



A Short Guide to Parliamentary Oversight

of the Oil & Gas Sector
for Parliament of Ghana

“ about this Guide ”

This short guide is a product of the collaborative effort of Revenue Watch Institute (RWI), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Parliamentary Centre under the project support ‘Strengthening Parliamentary and Civil Society Oversight of Oil, Gas and Mining Revenues in Ghana’ to the Parliament of Ghana.

This guide provides some basic information for parliamentarians exercising oversight of the emerging Oil and Gas sector in Ghana to ensure that good governance prevails in the sector. It provides information about the petroleum industry, the current Oil and Gas endowment in Ghana and what this is likely to translate into as revenues. It also provides a set of questions that members of parliament might need to ask in order to ensure that the country receives maximum revenues for the petroleum extracted, as well as identifying avenues for Ghana’s participation in the sector. These have the aim of making certain that choices made are those that will most benefit the country and its people.

The guide utilises the Chatham House principles of good governance of the petroleum sector and the associated Norwegian Oil for Development Good Governance Checklist. The guide highlights issues such as – the potential of the oil and gas sector¹ and its impact on national development, state participation in the sector, the regulatory function, local content, revenue management and parliamentary governance along the petroleum value chain.

The guide has the following Sections:

Section One: Good Governance of the Oil and Gas Sector

Section Two: Parliamentary Governance of Extractives

Section Three: A Selection of Commonly Used Terminologies in the Petroleum Sector



¹ Good Governance of the National Petroleum Sector Project, Chatham House 2006.

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Section One

Good Governance of the Oil and Gas Sector – a primer for Ghanaian Members of Parliament.

1.1 What is petroleum sector governance and why does it matter?

Petroleum sector governance refers to the system for making and implementing decisions concerning the exploitation of a nation's oil and gas resources. It includes the **policies and objectives** for the sector, the **processes** of decision-making and communication, the structural and hierarchical **organization** of the sector, and the **regulation** of activity.

Failures of petroleum sector governance can have far-reaching implications for the economy, social development and political stability. By the same token, good governance of the sector will increase national wealth, sustainable development and social stability. These benefits are more likely to be achieved if all stakeholders share an understanding of what good governance requires in practice.

Governance principles	
1	Clarity of goals, roles and responsibilities
2	Sustainable development for the benefit of future generations
3	Enablement to carry out the role assigned
4	Accountability of decision-making and performance
5	Transparency and accuracy of information

The good governance checklist provides 33 primary indicators of Good Governance grouped under the five core principles.

1.2 What is the potential of Ghanaian oil and gas sector and what should its role be in national development?

Good petroleum governance requires a long term vision for the role of the oil and gas sector in national development.

The role of the sector has to be **realistic** and be founded on a sound understanding of the resource base. It is still early days and there is much uncertainty but Ghana's petroleum endowment looks to be relatively modest relative to its 24 million population.

As an illustration, the area believed to be prospective for oil in Ghana's deep water Tano Basin is approximately the same size as a single Angolan deep water Block. Tullow Oil estimates the ultimate potential of the deep water Tano Basin licenses to be >4.5 billion bbl range. Angola has six productive blocks of this scale and a population approximately half that of Ghana. The 120 thousand barrels per day of production planned for Jubilee Phase 1 is equivalent to 1.8 barrels per Ghanaian citizen per annum.

Ghana has negotiated individual license agreements with international oil companies which specify royalties and taxes to be paid with respect to oil production. The Government take of profit from the Jubilee field is estimated by Ghana National Petroleum Corporation (GNPC) to be in the range 48-53%.

At \$75/bbl oil price this would translate to direct Government tax revenue of no more than **\$50 per person per year**.

Ghana's known petroleum resource endowment is not sufficient to be transformative of the Ghanaian economy and the living standards of its citizens. It is crucial that expectations are managed for instability and political conflict to be avoided.

Hence the first question – **what is the role of oil and gas in the national development agenda?**

- Generator of tax revenue?
- Supplier of energy and feedstock?
- Catalyst for industrial development?
- Creator of skilled jobs?



Figure1. Potential impact of the oil and gas sector in national development

1.3 How should the State participate in the oil and gas sector?

Direct state participation, typically via a National Oil Company, is the norm when the oil and gas sector is believed to be essential to national development. The principal argument for having an NOC is to allow the State a greater level of influence/control over the development of the Nation's natural resource endowment. The counter-argument is largely the fear of bureaucracy and inefficiency slowing the pace of development and the creation of over-powerful company that becomes a 'State within a state' lacking accountability. In defining the NOC's role and enabling it to carry it out, a number of choices need to be made.

