case Volumetrics (as an alternative to gas volumetrics for deeper objectives):

Pre-Drill STOI	IP mmbbls	
Prospect	P90	P10
Deep Omicron (oil)	27	259
Cross-cut event (oil)	15	63
Epsilon Complex (oil)	104	3733

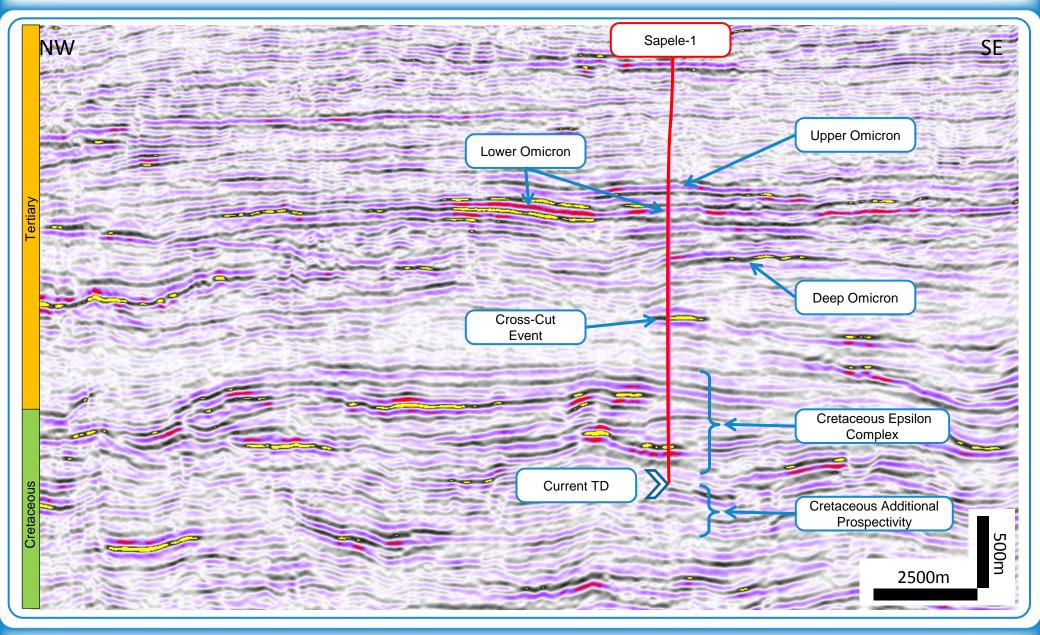
- Tertiary targets are relatively low technical risk (POS up to 30%).
- Cretaceous target has higher technical risk (POS 15%).



# **MLHP-5 Exploration Well – Sapele-1**

High potential exploration well targeting stacked objectives





# **MLHP-5 Exploration Well – Sapele-1**

Miocene fairway delivers exciting discoveries



#### **Overview**

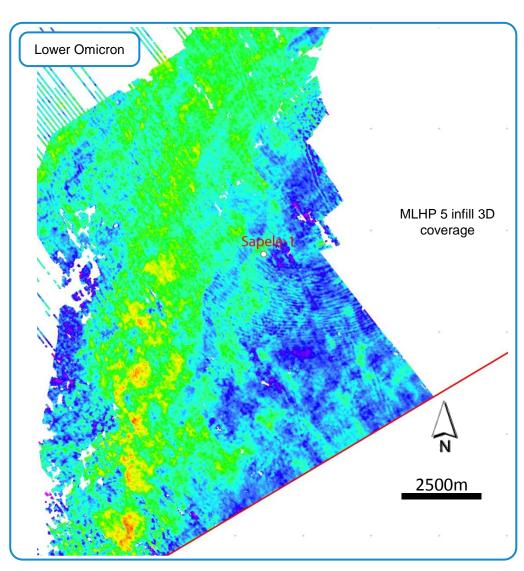
- Two potentially significant hydrocarbon discoveries in Miocene reservoirs based on the results of drilling and initial wireline logs and pressure data.
- Believed to have penetrated only the extremities of both prospects, at sub-optimal locations

#### **Lower Omicron**

- Gross hydrocarbon interval of approximately 106m in what are believed to be fair quality interbedded reservoir units.
- The net pay is estimated to be approximately 15m to 20m with an average porosity of 16%.
- IIPE for Lower Omicron: STOIIP P90-P10 of 40-290 mmbbls with a mean 140 mmbbls, alternative WGIIP case P90-P10 of 75-595 bcf, with a mean of 290 bcf.

