

**Glossary of Technical Terms**

Technical Terms	Description
Appraisal well	A well drilled to determine the extent or the volume of Hydrocarbon reserves and the likely production rate of the new oil or gas field.
Basin	A Depression in the earth's crust where sedimentary materials are accumulated over the years.
Barrels of oil equivalent	The amount of natural gas that has the same heat content as an average barrel of oil. It is about 6000 cf of gas.
Block	Area identified in a field which is offered by the Government under nomination (PEL) or to prospective bidders under New Exploration Licensing Policy, for the purpose of exploration of oil and gas.
Commercial discovery	A discovery of hydrocarbon reserves which is of potential commercial interest and has been declared as a Commercial Discovery in accordance with the provision of PSC.
Commercial speed	Commercial speed is meterage drilled upto the bottom of drilling well/rig months from spud date to well completion.
Condensate	A hydrocarbon mixture composed primarily of molecules with 5, 6 and 7 carbon atoms. It is liquid under surface conditions but is a gas mixed with natural gas under subsurface reservoir conditions. Condensate is very light in density and is transparent to yellowish in color. It is almost pure gasoline in composition.
Crude Oil	A liquid composed of over one hundred different types of hydrocarbon molecules. The molecules range from 5 to more than 60 carbon atoms in length. Crude oil colors range from black to greenish to yellowish to transparent.
Cycle speed	Cycle speed meterage drilled per drilling rig month during the complete period from release from earlier well and mobilization to release for next well.
Deepwater area	Area falling beyond four hundred (400) metre isobaths.
Development	Following discovery, drilling and related activities necessary to begin production of oil or natural gas.

Development well	A well drilled for the purpose of increasing the production of oil/ natural gas from an established field.
Discovery	The finding of a deposit of hydrocarbon not previously known to have existed, which can be recovered at the surface in a flow measurable by conventional petroleum industry testing methods.
Exploration	Searching for oil and/or natural gas, including topographical surveys, geological surveys, seismic surveys and drilling wells.
Exploration operations	Operations conducted in the contract area pursuant to the contract in searching for Petroleum and in the course of an Appraisal Programme and shall include but not be limited to aerial, geological, geophysical, geochemical, paleontological, palynological, topographical and seismic surveys, analysis, studies and their interpretation, investigations relating to the subsurface geology including structural test drilling, stratigraphic test drilling, drilling of Exploration Wells and Appraisal Wells and other related activities such as surveying, drill site preparation and all work necessarily connected therewith that is conducted in connection with Petroleum exploration.
Exploration period	Any and all periods of exploration set out in the PSC.
Exploratory well	A well drilled for the purpose of searching for undiscovered hydrocarbon accumulations on any geological entity (be it of structural, stratigraphic, facies or pressure nature) to at least a depth or stratigraphic level specified in the Work Programme.
Field	Oil Field or Gas Field or a combination of both as the case may be. In respect NELP blocks, the Contract Area in respect of which a Development Plan has been duly approved in accordance with provisions of the Production Sharing Contract.
G & G	Geological and geophysical
Gas in place	The amount of gas in the pores of a reservoir.
Geologist	A scientist who identifies and studies rocks.
Geology	The science that deals with the history of the earth and its life as recorded in the rocks.
Geophysics	The application of certain familiar physical principles: magnetic attraction,

	gravitational pull, speed of sound waves, the behavior of electric currents – to the science of geology.
Hydrocarbon	In organic chemistry, a hydrocarbon is an organic compound consisting entirely of hydrogen and carbon.
Initial in-place Hydrocarbon (IIP/H)	IIP/H are the volumes of crude oil, condensate, natural gas, natural gas liquids and associated substances anticipated to be present in known accumulations at a given time.
Joint venture	A business or enterprise entered into by two or more partners. Joint venture leasing is a common practice. Usually the partner with the largest interest in the venture will be the operator.
Liquidated damages	Liquidated Damages/Penalty accrued and provided for payment would include all expenditure incurred for taking time extension or failure to complete the Minimum Work Programme committed for obtaining/continuing with the exploration activities in search of Hydrocarbons beyond the period allowed at the time of taking/continuing such exploratory rights.
Management committee	The Committee constituted in terms of Production Sharing Contracts.
Minimum work programme	With respect to each Exploration Phase, the work programme specified for the purpose of carrying out Petroleum Operations as provided in the PSCs
Monetization	The process involved in bringing the hydrocarbon discoveries of a field/block to commercial stage.
Natural gas	Gaseous forms of petroleum consisting of mixtures of hydrocarbon gases and vapours, the more important of which are methane, ethane, propane, butane, pentane and hexane; gas produced from a gas well.
New discovery	A Discovery made after the Effective Date of the PSCs.
New Exploration Licensing Policy (NELP)	NELP was formulated by the Government of India in 1997-98 to provide a level playing field in which all the parties may compete on equal terms for the award of exploration acreage. This was for accelerating the pace of hydrocarbon exploration in the country through which various blocks including deep-water acreages were offered for competitive bidding.

