

16 March 2015

OAX / NSX Announcement

African Petroleum Corporation Limited  
("African Petroleum Corporation" or the "Company")

### Upgraded Prospective Resources in Senegal and The Gambia

African Petroleum Corporation, an independent oil and gas exploration company operating ten licences in five countries offshore West Africa, is pleased to announce an update to its prospective oil resources at its 90% owned and operated Senegal Offshore Sud Profond and Rufisque Offshore Profond licence blocks in Senegal ("Senegal Licences") and its 100% owned and operated A1 and A4 offshore blocks in The Gambia ("Gambian Licences").

The Company engaged the independent petroleum consultant, ERC Equipoise Ltd ("ERCE"), to prepare an updated assessment of prospective oil resources attributable to the Company's Gambian Licences, and an initial assessment of the Senegal Licences (the "ERCE Letter").

The ERCE Letter of prospective resources includes 20 prospects and estimates the net prospective oil resources relating to the Senegal Licences and Gambian Licences as follows:

Licence	Mean (MMstb)	
	Net Unrisked Prospective Oil Resources	Net Risked Prospective Oil Resources
<b>Senegal</b>		
SOSP & ROP <sup>1</sup>	1,779	325
<b>The Gambia</b>		
A1 & A4	3,079	445
<b>Total Updated Portfolio Senegal and The Gambia</b>	<b>4,858</b>	<b>770</b>

The two discoveries made by Cairn Energy at SNE-1 and FAN-1 in Senegal have had a positive impact on the chance of success for prospects within African Petroleum's portfolio.

The ERCE Letter, in conjunction with the April 2014 CPR and ERCE Audit published in January 2015, independently assesses African Petroleum's net unrisked mean prospective oil resources at 11,614MMstb.

#### Stuart Lake, African Petroleum Corporation's CEO, comments:

"We are delighted to see that our net unrisked prospective oil resources, assessed by independent advisor ERCE, have been significantly increased to a total of 11.6 billion barrels. The two discoveries by Cairn Energy in Senegal at FAN-1 and SNE-1 during 2014 have significantly reduced our exploration risk and give us further encouragement with regards to our strategic goals to attract quality partners on these assets going forward.

<sup>1</sup> Net Unrisked and Risked Prospective Resources are stated net to APSL, in which APCL has a 90% shareholding

African Petroleum's diverse portfolio provides real potential to create significant value in the event of exploration success. Each of the Company's prospects selected for drilling have robust economics, even at a lower oil price, and upon drilling these wells, if they are successful, there is extensive follow up in the rest of the portfolio."

**For further information, please contact:**

Stuart Lake, Chief Executive Officer  
Jens Pace, Chief Operating Officer  
Tel: +44 203 761 6900

Media Contacts:  
For UK and International media – Buchanan  
Ben Romney/Helen Chan  
Tel: +44 207 466 5000

For Norwegian media: First House  
Geir Arne Drangeid  
Tel: +47 913 10 458  
Geir Gjervan  
Tel: +47 908 79 108

**About African Petroleum Corporation**

African Petroleum Corporation is a dynamic, independent oil and gas exploration company operating ten licences in five countries offshore West Africa. The Company's assets are located in fast-emerging hydrocarbon basins, principally the West African Transform Margin, where several discoveries have been made in recent years, including African Petroleum Corporation's Narina-1 discovery in February 2012, which proved a working hydrocarbon system in the Liberian basin. With a combined net acreage position of 30,967km<sup>2</sup> through its licences in Côte d'Ivoire, Liberia, Senegal, Sierra Leone and The Gambia, the Company has matured its portfolio rapidly, acquiring more than 18,500km<sup>2</sup> of 3D seismic data and successfully drilling three wells, one of which was the first hydrocarbons discovery in the offshore Liberian deep-water basin.

For more information about African Petroleum Corporation, please see [www.africanpetroleum.com.au](http://www.africanpetroleum.com.au)

This information is subject to disclosure requirements pursuant to section 5-12 of the Norwegian Securities Trading Act.



