THE OIL INDUSTRY AND ITS ACCOUNTING TREATMENT IN THE PHASE OF EXPLORATION AND EVALUATION UNDER IFRS 6

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ABSTRACT

The main purpose of this graduate work is to introduce the accounting in the exploration and evaluation phase of the hydrocarbon sector and emphasise the importance of the financial information disclosed by the entities that operate on this sector. The paper starts by providing an overview of the petrol sector, its main characteristics and its impact on society. Then, it presents the phases of the oil and gas sector through its value chain. Finally, it conducts a deeply study about how to register and assess the different accounting movements in the exploration and valuation stage of the petrol cycle and how to develop it into the financial statements.

List of abbreviations and symbols:

CGUs: Cash generating units

CO2: Carbon Oxygen 2

E&E: Exploration and evaluation

GDP: Gross domestic product

IAS: International Accounting Standards

IEA: International Energy Agency

IFRS: International Financial Reporting Standards

JV: Joint Venture

OPEC: Organization of the Petroleum Exporting Countries

O&G: Oil and gas

PSA: Production sharing agreement

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1-INTRODUCTION

The formation of hydrocarbons was a process that began millions of years ago in environments covered by water, such as lakes and lagoons, where different organisms were deposited in their beds, which over time began to be covered by layers of clay and sediments until they were left at great depths. That ancient bottom, with rich organic material, became a generating rock. There, due to the high pressure generated by superior rock formations and the high temperatures, the formerly deposited organisms were cooked until they were transformed into hydrocarbons. The gas and oil generated began to migrate to the earth's surface very slowly until they were contained in a porous rock and prevented from continuing their ascent to the outside by an impermeable seal rock. In this way, oil and gas (O&G) reserves were formed.

Oil is an energy source composed of a mixture of hydrocarbons, whose elements have useful and versatile physical and chemical properties frequently used in all aspects of daily life. According to the IEA (2019), oil and natural gas will remain the main source of energy in the coming years and will continue to be part of the development of society in general. The transformation of oil into an energy source begins with the detection of possible reserves, the process of exploration and production of hydrocarbons and refining, which is the separation of components into different fractions in order to produce products, fuels and raw materials for use in modern life.

The oil sector consists of discovering these storages and, through the drilling of wells, extracting the hydrocarbons housed in the rock from the reserves. Nevertheless, with

today's technologies, it is also possible to recover the abundant O&G resources that could not migrate and were trapped in the source rocks with the technique of fracking. The possibility of extracting hydrocarbons from non-conventional reserves lead to important perspectives and offers many communities the possibility of supplying themselves with their own energy.

These sector companies are one of the largest companies in the world with huge amount of incomes and employment created. Furthermore, most of the O&G companies have an important number of international operations, multiple regulatory and capital markets considerations, complex organizational structures (including frequently multiple subsidiaries and joint venture relationships), as well as global competitors reporting under the International Financial Reporting Standards (IFRS).

Hence, for such special companies, there is a specific way to account for the wells they are managing and to provide accurate and reliable financial information through relevant records and reports in compliance with generally accounting standards. This is what this essay is going to be about. The main purpose of this work is to make a deep approach to the O&G sector, and put emphasis on its accounting in the exploration and evaluation (E&E) phase.

The structure of the paper is based on four different sections: the first one shows an introduction to the oil sector and several points are covered such as the sector relevance on the economy, consumption and supply data and the environmental impact of this type of companies. The second section shows and explain the different stages of the value

chain of oil (upstream and downstream). The third section will focuses on the special forms of business in the oil industry and the economic activity behind them. In the fourth point, a deep study of the IFRS 6 is presented, which is the International Standard that regulates the particular stage of E&E in the sector. After this four main points, to sum up, a conclusion is exposed.

1.1-Sector relevance in the economy

Since the world has been transformed into a global capitalist system and energy surrounds us daily, oil has become very important for society. The economy needs energy sources, because in the absence of these, no productive sector could develop and carry out its productive activities. Oil constitutes more than 2,000 products that are obtained directly or indirectly. For example, fuel, gases, plastics for packaging, manufacture of toys, household appliances, computers, tars for asphalt roads, pharmaceuticals, fertilizers, solvents, lubricants of all kinds, etc.

But the thing that makes oil indispensable is because it is an important energy source for the current industrial societies. The world economy, depends significantly on oil in terms of transport, since cars, buses, planes, ships, trains, thermal power stations, factories and cities that operate thanks to this energy resource.

Therefore, variations in oil prices are a matter of concern due to the fact that it has a significant effect on the economy. The correlation between oil price and world Gross

Domestic Product (GDP) is negative because increases in oil prices cause the country's economy to shrink, leading to severe economic recessions.

The price of oil affects a countries' growth, balance of payments, causes large swings in economic cycles, and changes countries' domestic prices. Due to its global importance, oil is also used as a political and economic pressure tool. For instance, some of the price increases or decreases are consequence of agreed political decisions in oil-producing countries; warlike conflicts in some parts of the world such as the Middle East; social conflicts; and global financial systems. As stated by Mañé (2015), it is "a game of interest and influence between those who benefit and those who are harmed by its evolution".

The volatility of oil prices can also trigger serious problems in the economies of both oil-consuming and oil-importing countries, as it affects inflation, interest rates and the income of the individuals which may lead to fall in other goods.

