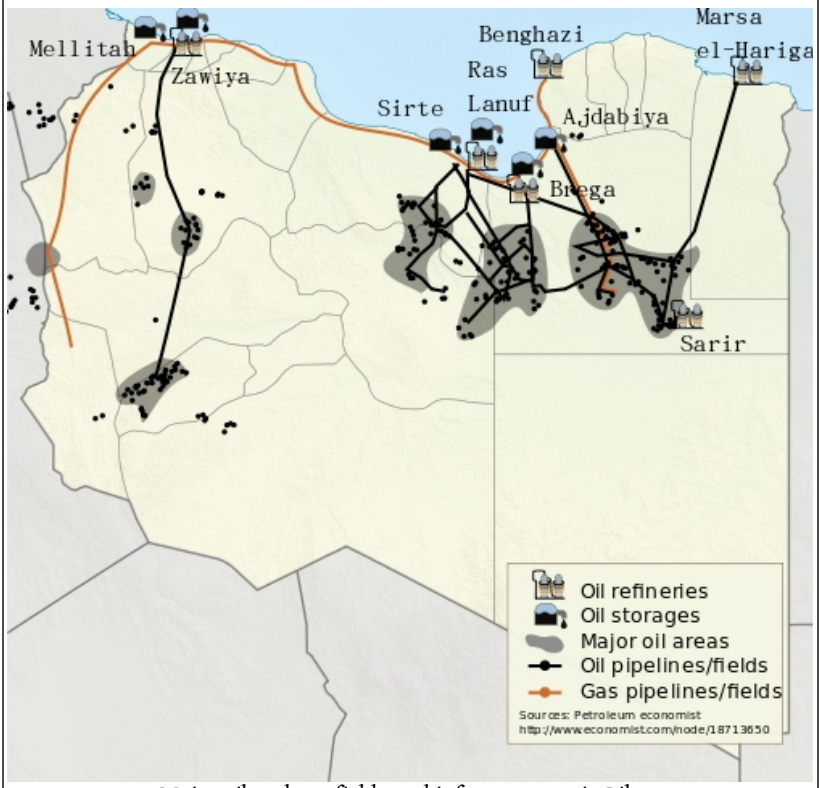
Libya Oil Almanac

An OpenOil Reference Guide

Table of Contents

Resource Transparency Opportunities



Major oil and gas fields and infrastructure in Libya

List of Abbreviations

AOO	Akakus Oil Operations
boe	barrels of oil equivalent
bpd	barrels per day
CBI	Central Bank of Libya
EIA	US Energy Information Administration
EITI	Extractive Industries Transparency Initiative
EOR	Enhanced oil reccovery
FTP	Final Tender Protocol
GNMTC	General National Maritime Transport Company
HOO	Harouge Oil Operations
IEA	International Energy Agency
IMF	International Monetary Fund
IOC	International oil company
ITP	Initial Tender Protocol
LFB	Libyan Foreign Bank
LIA	Libyan Investment Authority
LNG	Liquefied Natural Gas
LPG	Liquid Petroleum Gas
NOC	Libyan National Oil Company
MOG	Mellitah Oil and Gas
MOO	Mabruk Oil Operations
NRC	Natural Resource Charter
NTC	National Transitional Council
OPEC	Organisation of Petroleum Exporting Countries
PSA	Production Sharing Agreement
PSC	Production Sharing Contract

PWYP	Publish What You Pay
RWI	Revenue Watch Institute
SOC	Sirte Oil Company
SPM	Single point mooring
tcf	trillion cubic feet
tcm	trillion cubic metres
TI	Transparency International
TSC	Technical service contract
TTSF	Training, Technology and Scholarship Fund
UN	United Nations
WOC	Waha Oil Company
ZOC	Zuetina Oil Company

History and Context

Libya's Oil Industry pre-1969

In 1950 a Constitution was established in Libya and King Idris declared the country's independence from the United Kingdom.[1]

Soon after the new Libyan kingdom was created, the UK and the United States obtained rights to build military bases in Libya. In 1956 the first concessions for oil exploration were granted to foreign companies and in 1959 the first successful drilling was reported when Zletin oil field, one of the largest in the country, was discovered by Esso Libya.[2] Libya became an oil exporter in 1961 with the completion of a 167 kilometre pipeline linking important oil fields in the interior to the Mediterranean Sea.[3] This marked the beginning of a spectacular production rise that would surpass 3 million barrels per day (bpd) in 1969.[1]

With the discovery of significant oil reserves in 1959, Libya moved abruptly from being dependent on international aid and the rent from US and British air bases to being an oil-rich monarchy.[4] However, equity was lacking and popular resentment grew as oil exports grew, setting the stage for the young Colonel Muammar Gaddhafi's bloodless coup d'etat in 1969.[1]

Libya's Oil Industry Under Gaddhafi

Overthrow of the monarchy in 1969

When Libyan King Idris was overthrown in a coup led by the 27-year-old Muammar Gaddhafi, the country and its oil industry embarked upon a radically new chapter. According to the US State Department the early years following the revolution can be seen to be divided into three recognisable political phases:

1. 1969-70: a new political and organisational model was sought to overcome the shortcomings of the preceding monarchy.

2. 1971-75: the Arab Socialist Union was established as the sole political party, based on the Nasserite Constitutional model (which came into force in Egypt in 1971, based

1 'Everything You Need To Know About The Libyan Oil Industry', *Business Insider*, 22 February 2011.
2 'Libya: What Happened and When ?', *Libya: Our Home*, retrieved 19 October 2011.
3 'History, Kingdom Established', *Countries Quest*, retrieved 25 October 2011.
4 'The Discovery of Oil', *Encyclopaedia Britannica*, retrieved 25 October 2011.

on the principles of freedom, socialism and unity).[5]

3. Towards the end of 1975: the Nasserite model was replaced with an officially sanctioned vertically organized system of 'direct democracy', governed by popular Peoples' Committees.

The original task of these Committees was to establish the political system, but over the years members increasingly controlled the system and shut out the political opposition, effectively dissolving it.[6] The ideological basis of Colonel Gaddhafi's new regime was his Green Book, touted as an alternative to both communism and capitalism, and he named his new system a Jamahiriya (loosely translated as a 'state of the masses').[7]

New constitution

Following the overthrow of the monarch, a provisional Constitution was announced by the Revolutionary Command Council (RCC) in 1969, to remain in force until a permanent version could be adapted. In 1977 this provisional document was replaced by a new Constitution and Libya's official name changed from the Libyan Arab Republic to the Socialist Peoples' Libyan Arabic Jamahiriya.[8]

The new Constitution incorporated a blend of Islamic and socialist theories espoused in Gaddhafi's Green Book and his Third Universal Theory. The direct authority of the people constituted the political order, while the social system was governed by the Holy Koran. Political institutions were represented by Peoples' Congresses, committees, trade unions and vocational syndicates.[9]

Nationalisation

In 1969 the Libyan state took over 51 percent of the capital of foreign banks,[8] and in 1970 the government formally nationalised all banks. Private ownership of financial institutions was not officially permitted until 1993.[6]

The Libyan regime also began a process of nationalisation of the oil and gas sector in the early 1970s. This began with demands for higher petroleum prices, a greater share of revenues and more control over development of the industry. This led to foreign petroleum companies agreeing to a price increase of more than three times the rate previously (from US $0.90 to US $3.45 per barrel) early in 1971.[10] In March 1970, the Libyan Government dissolved the Libyan Petroleum Company (Lipetco), whose functions up until then had included the negotiation and supervision of oil concession agreements,[11] replacing it with the Libyan National Oil Corporation (NOC). Further-

5 'Nasser and Arab Socialism', *Country Studies: Libya*, retrieved 25 October 2011.
6 '2010 Libya Country Report', *Bertelsmann Stiftung*, retrieved 19 October 2011.
7 'Libya country profile', *BBC*, retrieved 19 October 2011.
8 'Libya: What Happened and When?', *Libya: Our Home*, retrieved 19 October 2011.
9 'Libya - Political background', *Encyclopedia of Nations*, retrieved 19 October 2011.
10 'Libya: Politics of Oil', *US Library of Congress*, retrieved 25 October 2011.
11 'Libya: Energy and Power', *Encyclopaedia of the Nations*, retrieved 25 October 2011.

more, in July the regime nationalised the networks for distributing oil products owned by foreign oil companies. Henceforth only the NOC would have the right to distribute such products throughout the country.[12]

Later in 1971, Libya nationalised the holdings of British Petroleum (BP) as a gesture in support of Islamic and pan-Arab power.[13] This move followed Britain's withdrawal from three small islands in the Strait of Hormuz, leaving them to 'Iranian occupation' (Iran under Shah Reza Pahlavi was then perceived as a close ally of Israel). In 1973, Libya announced the nationalisation of oil major Hunt's assets in the Sarir field,[14] in retaliation for US support of Israel. Later in the year the regime issued a decree nationalising US-owned Occidental, transferring 51 percent of all funds, rights, assets, shares and interests to the state. The Oasis Group also signed a similar agreement (affecting Continental, Amerada, Marathon and Shell).