12 March 2015

The Directors  
African Petroleum Corporation Ltd  
Stratton House  
5 Stratton Street  
London  
W1J 8LA

Dear Sirs

**Re: Audit of Certain Prospective Resources, African Petroleum Corporation Ltd**

In accordance with your instructions, ERC Equipoise Ltd ("ERCE") has reviewed certain Prospective Resources held by African Petroleum Corporation Ltd and its subsidiaries ("APCL") within APCL's Senegalese and Gambian licences. We have used information and data available and reasonable forward-looking expectations up to or before 28<sup>th</sup> February 2015. This letter summarises the results of our independent estimates of Prospective Resources and Geological Chance of Success for these prospects.

We have carried out this work using the 2007 SPE/WPC/AAPG/SPEE Petroleum Resources Management System (PRMS) as the standard for classification and reporting. A summary of the PRMS is found in Appendix 1. Nomenclature used in this letter is summarised in Appendix 2.

This letter is for the sole use of APCL and its financial advisors. It may not be disclosed to any other person or used for any other purpose without the prior written approval of a director of ERCE. ERCE has made every effort to ensure that the interpretations, conclusions and recommendations presented herein are accurate and reliable in accordance with good industry practice. ERCE does not, however, guarantee the correctness of any such interpretations and shall not be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation or recommendation made by any of its officers, agents or employees. In the case that material is delivered in digital format, ERCE does not accept any responsibility for edits carried out after the product has left the Company's premises.

## Introduction

APCL holds a 100% contractor interest in Production Sharing Contracts covering Blocks A1 and A4 offshore Gambia. The State has an automatic back-in right for 10% on declaration of commerciality for any discovery made. The licences were signed on 8<sup>th</sup> September 2006 with an effective date of 31<sup>st</sup> December 2007, and, following three extensions, they are still currently in the first exploration period, which runs through to 1<sup>st</sup> September 2016. The third extension agreement results in the payment of an extension bonus of \$1MM upon the spudding of the exploration well or the expiry of the first exploration period.

The work commitment during the first period comprises 1000 km<sup>2</sup> of 3D seismic data in Block A1 and 750 km<sup>2</sup> of 3D seismic data in Block A4, and one well which may be drilled in either block. The seismic commitment has already been met.

There are two further optional (but automatic) exploration periods of three years each that can be entered into, with a well being required in each period in each licence. Furthermore in Block A1 relinquishment of 10% of the licence area is required at the end of the first exploration period, and 20% at the end of the second period. In Block A4 relinquishment of 10% of the licence area is required at the end of the first exploration period. In both blocks, at the end of the third period, all areas not retained for appraisal and development are to be relinquished. There are also provisions for an exploitation period, with the total term of the licences being 30 years (including the exploration periods) for each development area.

The area of the licence is 1296 km<sup>2</sup> for Block A1 and 1376 km<sup>2</sup> for Block A4. Water depths vary from 500 m to over 3000 m.

APCL, through its 90% owned subsidiary African Petroleum Senegal (APSL), holds a 90% operated working interest in the exploration Blocks Rufisque Offshore Profond (ROP) and Senegal Offshore Sud Profonde (SOSP), offshore Senegal. Petrosen, the state oil company, holds a 10% carried interest. The EPSCs governing Blocks SOSP and ROP have an effective date of 25<sup>th</sup> October 2011. Petrosen has a back-in right for up to 20% of the licence equity should an exploitation period be declared.

Block ROP is currently in the initial exploration period. During this period, the Group is obligated to purchase existing seismic data and conduct geological and geophysical evaluation for a minimum investment of USD 2 million; and to drill one exploration well for a minimum investment of USD 20 million. APCL has completed its seismic commitments, with a remaining commitment to drill one well in the initial exploration period. The area of the licence is currently 10,357 km<sup>2</sup>. Water depth is between 1,500 and 3,000 m over the block.

SOSP is currently in the first extension period. During the initial exploration period, the Group has purchased existing seismic data, acquired new 3D seismic and conducted geological and geophysical evaluation for a minimum investment of USD 10 million. During the first extension period the Group shall carry out a PSDM and conduct additional geological and geophysical evaluation. The Group has an option up until April 2016 to decide to drill an exploration well with a minimum investment of USD 20

million by October 2017 or drop the acreage. APCL has completed the seismic commitments. The area of the licence is currently 5,439km<sup>2</sup>, following acreage relinquishment at the end of the initial period. Water depth is between 1,000 and 4,000 m over the block.