#### **Deep Omicron**

- Gross hydrocarbon interval of approximately 64m in high quality reservoir sands.
- The net pay is estimated to be approximately 16m to 23m with an average porosity of 21%.
- IIPE for Deep Omicron increased: STOIIP P90-P10 of 65-430 mmbbls with a mean 217 mmbbls.



IIPE: Initial In-Place Estimates

# **MLHP-5 Exploration Well – Sapele-1**

Cretaceous play fairway extended significantly offshore

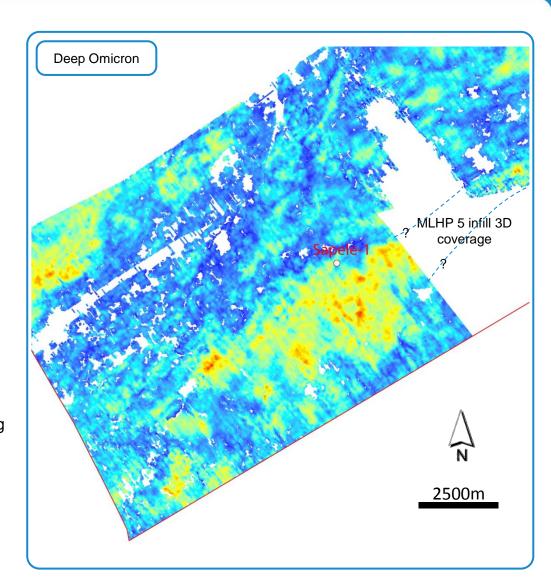


#### **Drilling Update 10 January 2011**

- 4m log evaluated net pay at Cross-cut objective.
- Gas condensate encountered at Epsilon Complex validates Cretaceous prospectivity; extends play fairway significantly offshore.
- Further Cretaceous reservoir potential identified; drilling planned to continue on completion of logging activities.
- Epsilon Complex volumetrics to be updated post integration and evaluation of well data.

#### **Forward Plan**

- Due to the stratigraphic nature of the discoveries further appraisal will be required.
- Preparing for testing and subsequent appraisal sidetrack/drilling activity post completion of current well.

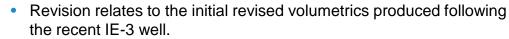


# MLHP 7 Resource (Mean Unrisked Gross Volumes In Place)†

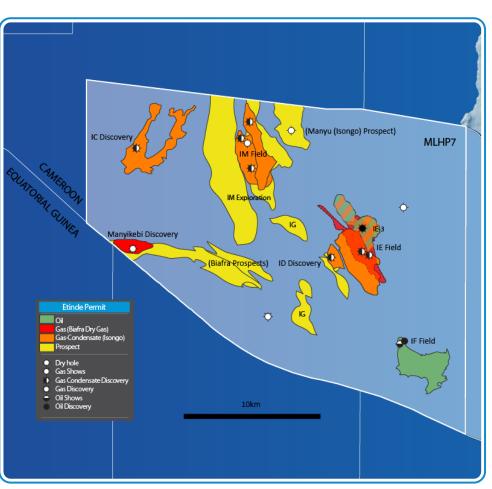
Resources to Reserves



	Dry GIIP (bcf)	Wet GIIP* (bcf)	NGL <sup>‡</sup> (mmbbl)	STOIIP (mmbbl)
Isongo Marine Field*		466	18	
Isongo E Field*	80	408	95	7
Isongo D Discovery*		8	1	
Isongo C Discovery*		77	5	
Isongo F Discovery				225
Manyikebi	56			
Total Discovered Resource <sup>†</sup>	136	959	119	232
Isongo Marine Exploration		1291	42	
Isongo D Exploration		158	35	
Isongo C Exploration		288	6	
Isongo E Exploration	17			
Isongo G Cluster		352	8	
Total Exploration Resource†	17	2089	91	
Total MLHP 7 Resource <sup>†</sup>	153	3048	210	232



Updates are anticipated as planned appraisal activity is completed.



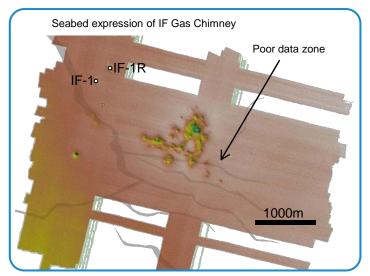
†Volumes presented as gross figures. \*includes NGLs, which comprise condensate and LPGs. ‡NGLs include LPGs for ID & IE only.