- [1] Will the NOC have a narrow commercial mission or be given broader national development goals also.
- [2] Should the NOC have regulatory responsibilities over the industry or be purely an operating company?
- [3] Should mineral rights be exclusive to the NOC or shared with Interna-

tional Oil Companies (IOCs)?

- [4] Will the NOC budget be funded direct from Government allocation or will it have its own balance sheet and capital raising powers?
- [5] Will the state own 100% of the equity in the NOC or open up ownership to individuals and institutions?
- [6] Will the country have a single NOC or should it create multiple entities?
- [7] Will the NOC operate throughout the value chain or just in the upstream?
- [8] Will the NOC be allowed to operate beyond national borders?
- [9] Will the NOC have a high or low tolerance for risk investments?

Some choices are incompatible – i.e. an NOC given a wider social mission is not compatible with Stock Exchange listing.

1.4 Enabling the Regulatory Function

It is worth reminding ourselves what regulation is for. Regulation is the process of defining and applying rules designed to govern the conduct of actors in the petroleum sector. The less trust that society has that oil sector participants will conduct themselves in a manner conducive to the national interest, the greater the need for rules and regulation. In this context, the ‘National Interest’ is that which is defined by Government policy. Therefore regulation starts with clear and effective policies.

The regulatory function needs to be enabled in the following areas – technical, fiscal/tax, health, safety and environment. Upstream regulations need to cover the whole business cycle from licensing through to abandonment. The regulatory system is designed to provide points of control over the conduct of petroleum operations before, during and after petroleum activities.

- 1) **Approval of proposed activity.** E.g. Work programmes, development plans, budgets
- 2) **Reporting of activity** to allow active risk management

- 3) **Post activity audit** to verify that objectives have been met with agreed parameters
- 4) **Infractions of regulations** are identified and punished if necessary

There are four models in common use for organising the upstream regulatory function.

1. The NOC hosts the regulatory function
2. One or more Ministries host the regulatory function
3. An independent statutory body is created to host the regulatory function
4. The regulatory function is shared between the NOC and Ministry

There are pros and cons for each model but there has been a trend for NOCs to be removed of their regulatory powers to allow them to focus on delivering commercial objectives.

The following is a checklist of high level questions concerning the regulatory function.

Clear Policies	Are Government policy goals for the sector clear?	✓
↓		
Enabling laws	Are the necessary laws in place to enable policy objectives to be achieved?	✓
↓		
Enacting Regulations	Has the law been enacted into effective regulations?	✓
↓		
License Agreements	Are individual license agreements enforceable and consistent with policy, law and regulations?	✓
↓		
Competent Regulatory Agencies	Are the systems and institutions in place policy objectives?	✓

1.5 Local Content in the Oil and Gas Sector

Local content policies concern maximizing the benefits from domestic oil and gas development by maximising the quantity of “local content” or “local value addition” in oil and gas sector spending. For example, The Jubilee Phase 1 development involves \$3.1bn in capital expenditure and \$3.3bn in operating expenditure over the lifetime of the field. Unless local content policies are developed, the default position will be for these expenditures to be placed wholly with international contractors.

The oil and gas industry is a capital intensive industry and creates relatively few permanent jobs. Contrary to expectations, Jubilee Phase 1 will generate 585-760 jobs during the construction phase and just over 300 jobs in the operational phase². Even with stringent local content policies the impact on local employment will be minimal.

² Tullow Oil Jubilee EIA statement
 2009
http://www.erm.com/Global/Ad_Hoc_Sites/Tullow_Jubilee/UpdateJan2010/Jubilee_Field_EIA_Non-Technical_Summary_27Nov09.pdf?epslanguage=en

Successful local content policies can increase national wealth through

- Economic growth
- Employment of locals
- Value creation in the country
- Local Participation
- Induced expenditure in the local economy
- Enhanced human capacity
- Technology transfer

Local content policy needs to be realistic and targeted with the aim of using oil and gas spending as a catalyst for creating sustainable local industry. Poorly targeted local content policies can increase costs, reduce Government tax revenue, create a brain drain into oil companies, and be used as excuse for the creation of ‘brief case’ companies that benefit only well connected individuals.

Key questions to ask –

- Is the local content policy consistent with National development plans?
- Is the local content policy realistic and will it enhance economic growth?