As for the oil production countries, the rise in oil prices has a positive and very beneficial impact on their economies due to the increase in their public revenues. It generates greater tax savings and results in considerable amounts of financial flows out of the country. With regard to the revenues obtained, public expenditure and public investment will increase if the rise in prices is considered permanent. In the event that prices are transitory, the constitution of a fiscal stabilization fund could be considered to hedge the periods in which prices are falling.

On the contrary, the non-producing countries are the most benefited when the price falls because they see improved their competitiveness. Merino and Rubio (2015) point out

that "the fall in prices implies a transfer of income from exporters to consumers that directly impacts on the purchasing power of the latter". Therefore, families have greater purchasing power and companies have lower business costs. This is good news for most of the world economy, benefiting almost 75% of it, because production costs, gasoline, and energy bills are lowered; it also improves the competitiveness of businesses. Nonetheless, a fall in the price of oil also brings collateral consequences, as well as the risk of non-payment by oil companies, which ends up damaging the financial system. According to Mañé (2015) "the loans that the banks granted to the oil companies may not be repaid if oil prices continue to be so low as this would be a hard blow to many of these companies. Financial bubbles never disappear without claiming countless victims".

1.2- Consumption and supply data

Currently, oil consumption is growing and it is the most important energy source in the primary sector. For this reason, the demand for oil has been increasing, especially since the 1990s, when oil consumption represented almost half of society's total energy consumption.

With the exception of North America, most of the oil is consumed in non-producing countries. A huge average of consumption is United States and China, followed by countries in Europe, while the Persian Gulf, which is the largest producer, only consumes 4.5% worldwide. According to the BP Statistical Review of World Energy (2019), in 2018 the global oil production grew by 2.2 million barrels per day (b/d), with significant

influence in the United States (2.2 million b/d), Saudi Arabia (390,000 b/d) and Canada (410,000 b/d). In terms of consumption, in 2018 it grew by 1.4 million b/d, with China and the United States as the major consumers with 680,000 b/d and 500,000 b/d respectively.

On the supply side, currently, the installed oil production capacity is large and covers the demand for oil even at falling prices.

One of the most important actors in the oil industry is the Organisation of the Petroleum Exporting Countries (OPEC). OPEC was founded in 1960 as a body that coordinates the oil policies with respect to the production of its 12 member countries (Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, Venezuela) and ensure the stabilization of oil markets in order to secure an economic, efficient and regular supply of oil to consumers. In short, it is made up of the largest oil producers whose tasks are based on controlling the production of crude oil; establishing a common policy, planning the exploitation of deposits, researching on possible and future depletion and setting prices according to country demand.

OPEC has a strong influence on oil production, deciding whether to increase or decrease it. It controls about 32% of world oil production. Regarding oil reserves, it controls almost all of them, approximately 80% of the world's reserves.

According to the OPEC Annual Report (2018), OPEC reduced its production by 0.15 million (b/d) in 2018 over the previous year, averaging 31.86 million (b/d). In terms of overall production, OPEC also saw its share decrease by 1.03% compared to the

previous year, to 32.17%. Relevant were the decreases in production in Angola (-151 million b/d), Iran (-233 million b/d) and Venezuela (-568 billion b/d).

An example of the relevance of the OPEC in the oil sector and the economy is the collapse of oil prices in 2015, where the Brent oil price become deteriorated by up to 50%. This incident was caused because of the over-exploitation and over-supply generated by the United States and Saudi Arabia, the main extractors of crude oil. According to ElEconomista (2015, 4), "petroleum reached its lowest level in January of 2015, around 45 dollars per barrel, six weeks after Saudi Arabia furthered its position of maintaining the production in spite of the growing reserves caused by the fracking expansion". Thus, after losing the market leadership as a result of the expansion of the US companies, the Saudi countries opted to use this offensive, even though the OPEC refused it. Consequently, the Brent oil price presented its lowest price at the end of 2015, by becoming 38.47$.

After the declining in the previous year, the Brent price was stabilized and began to increase gradually until reaching around 50$. This upward intervention was thanks to the OPEC because they stablished a reduction of crude oil production to stop the continued decline of prices; likewise, it would foment again its growth. As it is mentioned in an article from Expansión (2016), "the output reduction, together with the high global demand that represented 1.23 million of euros daily, has as objective to start an upward trend in the crude oil prices". Given the critical situation concerning the oil price, the OPEC intervention was the key to not block the oil market. The reduction of oil production

and the technological advance helped to rise again the Brent price, as a consequence, the Brent barrel was stabilized around 50$.

1.3- Environmental impact

According to Thomson Reuters report (2017), the main oil companies are responsible of around 31% of the world greenhouse gas emissions. They emit directly CO2 and methane from the combustion of fuel and the operation of facilities, and indirectly from the purchase of electricity and steam they import into their operations. The use of fuels such as oil and other natural and human resources leads to a situation of ecological crisis in which the existence of human beings and other species is endangered.

Due to the fact the pollution of the atmosphere is currently one of the most important issues in society and it is the main cause of the global warming, the oil companies are in the eye of the storm. According to the information available in the U.S Energy Information Administration (2020), the increase of petroleum and other liquids CO2 emissions per year is constant because the world needs more energy to fuel prosperity and improve standards of living for a growing population, in other words, consumption of energy sources are needed to continue producing and increasing the world's GDP.

Therefore, one of the main energy policies of the companies is the displacement of energy sources that cause high levels of pollution, since the world has high economic dependence on it.

Firms are exploring new sources or types of cleaner, sustainable and less expensive power source to supplant oil that do not have such a strong influence on nature. For example, solar, hydroelectric and wind energy. Thus, new vitality arrangements must be found to supplant oil, since the world has high economic dependence on it.