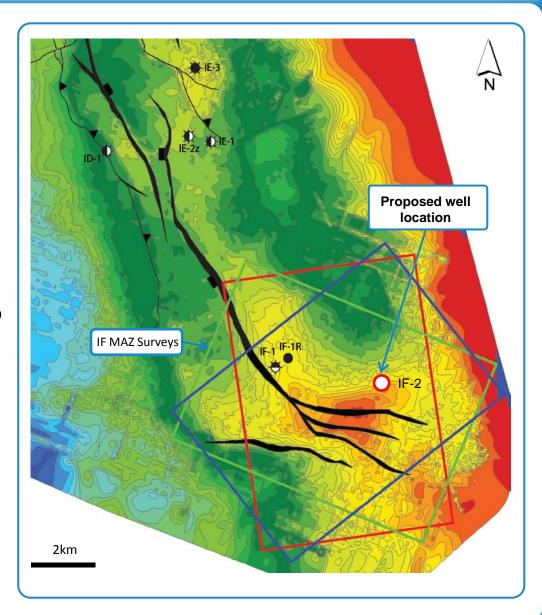
# **MLHP 7 IF Field Update**

Resources to Reserves



- IF oil discovered August 2008.
- Average oil flow 3371 bopd, peak spot rate of 4184bopd on ½" choke, 36° API.
- Bowleven assessment of hydrocarbons in place 225mmbbls STOIIP.
- Independent certification by TRACS supports Bowleven's assessment.
- Sea bed survey undertaken highlights presence of gas chimney.
- Reprocessing of existing 3D seismic completed.
- 3D marine seismic has been acquired over IF field (IF Multi-Azimuthal 3D 131km²) to support appraisal and development activities; processing ongoing with results expected Q1 2011.
- Location of well will be confirmed on interpretation of the new 3D seismic.





# **MLHP 7 IE Field Update**

Resources to Reserves

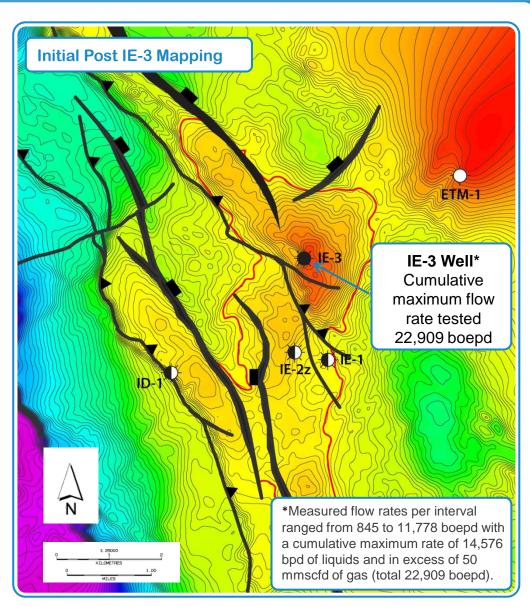


#### **History**

- IE-1 drilled 1981 (Total); encountered dry gas in Biafra and gas/condensate in Isongo Formation.
- IE-2Z appraisal drilled February 2007 (Bowleven) established high flowrates and significant condensate potential. Tested 31mmscf/d + 3730bcpd (CGR 140 bbl/mmscf).
- IE-3 appraisal drilled mid July 2010 encountered 7 hydrocarbon bearing zones; tested (5 zones) August 2010 with a cumulative maximum flow rate of 22,909 boepd.
- High quality gas-condensate (CGR 262 bbl/mmscf) and oil (36 to 43° API) encountered on IE-3 test; discovery of oil highlights additional potential of the IE Field area and acreage.

#### **Forward Plans**

- Integration of all of the following dataset will define further IE field appraisal activity.
  - Well test analysis (including PVT sample analysis).
  - Core analysis (sedimentology, petrography, permeability measurements).
  - Chemostratigraphy for correlation to existing wells.
  - Biostratigraphy for correlation to existing wells and age/depositional environment bracketing.
  - Seismic inversion study creation, assessment and integration of fluid and lithology volumes into current workflows.
- Further IE appraisal well anticipated in current campaign.