- Will the local content policy generate sustainable, competitive businesses targeting markets beyond the oil and gas sector?
- Is the process for the procurement of services from local companies transparent?

1.6 Revenue Management

There are three main issues concerning oil revenue management – revenue volatility, revenue sustainability and transparency.

Global oil demand is currently around 87 million barrels per day³ and daily prices are set globally as a function of supply, demand and financial speculation. Oil dependent producing countries must have systems in place to manage revenue volatility over which they have no control, and protect government budgets. This is achieved either by fiscal rules and/or oil funds. Fiscal rules set budgets against an agreed low-case oil price and save any surpluses which can be used in times of low oil price to supplement budgets. Surpluses may accrue in a dedicated fund or in a Treasury account.

Petroleum is a non-renewable resource and production of petroleum involves the conversion of non-renewable petroleum assets into financial assets. As oil is produced and converted into financial assets the remaining barrels in the ground decrease. If the financial assets generated from producing oil are used only for consumption, this will be unsustainable and not available for future generations.

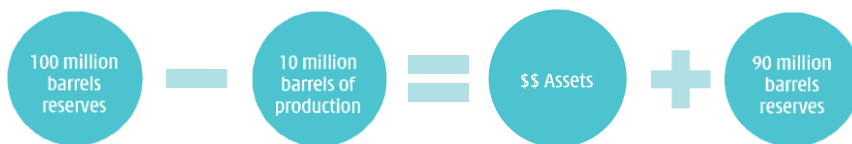


Figure 2. *The Oil Balance Sheet*

For this reason, there is a strong argument that oil revenues should be treated differently from general Government tax revenues and be earmarked for capital investment rather than consumption. Government has the duty both to maximize the positive economic impacts of the revenues generated from producing petroleum and to ensure that revenues are invested wisely to benefit the current and future generations. Some countries save a proportion of their oil revenues in a future generation's fund which is invested in financial assets. For Ghana, the argument for saving for future generations needs to set against the urgent need for investment in infrastructure, education and health.

The third key element of revenue management is transparency. To ensure public confidence in oil sector governance, it is essential to have a transparent audit trail that documents physical volumes produced, revenues generated, costs incurred, and royalties and taxes paid and received in Government accounts. One mechanism for achieving this is the Extractive Industries Transparency Initiative, an internationally recognized mechanism for achieving revenue transparency. To be successful, revenue transparency initiatives need to be fully enshrined in applicable laws and regulations.

Key Questions to Ask

- ✎ Does Government budget policy and process address managing revenue volatility through defined fiscal rules or through creation of a dedicated oil fund with clear rules?
- ✎ Does Government policy and legislation emphasize the use of oil revenue for public investment rather than unsustainable consumption?
- ✎ Has there been consultation and consensus building on priorities for public investment to ensure long term consistency with national development plans?
- ✎ Is there appropriate legislation in place to ensure a transparent audit trail that documents physical volumes produced, revenues generated, costs incurred, and royalties and taxes paid and received in Government accounts?

Section Two

2.1 Parliamentary Governance of Extractives

Extractive resources are **finite** (or **non-renewable**), in the sense that once they are taken from its source it cannot be replaced or regenerated. This is the more reason why it requires prudent and effective policies, legislations and institutions to ensure lasting benefits to all citizens of a nation both today and for generations yet unborn.

Failure of extractives sector governance can have far-reaching implications for the economy, social development and political stability. By the same token, good governance of the sector will increase national wealth, sustainable development and social stability. These benefits are more likely to be achieved if all stakeholders share an understanding of what good governance requires in practice.

To achieve this, resource rich nations need to establish a governance framework that allows for efficient resource management and regulation as well as a predictable fiscal regime. The process

from discovery of a natural resource (using the petroleum example) and how it is transformed to benefits for citizens is summarised in the illustration below (Fig. 3 on page...).

From the illustration, it is observed that the mere discovery of petroleum resource or establishing the so-called geological promise is only the first step, will require a lot of critical decisions to derive the potential benefits to a nation. Rather, a good governance framework that is enabling enough for resource exploration, development and production to either satisfy local needs or for foreign exchange must be of prime interest to the nation. Good petroleum governance requires a long term vision for the role of extractives in national development, which has to be realistic and be founded on a sound understanding of the resource base (even as it may imply varying degrees of subjectivity and uncertainty).