### **Summary of Results**

We have made independent estimates of Prospective oil Resources and Geological Chance of Success (COS) for the prospective intervals identified in the Alhamdulillah, Acacia, Rosewood, Sami, Mahogany and Lamia structures, offshore the Gambia, and the Baobab and Jaloo/Kapok, structures offshore Senegal. Our estimates of Prospective oil Resources and Geological Chance of Success (COS) are summarised in Table 1 and Table 2 of this letter. In this table we list gross Prospective Resources, and the Prospective Resources net to APCL's working interest taking due consideration, where applicable, of any volumetric extension of the mapped prospect outside the licence in question. Risked Prospective Resources are also tabulated. Estimates are made for oil only, although we recognise that, due to the significant uncertainties in the available geological information, that there is a possibility of gas charge in all licences.

### **Methodology**

ERCE has carried out this audit using data and information made available by APCL. These data comprise details of APCL's licence interests, basic exploration and engineering data where available (including seismic data, well logs, core, fluid and test data) technical reports, interpreted data, production performance data and, where applicable, outline development plans.

Our approach has been to commence our investigations with the most recent technical reports and interpreted data. From these we have been able to identify those items of basic data which require re-assessment.

In estimating petroleum in place and recoverable, ERCE has used standard techniques of petroleum engineering and geoscience. These techniques combine geophysical and geological knowledge with detailed information concerning porosity and permeability distributions, fluid characteristics and reservoir pressure. There is uncertainty in the measurement and interpretation of basic data. We have estimated the degree of this uncertainty and determined the range of petroleum initially in place and recoverable using probabilistic methods. Estimates are made for oil only, although we recognise that, due to the significant uncertainties in the available geological information, that there is a possibility of gas charge.

We have included an assessment of COS. Prospect specific risk is divided into four elements. Trap risk is defined as both definition and efficacy of the container. Source risk reflects the risk to migration of hydrocarbons from the source rock into the prospect, and reservoir risk reflects the presence and efficacy, (i.e. porosity and permeability), of any identified reservoir interval. Seal risk also incorporates the possibility of biodegradation due to a shallow depth below mudline (<1000m).

This dimension of risk does not incorporate the consideration of economic uncertainty and commerciality. In presenting Prospective Resources, ERCE assumes that the Operator of licences in which such prospective resources exist will behave in a competent manner, and execute any work programme designed to test such prospective resources in a timely and safe manner during the term specified for the licence.

No site visit was undertaken in the generation of this letter.

### **Confirmations and Professional Qualifications**

ERCE is an independent consultancy specialising in geoscience evaluation, reservoir engineering and economics assessment. Except for the provision of professional services on a time-based fee basis, ERCE has no commercial arrangement with any other person or company involved in the interests which are the subject of this report. ERCE confirms that it is independent of APCL, its directors, senior management and advisers.

ERCE has the relevant and appropriate qualifications, experience and technical knowledge to appraise professionally and independently the assets.

The work has been supervised by Dr Adam Law, Geoscience Director of ERCE, a post-graduate in Geology, a Fellow of the Geological Society and a member of the Society of Petroleum Evaluation Engineers (No 726).

Yours faithfully



ERC Equipoise Limited

Prospect	STOIIP			Unrisked Prospective Resources				Interest (%)	Net Unrisked Prospective Resources				COS (%)	Net Risked Prospective Resources			
	Low (MMstb)	Best (MMstb)	High (MMstb)	Low (MMstb)	Best (MMstb)	High (MMstb)	Mean (MMstb)		Low (MMstb)	Best (MMstb)	High (MMstb)	Mean (MMstb)		Low (MMstb)	Best (MMstb)	High (MMstb)	Mean (MMstb)
Alhamdulillah SS4	43	113	295	16	42	112	56	100	16	42	112	56	17	2.7	7.1	19.0	9.5
Alhamdulillah SS3	197	417	881	63	143	316	173	100	63	143	316	173	16	10.0	22.9	50.5	27.6
Alhamdulillah SS2	187	416	911	58	133	303	163	100	58	133	303	163	16	9.2	21.2	48.5	26.0
Alhamdulillah SS1	158	399	997	34	98	276	135	100	34	98	276	135	13	4.5	12.7	35.9	17.6
Acacia Senonian	188	412	902	43	107	262	137	100	43	107	262	137	24	10.2	25.1	61.7	32.1
Rosewood Senonian	89	329	1,221	32	122	459	208	100	32	122	459	208	24	7.6	28.7	108.0	49.0
Sami Albian	162	507	1,585	59	188	598	282	100	59	188	598	282	17	9.9	31.6	100.4	47.5
Mahogany Albian	147	443	1,334	35	115	376	176	100	35	115	376	176	20	7.0	23.1	75.9	35.5
Mahogany Aptian	276	670	1,629	64	174	468	234	100	64	174	468	234	14	8.8	23.8	64.2	32.1
Lamia Albian	157	695	3,073	38	180	849	375	100	38	180	848	375	15	5.8	27.2	128.2	56.6
Lamia Aptian	647	2,431	9,138	156	630	2,544	1,140	100	156	630	2,540	1,140	10	15.3	61.7	249.0	111.7
<b>TOTAL</b>	<b>2,250</b>	<b>6,833</b>	<b>21,965</b>	<b>599</b>	<b>1,931</b>	<b>6,563</b>	<b>3,079</b>		<b>599</b>	<b>1,930</b>	<b>6,559</b>	<b>3,079</b>		<b>91</b>	<b>285</b>	<b>941</b>	<b>445</b>