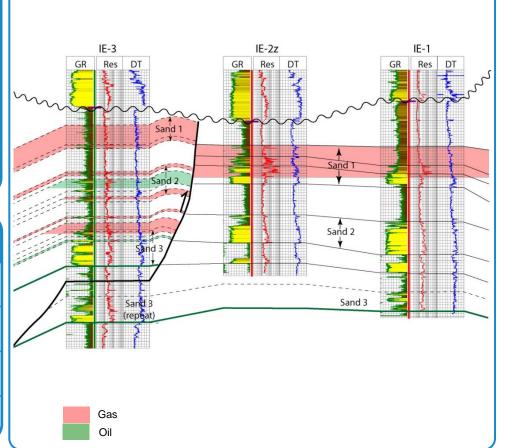
# IE Resource (Unrisked Gross Volumes In Place)†

Resources to Reserves



Volumetrics September 2009	P90	P50	P10	Mean
Isongo E Field* WGIIP bcf	213	422	770	463
CIIP mmbbls	29	61	109	66
LPG's IIP mmbbls	18	35	64	39
STOIIP mmbbls	-	-	-	-

Revised Volumetrics Post IE-3	P90	P50	P10	Mean
Isongo E Field* WGIIP bcf	307	399	519	408
	(+44%)	(-5%)	(-32%)	(-12%)
CIIP	46	61	82	63
mmbbls	(+58%)	(-%)	(-24%)	(-4%)
LPG's IIP	18	29	50	32
mmbbls	(-%)	(-17%)	(-21%)	(-15%)
STOIIP mmbbls	5	7	10	7



- Revision relates to the initial revised volumetrics produced following the recent IE-3 well.
- Updates are anticipated as planned appraisal activity is completed.

†Volumes presented as gross figures. \*includes NGLs, which comprise condensate and LPGs.



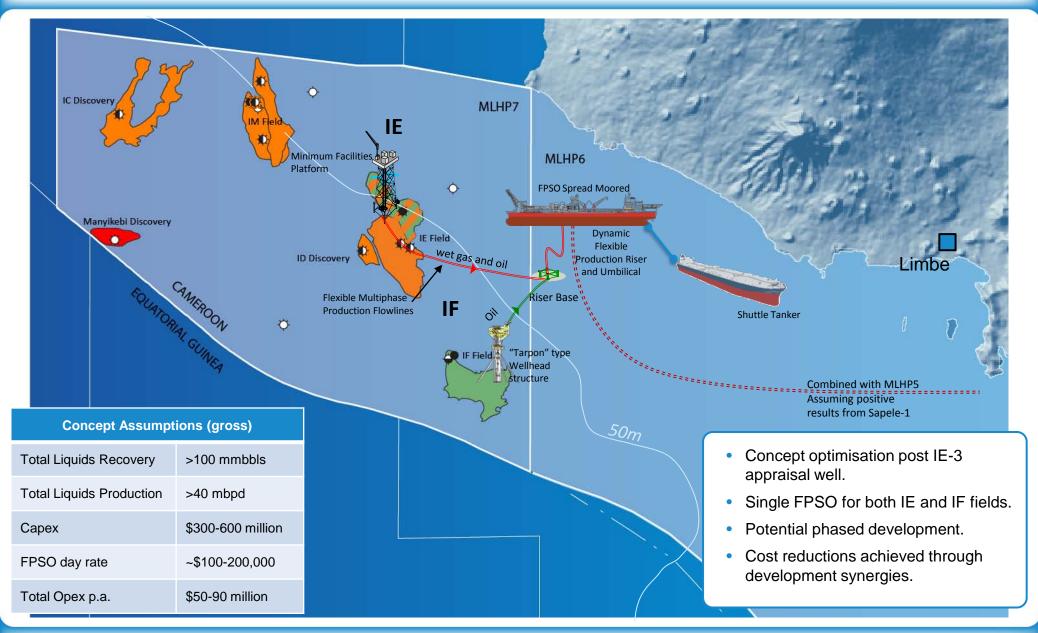
- Initial view of overall in place P50 numbers broadly similar to previous (higher liquids to gas ratio).
- Moved more resource into P90 category.
- Potential recycling in IE southern compartments.
- Presently only carrying limited volumes for oil focus for future appraisal.
- Ultimate recoverability will depend on final development scheme selected.
- Further work ongoing to refine development concept with potential for FPSO development synergies.

**Development optimisation phase – maximise value** 



# Concept: Combined Phased IE & IF FPSO Synergised Development bewleven





#### **Bomono Overview**



#### **Bomono**

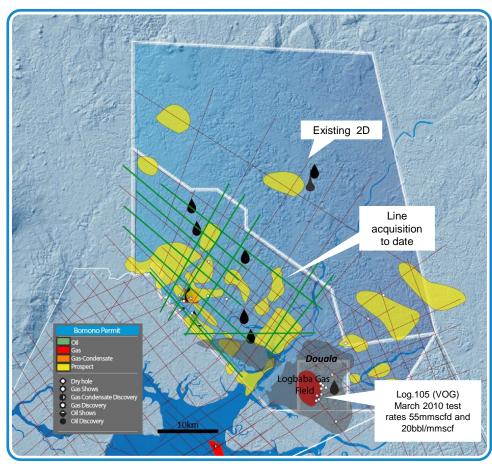
- 100% Bowleven.
- Comprising two blocks covering an area of 2,328 km².
- 5 year first term, expiring December 2012.
- 285 km 2D acquired in Q1 2010 dry season.