In September of 1973 Libya issued a 16-article law nationalising 51 percent of the assets of all remaining oil companies operating in Libya. This policy was not outright nationalisation, but part of a general program 'Libyanising' the economy. Dr Mahmoud Elwarfally suggests in his book on the Libyan oil industry that a total nationalisation could not be pursued until a Libyan staff of technicians and experts was ready to take over.[15] Over the course of 1973, Libya also played an active role in the Arab oil embargo on the US in the wake of the Yom Kippur war between Israel and its Arab neighbours.[16] In 1974 further nationalisation activity took place, with Gaddhafi nationalising three US companies by seizing the remaining 49 percent share of California Asiatic Company, American Overseas Petroleum Company and the Libyan-American Oil Company. By 1975 the assets of almost all companies working in Libya were either fully nationalised (such as BP) or majority owned by the Libyan State, which held 63 percent of the assets of German Wintershall, 85 percent of Austrian OMV, 59.2 percent of the Oasis Group and 50 percent of the assets of Italian Agip. According to researcher M. Elwarfally, these moves were widely interpreted as Gaddhafi using oil resources as a political weapon.[15]

Promotion of Arab unity

Colonel Gaddhafi was inspired by Egyptian nationalist leader Gamal Abdul Nasser, according to the US State Department, who dominated Arab politics through the 1950s and 1960s. Although Gaddhafi had always presented himself as an Arab nationalist, his attempts to forge unity with other Arab states met with little success, and even triggered a brief war with Egypt in 1977. In the 1990s Gaddhafi eventually turned his back on the Arab world, which chose not to challenge the UN sanctions imposed on his regime, and instead concentrated his efforts on establishing closer relations with Sub-Saharan Africa. However, his promotion of the idea of a 'United States of Africa' has

12 'Libya: What Happened and When?', *Libya: Our Home*, retrieved 19 October 2011.
13 'Newsletter No. 34', *The Association for the Study of Peak Oil and Gas*, October 2003.
14 'Once world's richest man, Bunker Hunt has 'no regrets' 29 years after silver collapse', *Texas Cable News*, 22 March 2009.
15 Elwarfally, M. 'Imagery and Ideology in U.S. Policy Toward Libya 1969-1982', *University of Pittsburgh Press*, 1998.
16 'Oil: Thirty years of turmoil', *BBC News*, 17 October 2003.

shown little progress.[17]

The sanctions era

(For more detailed information please see *Sanctions Against Libya*)

By the 1980s, Gaddhafi's perceived confrontational and often erratic foreign policies, his developing relationship with the Soviet Union as a primary arms supplier, and his involvement with terrorism had antagonised not only the West but Libya's neighbours in North Africa and the Middle East. After the regime was implicated in the bombing of a Berlin disco frequented by American military personnel in 1986, the US imposed economic sanctions on Libya. Until then the US had been Libya's largest single customer for crude oil. Further UN sanctions were imposed in 1992-3 in retaliation for Libyan involvement in the Lockerbie bombing of 1988 and other events, condemning the country to a period of political and economic isolation.[17]

In 1987, reacting to the state of Libya's domestic affairs, some political and economic reforms were instituted. These included a limitation of the authority of the Revolutionary Committees, lifting travel restrictions and reinstating private enterprises nationalised in 1979. However by the early 1990s many of these were abandoned, partly in reaction to the UN sanctions. Reforms were cautiously reinstituted in 1999.[18]

From 2003 onwards, as Libya renounced its moves to develop weapons of mass destruction and made other diplomatic gestures, sanctions began to be lifted and Libya and its oil industry were gradually reintegrated into the international community.[17]

Post-sanctions era

Following the normalisation of relations with the US and European Union in the early 2000s, interest from foreign investors increased notably, especially in the hydrocarbon, banking and infrastructure sectors. Nevertheless, the economy remained heavily dependent on hydrocarbon resources and largely state controlled. According to the Bertelsmann Foundation, by 2012 oil production was expected to double compared to 2010 levels to reach around 3 million barrels per day (bpd), on the condition that the advanced exploration and extraction techniques of international oil companies (IOCs) were utilized. However, the worldwide recession and the civil unrest of 2011 clearly put these goals at risk.[18]

In 2005 Muammar Gaddhafi's son, Seif al-Islam, described by the *New York Times* as the "Western-friendly face of Libya",[19] set out proposals for economic reform in the country. The reforms were designed to divest the state's hold on the economy, streamline government, speed up privatisation and liberalise the media sector in a bid to begin a transition from an authoritarian regime to a more liberal and regionally competitive economy. One of the first projects was to involve a study of up to two years by the UK-

17 'Country Profile: Libya', *US Library of Congress*, April 2005.
18 '2010 Libya Country Report', *Bertelsmann Stiftung*, retrieved 19 October 2011.
19 'Unknotting Father's Reins in Hope of 'Reinventing' Libya', *New York Times*, 28 February 2010.

based Adam Smith Institute on how to proceed with government reforms.[20] However, such reforms were reportedly stymied by opposition from inside the ruling elite and in 2010 the independent newspaper he helped to found was forced to mute its criticism of the authorities.[21]

In 2009 Gaddhafi courted controversy after he suggested during a video conference with students from Georgetown university that Libya could nationalise its oil and gas sector. According to the UK's *Telegraph*, industry experts did not dismiss the possibility, however they saw the threat as a tactical move aimed at leveraging the expected renegotiation of existing contracts with IOCs and prompting them to contribute to the US-Libyan claims compensation fund, among other reasons.[22]

Libya's Membership of OPEC

Libya's oil price policy has largely been determined in meetings of the Organization of Petroleum Exporting Countries (OPEC), which it joined in 1962.[23] Libya generally defended higher prices and lower output during Muammar Gaddhafi's 42-year rule,[24] but the governments under both King Idris and Gaddhafi were committed to using OPEC as a vehicle to maximise their oil revenues, enacting policies that have led to often contentious relationships with Western governments and international oil companies operating in Libya, according to the US State Department,[23] which asserts that in the 1970s, Libya's militancy was partially responsible for OPEC measures to raise oil prices, impose embargoes, and gain control of production.[25]

Admission to OPEC and growth in 1960s

Libya joined OPEC in 1962,[26] two years after the organisation's creation.[27] Libya produced only 67.1 million barrels of oil in 1962, but this figure rose quickly to 445.4 million barrels in 1965[26] and by 1970 Libya was the fourth-largest oil producer in the non-communist world, behind fellow OPEC members Saudi Arabia, Iran, and Venezuela.[28]

Maximizing profits, controlling prices

As Libya's production increased over the course of the decade and oil prices steadily declined, a newly assertive government under the leadership of Gaddhafi,[28] who over-

20 'Qaddafi son sets out economic reforms: Libya plans to shed old and begin a new era', *New York Times*, 28 January 2005.
21 'Rebels: Gadhafi's son Saif al-Islam captured alive', *NBC News*, 22 October 2011.
22 'Al-Qadhafi's feint: Libyan oil nationalization unlikely', *Telegraph*, 31 January 2011.
23 'Libya: Industry', *US Library of Congress*, retrieved 17 October 2011.
24 'Libya to seek larger OPEC quota in Dec.', *Market Watch* 13 September 2011.
25 'Politics of Oil', *US Library of Congress*, retrieved 17 October 2011.
26 Waddams, Frank C. 'The Libyan Oil Industry', *Taylor & Francis*, 1980.
27 'Brief History', *OPEC*, retrieved 19 October 2011.
28 'Chapter 13: OPEC and crude oil', *UC Davis*, retrieved 17 October 2011.

threw King Idris in 1969,[29] made a series of moves to capitalise on its favourable position in the oil market. It started by demanding an increase in royalties from oil companies operating in Libya, most prominently Occidental Petroleum in 1970.[30] Other OPEC countries recognised the strength of their position, and when OPEC began negotiations with oil companies to increase their share of the profits, Libya agreed with Algeria to coordinate their own demands separately from the main OPEC discussions.[31]

Libya's negotiations effected a 20 percent increase in royalties, tax concessions and a 55/45 profit-sharing agreement with the oil companies operating within its borders.[32]. According to author Frank Waddams, Libya's hard bargaining between 1970 and 1972 showed other OPEC countries what could be obtained from the oil companies once adequate pressure was applied, and by the end of 1973 OPEC and its members had gained effective control of the pricing of their oil exports.[31]

An OPEC divided

According to *Foreign Affairs* magazine, after Gaddhafi came to power in 1969 Libya began to leverage its "oil weapon" against the West.[33] There was a split between Libya and Algeria, who wanted to use oil to pressure the United States and deter its continued support for Israel, and the more moderate Saudi Arabia, which maintained that OPEC's basic purpose was to keep oil issues separate from politics.[34]

In the early 1970s Algeria, followed by Libya, led the way among OPEC governments to control posted prices, partially through the nationalisation of oil concessions.[31] At a July 1971 OPEC conference in Vienna, member governments' participation share in oil concessions was a central topic of discussion. Members were sharply divided on the percentage they sought, with Libya and Algeria demanding a minimum of 51 percent and Saudi Arabia and other Gulf states preferring a 20 percent share. The gap was too wide to come to an agreement in Vienna, but OPEC was not ready to reduce the pressure on oil companies operating in its member countries, according to author Benjamin Shwadran.[34]

Algeria had already nationalised 51 percent of French oil concessions in February 1971, and Libya followed the Vienna conference by nationalising BP in December 1971.[35] Then in 1973 Libya announced that it would take a controlling stake in the concessions of all other oil companies operating within its borders.[36] Libya's success in nationalising its companies prompted OPEC members, led by Saudi Arabia, to seek a higher participation share in their respective oil industries.[34] A wave of nationalisations between 1971 and 1973 also saw Iraq, Kuwait, Qatar, Abu Dhabi, Saudi Arabia and Iran take ownership of foreign oil concessions and give OPEC unprecedented price-set-

29 'Sep 1, 1969: Qaddafi leads coup in Libya', *History.com*, retrieved October 27 2011.
30 'Chapter 13: OPEC and crude oil', *UC Davis*, retrieved 17 October 2011.
31 Waddams, Frank C. 'The Libyan Oil Industry *Taylor & Francis*, 1980.
32 'History of OPEC', *College of Natural Resources and Environment, Virginia Tech* 22 August 2001.
33 'Oil and Unrest', *Foreign Affairs* 8 March 2011.
34 Shwadran, Benjamin 'Middle East Oil: Issues and Problems', *Transaction Publishers*, 1977.
35 Smil, Vacliv 'Oil', *OneWorld* 2008.
36 'Politics of Oil', *US Library of Congress*, retrieved 17 October 2011.