**Table 1: Summary of Prospective oil Resources, gross and attributable to APCL, and geological chance of success, Blocks A1 and A4, offshore the Gambia. Total is a deterministic sum.**

**Net Unrisked and Risked Prospective Resources for the Lamia prospect have been adjusted to reflect off-block extension.**

Prospect	STOIIP			Unrisked Prospective Resources				Interest (%)	Net Unrisked Prospective Resources				COS (%)	Net Risked Prospective Resources			
	Low (MMstb)	Best (MMstb)	High (MMstb)	Low (MMstb)	Best (MMstb)	High (MMstb)	Mean (MMstb)		Low (MMstb)	Best (MMstb)	High (MMstb)	Mean (MMstb)		Low (MMstb)	Best (MMstb)	High (MMstb)	Mean (MMstb)
Baobab Maastrichtian	102	293	842	37	109	318	154	90	27	72	194	103	19	5.1	13.7	36.8	19.4
Baobab Campanian	61	166	448	22	61	169	84	90	19	52	142	71	19	3.6	9.9	26.8	13.5
Baobab Santonian	26	94	345	9	35	130	59	90	8	31	117	53	16	1.3	4.9	18.4	8.3
Baobab Coniacian	28	98	348	7	27	106	48	90	5	21	89	36	14	0.6	2.8	12.0	4.9
Baobab Albian Upper	113	402	1,429	29	112	436	197	90	20	85	357	150	9	1.8	7.4	30.9	12.9
Ja'loo Cenomanian	160	473	1,400	58	175	528	254	90	52	158	475	229	23	11.9	35.8	107.8	51.8
Kapok Cenomanian	145	402	1,114	53	149	421	207	90	47	134	379	186	25	11.6	32.9	93.0	45.7
Ja'loo Kapok Albian	314	1,020	3,314	114	378	1,248	584	90	103	340	1,123	525	16	16.7	55.1	182.0	85.1
Kapok Aptian	341	931	2,539	124	345	959	474	90	112	310	863	427	19	21.7	60.3	167.8	83.0
<b>TOTAL</b>	<b>1,290</b>	<b>3,879</b>	<b>11,778</b>	<b>454</b>	<b>1,391</b>	<b>4,316</b>	<b>2,060</b>		<b>394</b>	<b>1,204</b>	<b>3,740</b>	<b>1,779</b>		<b>74</b>	<b>223</b>	<b>675</b>	<b>325</b>

**Table 2: Summary of Prospective oil Resources, gross and attributable to APSL, and geological chance of success, Block SOSP and ROP, offshore Senegal. Total is a deterministic sum.**

**Net Unrisked and Risked Prospective Resources are stated net to APSL, in which APCL has a 90% shareholding.**

**Net Unrisked and Risked Prospective Resources for the Baobab prospect have been adjusted to reflect off-block extension.**





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# Appendix 1: SPE PRMS Guidelines

## **SPE/WPC/AAPG/SPEE Petroleum Reserves and Resources Classification System and Definitions**

### **The Petroleum Resources Management System**

#### **Preamble**

Petroleum Resources are the estimated quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resource assessments estimate total quantities in known and yet-to-be-discovered accumulations; Resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum Resources managements system provides a consistent approach to estimating petroleum quantities, evaluating development projects and presenting results within a comprehensive classification framework.