Be it petroleum or minerals if the national policy is based on an exaggerated estimate of the resource base it would imply the risk of introducing changes to the established economy and social stability of the host country without receiving the expected rewards that would justify

the changes and sustain those rewards. On the other hand if the resource potential is underestimated, the host country could be denied its rightful share of the benefits from its resources (Al-Kasim, 2006).

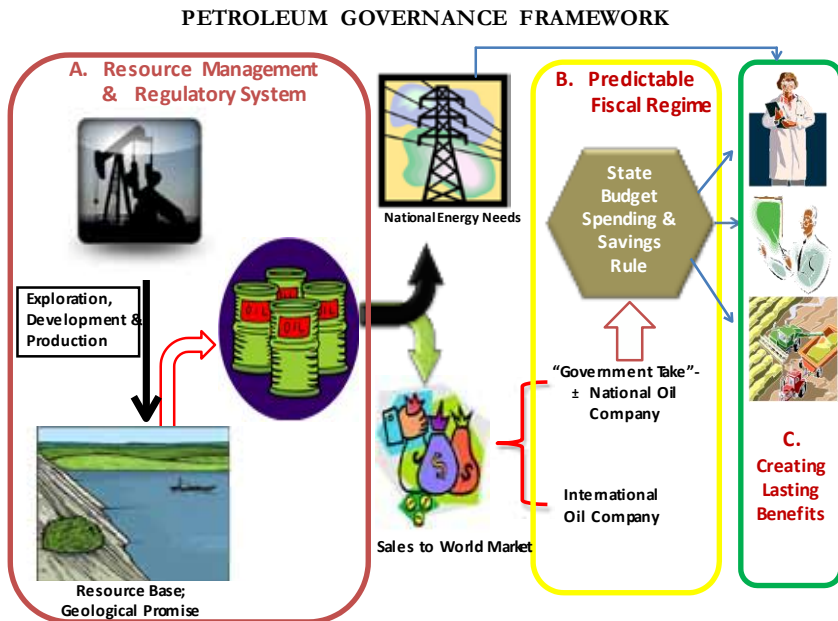


Figure 3 : Petroleum Sector Governance Framework

2.2 Resource Value Chain

The Value Chain as the basis for the governance of extractives provides a comprehensive coverage of all the stages involved in resource management continuum. It depicts how non-renewable resources in the ground can be transformed into improved public welfare. The chain is only as strong as its weakest link because each of the links represents an opportunity seized or squandered (fig. 4 below).

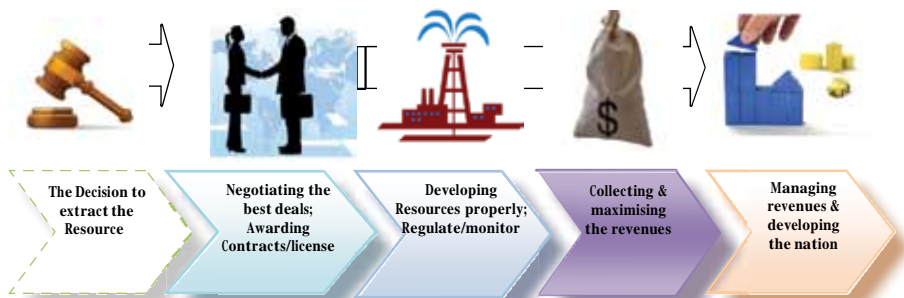


Figure 4: The Extractives Value Chain

Being such an intricate and sensitive sector of strategic interest for nations, parliamentarians have crucial roles to play around the trilogy of their representative, legislative and oversight mandates across the resource value chain—i.e. the decision to extract the resources; negotiation and award of licenses & contracts; regulation and monitoring of operations; revenue management and distribution; and the development programmes/projects thereof.

2.3 Parliamentary functions across the Petroleum Value Chain

The Decision to Extract the Resource

As a first step, the decision to extract resources must be guided by the particular resource policy – petroleum or mineral – which must provide a clear guide on the line of action depending on the resource base. So a key question to start with is **What is Ghana’s Petroleum Policy?** The true volume of the resource base in the underground is an endowment from nature which human endeavour can only influence in a marginal manner. However, different actors in the extractives operations are likely to have divergent interest that colour their estimation of the resources. For the benefit of the society as a whole, it is important therefore to assess the potential as objectively as possible. Ideally, it is in the interest of the host country that this independent and objective assessment is made as early as possible in the licensing process so as to avoid giving away resources at sub-optimal terms (Al-Kasim, 2006). Armed with this knowledge it should be possible for a nation to undertake a cost benefit analysis to establish whether a nation is not better off with its oil or minerals left underground than exploited. With the technical support of institutions such as the Geological Survey Department, Ghana National Petroleum Company and the Ministry of Energy parliament should be able to lead the nation in making the right decision.