ting power.[37]

Saudi Arabia, which had had a 25 percent share in its biggest oil company Aramco since 1971, had by 1974 acquired a 60 percent stake.[38] Libya had control over 60 percent of its domestic oil production by early 1974, a figure which subsequently rose to 70 percent.[39]

Pricing strategies and imposition of the quota

In the early 1970s Libya sought to maximise its revenues in a period of increasing demand by placing strict limits on the amount of oil it produced. This policy led Libya to cut oil production by half between 1970 and 1974, and the resulting increase in oil prices quadrupled Libya's revenues in the same period.[39] A series of price hikes caused the total revenues of OPEC's member states to triple between 1973 and 1978. The oil crisis in the late 70s and early 80s - triggered by the Iranian revolution in 1979 and the subsequent invasion of Iran by Iraq - led to even higher oil prices. But as prices rose, the global economy lagged, and demand for oil plummeted.[37] As prices then slid from 1982 to 1985, OPEC attempted to set oil production allocations low enough to stabilise the market. Libya accepted its OPEC maximum production quota of 1.1 million barrels per day (bpd) in March 1983.[40]

Embargoes on the United States

Libya was one of OPEC's Arab members to proclaim an embargo on oil shipments to the United States in the wake of the 1973 war between Israel and Arab states Syria and Egypt. This embargo lasted for six months and caused oil prices to more than triple. Libya pushed for another embargo in 1986, after a US air strike on Tripoli killed one of Muammar Gaddhafi's sons, but the move was rejected by a majority of OPEC member states in the face of declining global oil prices.[41] In 2002, when Libya-US relations had begun to improve, Libya rejected a request made by Iraq to OPEC to suspend oil exports for 30 days.[42]

Sanctions Against Libya

US Sanctions in 1980s

A general souring of relations during the 1970s between Gaddhafi's Libya and the US resulted in a series of sanctions imposed through the 1980s. In 1981 the US State Department invalidated the use of US passports for travel to Libya. In 1982 it went on to

37 Smil, Vacliv 'Oil', *OneWorld* 2008.
38 Shwadran, Benjamin 'Middle East Oil: Issues and Problems', *Transaction Publishers*, 1977.
39 'Politics of Oil', *US Library of Congress*, retrieved 17 October 2011.
40 'Libya: Industry', *US Library of Congress*, retrieved 17 October 2011.
41 'Opec Rejects Oil Embargo Of U.S.', *Chicago Tribune*, 16 April 1986.
42 'Iran and Libya will not join Iraqi oil embargo: OPEC', *Free Republic*, 10 April 2002.

ban imports of Libyan oil and a number of other exports to Libya. These measures were implemented principally in reaction to Libya's alleged support for terrorist activities. The Arab-Israeli conflict was another pointed source of tension, and Gaddhafi's security services were accused of providing support, training and safe harbour for Palestinian terrorist groups.[43]

In 1986 the scope of the sanctions were broadened to include a total ban on direct import and export trade, commercial contracts and travel-related activities with Libya.[44] This followed the bombing of a Berlin disco that killed two US servicemen and a Turkish woman and wounded 229 people, including 79 Americans. The US held the Libyan regime accountable for these attacks. [45]

Under the original sanctions, all Americans and American companies were to cease commercial dealings with Libya by 1 February 1986 and all American citizens, except journalists and those with special humanitarian permission to remain, were ordered to leave Libya. However, several American oil companies operating in Libya (including Occidental, Hess and ConocoPhillips) voiced concerns to the US administration that new regulations would imply turning over equipment and assets to the Libyans valued at over US $1 billion, as well as an annual income of more than US $150 million. This led to considerations of granting licenses to some US oil companies to permit them to continue to receive income from Libya despite sanctions, in order to avoid a 'substantial economic windfall to Libya.'[46] Nevertheless, it was later announced that these exemptions would not be extended beyond the 30 June 1986.[47]

UN Sanctions 1992-3

On 21 December 1988 a bomb exploded on Pan Am flight 103 en route from London to New York, killing all 244 passengers and 15 crew on board, as well as a further 11 people in the town of Lockerbie, Scotland. In 1991 the US and Scotland indicted two Libyan intelligence agents for their alleged roles in the bombing: Abd al Baset Ali al-Megrahi and Al Amin Khalifah Fhimah. Under a UN-negotiated agreement, Fhimah and Al Megrahi were tried on murder charges under Scottish law in The Hague, beginning in 1999. Fhimah was acquitted but al-Megrahi was convicted and was sentenced to serve a life sentence in a Scottish prison.[48]

As a consequence of the Libyan regime's alleged involvement in such terrorist attacks, the UN imposed a set of sanctions against Libya in 1992 under Resolutions 731 and 748, which expressed deep concern over the suppression of acts of international terrorism and the subsequent threats to international peace and security.[49] These were reaffirmed in 1993 by UN Resolution 883, addressing Libya's failure to respond fully to the

43 'Libya: Background and U.S. Relations', *Congressional Research Service*, 18 February 2011.
44 'Timeline: Libya sanctions', *BBC*, 15 October 2004.
45 'U.S. to lift final sanctions against Libya', *CNN World*, 17 September 2004.
46 'Oil Firms May Get Exemption On Libya', *Chicago Tribune*, 13 January 1986.
47 'Case Studies in Sanctions and Terrorism', *Peterson Institute for International Economics*, retrieved 14 October 2011.
48 'Libya: Background and U.S. Relations', *Congressional Research Service*, 18 February 2011.
49 'UN Resolution 731', *Official Documents System of the United Nations*, retrieved 14 October 2011.

previous resolutions. Under Resolution 883, all countries were required to freeze Libyan funds or other financial resources in the territory, though noted that 'this would not apply to funds or other financial resources derived from the sale or supply of petroleum and petroleum products, natural gas and gas products, and agricultural products.'[50] Despite the sanctions, Libyan oil production grew to 1.4 million barrels per day (bpd) in 1990, compared to 1.16 million bpd in 1989.[51] and remained at that level until the the turn of the century.[52]

In 1995, in a renewed effort to toughen sanctions, Madeleine Albright (Chief US delegate to the UN) urged other nations to join in an embargo on Libyan oil exports.[53]

Economic impact of sanctions

There are conflicting assessments as to the economic impact of the UN sanctions and the US embargo. Prior to the 1982 sanctions, US oil imports form Libya were approximately 150,000 barrels per day (bpd), down from 700,000 bpd in 1981, due to the economic environment at the time. In 1981 US oil company assets in Libya were valued at $500m and US companies accounted for one third of Libyan production.[54]

When American international oil companies (IOCs) suspended operations in Libya following the 1986 sanctions, oil production in Libya was reportedly maintained by European oil companies. According to the Peterson Insitute for International Economics, the effect of the UN resolution on exporting oil appeared to be minimal. It banned the sale to Libya of pumps and other equipment used to load crude oil for shipments abroad, an obstacle they deem not difficult to overcome. The Peterson Institute called the sanctions 'a nuisance to both government and population', and reported that sanction delayed some investment in the oil industry and contributed to a rise in inflation due to the increased cost of imports. However Colonel Gaddhafi's economic policies and the fall in oil prices caused much of the deterioration in economic life.[54]

In 1999 Libyan state estimates put the cost of the sanctions at some US $33 billion, however the World Bank estimated that sanctions had cost Libya around $18 billion in lost revenue, mostly as a result of underinvestment in oil.[54]

50 'UN Resolution 883', *Official Documents System* of the United Nations, *retrieved 14 October 2011.*
51 'Statistical Review of World Energy 2011', *BP*, retrieved 25 October 2011.
52 'Everything You Need To Know About The Libyan Oil Industry', *Business Insider*, 22 February 2011.
53 'Security Council Extends Libya Sanctions', *New York Times*, 31 March 1995.
54 'Case Studies in Sanctions and Terrorism: Economic Impact', *Peterson Institute for International Economics*, retrieved 14 October 2011.

Libya's reintegration in the international community

Lifting of sanctions

The UN sanctions imposed in 1988 following the Lockerbie bombing, banning air traffic and arms sales, were suspended in 1999 when Libya handed over two suspects for trial in The Hague.[55] Compensation was one of the UN's conditions for dropping sanctions altogether, plus a renunciation of terrorism and Libya's acceptance of responsibility for the Lockerbie attack. By the end of 2003, the remaining UN requirements had been fulfilled and in 2004, the UN lifted all sanctions against Libya.[56] In 2003, Washington stated that it would not oppose the lifting of UN sanctions, but maintained its own.[57]

Libyan-US rapprochement unfolded gradually from 2003 onwards, when the Libyan government announced its decision to eliminate its weapons of mass destruction and long range missile programs. In response, US sanctions were gradually removed. On the 31 May 2006 full diplomatic relations were restored between the two countries and in June the US removed Libya from its list of state sponsors of terrorism.[58]

Under the new agreements, the Libyans agreed to pay US $2.7 billion, or $10 million per family, in compensation to the families of the 270 victims killed in Lockerbie in 1988. Each of the families were to receive the first sum of $4m when the UN lifted sanctions, an additional $4m when the US lifted trade sanctions and another $2m when Libya was removed from the list of state sponsors of terrorism.[59] In November 2008, the families of the victims announced that compensation had been paid in full by the Libyan government.[60]

US oil companies return to Libya

In 2005, US oil companies began to flood back to Libya and resume oil and gas operations following a 19-year absence. Among them were ConocoPhillips, Marathon Oil and Amerada Hess (collectively making up the Oasis Group consortium, or Waha Oil Company), who had their exploration contracts suspended in the late 1980s following the imposition of unilateral sanctions. The Oasis Group paid $1.3 billion to resume operations and the terms of their 25-year deal were similar to those in force before contracts were suspended. In February 2005 the US Department of Energy announced that

55 'Blood Money', *Economist*, 30 May 2002.
56 'Everything You Need To Know About The Libyan Oil Industry', *Business Insider*, 22 February 2011.
57 'Timeline: Libya sanctions', *BBC News*, 15 October 2004.
58 'Libya: Background and U.S. Relations ', *Congressional Research Service*, 18 February 2011.
59 'U.S. to lift final sanctions against Libya', *CNN World*, 17 September 2004.
60 'Families of Lockerbie bombing victims receive compensation from Libya', *The Guardian*, 21 November 2008.