International efforts to standardize the definitions of petroleum Resources and how they are estimated began in the 1930s. Early guidance focused on Proved Reserves. Building on work initiated by the Society of Petroleum Evaluation Engineers (SPEE), SPE published definitions for all Reserves categories in 1987. In the same year, the World Petroleum Council (WPC, then known as the World Petroleum Congress), working independently, published Reserves definitions that were strikingly similar. In 1997, the two organizations jointly released a single set of definitions for Reserves that could be used worldwide. In 2000, the American Association of Petroleum Geologists (AAPG), SPE, and WPC jointly developed a classification system for all petroleum Resources. This was followed by additional supporting documents: supplemental application evaluation guidelines (2001) and a glossary of terms utilized in Resources definitions (2005). SPE also published standards for estimating and auditing Reserves information (revised 2007).

These definitions and the related classification system are now in common use internationally within the petroleum industry. They provide a measure of comparability and reduce the subjective nature of Resources estimation. However, the technologies employed in petroleum exploration, development, production, and processing continue to evolve and improve. The SPE Oil and Gas Reserves Committee works closely with other organizations to maintain the definitions and issues periodic revisions to keep current with evolving technologies and changing commercial opportunities.

The SPE-PRMS consolidates, builds on, and replaces guidance previously contained in the 1997 Petroleum Reserves Definitions, the 2000 Petroleum Resources Classification and Definitions publications, and the 2001 "Guidelines for the Evaluation of Petroleum Reserves and Resources"; the latter document remains a valuable source of more detailed background information.



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These definitions and guidelines are designed to provide a common reference for the international petroleum industry, including national reporting and regulatory disclosure agencies, and to support petroleum project and portfolio management requirements. They are intended to improve clarity in global communications regarding petroleum Resources. It is expected that the SPE-PRMS will be supplemented with industry education programs and application guides addressing their implementation in a wide spectrum of technical and/or commercial settings.

It is understood that these definitions and guidelines allow flexibility for users and agencies to tailor application for their particular needs; however, any modifications to the guidance contained herein should be clearly identified. The definitions and guidelines contained in this document must not be construed as modifying the interpretation or application of any existing regulatory reporting requirements.

The full text of the SPE/WPC/AAPG/SPEE Petroleum Resources Management System document, hereinafter referred to as the SPE-PRMS, can be viewed at

[www.spe.org/specma/binary/files6859916Petroleum\\_Resources\\_Management\\_System\\_2007.pdf](http://www.spe.org/specma/binary/files6859916Petroleum_Resources_Management_System_2007.pdf) .

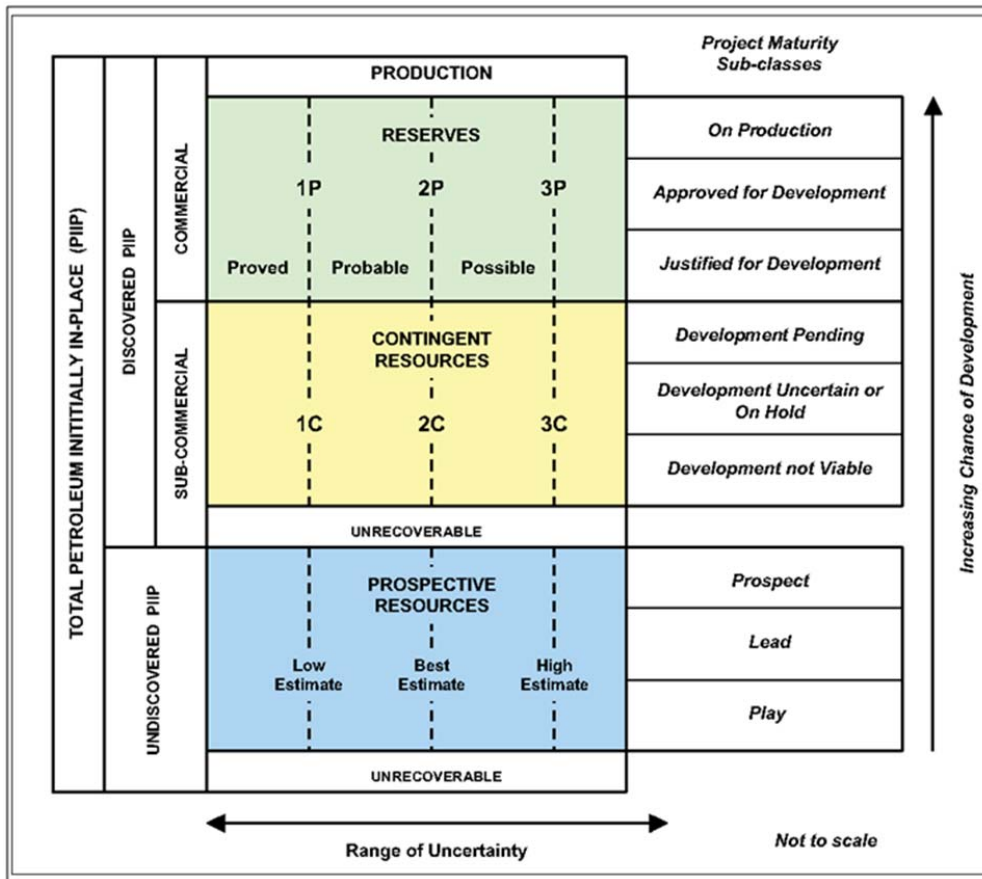
### **Overview and Summary of Definitions**