Negotiating the Best Deals for the Resources (Award of Contracts)

“Award of Contracts” is the first substantive engagement of parliament in the petroleum governance. Ideally, award of contracts should emanate from government policy on resource management and licensing of resource rights.

In many countries parliament is the body vested with the authority to ratify agreements/contracts, after all the board room negotiations. The key issue that should be of primary

concern to MPs at the stage of awarding contracts is who can explore and exploit the resources and how are such rights allocated? Experiences across the globe indicate that open access to title through a competitive bid process provides the host nation a better opportunity to assess prospective companies with diverse experiences and capabilities and an offer of a better deal. This demands that parliamentarians, especially, members of the relevant committees with direct responsibility for the petroleum and minerals should have very good understanding of what such agreements or contracts entail.

Typically, before the ratification of an agreement on the floor of parliament, the committee level assessment will fall in the domain of the joint committee of Mines & Energy and Finance⁴. A key consideration for optimal exploitation of resources is the technical capability of the company. This will require that due diligence is carried out to verify any claim of competence on the part of the company. If such competence is beyond the committee, assistance must be sought. Also of great importance are the fiscal and non-fiscal benefits as these are what accrue to the nation in both monetary and non-monetary terms.

Of particular importance is the issue of stabilisation clause (s) that tends to preclude companies from the variation of the fiscal terms. Though the host nation is encouraged to provide a stable & predictable fiscal environment as a tool to incentivize investors, this should not be at the disadvantage of the nation. Provisions should be made for the host nation to benefit from all possible benefits, including wind falls. The Model Petroleum Agreement is usually used as the base guide; amendments/modifications could be made to reflect the current needs and realities.

Additionally, safeguards against negative health, safety, environmental and social impacts are to be considered and this will require an input from the committee on environment. Often forgotten is the issue of abandonment after the productive years of the oil fields. In assessing agreements, MPs should address themselves to ensure that adequate provision is made to cater for removal of installations either on sea bed or onshore as far as practicable. It is also at this stage that local content considerations must be taken care of. The separate but complimentary roles of the state and private sector and the terms of engagement should be clearly spelt out in all agreements and contracts.

⁴ The specific committees cited in this write up may vary from country to country.



Developing the Resources Properly

Securing all the above would require extra vigilance that only government (of which parliament is the second arm) cannot guarantee. Shrouded in secrecy under the pretext of confidentiality, bad contracts are often kept out of reach of the public and resource rich nations are ripped off their due. Thus, *Contract Transparency* is needed to engender the watchdog role of Civil Society. Collaboration with CSOs on these issues can enhance the effectiveness of parliaments in delivering on their mandates meeting international best practice in law and practice.

Prior to all engagements (contracts & agreements) every resource rich nation must ensure that the institutional, legal, regulatory and contractual frameworks are capable of addressing the needs and potential challenges that the petroleum sector presents. It is only with such an existing framework that effective monitoring of operations, which is the second stage of the value chain, can occur. This is why Ghana (and Parliament for that matter) had to pass a number of bills and reorganize its institutions upon commercial discovery of oil. The monitoring function is very crucial in ensuring compliance with contractual clauses as well as international standards of operations. Though this may be the assigned role of a parliamentary committee(s), in-depth technical knowledge is required to undertake good monitoring. As such, committees charged with that responsibility would require the support of a technically competent team or body. In addition to any other committees that may be assigned, the monitoring function falls within the purview of the Energy & Minerals, Finance, Land and Environment and Natural Resources Committees of parliament.



Collecting and Maximising Revenue

Revenue derived from extractive resources tends to be the foremost attraction and focus of most resource rich nations and their citizens. This is because for both government and private actors, discovery of petroleum or minerals portends an opportunity for reaping big money either by fair or foul means. Accounts abound on how state and private actors have

colluded to rip resource rich nations of their due. Big money begets big corruption. Thus the collection and utilisation of petroleum revenues more often than not is the focus of both parliamentary and non-parliamentary interrogations. It is by no means an accident that the global transparency framework, Extractive Industries Transparency Initiative (EITI) has revenue collection and utilization as the target on its radar. Though a commendable effort, the challenges posed by the sector are such that connoisseurs are seeking the extension of the initiative across the entire value chain as there are antecedents to what revenue accrues to a nation. A bad revenue sharing arrangement in a contract means that a nation can expect to receive only the crumbs from its petroleum or mineral resources. The issue of capital flight can become a serious challenge. On matters of transparency and accountability, the central role of the Public Account Committee comes to the fore.