Libya was ready to become a major oil exporter again, especially to Europe.[61]

US companies returning adopted a number of strategies, from buying back old concessions (Marathon and ConocoPhillips), to winning bids for new blocks (Chevron and ExxonMobil), or a combination of both (Amerada Hess and Occidental). Libyan oil production saw a steady increase following the lifting of sanctions, however with this inflow of capital and the return of the international oil companies (IOCs) there were reports of growing evidence of Libyan resource nationalism. Evidence included the renegotiation of contract terms by Libya's National Oil Corporation (NOC) and the adoption of Libyan names for IOCs with local subsidiaries.[62] In early September 2008, US Secretary of State Condoleeza Rice made an official visit to Libya, a visit which was seen as symbolic of the country's full reintegration into the international community.[63]

However, a further obstacle to US-Libya relations emerged when in 2009 the Libyan NOC convoked the IOCs in Libya to present a new law establishing a fund for charitable contributions. While the stated purpose of the law was to gather contributions for charitable programs, NOC officials conceded to US Embassy officials in a leaked diplomatic cable that the new law was the government's latest attempt to prompt IOCs to make 'voluntary' contributions to the fund established under the US-Libya Comprehensive Claims Compensation Agreement, which exists to compensate victims of terrorism and their families. Citing concerns about potential violations of the Foreign Corrupt Practices Act, IOC heads were reluctant to make contributions.[64]

The al-Megrahi Question

One question which continued to haunt relations between Gaddhafi's Libya and Western countries concerned the release of release from a British prison of Abdelbaset al-Megrahi, the only person convicted of the bombing of Pan Am flight 103 in 1988 in Lockerbie, Scotland. In 2001 al-Megrahi was sentenced to life imprisonment in Scottish courts, yet in 2009 was released on 'compassionate grounds' by the Scottish government, as he was thought to be close to death from cancer (although he remained alive until his death in Tripoli in May 2012).[65] Accusations were made that British oil major BP had played a role in securing the Libyan's release, however BP denies any lobbying that linked Libyan prisoners to commercial contracts.[66]

Following the events of 2011, the National Transitional Council (NTC) in Libya assured that it would provide any assistance requested for investigations into the Lockerbie case. However, the interim Minister of Justice later stated in 2011 that he considered this case 'closed'.[67]

61 'More US oil firms return to Libya', *BBC*, 30 December 2005.
62 'Growth Of Resource Nationalism In Libya', *Wikileaks*, 15 November 2007.
63 'Everything You Need To Know About The Libyan Oil Industry', *Business Insider*, 22 February 2011.
64 'Lipstick On A Pig: Libya Renames Claims Compensation Fund', *Wikileaks*, 21 May 2009.
65 'Lockerbie bomber Abdelbaset al-Megrahi dies in Tripoli', *BBC*, 20 May 2012.
66 'A black cloud on the horizon for Anglo-American relations?', *Economist*, 21 July 2010.
67 'Scots prosecutors ask Libya for Lockerbie evidence', *BBC*, 26 September 2011.

Fresh sanctions in 2011

The progress of Libyan international reintegration came to a halt with the civil unrest which broke out in the country in spring 2011, leading to the eventual overthrow and death of Muammar Gaddhafi. Following the uprising, the international community moved to impose a new round of sanctions on the regime. After reports from Tripoli that anti-government protests had come under heavy gunfire, US President Obama signed an executive order freezing the assets of Colonel Gaddhafi and members of his immediate family, a move aimed at pressuring Libya to stop violently repressing the popular protests.[68] The sanctions covered Libyan state-owned oil companies including the Arabian Gulf Oil Company, Harouge Oil Operations, Sirte Oil Company, Zuetina Oil Company and Waha Oil Company.[69] International oil companies such as ExxonMobil and banking company JP Morgan reported compliance with US and UN sanctions imposed on Libya.[70]

On 16 September 2011 the UN Security Council dropped sanctions on two Libyan oil companies (Zuetina and the National Oil Corporation) and eased restrictions on four banks in a move to boost the nation's recovery from the war that toppled the dictator.[70] This paved the way for IOCs such as Eni and Total to begin resumption of some spheres of operations in the country.[71] In December 2012 the US, in coordination with the United National Security Council, unfroze the assets of the Libyan Central Bank and the Libyan Foreign Bank to allow the Libyan government to access its worldwide holdings. Assets held by the Gaddhafi family remained frozen, as did the assets of the Libyan Investment Authority (LIA) and the entities it controls.[72]

Libyan Oil Industry post-2011

Libya's oil production was disrupted for much of 2011 due to conflict but, according the US-based Energy Information Administration (EIA), the sector began to recover relatively rapidly following the cessation of most hostilities by autumn of that year.[73] The fighting shut down much of the industry, as a result of security issues at desert oil fields and the abandonment of oil rigs due to the internationally imposed no fly zone. But once the conflict ended output reached 840,000 barrels per day (bpd) (half its pre-war level) by December 2011.[74]

However Deputy Oil Minister Omar Shakmak highlighted delays experienced over 2012, partly down to disruptions as a result of protests and partly due to the slow return of oil services firms to the country. In the run-up to general elections held in

68 'Libya: Barack Obama announces Gaddhafi sanctions', *BBC*, 26 February 2011.
69 'US extends Libya sanctions to more oil companies', *TownHall*, 22 March 2011.
70 'Oil companies abiding by Libyan sanctions', *UPI*, 8 March 2011.
71 'Oil Companies Resume Production In Libya', *RFE/RL*, 26 September.
72 'US Lifts Most Libyan Sanctions, Frees $30 Billion', *Wall Street Journal*, 19 December 2011.
73 'Country profile: Libya',*Energy Information Administration*, June 2012.
74 'Libya's oil industry improving rapidly after war',*BBC*, 9 December 2011.

Libya on the 7 July 2012, political protests caused significant disruption to oil infrastructure in Libya. Export terminals were shut down, which shut in half of Libya's export capacity, and production was cut by 300,000 barrels per day (bpd) as a result of blockages. In April 2012 the headquarters of Libya's largest oil firm in eastern Benghazi were closed off by protesters.[75]

However output reached 1.56 million bpd by July 2012 after three major exporting terminals (Es Sider, Ras Lanuf and Brega) were restarted. In November 2012 Libya's oil production reached 1.6 million bpd, reaching pre-war levels a year after the end of the civil war that shut in output. However Nuri Berruien, chairman of the National Oil Corporation (NOC) said that the country was looking to expand capacity going forward and was targeting levels of 2 million bpd and 5 billion cubic feet (bcf) "in the short term."[76]

Corruption in Libya

Prior to the revolution in 2010 Libya ranked 146 out of 178 countries on the Corruption Perceptions list compiled by Transparency International. In 2011 it fell to 148th place, and in 2012 fell several places to rank 168th. However in 2012 the country made a modest improvement, rising to 160th place.[77]

In early 2012 Libya's post-revolutionary leader Mustafa Abdul-Jalil warned that Libya would take years to overcome its "heavy heritage" of corruption, to combat a culture of mistrust and to build state institutions and the rule of law.[78] In particular, in an August 2012 interview, Libyan Health Minister Fatima Hamroush raised concerns about a type of "new corruption" arising in the Libyan health sector. This related to a fund established parallel to the Health Ministry, reporting directly to the Prime Minister, which was reportedly misusing funds designed to secure medical treatment abroad for those injured during the 2011 war.[79]

Corruption in Gaddhafi era

According to a leaked US diplomatic cable from 2009, regulations in Libya were opaque and arbitrary[80] and corruption was widespread under Colonel Muammar Gaddhafi, who was intimately involved in the regime's most critical and sensitive portfolios. The cable describes how, as de facto head of state, Gaddhafi was subject to few formal decision making structures and Libya was effectively a kleptocracy in which the Gaddhafi family or its close political allies had a direct stake in anything worth buying, selling or owning. Gaddhafi personally reviewed any transactions worth US $200 mil-

75 'Libya sees return to pre-war oil output in October',*Reuters*, 26 July 2012.
76 'Libya reaches 1.6 million b/d output milestone, promises more to come',*Petroleum Economist*, 9 December 2011.
77 'Corruption Perceptions Index', *Transparency International*, retrieved 21 January 2011.
78 'Libya: Corruption 'will last years'', *Independent*, 22 February 2012.
79 'Libyan Health Minister criticises 'new corruption'', *Euronews*, 29 August 2012.
80 '2011 Index of Economic Freedom - Libya', *Heritage Foundation*, retrieved 20 October 2011.

lion or more and was involved in many contracts of lesser value,[81] and he and his loyalists often sought to extract millions of dollars from contracts with international companies operating in the Libyan market, according to the *New York Times*.[82] By February 2011, Gaddhafi had accumulated a multi-billion dollar fortune that he had hidden in financial safe havens across the globe.[83]