On the other hand, there are certain perspectives that defer interest in new energy sources, for example the absence of political help. Governments get high incomes from the substantial oil taxes. The administration consequently has no financial incentives to reduce utilization or to put resources into sustainable energy source. This is the reason the International Energy Agency (IEA) accepts that open division mediation is vital, and calls for more support to do research in sustainable energy sources and make their cost lower than other energy sources so they may become more competent.

On the oil sector, the main ecological effect happens in the refinery phase, and on the other different phases, the degree of contamination is lower. Hence, processing plants should be controlled in order to reduce contamination. First, carbon dioxide and sulphur dioxide emissions must be reduced. Regarding water quality, the accentuation ought to be on improving water treatment and cleansing should be made. Finally, it is advisable to complete waste recycling processes and to meditate contaminated soils.

As for the future prospects in the sector, they are rather uncertain. It may be seen that despite the economic data on both production and consumption indicate that the oil industry is growing in size, its future viability is challenging because of the environmental impact. This is why the vast majority of these companies are stablishing very ambitious

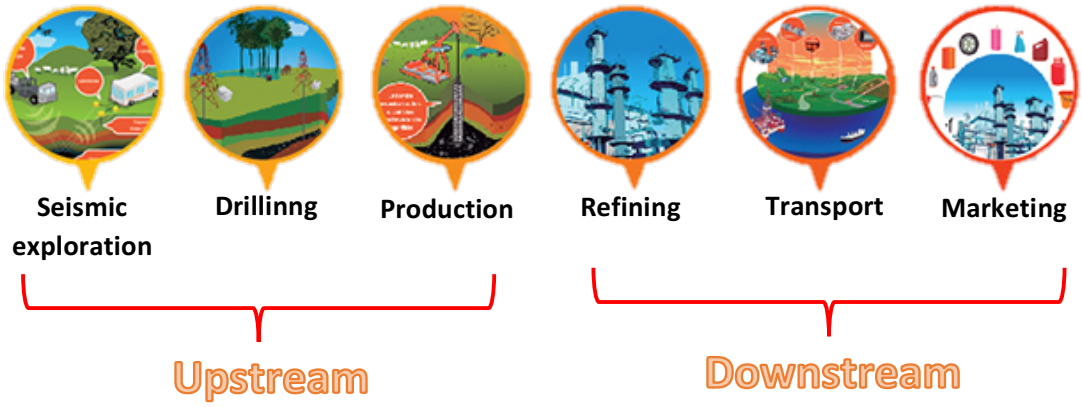
business strategies with the long-term objective of zero emissions pollutants into the atmosphere by investing heavily in renewable energies and specially, due to the fact that O&G are finite resources and are expected to be extinguished in the not most distant future. For this reason, it is currently taking place an energy transition that it is going to have a huge impact not only in O&G sector is going to have a big impact not only on the oil sector but on global society.

2-THE PHASES OF THE OIL VALUE CHAIN: UPSTREAM & DOWNSTREAM

The hydrocarbon sector chain corresponds to the set of economic activities related to the exploration, production, transport, refining or processing and marketing of non-renewable natural resources known as hydrocarbons.

Hydrocarbons are composed of hydrogen and carbon atoms, hence their name. They are found in liquid, crude or oil and gaseous states such as natural gas, composed mainly of methane. Hydrocarbons are the resultant product of organic matter, coming from prehistoric plants and animals, which were deposited and sedimented in impermeable layers, acquiring more and more depth, temperature and pressure inside the earth. There, decomposition took place through the intervention of microorganisms and it was transformed into what we know as oil and gas. These accumulations are called oil fields and can be found both in the continental and maritime subsoil. Natural gas is associated when it is mixed with the crude oil or free when the field only contains gas. The hydrocarbon value chain consists of two large areas: Upstream and Downstream.

Figure 1:



Source: Self-elaboration

2.1-Upstream

Also known as exploration and production, this sector includes the search for potential crude oil and natural gas fields, both underground and underwater, the drilling of exploratory wells, and subsequently the drilling and exploitation of the wells that bring the crude oil or natural gas to the surface.

A) Exploration

It is the study of soils that is carried out to identify and locate possible deposits. Soil and rock samples are taken describing surface characteristics, satellite images and aerial photographs and are subjected to research and analysis. If the possible areas where hydrocarbons exist are located, the second process called seismic is initiated.

B) Seismic

It is the process by which waves of energy pass through the layers of rock, are returned to the surface and reach special equipment called geophones, which receive the information and transmit it to a computer.

For the terrestrial seismic, small quantities of seismic are located in holes of 5 and 8 centimetres of diameter and between 5 and 15 meters of depth and small detonations are produced that generate waves that propagate until the subsoil and through a receiving station, composed by some equipment called geophones, information of the characteristics of the different geologic formations is compiled. This generates an image of the different layers of the subsoil. The geologists determine the areas suitable for finding hydrocarbons and exploratory drilling begins. In the case of marine seismic, a scientific boat is used to drag a set of cables carrying the geophones and air guns. This mechanism expels compressed air at high pressure, generating waves that cross the seabed and the different subsoil formations that bounce back to be identified by the geophones and analyzed by the geologists. Seismic exploration is carried out under good practice parameters and respecting environmental regulations. This procedure does not affect aquifers or surface water bodies. Companies invest large amounts of economic, human and technological resources. Factors that do not guarantee the discovery of a deposit, but an operation with the highest standards and good practices.