Being the primary function of the Finance and Energy & Mines Committees, the choice of fiscal terms is very important in ensuring optimum benefits to a nation. Such terms must be decided in advance with the general frame legislated into law. The law(s) must provide clear guidelines on which institution is mandated to collect the revenues and spells out the spending /saving ratios. The procedure for budgeting petroleum revenues must be thought through based on national development priorities. As a best practice, petroleum revenues into the budget must be ring fenced and tied to specific and identifiable development projects for better tracking. The Petroleum Revenue Management Act, 2011(Act 815). To further the course of transparency, nations are better off when EITI is legislated and the participation of legislators mainstreamed in the process.

Having collected the revenues, the challenge that arises is how it is transformed into development projects, the so called lasting benefits to the citizens. The bane of many a resource rich nation is that with big oil money, governments become over ambitious and embark on grandiose projects most of which end up as white elephants. Without a clear economic policy; revenue savings and expenditure framework; as well as trans-



Managing and Sharing the Revenues

parent redistribution mechanism there is a strong temptation and the tendency to use petrodollars to prop up a nation's currency. Higher currency value makes imports cheaper and local products uncompetitive in price terms thereby exports from other sectors suffer. With the promise of oil money, governments also tend to go on a borrowing spree ending up with high debts, over concentrate on the petroleum sector and invest less in alternative production. The consequence is the crowding out and collapse of other productive sectors such as agriculture and manufacturing, a phenomenon known as the "Dutch Disease". In such an environment, corruption can become a real canker giving rise to increased inequality and resultant poverty.

The panacea to the challenges as can be deduced from the facts so far is to get the revenue and expenditure/savings framework right. Then after, a strong oversight by parliament through key committees such as the Finance, Mines & Energy, Public Accounts, Employment and Social Welfare, Environment, Government Assurance, Local Government and Rural Development and other sector specific committees depending on what funds are being expended on will provide the system for the necessary checks and balances. This will ensure that procurement practices are transparent and expenditure at the local level provides value for money.



Achieving sustainable development

Resources in themselves are not a curse, but what a nation does with them can make it so or otherwise, and countries such as Malaysia, Brazil and Indonesia are quite good examples of countries that have used their oil wealth well to transform their economies.

Section Three

A Selection of Commonly Used Terminologies in the Petroleum Sector

2D seismic: Two Dimensional Seismic

2D seismic (much like ultra-sound is used to create pictures of unborn babies in their mother's wombs) is recorded using straight lines of receivers crossing the surface of the earth. Acoustic energy is usually provided by the detonation of explosive charges or by large vibroseis trucks or vessels in the frequency range of approximately 1 to 100 Hz and is used by scientists to interpret the composition, fluid content, extent and geometry of rocks in the subsurface.

3D seismic: Three Dimensional Seismic

As a build up on 2D this technique generates a 3D model of the deep seabed and is used to locate and analyse oil and gas reservoirs. 3D seismic has become a common exploration and production tool. The operations of 3D are considerably more elaborated than 2D and the daily cost of crew is substantially increased.

4D seismic: Four Dimensional Seismic

Seismic 4D data analysis has been shown to be an important tool for mapping and monitoring of fluid movements and pressure changes in petroleum reservoirs during production, thus contributing to improved recovery rates and better management of the fields.

Abandonment / Decommissioning

This is the process of dismantling well-head production and transportation facilities and restoration of depleted producing areas in accordance with licence requirements and /or legislation.

Associated gas

It is defined as a natural gas found in association with oil, either dissolved in the oil or as a cap of free gas above the oil. There are also reservoirs that contain gas and no oil. This gas is termed non-associated gas.

Appraisal drilling

Drilling to determine physical extent, reserves and likely production rate of a reservoir, together with properties of oil or gas.

Appraisal well

A well drilled as part of an appraisal drilling programme.