#### **Commitments**

- 500 km 2D seismic data (285 km acquired to date; acquisition of further ~150 km underway).
- 1 well (drilling anticipated in 2011).

#### **Asset Overview**

- Highly prospective acreage within a proven active hydrocarbon system.
- Unique situation to access the prolific West African Turonian play onshore in a combination of structural and stratigraphic traps.
- Technical evaluation ongoing with initial evaluation highlighting multiple prospects with individual sizes ranging from 10 to 250mmbbls Mean STOIIP.
- 285 km seismic acquisition complete; processing ongoing.
- Geochemical survey high-grades a number of seismically defined leads.
- Up to 2 wells planned for H2 2011.



	2010		2012			
	Q4	Q1	Q2	Q3	Q4	Q1
Bomono Seismic	2D Processing	2D Seismic acquisition, processing and ongoing interpretation		Ex	ploration Drill	ing

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# **Asset Overview**

Gabon - Epaemeno



### **Epaemeno Overview**



#### **Epaemeno**

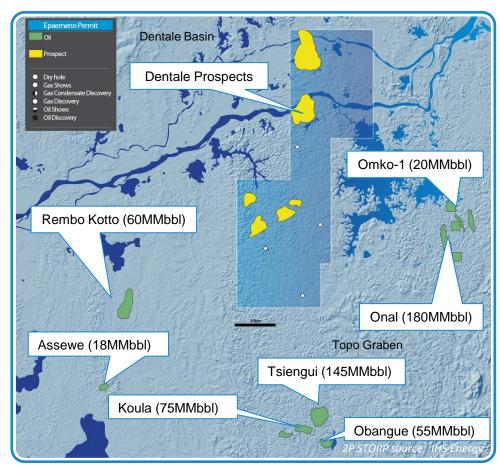
- 50% Bowleven, 50% farm-out completed April 2007.
- Second exploration term expiry February 2012 following an 18 month extension.
- Optional third exploration term of three years.

#### **Commitments**

- Commitment 2D seismic data acquired in Q1/Q2 2009.
- 1 well with 50% relinquishment at the end of the second term.
- Operator (Addax) obtained an 18 month extension to second term of exploration license to February 2012.

#### **Asset Overview**

- Sub-salt fields and discoveries to the east and south of the block.
- Technical evaluation and prospect inventory complete and highlights a number of significant prospects on the margins of the Dentale Sub-basin.
- Prospect volumetric range 10 to 350mmbbls mean STOIIP consistent with field sizes in the region.
- 18 month extension to the second exploration term approved (expiring February 2012).
- Well anticipated early 2012.



	2010		2012			
	Q4	Q1	Q2	Q3	Q4	Q1
Epaemeno Drilling	Technica	l preparation a seasor	ahead of 2011 (	dry	Site Prep	EPA Well

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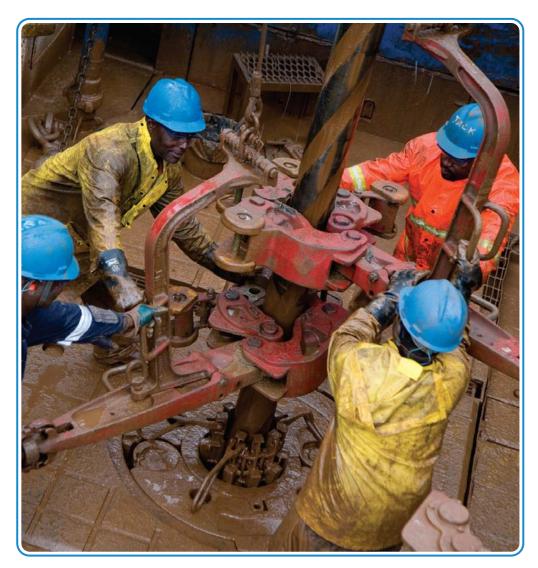
**Financial Overview** 



# **Funding Overview**



- Group cash at 31 December 2010 ~\$190m.
- Proceeds anticipated from EOV disposal (~\$35m).
- Vitol have an option to acquire additional 10% in Etinde Block MLHP 7, for further \$50 million (gross) work programme to be invested in appraisal activities (exercisable by 31 March 2011).
- Farm-out opportunities when appropriate.
- Moving from resources to reserves; access to debt finance.
- Significant financing flexibility.



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