C) Drilling

It consists of drilling wells, whose purpose is to reach the rock layer where hydrocarbons (oil and gas) could possibly have accumulated. This stage usually begins after the information from the seismic study is obtained.

The first well that is drilled in a geologically unexplored area and that allows us to know whether or not there are really hydrocarbons is called an exploratory well. For this purpose, a drilling rig is installed to open a well that goes through the subsurface formations until it reaches the reservoir that contains the oil and/or gas. This can last between one month and more than a year, depending on the geological difficulty and the objective set. The tower or drill, is composed of a system of steel pipes that are joined as the drilling progresses; a drill bit that perforates the ground; a system of mud that pumps, injects and circulates permanently, lubricates the drill bit, supports the walls of the well and brings to the surface the solid material that is disintegrating; motors that print the force that this drilling process requires; and a system to prevent the exit of fluids from the subsoil. A special type of casing is used to reach the reservoir in the different drilling stages. This casing is cemented to the walls of the well and prevents possible contamination of aquifers.

D) Production

It is the process by which hydrocarbons (oil and gas) are extracted from the rock layer to the surface.

When the drilling is finished, the wells are completed and tested. If the volume found justifies their extraction, the production of crude oil and natural gas begins. Using an instrument called a cannon, the last section of pipe is drilled, opening small holes, through which the hydrocarbon will begin to filter, coming to the surface in a controlled manner. Sometimes the hydrocarbon reaches the surface by natural flow. If necessary, due to insufficient pressure, artificial systems are installed to pump the crude oil. In the case of natural gas, the pressure of the reservoir is sufficient to bring it to the surface. When this pressure decreases, it is necessary to implement new compression systems that stimulate its flow to the surface. On the surface, different equipment is used to clean the impurities from the crude, separating sediments, water, natural gas and different chemicals are added to achieve the properties required by the market and it is placed in storage tanks to begin its transport. In the case of gas, its impurities are cleaned and for safety reasons, a chemical product is added that gives it the characteristic smell. It is then stored by compression in special tanks or converted into liquid gas for direct transport.

2.2-Downstream

It commonly refers to the tasks of refining crude oil and processing and purification of natural gas, as well as marketing and distribution of crude oil products and natural gas

E) Transportation

It consists of transporting the crude oil from the wellhead to storage and processing sites, such as pumping stations, refineries and marketing centers (ports). For the transport to the refinery or port of export, a system of steel pipes called oil pipelines is used, which in most cases go two meters underground and in others, above the surface of the ground, crossing different topographic scenarios, in some cases up to more than 2800 meters above sea level. Automotive transport is also used in cases where there is no pipeline transport infrastructure close to the production facilities. In order to get the oil or gas to flow through the pipeline, pumping stations are built along the pipeline, which inject pressure into the system, driving the hydrocarbon. In the ports or refineries they are stored in special tanks.

F) Refining

Refining consists of transforming oil by subjecting it to high temperatures in order to obtain derived products. The crude oil is subjected to temperatures close to 400 degrees by means of a set of furnaces, distillation towers, tanks, pipes and separators that convert it into steam. It is then taken to the inside of a cylindrical tower that can exceed fifty meters. There are trays at different levels that separate the different components of the crude oil according to its boiling point. As the steam rises through the tower, it loses heat and cools down, it condenses and the components are separated, obtaining the different products such as propane and butane gas, ACPM, kerosene, naphtha and gas oils. The gases such as propane and butane are obtained in the upper part of the tower

and the fuels and asphalts in the lower part. The products of this process are called derivatives and are classified into fuels and petrochemicals. There are more than 200 of them and they are used in different purposes of our daily life.

G) Marketing

In this phase all those activities of commercial character are carried out, to place the products at the disposal of the users. Once the crude oil has been refined and transformed into transport fuels, domestic heating fuels, lubricants and other products, these must be marketed and distributed to commercial and retail customers, such as service stations, which meet the demand of drivers and professional customers such as the taxi industry or transporters. On the other hand, there is also the direct sale of these products, which are normally aimed at direct customers such as transport companies, industries, institutions or households.

3- SPECIAL BUSINESS FORMS IN THE OIL INDUSTRY

Energy sector companies are one of the largest companies in the world with huge amount of revenues and employment created. Many of these companies are state-owned, such as such as those on Russian, Chinese or Middle Eastern territory.

The web statista shows a world ranking of O&G entities in 2019 according to their revenues. The companies with the highest revenues according to this ranking are the Chinese companies Sinopec and PetroChina with 432.540 million$ and 347.760 million$,

respectively. Next in the ranking appear the entities from United Kingdom Royal Dutch Shell and BP, with 382.970 million$ and 296.970 million$ in revenue, respectively. It must be noted that the Saudi Arabian company Saudi Aramco is not taken into account on the previous statistics. This is due to a lack of transparency in its accounting information, but according to BBC (2019) this company has the title of the world's largest oil company with a daily production of 10 million barrels owning the largest reserves of O&G I the planet and estimated revenues of nearly 356.000$.

The vast majority of oil companies operate through the whole oil value chain, so the increasing risk and complexity of capital-intensive projects, together with the desire of diversify risk, has lead the O&G industry to organize special business forms. Those agreements are diverse range, such as joint ventures, jointly controlled assets and production sharing agreements and concessions.