Barrel of Oil Equivalent (BOE)

A term used to summarise the amount of energy that is equivalent to the amount of energy found in a barrel of crude oil. There are 42 gallons (approximately 159 litres) in one barrel of oil, which will contain approximately 5.8 million British Thermal Units (MBTUs) or 1,700 kilowatt hours (kWh). The BOE is used by oil and gas companies in their financial statements as a way of combining oil and natural gas reserves and production into a single measure.

Barrels Per Day - bbl/d

A measure of oil output, represented by the number of barrels of oil produced in a single day e.g. Ghana had the potential to produce 120 barrels per day from the Jubilee Field (as at June 2011). The abbreviation can also be used to represent this production measure.

Basin

Basins are geological depressions or large, bowl-shaped depression in the surface of the land or ocean floor and are the inverse of domes. Basins appear on a geologic map as roughly circular or elliptical, with concentric layers. Basins are often large in a real extent, often hundreds of kilometres across and are often important sources of coal, petroleum, and groundwater.

Black Oil

Also called as Dirty Cargoes is defined as a general term used to describe liquid crude oil or heavy fuel oils.

Blowout

It is defined as an uncontrolled escape of gas and/or oil from a well often when the drill bit enters a zone of unexpectedly high pressure and/or due to failure of one or more of the mechanical barriers isolating the well fluid from the environment. Types of blowouts are surface blowouts, subsea blowouts and underground blowouts – hence Blowout preventer (BOP) is a large, specialized valve used to seal, control and monitor oil and gas wells.

Borehole

A generalised term for any narrow shaft bored in the ground, either vertically or horizontally for many different purposes, including the extraction of water or other liquid (such as petroleum) or gases (such as natural gas). Boreholes may be drilled using a drilling rig - machinery and technique to advance a borehole varies considerably according to manufacturer, geological conditions, and the intended purpose.

Commercial Well

Also called Producing Well is defined as a well that produces oil and/or gas in sufficient quantities such that proceeds from the sale of production exceeds directly related costs. All wells that investors are willing to put money into are considered to be commercial wells. Sites with non-producing wells fall outside this category, as do sites with only one or two wells (unless their production is extremely high on a consistent basis).

Completed Well

It is defined as a dry hole or a well made ready to produce oil or natural gas. Completion involves cleaning out the well, running steel casing and tubing into the hole, adding permanent surface control equipment, and perforating the casing so oil or gas can flow into the well and be brought to the surface.

Compressed Natural Gas (CNG)

It is a fossil fuel substitute for gasoline (petrol), diesel, or propane/LPG. Although its combustion does produce greenhouse gases, it is a more environmentally clean alternative to those fuels, and it is much safer than other fuels in the event of a spill (natural gas is lighter than air, and disperses quickly when released). CNG may also be mixed with biogas, produced from landfills or wastewater, which doesn't increase the concentration of carbon in the atmosphere.

Concession

A tract of land or specified area of territorial waters granted by a government under a contract or license to an individual or company for exploration and exploitation to recover petroleum.

Condensate

It is a low-density mixture of hydrocarbon liquids that are often present as gaseous components in the raw production stream from oil or gas well. Its presence as a liquid phase depends on temperature and pressure conditions in the reservoir allowing condensation of liquid from vapor. During production, there is a risk of the condensate changing from gas to liquid if the reservoir pressure drops below the dew point during production.

Continental shelf

It is defined as the extended perimeter of each continent and associated coastal plain, The width of the continental shelf varies considerably – it is not uncommon for an area to have virtually no shelf at all, particularly where the forward edge of an advancing oceanic plate dives beneath continental crust in an offshore subduction zone.

Crude oil

It is a mixture of hydrocarbons which exist in a liquid phase in natural underground reservoirs (and which remains liquid at atmospheric pressure after passing through surface separating facilities).

Depleted fields:

These are defined as the used up oil reservoirs that are used most often to store natural gas and comprise the majority of storage. These fields are known to have held gases and liquids for millions of years, their geology is known and there is substantial capacity available. Depleted fields provide the opportunity for storing CO₂.

Demonstrated reserves:

Demonstrated reserves (American Petroleum Institute) also called as demonstrated energy reserves is defined as the measured quantity of energy source

(such as coal, gas, or oil) which, based on the geological and engineering data supporting proved energy reserves, can be recovered with presently available technology at an economically viable cost. These reserves do not include the projections drawn on the basis of proved reserves.

Development:

It is the activities following exploration including the installation of facilities and the drilling and completion of wells for production purposes. Companies involved in the exploration and development of crude oil and natural gas have the option of choosing between two accounting approaches: the “successful efforts” (SE) method and the “full cost” (FC) method.