The estimation of petroleum resource quantities involves the interpretation of volumes and values that have an inherent degree of uncertainty. These quantities are associated with development projects at various stages of design and implementation. Use of a consistent classification system enhances comparisons between projects, groups of projects, and total company portfolios according to forecast production profiles and recoveries. Such a system must consider both technical and commercial factors that impact the project's economic feasibility, its productive life, and its related cash flows.

Petroleum is defined as a naturally occurring mixture consisting of hydrocarbons in the gaseous, liquid, or solid phase. Petroleum may also contain non-hydrocarbons, common examples of which are carbon dioxide, nitrogen, hydrogen sulphide and sulphur. In rare cases, non-hydrocarbon content could be greater than 50%.

The term "Resources" as used herein is intended to encompass all quantities of petroleum naturally occurring on or within the Earth's crust, discovered and undiscovered (recoverable and unrecoverable), plus those quantities already produced. Further, it includes all types of petroleum whether currently considered conventional" or "unconventional."

Figure 1-1 is a graphical representation of the SPE/WPC/AAPG/SPEE Resources classification system. The system defines the major recoverable Resources classes: Production, Reserves, Contingent Resources, and Prospective Resources, as well as Unrecoverable petroleum.



**Figure 1-1: SPE/AAPG/WPC/SPEE Resources Classification System**

The “Range of Uncertainty” reflects a range of estimated quantities potentially recoverable from an accumulation by a project, while the vertical axis represents the “Chance of Development”, that is, the chance that the project that will be developed and reach commercial producing status.

The following definitions apply to the major subdivisions within the Resources classification:

**TOTAL PETROLEUM INITIALLY-IN-PLACE**

Total Petroleum Initially in Place is that quantity of petroleum that is estimated to exist originally in naturally occurring accumulations.

It includes that quantity of petroleum that is estimated, as of a given date, to be contained in known accumulations prior to production plus those estimated quantities in accumulations yet to be discovered (equivalent to “total Resources”).



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## **DISCOVERED PETROLEUM INITIALLY-IN-PLACE**

Discovered Petroleum Initially in Place is that quantity of petroleum that is estimated, as of a given date, to be contained in known accumulations prior to production.

## **PRODUCTION**

Production is the cumulative quantity of petroleum that has been recovered at a given date.

Multiple development projects may be applied to each known accumulation, and each project will recover an estimated portion of the initially-in-place quantities. The projects shall be subdivided into Commercial and Sub-Commercial, with the estimated recoverable quantities being classified as Reserves and Contingent Resources respectively, as defined below.

## **RESERVES**

Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions.

Reserves must satisfy four criteria: they must be discovered, recoverable, commercial, and remaining based on the development project(s) applied. Reserves are further subdivided in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their development and production status. To be included in the Reserves class, a project must be sufficiently defined to establish its commercial viability. There must be a reasonable expectation that all required internal and external approvals will be forthcoming, and there is evidence of firm intention to proceed with development within a reasonable time frame. A reasonable time frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While five years is recommended as a benchmark, a longer time frame could be applied where, for example, development of economic projects are deferred at the option of the producer for, among other things, market-related reasons, or to meet contractual or strategic objectives.