3.1.JOINT ARRANGEMENTS (joint ventures, joint operations)

A joint arrangement is an arrangement under which two or more parties have joint control. This means that decisions on relevant activities require the unanimous consent of all parties sharing control. In other words, the members of the agreement should collectively agree to all key financial and operating decisions. Every party within the group that offer joint control has a veto right, so they can block key decisions if they do not agree.

According to IFRS 11: “a joint arrangement may be either a joint operation or a joint venture. In a joint operation, the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. Whereas a joint venture is a joint arrangement whereby the parties have rights to the net assets of the agreement”.

In O&G sector joint ventures are usually present. The participants provide assets, capital, risk sharing, tax benefits and market entry among others. Ernst&Young made a study in 2015 to measure the average of joint ventures in an investment on the O&G industry. On this report it is revealed that the majority (85%) of upstream investment is spent through alliance or JV relationships, and the rest (15%) are single-operator projects. Furthermore, the study verifies there is a positive correlation between the size of the project and the number of partners involved. Therefore, it may be considered that for the entities of O&G is fundamental to share risks through joint ventures to participate on substantial investments. For instance, in BP annual report 2019, it is showed that BP have interest in Mexico in two joint operations in the Salina Basin with Equinor and Total, being BP the operator of the activity with a share of 33% of the project, among others joint operations.

Nevertheless, there is also some drawbacks on participating in a joint venture. Ernst&Young report exposes that the cross-border and cultural challenges are an important issue and stablish a joint venture require approximately 18 months, but the majority don’t survive more than 5 years and the fail rate of these arrangements is as high as 70%.

Another relevant factor of joint agreements is the underlift and overlift. These issues occur at each balance sheet date when some parties will take a higher amount of production than their share (overlifted) and others take less than their respective share (underlifted). This is due to the complex and elaborate way to obtain and transport the O&G, that is more profitable for each partner to extract the entire load from a tanker trunk at once.

So, with the firm objective of making an equitable distribution, the underlifted partner sells the oil difference at the point of extraction at the market oil price at the date of the extraction. Overlfting is therefore considered to be a sale of oil by the underlifted partner to the overlifting partner.

Example of sales recognition on a Joint Venture:

A joint venture (JV) is composed by UJI Oil and BP Oil. This JV sells the oil produced and UJI Oil receives the percentage of profits according to its shareholding earned by the JV. UJI Oil operations represents 40% of the JV. UJI Oil actively participates in the joint management of the JV. UJI Oil applies equity accounting to JVs.

Solution:

UJI Oil will register on its income statements the share of profit earned by the JV using equity accounting and additionally, it will reflect the revenues of the JV in notes to financial statements, together with other summary financial information.

Example of Underlift recognition:

An entity A and entity B share a joint venture agreement. The entity A owns the 60% of the operations, and the entity B the 40%.

During the year, 1,000 barrels were produced, and the production cost were 800. Entity A took 560 barrels ad B took 440 barrels. The barrel price at the time both entities sold the whole production was 32 per barrel.

At the end of the year the barrel price was 35.

Solution:

Entity A, therefore, has underlifted by 40 barrels and entity B overlifted by 40, and as a contractual term, entity A has the right to demand cash for the underlift to entity B and entity A will recognize a sale to B for the number of barrels B has overlifted.

A's income statement and balance sheet:	
	End of the year
Income statement	
Revenue (1000x32x60%)	19200
Cost of sales (8000x60%)	(4800)
Gross profit	14400
Other income/(expense) (40x[35-32])	120
Net income	14520
Balance sheet (extract)	
Underlift receivable (40x35)	1400

3.2. JOINTLY CONTROLLED ASSETS

Joint ventures are usual in the O&G sector and jointly controlled assets is the most common among them. Jointly controlled assets exist when the venturers carry on a project with assets jointly owned and controlled by the venturers. Normally, a jointly controlled asset is built by the joint participants.

Example:

UJI Oil and BP Oil have and operate jointly an offshore platform next to the fields that they have the concession to develop. Each entity have 50% of the platform and the relevant decisions need unanimous agreement. Both entities operate independently.

Solution:

UJI Oil is responsible for selling its share of the oil produced from the offshore platform, and therefore, capitalize revenue earned on the sale of share of oil according to IAS 18.

Nonetheless, the venturers may also provide existing assets to a co-member in order to share the costs and risks rather than profit sharing.

This asset's input to a jointly controlled asset agreement will mean a partial sale of assets of the contributing participant, the transaction being accounted for as profit or loss on the income statement. The share in that asset by the other participants shall correspond to their proportion of the fair value of the asset at the date of transaction.

Example of an existing asset contribution:

UJI OIL and Repsol make an agreement of a jointly controlled asset. The agreement consists on the acquisition of a pipeline share that UJI OIL owns and it will be purchased by Repsol. UJI OIL and Repsol use the pipeline to transport their own oil, and each company is entitled to the 50% of the capacity. Operating and financial decisions require unanimous consent of both companies. The partial purchase of the pipeline was 6000. The fair value less the sells cost of the pipeline on the transaction day is 10000.

Solution:

UJI OIL will remove the 50% share of the pipeline from its assets (-5000), and it will account for 6000 Cash resulting from the share sale, plus 1000 profit on its income statement due to the transaction.

The acquisition of a participation in jointly controlled assets is treated as a purchase of asset instead of business combination. It is important to make the distinction because in an asset purchase deferred taxes and goodwill is not recognized, contribution costs are usually capitalised and asset purchases are stablished by the issue of shares are within the extent of IFRS 2 *Share-based payments*. Therefore, the agreement does not constitute a separate legal entity and the parties conserve the joint legal title to the asset.