Beyond Gaddhafi himself, the cables note that Libya's bureaucratic inefficiency and low salaries for government employees combined to create an environment in which rent-seeking and payoffs were common and even viewed as necessary to ensure the best service and pricing. Personal connections and insider knowledge played a significant role in business dealings with operators in Libya.[84]

Libya was a signatory to the UN Convention Against Corruption,[84] which came into effect in 2005,[85] but there were no international, regional or NGO 'watchdog' organisations present in Libya to help facilitate regulatory transparency as of early 2010 and opposition websites critical of government corruption were operated by groups situated outside of the country.[84]

Overtures to reform

As of early 2010 there had been some movement on the part of the government to curb corruption. It established the Administration and Oversight Board as an agency to prevent corruption and oversee government activities, and in a series of speeches in late 2006, Gaddhafi had called for all senior government officials to declare their complete assets and earnings within four months. Out of 4,600 files of senior government officials that were eventually reviewed, 150 were singled out for corruption, according to US diplomatic cables, and of those 20 were referred to the courts for judicial action. It was unclear, however, if these actions were directly related to Gaddhafi's ultimatum.[84]

According to Shukri Ghanem, former Prime Minister and then-Chairman of Libya's National Oil Corporation (NOC) and Ibrahim el-Meyet, a prominent Tripoli-based attourney and business consultant, Gaddhafi was willing to accept superficial economic reforms mainly to reintegrate with the West, but substantial economic and political reform could not occur as long as Gaddhafi was alive.[86]

Gaddhafi family economic ties

During his time in power, Gaddhafi appointed his sons to run various sectors of Libya's

81 'Al-qadhafi: The Philosopher-king Keeps His Hand In', *Wikileaks*, 29 January 2009.
82 'Shady Dealings Helped Qaddafi Build Fortune and Regime', *New York Times*, 24 March 2011.
83 'Gadhafi's stolen billions stashed in London', *Montreal Gazette*, 25 February 2011.
84 'Libya: Investment Climate Statement', *Wikileaks* 14 January 2010.
85 'Background of the United Nations Convention against Corruption', *United Nations Office on Drugs and Crime*, retrieved 20 October 2011.
86 'National Oil Corporation Chairman Shukri Ghanem May Seek To Resign Soon', *Wikileaks,* 13 July 2008.

economy.[87] Cables from diplomats at the US embassy in Tripoli describe how Muhammad, the oldest son, dominated the telecommunications sector and Muatassim Gaddhafi was National Security Adviser.[88] Hannibal was influential in maritime shipping,[89] and Khamis commanded a top military unit. Saadi was involved in setting up an Export Free Trade Zone in western Libya,[88] and another son, Saif al-Islam, also benefited from government financing and political backing in his business endeavors.[89]

Compensation Fund controversy

In 2009, according to US diplomatic cables, the Libyan NOC brought together major international oil companies (IOCs) operating in Libya and presented a new law pressuring them into contributing to a charitable fund to support social and humanitarian aid programs. NOC officials, including then-Chair Shukhri Ghanem, admitted that the law was a thinly veiled attempt to make the IOCs contribute to a fund established under the U.S.-Libya Comprehensive Claims Compensation Agreement, which existed to compensate the victims of terrorism and their families. According to NOC officials chairing the meeting, if the companies declined to contribute to the fund, it was suggested they could be find for environmental violations or have their employees stopped by police for alleged traffic violations.

The issue reached the highest levels of the Libyan regime and went beyond the NOC, according to Ghanem, and senior British Gas executives with close ties to Ghanem said he was under pressure from Gaddhafi himself and Prime Minister al-Baghdad al-Mahmoudi.[90] According to the New York Times, while some companies resisted contributing to the US $1.5 billion fund, others appeared willing to make the payments in order to continue doing business in Libya.[87]

Shipping in Libya

Libya's total shipping capacity as of March 2009 was 11.8 million barrels.[91] Libya had US $34 billion in net oil export revenues (nominal) and $31 billion (real) in 2009.[92] and its total petroleum exports were were valued at $41.87 billion in 2010.[93]

Libyan shipping under Gaddhafi

According to leaked US diplomatic cables, there has historically been a close integration of public and private interests in Libya's shipping industry, and until the 2011 war

87 'Shady Dealings Helped Qaddafi Build Fortune and Regime', *New York Times*, 24 March 2011.
88 'Wikileaks exposes corruption of Gaddhafi off-spring', *Scotsman*, retrieved 23 February 2011.
89 'Hannibal Goes To Sea: Insights Into Another Al-qadhafi Family Business', *Wikileaks*, 12 August 2008.
90 'Lipstick On A Pig: Libya Renames Claims Compensation Fund', *Wikileaks*, 21 May 2009.
91 'Libya Commercial Round-up For February 2009', *Wikileaks* 14 March 2009.
92 'OPEC Revenues Fact Sheet', *Energy Information Administration*.
93 'Libya facts and figures', *OPEC*, retrieved 8 October 2011.

the Gaddhafi family held a near-monopoly on this sector. The cables explain that Hannibal al-Gaddhafi owned and controlled the nominally private shipping company Mariner for Maritime Transportation Ltd. Those sources reported that Hannibal also has a controlling stake in the state-owned General National Maritime Transport Company (GNMTC). Hannibal's exact role in GNMTC is unclear, with some sources describing him as a consultant and others indicating that he played a key management role in the company.

Mariner, established in 2000, has three primary areas of operation: shipping management, offshore oil/gas platform support, and refined oil product transportation from Libya to foreign ports. As of August 2008, Mariner had virtually no competition within Libya, providing up to 75 percent of the Libyan National Oil Corporation's requirements for transporting "clean" (refined) products to foreign markets. With its political connections, Mariner enjoyed high-level government support, having received financial support from the National Oil Corporation (NOC) at least as recently as late 2006, according to a source at the National Engineering and Supply Services Company (NESSCO).[94]

The decision by GNMTC to halt all oil shipments to Switzerland immediately after Hannibal's arrest there in 2008 sheds light on the extent of Hannibal's influence in the company. According to the cables, opposition websites also document instances in which Hannibal used his influence over the GNMTC to broker the purchase of new vessels, through which he has gained millions in personal profit.[94]

General National Maritime Transport Company (GNMTC)

The GNMTC is a state-owned owned company founded in 1975 with initial capitalisation of US $340m. In 2011 the official website listed 15 vessels in its fleet, although according to the *Petroleum Economist* the number is often thought to be 22.[95]

EU sanctions and NATO activity in the Mediterranean severely disrupted GNMTC's ability to ply its normal trading routes. In mid-2011, there was media speculation that Hannibal Gaddhafi, the fourth son of deposed leader Muammar Gaddhafi, was trying to sell off a fleet of GNMTC oil tankers, first to companies based in Hong Kong and Singapore in July, then to Russian investors in August. This was an effort to settle debts and increase cash flow for the regime's war effort. There were no sanctions placed on GNMTC, but because Hannibal himself was blacklisted, any transaction resulting in economic benefit to the Gaddhafi regime would have broken the terms of the sanctions.[96]

However in late 2011 board member Captain Tarek Youssef Said said that operations were being resumed and the company was shedding its links with the Gaddhafi family. But lost business due to sanctions and the cost of stranded vessels had a negative im-

94 'Hannibal Goes To Sea: Insights Into Another Al-qadhafi Family Business', *Wikileaks*, 12 August 2008.
95 'The Company', *GNMTC*, retrieved 31 January 2013.
96 'Exclusive: Qadhafi talks oil-tanker sales with Russians', *Petroleum Economist*, 8 August 2011.

pact on the year's profits.

As of 2011 the GNMTC was operating as the shipping arm of the Libyan National Oil Corporation (NOC). There were no changes made to the board of directors at the company following the revolution, with Chairman Captain Ali Belhaj still at his post as of November 2011.[97]

Official website: www.gnmtc.com

97 'Libyan tankers sailing again after war and sanctions; Qaddafi-era vessel 'Aisha' renamed 'February 17'', *al-Arabiya*, 25 November 2011.

Energy Industry Background

Libyan Hydrocarbon Reserves and Production

Reserves

Oil reserves

At the end of 2011 Libya had proven oil reserves of 47.1 billion barrels (bbl), accounting for 2.9 percent of the global total.[98] Official reserve estimates for Libya jumped in 1995 from 22.8 bbl to 29.5 bbl, where they stayed until 2000 when exploration activity began to ramp up, causing the reserve estimates to increase more consistently into the 21st century.[99]

According to the consultancy Wood Mackenzie, Libya in 2008 was said to be "highly unexplored", but with "excellent" potential for more oil discoveries. In their analysis the under-exploration of Libya was largely due to sanctions, the absence of modern technology and to stringent fiscal terms imposed by Libya on foreign oil companies.[100] Most of the agreements signed by international oil companies from 2004 onwards, once sanctions were lifted, called for increasing production, yet significant effort was also put into finding new oil reserves. However, there have been reports that the promise of vast new discoveries did not live up to the expectations of some, especially when compared to the case of Iraq. Jim Burkhard of IHS Cambridge Energy Research Associates, claimed that "we didn't see the types of discoveries that would lead to very strong growth over the next decade."