In all cases, the justification for classification as Reserves should be clearly documented. To be included in the Reserves class, there must be a high confidence in the commercial producibility of the reservoir as supported by actual production or formation tests. In certain cases, Reserves may be assigned on the basis of well logs and/or core analysis that indicate that the subject reservoir is hydrocarbon-bearing and is analogous to reservoirs in the same area that are producing or have demonstrated the ability to produce on formation tests.

### **Proved Reserves**

Proved Reserves are those quantities of petroleum, which by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations.



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If deterministic methods are used, the term reasonable certainty is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate. The area of the reservoir considered as Proved includes:

*the area delineated by drilling and defined by fluid contacts, if any, and*

*adjacent undrilled portions of the reservoir that can reasonably be judged as continuous with it and commercially productive on the basis of available geoscience and engineering data.*

In the absence of data on fluid contacts, Proved quantities in a reservoir are limited by the lowest known hydrocarbon (LKH) as seen in a well penetration unless otherwise indicated by definitive geoscience, engineering, or performance data. Such definitive information may include pressure gradient analysis and seismic indicators. Seismic data alone may not be sufficient to define fluid contacts for Proved Reserves (see “2001 Supplemental Guidelines,” Chapter 8). Reserves in undeveloped locations may be classified as Proved provided that the locations are in undrilled areas of the reservoir that can be judged with reasonable certainty to be commercially productive and interpretations of available geoscience and engineering data indicate with reasonable certainty that the objective formation is laterally continuous with drilled Proved locations.

For Proved Reserves, the recovery efficiency applied to these reservoirs should be defined based on a range of possibilities supported by analogs and sound engineering judgment considering the characteristics of the Proved area and the applied development program.

### **Probable Reserves**

Probable Reserves are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves.

It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate.

Probable Reserves may be assigned to areas of a reservoir adjacent to Proved where data control or interpretations of available data are less certain. The interpreted reservoir continuity may not meet the reasonable certainty criteria. Probable estimates also include incremental recoveries associated with project recovery efficiencies beyond that assumed for Proved.

### **Possible Reserves**

Possible Reserves are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recoverable than Probable Reserves



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The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P), which is equivalent to the high estimate scenario. When probabilistic methods are used, there should be at least a 10% probability that the actual quantities recovered will equal or exceed the 3P estimate.

Possible Reserves may be assigned to areas of a reservoir adjacent to Probable where data control and interpretations of available data are progressively less certain. Frequently, this may be in areas where geoscience and engineering data are unable to clearly define the area and vertical reservoir limits of commercial production from the reservoir by a defined project.

Possible estimates also include incremental quantities associated with project recovery efficiencies beyond that assumed for Probable.

### **Probable and Possible Reserves**

(See above for separate criteria for Probable Reserves and Possible Reserves.)

The 2P and 3P estimates may be based on reasonable alternative technical and commercial interpretations within the reservoir and/or subject project that are clearly documented, including comparisons to results in successful similar projects.

In conventional accumulations, Probable and/or Possible Reserves may be assigned where geoscience and engineering data identify directly adjacent portions of a reservoir within the same accumulation that may be separated from Proved areas by minor faulting or other geological discontinuities and have not been penetrated by a wellbore but are interpreted to be in communication with the known (Proved) reservoir. Probable or Possible Reserves may be assigned to areas that are structurally higher than the Proved area. Possible (and in some cases, Probable) Reserves may be assigned to areas that are structurally lower than the adjacent Proved or 2P area.

Caution should be exercised in assigning Reserves to adjacent reservoirs isolated by major, potentially sealing, faults until this reservoir is penetrated and evaluated as commercially productive. Justification for assigning Reserves in such cases should be clearly documented. Reserves should not be assigned to areas that are clearly separated from a known accumulation by non-productive reservoir (i.e., absence of reservoir, structurally low reservoir, or negative test results); such areas may contain Prospective Resources.

In conventional accumulations, where drilling has defined a highest known oil (HKO) elevation and there exists the potential for an associated gas cap, Proved oil Reserves should only be assigned in the structurally higher portions of the reservoir if there is reasonable certainty that such portions are initially above bubble point pressure based on documented engineering analyses. Reservoir portions that do not meet this certainty may be assigned as Probable and Possible oil and/or gas based on reservoir fluid properties and pressure gradient interpretations.



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## **CONTINGENT RESOURCES**

Contingent Resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable due to one or more contingencies.

Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their economic status.

## **UNDISCOVERED PETROLEUM INITIALLY-IN-PLACE**

Undiscovered Petroleum Initially in Place is that quantity of petroleum that is estimated, as of a given date, to be contained within accumulations yet to be discovered.

## **PROSPECTIVE RESOURCES**

Prospective Resources are those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.

Potential accumulations are evaluated according to their chance of discovery and, assuming a discovery, the estimated quantities that would be recoverable under defined development projects. It is recognized that the development programs will be of significantly less detail and depend more heavily on analog developments in the earlier phases of exploration.

### **Prospect**

A project associated with a potential accumulation that is sufficiently well defined to represent a viable drilling target.

Project activities are focused on assessing the chance of discovery and, assuming discovery, the range of potential recoverable quantities under a commercial development program.

### **Lead**

A project associated with a potential accumulation that is currently poorly defined and requires more data acquisition and/or evaluation in order to be classified as a prospect.

Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to confirm whether or not the lead can be matured into a prospect. Such evaluation includes the assessment of the chance of discovery and, assuming discovery, the range of potential recovery under feasible development scenarios.



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## Play

A project associated with a prospective trend of potential prospects, but which requires more data acquisition and/or evaluation in order to define specific leads or prospects.

Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to define specific leads or prospects for more detailed analysis of their chance of discovery and, assuming discovery, the range of potential recovery under hypothetical development scenarios.

The range of uncertainty of the recoverable and/or potentially recoverable volumes may be represented by either deterministic scenarios or by a probability distribution. When the range of uncertainty is represented by a probability distribution, a low, best, and high estimate shall be provided such that:

- There should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the low estimate.
- There should be at least a 50% probability (P50) that the quantities actually recovered will equal or exceed the best estimate.
- There should be at least a 10% probability (P10) that the quantities actually recovered will equal or exceed the high estimate.

When using the deterministic scenario method, typically there should also be low, best, and high estimates, where such estimates are based on qualitative assessments of relative uncertainty using consistent interpretation guidelines. Under the deterministic incremental (risk-based) approach, quantities at each level of uncertainty are estimated discretely and separately.

These same approaches to describing uncertainty may be applied to Reserves, Contingent Resources, and Prospective Resources. While there may be significant risk that sub-commercial and undiscovered accumulations will not achieve commercial production, it useful to consider the range of potentially recoverable quantities independently of such a risk or consideration of the resource class to which the quantities will be assigned.

Evaluators may assess recoverable quantities and categorize results by uncertainty using the deterministic incremental (risk-based) approach, the deterministic scenario (cumulative) approach, or probabilistic methods (see “2001 Supplemental Guidelines,” Chapter 2.5). In many cases, a combination of approaches is used.

Use of consistent terminology (Figure 1.1) promotes clarity in communication of evaluation results. For Reserves, the general cumulative terms low/best/high estimates are denoted as 1P/2P/3P, respectively. The associated incremental quantities are termed Proved, Probable and Possible. Reserves are a subset of, and must be viewed within context of, the complete Resources classification system. While the categorization criteria are proposed specifically for Reserves, in most cases, they can be equally applied





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to Contingent and Prospective Resources conditional upon their satisfying the criteria for discovery and/or development.

For Contingent Resources, the general cumulative terms low/best/high estimates are denoted as 1C/2C/3C respectively. For Prospective Resources, the general cumulative terms low/best/high estimates still apply. No specific terms are defined for incremental quantities within Contingent and Prospective Resources.

Without new technical information, there should be no change in the distribution of technically recoverable volumes and their categorization boundaries when conditions are satisfied sufficiently to reclassify a project from Contingent Resources to Reserves. All evaluations require application of a consistent set of forecast conditions, including assumed future costs and prices, for both classification of projects and categorization of estimated quantities recovered by each project.



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## Appendix 2: Nomenclature

“Low”	means low estimate of Prospective Resources, as defined in Appendix 1
“Best”	means best estimate of Prospective Resources, as defined in Appendix 1
“High”	means high estimate of Prospective Resources, as defined in Appendix 1
“COS”	means geological chance of success
“M” “MM”	means thousands and millions respectively
“stb”	means a standard barrel which is 42 US gallons measured at 14.7 pounds per square inch and 60 degrees Fahrenheit
“STOIIP”	means stock tank oil initially in place