These types of agreements are a typical method to perform development and production within the O&G sector. This means that once there are proven resources is common to acquire interests in these assets.

The most common jointly controlled assets are a collectively constructed pipelines, refineries or offshore platforms. As an example, it can be seen on the BP annual report 2019 that BP have a project with Australia's North Shelf venture in China and it owns 30% of equity stake in the Guangdong LNG regasification terminal and trunkline, which BP expects storage the amount of 640,000 tones in the long-term.

3.3. PRODUCTION SHARING AGREEMENT

According to Pwc financial reporting in the oil and gas industry (2017) "Production Sharing Agreement (PSA) is the method whereby the state facilitate the exploitation of their country's hydrocarbon resources by taking advantage of the expertise of a commercial oil and gas entity."

The state is normally represented by the government or the National Oil Companies and there is not a common standard on the PSA. Therefore, even inside the same legal jurisdiction PSA has a different contractual norms and terms. This means that governments are more likely to compose specific legislation or regulation when the more huge and important the field is expected to be.

Production-Sharing Agreements are also one of the most common types of contractual arrangements for O&G industry due to the fact that PSAs is a win-win deal because governments usually may not afford the huge investment that some upstream activities require or they have not access to the technology. On the other hand, oil companies may invest in particular countries and develop their O&G fields. An oil and gas entity under a

PSA will be responsible of exploration and development of the area and provide the capital needed. Consequently, the entity will hold the privilege to hydrocarbon field development over a predetermined timeframe. Nevertheless, the government remains the owner of the O&G extracted from the national area on the sole condition that the foreign investor company has its share of the production.

Therefore, the vast majority of the risks related to the success of the exploration are endured by the International entity and, as a consequence, this provides an advantageous opportunity for the governments to develop new reserves at no risks and limited costs.

The first PSA signed by the Russian government was in 1994 according to the information shared in the Sakhalin Energy web page. There, it can be seen that Sakhalin Energy signed an agreement with the Russian Republic Federal Government for the development of Piltun-Askokhskoye and Lunskoye O&G fields.

Example:

UJI Oil reaches a PSA with the government of Texas. The agreement consist on UJI Oil has to pays in kind 40% of the revenue of sales to the Texas administration for each barrel of product sold. UJI Oil is acting as agent for the government of Texas.

Solution:

UJI Oil will not recognize the Texas share of the revenues according IAS 18. For instance, whether the gross sales are 500, and the royalty is 200, the reported revenue will be 300.

Finally, to summarise and to make easily understandable this third part of the paper, the following table shows the main differences between the special business combinations on the O&G industry.

Table 1: Differences of the special business

Business activity	Income statement presentation	Other comments
Joint Venture: The JV sells the O&G produced and participant A receives the percentage of profits according to its shareholding earned by the JV. Participant A operations represents 40% of the JV and actively participates in the joint management of the JV. Participant A applies equity accounting to JVs.	Account for the percentage of profit earned by the JV using equity accounting. Do not account for the revenue according to the percentage of sales made by the JV.	Notify JV's revenues in notes to financial statements with other summary financial information.
Jointly Controlled Asset: Participant A has to sell its percentage of the oil produced by the JCA.	Account for revenue earned on the sale of the O&G.	Participant A made the sales and meet the IAS 18 definition of revenue.
Production Sharing Agreement: Participant A pays in kind 40% of the revenue of sales to the government for each barrel of oil sold.	The share payed to the government has to be excluded from the revenue recognized by the firm according to IAS 18.	The royalty collected by the entity is obtained on behalf of the government. Participant A is acting as an agent of the government.

Source: self-elaboration

4- ACCOUNTING TREATMENT ANALYSIS IN THE E&E PHASE IN OIL INDUSTRY UNDER IFRS 6

In this last part of the work, we will analyze the accounting regulations that companies in the O&G sector carry out in the E&E phase, which has already been discussed in the previous parts of this work. This phase is governed by the International Financial Reporting Standard 6, *Exploration for and Evaluation of Mineral Resources* (IFRS 6). The next part of this paper will focus on this standard, explaining in detail the accounting treatment of oil company E&E expenditures throughout the E&E phase.

4.1. Background

E&E expenditures are significant for natural resource extraction entities and therefore it has an impact on their financial statements and reported financial results, particularly for entities that only operate in the exploration phase and have no production activity.

Due to this significant impact, in 2004 the International Accounting Standards Committee (IASC) took the initiative to develop International Financial Reporting Standard 6. This standard came into force in the annual accounts starting on 1 January 2006.

The need to develop an International Accounting Standard to cover all aspects of E&E assets of mineral resources was becoming increasingly evident. The reasons given by the IASC Council to justify such a need are the following:

- An entity was required to determine accounting policy on E&E of mineral resources in accordance with paragraphs 10-12 of IAS 8 *Accounting Policies*, *Changes in Accounting Estimates and Errors.*
- Accounting practices applied to E&E assets under the requirements of other standards issuing bodies are diverse and often differ from practices followed in other sectors for disbursements that could be considered analogous.
- A growing number of entities that incur E&E expenditures present their financial statements in accordance with IAS.

4.2. Objectives and implementation

The main objective of this IFRS 6 is to "specify the accounting policies to be followed in the preparation and presentation of financial information for the E&E of mineral resources".