Gas reserves

The official estimate for proven Libyan natural gas reserves stood at 1.5 trillion cubic metres (tcm) at the end of 2010, representing 0.8 percent of global reserves.[99] It remained at the same level at the end of 2011.[98]

In 2007 Libyan experts were expecting ultimate reserves to be 2-2.8 trillion cubic feet (tcf), while the National Oil Corporation (NOC) estimated reserves of approximately 3.4 tcm.[101]

In 2011 the Libyan government was planning to further develop its natural gas sector

98 'BP Statistical Review of World Energy 2012', *BP,* retrieved 12 December 2012
99 'BP Statistical Review of World Energy 2011', *BP,* retrieved 12 December 2012
100 'Energy Profile of Libya', *BP*, 25 August 2008.
101 'FACTBOX-Key facts about Libya's gas sector', *Reuters*, 15 August 2007.

in the medium-term as the country continued to recover from over a decade of US and international sanctions. New discoveries and investments in natural gas exploration reported at the beginning of 2011 are expected to raise the current estimates in the near-term.[102]

Production

Oil

Over 2011 Libya produced an average of only 479,000 barrels per day (bpd) of oil, accounting for 0.6 percent of global production.[103] Libya's oil output dropped to less than 100,000 bpd by August 2011 as a result of the revolution,[104]

In the previous year Libya produced approximately 1.65 million bpd, around 150,000 bpd below capacity but still above the production quota set by the Organization of Petroleum Exporting Countries (OPEC), which was 1.47 million bpd.[102] Energy analysts Wood Mackenzie estimated Libya had the potential to produce up to 3 million bpd of oil,[105] which was its approximate peak production in the late 1960s.[106]

Following the upheaval of the 2011 revolution, former Libyan oil minister Shukri Ghanem said he expected the country to require up to US $4 billion to restore oil production to the levels it maintained before the start of the revolution.[107] The head of the NOC said on the 2 October 2011 that he expects Libya's pre-war output of 1.6 million bpd to be reached within 14 months,[108] Ghanem suggested that full output was not expected for another 18 months due to looting and missing parts at oil installations.[109]

About 85 percent of Libyan crude exports went to Europe in 2010[102] and approximately 13 percent to Asia.[110] Italy received the highest percentage of Libya's exported oil (28 percent), while France (15 percent), China (11 percent), Germany (10 percent) and Spain (10 percent) were also major importers, among other countries. The lighter (high API gravity), sweeter (low sulphur content) grades of oil were typically sold to Europe, while the heavier crude oils were often exported to Asian markets.[102]

Gas

Over 2011 Libya produced on average 4.1 billion cubic metres (bcm) per day of natural gas. This represented a fall of 75.6 percent on the previous year's gas production fig-

102 'Libya Country Analysis', *US Energy Information Administration*, retrieved 25 October 2011.
103 'BP Statistical Review of World Energy 2012', *BP*.
104 'Factbox: Libyan oil output - how quickly can it restart?', *Reuters*, 22 August 2011.
105 'Press Releases: Energy', *Wood Mackenzie* 12 September 2011.
106 'Libya - Country Analysis Brief', *Energy Information Administration*, retrieved 21 October 2011.
107 'After Qadhafi, the new test: uniting Libya', *Petroleum Economist*, 21 October 2011.
108 'EXCLUSIVE: Libya oil exports at 400,000 b/d 'within two months'', *Petroleum Economist*, 3 October 2011.
109 'Opec's El-Badri sees swift Libyan oil return', *Petroleum Economist*, 11 October 2011.
110 'Factbox: Libyan oil production, exports, customers', *Reuters*, 22 February 2011.

ures.[111]

Ga exports from Libya to Europe rose with the introduction of the Western Libya Gas Project (WLGP) and Greenstream underwater pipeline that came on stream in 2004. Previously the only customer for Libyan gas was Spain's Enagas.[112]

Dependence on Extractives Revenues

Political scientist Michael Ross describes oil dependence as "the ratio of oil, gas and coal exports to GDP". By this definition, the most highly oil dependent state in 1995 was Angola (68.5 percent), followed by Kuwait (49.1 percent). The most highly mineral-dependent states were Botswana (35.1 percent) and Sierra Leone (28.9 percent).

High levels of dependence can make states more susceptible to symptoms of the so-called 'resource curse', such as a higher propensity for violent conflict, weak institutions and stunted economic development.[113] A UN paper investigating patterns of resource dependency between 1960-1990 found a correlation between countries exhibiting high levels of fuel and mineral dependency and negative per capita annual growth rates over that period.[114]

However there are two different measures of oil revenue dependence, the first being the ratio of oil revenues to fiscal revenues, or the total income of the government and the second is the ratio of oil revenues to total exports. The IMF estimated in 2003 that, of the Gulf producers, the United Arab Emirates shows the least oil dependence, with oil accounting for just over half of government income, and just under half of exports.[115]

Qatar, by contrast, showed a ratio of 70 percent of government revenues, and 80 percent of total exports. The International Monetary Fund identified at least 30 countries where revenues from oil and gas accounted for at least 25 percent of government income during the period 2005-8 and where sufficient information was available for meaningful analysis:

Libya, Algeria, Angola, Azerbaijan, Bahrain, Bolivia, Brunei, Cameroon, Chad, Congo, Ecuador, Equatorial Guinea, Gabon, Indonesia, Iran, Kazakhstan, Kuwait, Mexico, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Sudan, Timor-Leste, Trinidad and Tobago, UAE, Venezuela, Vietnam, and Yemen.[116]

It is important to note that oil revenue dependence is not related to the quantity of oil produced or exported. Yemen, which exported around 448,000 barrels of oil a day

111 'BP Statistical Review of World Energy 2012', *BP*.
112 'FACTBOX-Key facts about Libya's gas sector', *Reuters*, 15 August 2007.
113 'Natural Resources and Violent Conflict', *World Bank*, 2003.
114 'Meeting the Challenge Of the 'Resource Curse'', *UNDP*, 2006.
115 'GCC Countries: From Oil Dependence to Diversification', *International Monetary Fund*, 2003.
116 'Fiscal Policy in Oil Producing Countries During the Recent Oil Price Cycle', *International Monetary Fund*, February 2010.

(bpd) in 2003, displayed a higher degrees of dependence on oil revenues than Saudi Arabia, which exported around 10.2 million bpd over the same period, or over twenty times more.[117]

Dependence on extractives revenues in Libya

Although Libya has been a significant producer of crude oil since the 1960s, it displays lower social and economic indicators when compared with other developing oil and non-oil producing economies.[118]

On achieving independence in 1951, Libya's economy was mainly based on agriculture, animal husbandry and other sectors such as textiles and handicrafts. However the beginning of oil exports in 1961 proved a turning point and since then, according to industry researcher Issa Saleh Ali, the economy has been heavily dependent on the oil sector. From then onwards, per capital income increased and the economy shifted from being a deficit to a surplus economy. Between 1970-2007 an average of 70 percent of total government revenue came from oil. Through the same period oil exports accounted for 95 percent of total exports.[118]

After Muammar Gaddhafi came to power in 1969, reducing Libya's dependence on oil was the government's major economic policy objective, according the the US State Department. In this analysis the failure to achieve this goal was down to ill-advised policy decisions and obstacles to economic diversification in a country lacking in both basic infrastructure and water resource.[119]

According to US State Department figures, by the time of the 2011 revolution, oil accounted for approximately 75 percent of government revenue, 95 percent of exports, and 25 percent of gross domestic product (GDP).[120]

The 'Energy Mix'

What is the 'energy mix'?

The 'energy mix' refers to the distribution of consumption per energy source from one region to another. Each country uses energy differently, defining its own energy mix.[121]

According to the *BP Statistical Review*, in 2010 oil consumption accounted for 34 percent of the world's primary energy; coal accounted for 30 percent of the mix; gas contributed 24 percent; hydro-power contributed 6.5 percent and non-hydro renewables (in-

117 'BP Statistical Review of World Energy June 2011', *BP*, June 2011.
118 Saleh Ali, Issa, 'Oil Revenue and Economic Development : case of the Libyan economy (1990-2007)', *Wolloongong University*, 2011.
119 'Libya: The Economy',*US Library of Congress*, retrieved 16 January 2013.
120 'Country Brief: Libya',*Energy Information Administration*, June 2012.
121 'The Energy Mix',*Planete Energies*, retrieved 1 February 2012.

cluding biofuels) contributed 1.8 percent.[122] BP's *Energy Outlook 2030* report highlights three key trends shaping the modern energy economy: industrialisation; urbanisation and motorisation. These trends are led by:

- increased energy consumption.
- increased efficiency of energy use in production and consumption.
- increasing diversification of sources of energy.
- increased demand for clean and convenient energy at the point of use.[123]

Historical trends

One source of power has always dominated the energy mix, according to *The Economist*. In the pre-industrial age wood dominated, during the industrial revolution coal dominated and oil has dominated the 20th century. By 2030 BP predicts that natural gas will gain in importance, however energy efficiency will mean that economic growth will be far less energy intensive across the globe.[124]

The first great wave of industrialisation was powered by coal, a fuel which remained dominant until after the Second World War. The next major transition came with electricity and the internal combustion engine, which allowed diversification away from coal. Coal gradually came to be replaced as the principal fuel in power generation by natural gas and renewable energy sources.[123]

However between 2000-2011 coal's share of the energy mix increased by 4 percent on the back of strong growth in China, most of whose growth in the 21st century has come from burning coal. Coal consumption in 2011 was up by 7.6 percent and was growing faster than at any time since 2003.[122]

Future projections

The IEA predicts that the share of natural gas in the global energy mix will increase from 21 percent in 2011 to 25 percent in 2035 and the share of coal will decline. However according to their report, an increased share of natural gas in the energy mix is far from enough to avoid an average global temperature rise of less than 2° C, as although gas is estimated to replace some coal and oil in the mix it will also displace some nuclear power, thereby increasing greenhouse gas emissions.[125]

According to BP's estimates, the fuel mix will change relatively slowly due to long asset lifetimes. However the fastest growing fuels will be renewables, which BP expects to grow at 8.2 percent per year between 2010-2030. Among fossil fuels, BP expects gas to grow at the fastest rate (2.1 percent per year). Their outlook predicts that oil will continue a long decline in market share and that recent gains by coal in market share,