Development Well:

Is a well drilled to a known producing formation in an existing oil field. It is a well drilled within the proved production field or area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

Discovery

The oil industry began over five thousand years ago. In the Middle East, oil seeping up through the ground was used in waterproofing boats and baskets, in paints, lighting and even for medication.

The first oil well structures to be built in open waters were in the Gulf of Mexico. The development of the offshore oil industry in hostile waters has been made possible by many achievements comparable with the space industry.

Dry gas

It is defined as natural gas that does not have a significant amount of liquid hydrocarbons or water vapor. Natural gas composed of vapors with only small amounts of dissolved liquid. Dry gas generally is composed almost 100 of methane (CH₄). Dry gas typically has a gas-to-oil ratio exceeding 100,000 scf/stock tank barrel (STB).

Dry hole

Dry hole is defined as any well that fails to discover oil or gas in paying quantities. It is a well drilled for the production of oil and/or gas that has not produced and is not expected to produce oil or gas in commercial quantities. The well does not contain enough hydrocarbons to warrant completion.

Dry Natural Gas:

Also called as consumer grade natural gas is defined as a natural gas which remains after: 1) the liquefiable hydrocarbon portion has been removed from the gas stream (i.e., gas after lease, field, and/or plant separation); and 2) any volumes of non-hydrocarbon gases have been

removed where they occur in sufficient quantity to render the gas unmarketable. The parameters for measurement are cubic feet at 60 degrees Fahrenheit and 14.73 pounds per square inch absolute.

Exploration

Also called as Hydrocarbon exploration or oil and gas exploration is the search by petroleum geologists and geophysicists for hydrocarbon deposits beneath the Earth's surface, such as oil and natural gas.

Field

Geographical area under which an oil or gas reservoir lies.

Flaring and venting

Flaring is burning of hydrocarbon gases for commercial or technical reasons. Venting is release of gases to atmosphere.

Hydrocarbons

These are organic compounds consisting entirely of hydrogen and carbon e.g. methane -CH₄, butane -C₂H₆, propane-C₃H₈

Joint Operating Agreement (JOA)

It is defined as a contract between co-tenants or separate owners of oil and gas properties being jointly operated. It is an agreement between two owners or among several concurrent owners

for the operation of a leasehold for oil, gas, or other minerals. The agreement calls for the development of the lease or the premises by one of the parties to the agreement, who is designated as operator or unit operator for the joint account. All parties share in the expenses of the operations and in the proceeds resulting from the development.

Licence

Right to explore for and exploit hydrocarbon reserves within a defined area.

Licence Round

Period during which Government offers and then allocates a number of specified areas (Blocks or part Blocks) within its national boundaries.

Plateau

Level of peak oil or gas field production; it is always followed by declining level of production.

Platform

Fixed structure resting on seabed or piled into it on which machinery or drilling wells and others are mounted.

Primary Recovery

Recovery of hydrocarbons from a reservoir using only natural reservoir pressure.

Secondary Recovery

Recovery of hydrocarbons from a reservoir by increasing reservoir pressure by injecting gas or water into reservoir rock

Tertiary Recovery

Recovery of hydrocarbons from a reservoir by sophisticated methods, for example, heating reservoir by injection of steam or enlarging pore spaces using chemicals or gases.

Unitisation

When licensees of oil and/or gas reserves pool their individual interests in return for an interest in overall unit, which is then operated by a single company on behalf of the group. Occurs where a field lies under different licences with differing equity interests.

Wildcat

Exploration well drilled in an unproven area. (Term wildcatter comes from West Texas, where in early 1920s drilling crews encountered many wildcats).

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References

Al-Kasim, F. (2006), Managing Petroleum Resources – The ‘Norwegian Model’ in Broad Perspective. Oxford Institute for Energy Studies
oilglossary.com/drilling-block.html
Technical_Summary_27Nov09.pdf?epslanguage=en
www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/gginterim_report.pdf
www.norad.no/en/thematic-areas/energy/oil-for-development/ofd-information-package/good-governance
www.eandp.demon.nl/glossary
www.erm.com/Global/Ad_Hoc_Sites/Tullow_Jubilee/UpdateJan2010/Jubilee_Field_EIA_Non

Contact information

For further information on any issue raised in this guide and the management of revenues from the extraction of petroleum, or parliamentary governance of extractives please go to:

www.revenuewatch.org or www.gtz.de or www.parlcent.org



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