Specifically, this IFRS requires: limited improvements in existing accounting practices for:

- Exploration and evaluation expenditures;
- Recognition of exploration and evaluation assets and impairment testing in accordance with IAS 36 *Impairment of Assets*; and
- Disclosure in the financial statements that identifies and explains the amounts arising from the exploration for and evaluation of mineral resources.

This standard will only apply to the E&E phase. Therefore it is included from obtaining the legal right to explore a given area until the technical feasibility and commercial viability of extracting a mineral resource is demonstrable. This assessment of technical viability and commercial viability to extract O&G is complex, and includes a number of significant variables. Currently, it might be verified on the seismic oil value chain phase rather than drilling because due to the new technologies is more considered as a development phase.

It should be noted that IFRS 6, as an exception, allows companies to continue to apply the same accounting policy to E&E expenditures as it did before the application of IFRS 6, as long as the policy is relevant and reliable. This is because the committee recognized the impossibility of obtaining detailed and appropriate information on some points of the standard.

The criteria used to determine if a policy is relevant and reliable, according to paragraph 10 of IAS 8 are the following: provide a faithful representation; relevant to decision-making needs of users; reflect the economic substance; complete; neutral; and prudent.

4.3. Initial recognition of assets for E&E

In accordance to the definition of an asset given in IAS 8, "An asset is a resource that is controlled by the entity as a result of past events and from which the entity expects future economic benefits". Given this definition, it can be concluded that E&E expenses cannot be capitalised as an asset because the probability of future economic benefits is not yet

demonstrated. Nevertheless, IFRS 6 deems these costs to be assets. E&E expenditures might therefore be capitalised earlier than would otherwise be the case under the IFRS Framework.

Under IFRS 6, the initial measurement of these assets is based on their cost. The following is a non-exhaustive list of examples of expenditures that could be included in the initial valuation: acquisition of exploration rights; topographical, geological, geochemical and geophysical studies; exploratory drilling; excavation; sampling; and activities related to assessing the technical feasibility and commercial viability of extracting a mineral resource.

The decommissioning provision should also be taken into account in this list, since IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* states that as a consequence of having carried out mineral resource E&E activities, an entity will recognise any obligation incurred for decommissioning and restoration, because these activities, as discussed above of this essay, involve a series of land manipulations that substantially affect both land and sea surfaces from which hydrocarbons are expected to be obtained.

4.4. Subsequent measurement of E&E assets

After recognition, E&E assets are subsequently measured using the cost model or the revaluation model. The cost model shall account for assets at cost less depreciation and impairment (if any). The revaluation model, on the other hand, accounts for assets at fair value less depreciation and impairment. In practice, most companies use the cost model.

Depreciation and amortisation of E&E assets does not normally begin until the assets are put into service. Some entities choose to amortize the cost of E&E assets over the term of the exploration license.

4.5. Classification

IFRS 6, paragraph 15, requires an entity to classify exploration and evaluation assets as either tangible or intangible, depending on the nature of the assets acquired, and to apply the classification consistently.

A case of intangible assets would be, for example, drilling rights. While a tangible asset could be a drilling tower or a vehicle. To the extent that a tangible asset is consumed in developing an intangible asset, the amount reflecting that consumption is part of the cost of the intangible asset. Nevertheless, the use of a tangible asset to develop an intangible asset does not transform the tangible asset into an intangible asset. Therefore, classification as tangible or intangible might be crucial in particular cases.

In practice, nonetheless, companies follow policies of different nature such as the following: initially capitalize all assets for E&E as intangible until the development decision is made, at which point the assets are reclassified as property, plant and equipment; capitalize exploration expenditures as intangible assets, and amortize them on a straight-line basis over the contractually established exploration period; capitalize exploration expenditures as tangible assets from inception.

Therefore, a clear, consistent, uniform application of established accounting policy is important for the financial statements to reflect a true and fair view and to provide financial information to users.

4.6. Reclassification

According to paragraph 17 of IFRS 6, an exploration and evaluation asset shall not continue to be classified as such when the technical reliability and commercial viability of extracting a mineral resource are demonstrable. They will therefore be reclassified when the evaluation activities have been completed.

The assets for E&E will be reclassified as development assets in the event that evidence of commercially viable reserves has been found. E&E assets are tested for impairment immediately before reclassification in accordance with paragraph 17 of IFRS 6 and any impairment loss is recognised.

On the contrary, if no commercially viable reserves have been identified, the E&E assets will be expensed in the profit and loss account at their fair value less costs to sell.

4.7. Impairment

Testing E&E assets for impairment before reclassification to development assets is a feature introduced by IFRS 6. Paragraph 18 of that standard requires exploration and evaluation assets to be tested for impairment when facts and circumstances suggest that the carrying amount of an exploration and evaluation asset may exceed its recoverable

amount. This test is measured in accordance with IAS 36 Impairment of Assets and any impairment loss is recognised as an expense.

This feature caused controversy because in exploration-only entities, E&E assets do not generate cash flows and there is insufficient information about mineral resources in a particular area for the entity to reasonably estimate the recoverable amount of E&E assets. For this reason, IFRS 6 decided to change the approach for recognising impairment, adding that the assessment of impairment must be triggered by changes in facts and circumstances. The following are some of the possible facts or circumstances that would lead an entity to test its E&E assets for impairment: no significant expenditures have been budgeted or planned for the subsequent E&E of mineral resources in a specific area; no commercially viable quantities of mineral resources have been found in a specific area and the entity has decided to discontinue activity in that area; the specific period of time that an entity has the right to explore a specific area is about to expire and is not expected to be renewed; there is sufficient evidence that development in a specific area does not assure us of recovering the carrying amount of the E&E assets through development or sale.