Operator	The Company who (a) is responsible for maintaining a producing lease & (b) is in charge of operations in working interest area.
Participating Interest	In respect of each Party constituting the Contractor, the undivided share expressed as a percentage of such Party's participation in the rights and obligations under the PSC.
Petroleum	Crude Oil and/or Natural Gas existing in their natural condition but excluding helium occurring in association with Petroleum or shale.
Production sharing contract	The contract between Government and International/National E&P Company. The E&P Company bears the entire cost of exploration, drilling and production. The E&P Company is reimbursed for expenditures from the oil/gas that is produced. After reimbursement, the oil/gas proceed is split according to an agreed formula.
Prospects	Prospects indicate the areas of hydrocarbon accumulation.
Proved reserve	Those measured mineral resources of which detailed technical and economic studies have demonstrated that extraction can be justified at the time of determination and under specific conditions.
Reserve Replacement Ratio	An oil company's reserve replacement ratio is the quantity of hydrocarbon added to its ultimate reserves divided by the quantity of hydrocarbon extracted during a year.
Reserves	The calculated amount of gas and/or oil that is expected to be produced from a well/wells or a field. Proven reserves are calculated with reasonable certainty. Developed reserves can be produced from existing wells whereas underdeveloped reserves cannot. Unproven reserves are not as certain due to technical and economic reasons as proven reserves. Probable and possible reserves are even less certain.
Reservoir	A naturally occurring discrete accumulation of hydrocarbon.
Rig	An equipment that is used for drilling a well bore. There are various types of rigs like jack-up rigs, floaters, Modular rigs, etc. The jack up rigs can be further classified into Cantilever type jack up rigs, Slot type jack up rigs and Mat type jack up rigs.
Rig days	No. of days for which rigs were in operation/available during a particular period.

Rig month	Total No. of days for which rigs were in operation/available during a particular period.
Sedimentary basins	Sedimentary Basins are depressions in the earth's crust where organic matters are deposited.
Shallow water	Upto 400 metre bathymetry.
Site restoration	All activities required to return a site to its state as of the Effective date pursuant to the Contractors environmental impact study and approved by the Government or to render a site compatible with its intended after use (to the extent reasonable) after cessation of Petroleum Operations in relation thereto and shall include, where appropriate, proper abandonment of Wells or other facilities, removal of equipment, structures and debris, establishment of compatible contours and drainage, replacement of top soil, re-vegetation, slope stabilization, in-filling of excavations or any other appropriate actions in the circumstances.
Snubbing	The pressure in the well bore acting on the cross sectional area of the tubler can exert sufficient force to overcome the weight of the drill string, so the string must be pushed ("snubbed") backed into the well bore.
Spud	The process of beginning to drill a well.
Ultimate Reserve	A production approximation method commonly used in the oil and gas industry. Estimated ultimate reserve (EUR) is an approximation of the quantity of oil or gas that is potentially recoverable from a reserve or well.
Viscosity	Viscosity is the measure of fluid resistance to flow.
Well	A borehole, made by drilling in the course of Petroleum Operations, but does not include a seismic shot hole.
Well head	A wellhead is that part of an oil well which terminates at the surface, whether on land or offshore, and is the point from where petroleum or gas hydrocarbons can be withdrawn
Work over	To have a service Company do work (a workover) such as pullrods or sand cleanout on a producing well. A production rig, either a workover rig or a smaller service or pulling unit is used.

3D Seismic	A petroleum exploration method that shows the seismic reflectors in three dimensions. It is usually displayed on a computer monitor. The record can be rotated and slices (time or horizontal slices) taken out at various levels.
4C	4-Component; Bore hole or marine seismic data are typically acquired using three orthogonally oriented geo-phones and a hydro-phone within an ocean bottom sensor (deployed in node type systems as wells as cables) provided the system is in contact with the sea bed or bore hole wall, the addition of geo phone allows measurement of shear waves, whereas the hydro phone measures compressional waves.
4D	Time-lapse 3D or 4D seismic technology is the use of 3D seismic surveys acquired at different times in the productive life of a reservoir. It encompasses a broad workflow from feasibility and design, to acquisition and processing, to inversion and interpretation, and finally to integration with reservoir management.