The way in which E&E assets in the O&G sector are measured is in accordance with paragraph 21 of IFRS 6, which states that an entity shall establish an accounting policy for allocating E&E assets to cash-generating units (CGUs) for the purpose of testing such assets for impairment. A CGU is the smallest group of assets that generates cash flows and is largely independent of other assets or groups of assets. In an E&E oil sector company, a CGU will usually correspond to a field and its supporting infrastructure

assets. This form of measurement in CGUs therefore differs from the form in which impairment of other assets is measured, due to the fact that the different assets other than E&E assets must continue to be tested for impairment separately in accordance with IAS 36.

4.8. Information to be disclosed

The purpose of this information is to enable the amounts recognised in the financial statements arising from the E&E of mineral resources to be identified and explained to the intended users of the financial statements.

As long as the value of the E&E assets can be estimated reliably, IFRS 6 states that the entity's disclosures shall be: the amounts of assets, liabilities, revenues and expenses, as well as cash flows from exploration and investment activities, arising from the E&E of mineral resources; the accounting policies applied to E&E-related expenditures, including the recognition of assets by E&E.

4.9. Practical example of the accounting treatment through the E&E phase under the IFRS 6

Uji Oil Company began operations on January 1, with the acquisition of exploration rights of one field in Texas for 1,400,000$. During the E&E phase, the following costs were incurred:

- topographical studies ……60,000$

- geological surveys ……100,000$

- exploration concession ……..……50,000$

- geochemical studies ……...…….40,000$

-vehicles……..500,000$

- drilling rigs ……..…….800,000$

-<u>ACQUISITION OF EVALUATION ASSETS</u>: UJI Oil Company classify their E&E assets either tangible or intangible E&E expenditures depending on its nature.

	DEBIT	**CREDIT**
Intangible assets- exploration and appraisal expenditures (A+)	**1,650,000**	
Tangible assets- exploration and appraisal expenditures (A+)	**1,300,000**	
Cash (A-)		**2,950,000**

-<u>SUBSEQUENT MEASUREMENT</u>: The entity measure the E&E assets subsequently by the cost model. Therefore it accounted depreciation at 31 December of the tangible and intangible exploration assets. The entity stablish a policy of linear depreciation for E&E assets, and it estimates a useful life of 40 years for all of them.

	DEBIT	**CREDIT**
Depreciation of tangible exploration assets (E+)	**32,500**	
Accumulated depreciation of exploration tangible assets (A+)		**(32,500)**

Depreciation of intangible exploration assets (E+)	**41,250**	
Accumulated depreciation of exploration intangible assets (A+)		**(41,250)**

-<u>RECLASIFICATION OUT OF E&E</u>: The entity has noticed a no commercially viable quantities of mineral resources in a specific area and therefore, it capitalize an impairment of 600,000$ immediately before the reclassification.

	DEBIT	**CREDIT**
Impairment losses of exploration assets (E+)	**600,000**	
Impairment of exploration assets (A+)		**(600,000)**

Finally, UJI Oil Company has verified the economic viability of the explored and evaluated deposits, and therefore proceeds to the reclassification of its assets, removing the exploration assets and bringing them to property, plant & equipment.

	DEBIT	**CREDIT**
Intangible assets – exploration and appraisal expenditures (A-)		**1,650,000**
Tangible assets – exploration and appraisal expenditures (A-)		**1,300,000**
Accumulated depreciation of exploration tangible assets (A+)	**(32.500)**	
Accumulated depreciation of exploration intangible assets (A+)	**(41,250)**	
Impairment of exploration assets (A-)	**(600,000)**	
Property, Plant & Equipment (A+)	**2,950,000**	
AA Property, Plant & Equipment (A+)		**(673,750)**

5. CONCLUSION

As a conclusion to this work, we see that the O&G sector is a powerful and very influential sector at a global level, that the agents participating in the sector have both economic and political interests given its importance and the wealth it generates in economies. That is why the role of OPEC in the sector is of vital importance as it tries to maintain the balance in the sector. In a specific context, we have seen the importance of joint actions between companies in the sector to carry out their activities, and therefore the appearance of standards such as IFRS 6 is of vital importance for the sector, since companies can show financial statements that faithfully reflect the image of the company and are also comparable between different competing companies.

In view of the great weight that the O&G sector had for a large number of countries and for the economy in general, it was increasingly necessary to establish a standard that would regulate in accounting terms all those assets that act in the E&E phase. This is how International Financial Reporting Standard 6 came into being. Thanks to this standard, there is a framework for the treatment and accounting valuation of exploration and evaluation assets at this stage.

IFRS 6 solved many of the problems in valuing such assets, thanks to the standard's ability to value E&E expenditures as assets. This was especially true for companies that were only active in the E&E phase, because the conceptual framework did not recognise these E&E expenditures as assets as they were not likely to make future profits, and as a result they had a significant impact on the companies' financial statements.

As for the future prospects in the sector, they are rather uncertain. Very ambitious business strategies are being stablished with the long-term objective of zero emissions of pollutants into the atmosphere by investing heavily in renewable energies and above all due to the fact that O&G are finite resources and are expected to be extinguished in the not most distant future. For this reason, it is also expected that new rules and laws will now emerge as special forms of business in conjunction with the energy transition that is taking place.

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