122 'The world gets back to burning',*Economist*, 8 June 2011.
123 'BP Energy Outlook 2030',*BP*, January 2011.
124 'Watts next',*Economist*, 25 January 2012.
125 'Are we entering the golden age of gas?',*IEA*, 2011.

due to rapid industrialisation in China and India, will be reversed by 2030.[123]

Unconventional energy sources

The *Petroleum Economist* predicts that unconventional resources such as shale gas and coal bed methane will play a critical role in meeting global energy demand in the future, the "game changer" being the rise of unconventional gas in the US. However nearly 75 percent of the world's total unconventional resources lie outside North America.[126]

According to the IEA's 2011 report *Are we entering a golden age of gas?* unconventional gas resources are now estimated to be as large as conventional resources, and unconventional gas now makes up around 60 percent of marketed production in the US.[125]

KPMG, in their report *Shale Gas - A Global Perspective* argue that this resource has the potential to turn the world's energy industry on its head and to displace fossil fuels in the energy mix of selected locations, including China, America, Argentina, Mexico and South Africa,[127] potentially slowing the development of renewable resources. However the industry must first face considerable reputational and regulatory obstacles.[128]

Renewable energy sources

Renewable energy includes such sources as wind, photovoltaic and thermal solar, tidal and wave power, among others. The renewable energy industry is still in its infancy in terms of its contribution to the global mix, but while the global contribution is still minor, it shows a high growth rate. Wind power, for example, showed growth rates above 30 percent between 1997-2007.[129] However, demand for fossil-based energy, such as coal and oil, has outpaced demand for clean energy.[130]

The energy mix in Libya

Prior to the 2011 revolution, the energy market in Libya had been small relative to the size of its petroleum exports,[131] with domestic oil consumption in 2010 estimated at about 270,000 bpd.[132] In 2010, the NOC said that Libya's energy consumption was rising at the average rate of 7 percent per year.[131] Oil met approximately 72 percent of Libya's energy demand in 2009, with natural gas filling the remaining 28 percent.[132]

126 'Unconventional gas's global potential',*Petroleum Economist*, 18 July 2011.
127 'The World in Figures:Energy',*Economist*, 17 November 2011.
128 'Shale Gas - A Global Perspective',*KPMG Institutes*, December 2011.
129 'World Energy and Population Trends to 2100',*Approaching the Limits to Growth*, October 2001.
130 'Clean Energy Progress Report',*IEA*, June 2011.
131 'The Libyan Energy Base', *APS Review Downstream Trends* 4 July 2011.
132 'Libya - Country Analysis Brief', *Energy Information Administration* Retrieved 21 October 2011.

Generic Oil and Gas Terms

Resource Curse

The 'resource curse' (sometimes termed the 'paradox of plenty') refers to the theory that natural resource wealth and a high degree of dependency on natural resources can sometimes paradoxically create negative development outcomes in producing countries, due to weakened governmental institutions, neglect of other key sectors of the economy, corruption, high income inequality and other factors.[133]

Evidence and research

The idea that natural resources can result in poor development outcomes has been in play since the 1950s, when it was hotly contested by the ideological camps of the Left and Right. Empirical data began to accumulate to support the idea over time. In the 1970s Gobind Nankani, a vice-president at the World Bank, showed that a group of mineral exporting countries grew on average by 1.5 percent per year over the period 1960 to 1976, about half the growth in a control group of non resource-rich countries.[134] In 1988 a study commissioned by the World Bank examined the windfalls accruing to six oil-rich countries during the boom of the 1970s and concluded that those states had performed less well than other, resource-poor countries.[135]

At the end of the 1990s Jeffrey Sachs and Andrew Warner's publication *Natural Resource Abundance and Economic Growth* examined 97 countries over a period of 18 years (1971 - 1989) and found that states with a high abundance of natural resource exports had abnormally slow economic growth in general, relative to other countries. The study became the basis of a growing recognition of the need to address the problems that natural resource abundance can create in developing societies.[136]

Opponents of the term

Some economists have resisted the term 'resource curse' because they claim it sounds fatalistic.[137] Oxford professor Paul Collier suggests that the term poses the problem the wrong way round, since he estimates there are more natural resources in developed countries than in developing ones. The dominance of natural resource industries in some developing countries' economies is simply, he states, due to the fact that they

133 'Exploring Oil Data', *OpenOil*, 2012.
134 Nankani, Gobind 'Developmental Problems of Mineral Exporting Countries', *World Bank*, 1979.
135 'Oil Windfalls, Blessing or Curse?', *Alan Gelb and Associates*, 1988.
136 Sachs, Jeffrey and Warner, Andrew 'Natural Resource Abundance and Economic Growth', *Center for International Development and Harvard Institute for International Development*, November 1997.
137 'Resource Curse, or Resource Trap?', *Thinking Out Aloud*, 23 February 2010.

have had few other options for economic development, which in turn is due to a whole host of political and social factors. Collier argues that for the world's 'Bottom Billion' - the poorest billion people on the planet - a greater problem is rather that their natural resources have not been discovered or developed enough.[138]

Others have resisted that the phenomenon is inevitable, arguing that any resource curse must be contingent. Paul Collier cites the case of Botswana, for example, which has experienced rapid growth since the discovery of diamonds.[139]

Attitudes of major institutions

International institutions

The International Monetary Fund has published papers discussing how to address the resource curse in Nigeria[140] and Botswana.[141] For its part, the World Bank uses the term 'resource curse'[142][143] while arguing that it is not inevitable and can be avoided by good governance.

Oil companies

The attitude of private oil companies towards acceptance of the term varies, however in a 2004 speech Nick Butler, BP's Vice-President for Strategy and Policy Development, made the following comment in acknowledgment of the phenomenon: "The reality of the problems which have afflicted a number of different countries as a result of natural resource development is undeniable. I am convinced that there are things we can do to mitigate many of the problems but it would be quite wrong to start from a position of denial."[141]

On the other hand, in an advertisement from 2006, US major ExxonMobil rejected use of the term 'resource curse', but said it supported the Extractive Industries Transparency Initiative (EITI) process because it acknowledges that good governance is necessary to deliver benefits from oil production, and that transparency is a part of that. The advertisement made the point that "disparaging the resource itself is not the answer."[144]

138 Collier, Paul 'The Plundered Planet: Why We Must--and How We Can--Manage Nature for Global Prosperity', *Oxford University Press*, 2011.
139 'Laws and Codes for the 'Resource Curse'', *Oxford University*, September 2007.
140 'Addressing the Natural Resource Curse: An Illustration from Nigeria', *IMF*, July 2003.
141 'Escaping from the Resource Curse: Evidence from Botswana and the Rest of the World', *IMF*, 2007.
142 'Property Rights and the Resource Curse', *World Bank*, 5 April 2007.
143 ''Contributing to development'? Q&A with World Bank Group director', *Critical Resource*, January 2010.
144 Garsten, Christina and Lindh de Montoya, Monica 'Transparency in a New Global Order', *Edward Elgar Publishing*, 2008.

Economic symptoms

Dutch Disease

So-called 'Dutch disease' is the effect on a country's economy when it earns a lot of revenues from exporting a natural resource. It was named after the period in the Netherlands when a decline in the manufacturing sector was witnessed during the 1960s following the discovery of a major natural gas field. The theory goes that oil exports result in large inflows of foreign currency, which in turn tends to lead to the appreciation of the local currency and makes exports from other sectors uncompetitive. Simultaneously the earning power of the oil sector draws in labour and capital, adversely affecting other sectors of the economy, whether they are export-oriented or not.[145]

Oil and debt

Economists have long noted the link between oil revenues and higher fiscal spending. Overspending during a commodity boom, thanks to access to cheap credit in international capital matters, can lead to accumulation of high levels of debt, leading to high interest rate spreads during periods of lower natural resource prices. Some have attributed the 'resource curse' in oil-rich countries to the 'debt overhang' which occurred in the 1970s when these countries used commodities as collateral to take on excessive debt when oil prices were high. However a collapse in oil prices in the 1980s left these countries with no ability to service their debts.[146]

A 2005 study by the Institute for Public Policy Reform analysed data from 101 countries for the period 1991 to 2002 and concluded there was a statistical correlation between increased oil production and exports, and public debt in the producing country.[147] The case of Venezuela during the 1970s oil boom displays the symptoms detailed above, where President Carlos Andres Perez increased public spending dramatically, leading to high levels of debt and ensuing management problems through commodity price cycles.[148]

Political symptoms

Weakening of institutions

Many political scientists have outlined a 'resource curse' which both makes rulers in a state less accountable, and state institutions weaker. They are less accountable because the presence of resource revenues means a state is not under the same pressure to raise taxes in order to provide welfare and public services (to a greater or lesser extent depending on the degree of their resource wealth). State institutions become

145 'Mineral-Rich Countries and Dutch Disease', *World Bank', 2008.*
146 Coutinho, Leonor 'The Resource Curse and Fiscal Policy', *Cyprus Economic Policy Review*, 2011.
147 'Drilling into Debt', *Institute of Public Policy Research*, 2005.
148 Hausmann, Ricardo and Rodriguez, Francisco 'Venezuela: Anatomy of a collapse', 2006.

weaker because they do not develop the same degree of discipline, through meritocracy and against measured goals and results. The most notable exponent of this theory has been Professor Terry Lynn Karl, who studied the cases of Venezuela, Nigeria, Algeria and Iran for her analysis.[149]

Conflict

Analysts of the resource curse point to many cases where natural resource wealth creates or exacerbates conflicts, either between states or within them. Notable cases include:

- South Sudan, where the presence of oil renewed tensions between the Khartoum government in Sudan and the newly formed country.
- The oil-rich Cabinda region of Angola, where a secessionist movement has flourished since the discovery of oil.
- Nigeria, where the concentration of oil in the Niger Delta was a contributing factor to the Nigerian Civil War of 1966-70, and ever since has been a cause of significant unrest.[150]

Avoiding the resource curse

Mechanisms and policies which have been proposed to avoid the 'resource curse' include: simply leaving the oil in the ground (one of the more extreme proposed solutions that allows an economy and society time to adjust before inflows arrive, but opposed by the private sector); economic diversification (to develop other sources of value and reduce dependency on mineral exports); "revenue sterilisation" (to neutralise the impact of windfall revenues by resisting spending pressures); and stabilisation funds (set up to invest revenues outside the domestic economy and guard against fluctuating commodity prices).[151]

Definition of Hydrocarbon Reserves

Different systems have been used to classify reserves of oil and gas since the industry first developed in the nineteenth century. But the most widely used definitions today are provided by the Petroleum Resources Management System of the American Society of Petroleum Engineers (SPE).[152]

Reserve estimates are a major driver of value for exploration and production compan-

149 Karl, Terry Lynn, ', The Paradox of Plenty: Oil Booms and Petro States', *University of California Press*, 1997.
150 'The Natural Resource Curse: A Survey', *Harvard Kennedy School*, February 2010.
151 'Resource Impact - Curse or Blessing?', *University of Dundee*, 25 March 2003.
152 'Petroleum Reserves & Resources Definitions', *Society of Petroleum Engineers*, retrieved 18 January 2012.

ies. All reserves are estimates of underground reservoirs which cannot be physically inspected and always involve some degree of uncertainty. However such systems are important in creating a 'universal language' of clear terms and definitions that result in reliable and easily comparable reserve estimations for investors, regulators, governments and consumers.[153] However it should be noted that around the world, government agencies and organizations use slightly different definitions.[154]

According to the vice president of petroleum consultancy Ryder Scott, there has been a trend towards commissioning external audits of estimated reserves. With increased attention given to corporate responsibility in financial reporting, he asserts that oil and gas companies are now engaging third-party engineers to evaluate or audit petroleum reserves.[155]

Categories of reserves

According to the SPE Guidelines, 'reserves' are a subset of 'resources', representing the part of resources which are commercially recoverable and have been justified for development. Reserves can be subsequently divided into the following three categories depending on certainty of recovery.[153]

Proved reserves

> The highest valued category of reserves is 'proved',reserves. Proved reserves have a 'reasonable certainty',of being recovered, which means a high degree of confidence that the volumes will be recovered. To be clear, reserves must have all commercial aspects addressed. It is technical issues which separate proved from unproved categories.[153]

The term 1P is frequently used to denote proved reserves.[153] BP publishes an annual Statistical Review which details proved reserves for over 50 producing countries.[156]

Probable and possible reserves

> 'Probable',or 'possible',reserves are lower categories of reserves, commonly combined and referred to as 'unproved reserves,',with decreasing levels of technical certainty. Probable reserves are volumes that are defined as 'less likely to be recovered than proved, but more certain to be recovered than Possible Reserves', Possible reserves are reserves which analysis of geological and engineering data suggests are less likely to be recoverable than probable reserves.[153]

The term 2P is used to denote the sum of proved and probable reserves and 3P the sum of proved, probable and possible reserves. The best estimate of recovery from commit-

153 'SPE Petroleum Resources Management System Guide for Non-Technical Users', ,*Society of Petroleum Engineers*, retrieved 18 January 2012.
154 'Petroleum Reserves & Resources Definitions', *Society of Petroleum Engineers*, retrieved 18 January 2012.
155 'The Reserves Audit', *Ryder Scott*, retrieved 18 January 2012.
156 'BP Statistical Review 2009, *BP*, 2009.

ted projects is generally considered to be the 2P sum of proved and probable reserves.[157]

Resources

'Resources' denotes less certainty than 'reserves' because some significant commercial or technical hurdle must be overcome prior to there being confidence in the eventual production of the volumes.[157]

Contingent resources

> These are resources that are potentially recoverable but not yet considered mature enough for commercial development due to technological or business hurdles. For contingent resources to move into the reserves category, the key conditions, or contingencies, that prevented commercial development must be clarified and removed. As an example, all required internal and external approvals should be in place or determined to be forthcoming, including environmental and governmental approvals. There also must be evidence of firm intention by a company's management to proceed with development within a reasonable time frame (typically 5 years, though it could be longer).[157]

Prospective resources

> Prospective resources are estimated volumes associated with undiscovered accumulations. These represent quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from oil and gas deposits identified on the basis of indirect evidence but which have not yet been drilled. This class represents a higher risk than contingent resources since the risk of discovery is also added. For prospective resources to become classified as contingent resources, hydrocarbons must be discovered, the accumulations must be further evaluated and an estimate of quantities that would be recoverable under appropriate development projects prepared.[157]

Crude Oil Qualities

Density

Oil density is generally expressed in degrees using an API scale. This is a specific gravity scale developed by the American Petroleum Institute (API), designed to measure the relative density of various petroleum liquids. The measure is expressed in degrees and most values fall between 10° and 70° API gravity.[158] The specific gravity of oil is its relative density to water at 60° Fahrenheit.[159]

157 'SPE Petroleum Resources Management System Guide for Non-Technical Users', *Society of Petroleum Engineers*, retrieved 18 January 2012.
158 'API Gravity',*Schlumberger Oil Glossary*, retrieved 22 January 2012.
159 'Tech Talk - Venezuela, heavy crudes, API gravity and refinery gains',*The Oil Drum*, 9 January 2011.

Light oil

Otherwise known as 'conventional oil', light oil has an API gravity of 22° or over.[160]

For example, Saudi Arabia's new blend of super light crude has an API gravity of 44°.[160] The oil produced from Libyan fields is also typically very 'light' and the country's nine export grades have API gravities that range from 26-43.3°.[161]

Heavy oil

Heavy oil is a dense, viscous oil with low API gravity. Definitions vary, but it is generally accepted that the upper limit for heavy oils is 22°API. In Venezuela for example, the Bachaquero Heavy Crude Oil has an API gravity of 17°.[162]

Heavy oils are usually not recoverable in their natural state through a well or using ordinary production methods. Most need to be heated or diluted so that they can flow into a well or through a pipeline.[160]

Extra heavy oil

Extra heavy oil has an API gravity of less than 10°.[160]

Bitumen

Otherwise known as 'oil sands', bitumen shares many attributes of heavy oil but is even more dense and viscous.[160]

Sulphur content

Crude oil can also be measured in terms of sulphur content (ranging from 'sweet' to 'sour'). 'Sweet' crude is usually defined as oil with a sulphur content below 0.5 percent, while 'sour' crude has a sulphur content of 0.5 percent or over.[163]

Impact on refining

The density and 'sourness' of crude oil feedstocks affects the amount of processing and conversion necessary to achieve what is known as an optimal mix of products. Light, sweet crude demands a higher price than heavier, sourer crude as it requires less processing and produces a greater percentage of value-added products, such as gasoline, diesel and aviation fuel. Heavier grades of fuel generally require additional processing to producer lighter products.[163]

160 'What is Heavy Oil and How is it Formed?',*Rigzone*, retrieved 22 January 2012.
161 'Saudi's New Super Light Crude Blend To Hit Market In April -Source',*IEA*, 31 March 2011.
162 'Crude Oil Types',*A Barrel Full*, 31 March 2011.
163 'Types of Crude Oil',*Neste Oil*, retrieved 23 January 2012.

Crude oil blends

Blended crude is a mixture of crude oils, blended in the pipeline to create a crude with specific physical properties. This may be to reduce viscosity and ease transportation, or alternatively to create added value compared to the raw crude.[164]

Oil producing countries, particularly those with a many different qualities of crude from their fields, must decide which brand they will put on the international market. There are around 160 crude grades marketed globally as of 2012. In order to optimise investments in pipelines and storage facilities, countries tend to reduce the number of marketable streams by blending different oil grades. For example, the 'Brent blend' in fact comes from the blending of 15 different grades of oil from the North Sea.[165]

Crude oil qualities in Libya

Libya typically produces a high quality light, sweet variant of crude oil.[166] Libyan crude generally has an API Gravity ranging between 32-44°.[167]

Oil Field Depletion

Oil field depletion refers to the decline in an oil field's production over time,[168] when a field's recoverable resources become exhausted and production is reduced due to the physical limitations of the reservoir.[169] Depletion is a natural process by which an oil field produces an increasing volume of oil until output eventually hits a peak, after which the volume that can be pumped out of that field gradually declines.[170]

The analysis of depletion rates is a key element in forecasting the future production of oil reservoirs.[169] A metric often used to determine the remaining lifespan of an oil reserve is the 'reserves-to-production ratio', used to forecast the future availability of a resource.[171]

164 'Blended Crude', *Schlumberger Oil Glossary', retrieved 29 November 2012.*
165 'Iraq oil: The crude oil quality dilemma', *Gulf News', 11 November 2012.*
166 'Libya', *Energy Information Administration*, June 2012.
167 'Libya', *Heritage Oil*, retrieved 16 January 2013.
168 'The life of an oil reservoir', *The Oil Drum*, 14 August 2006.
169 'Depletion and Decline Curve Analysis in Crude Oil Production', *Global Energy System*, May 2009.
170 'Oil Fields and what they do (or might) produce, and when', *Natural Hub*, retrieved 1 February 2012.
171 'Reserves to Production Ratio', *Investopeida*, retrieved 8 January 2012.

Enhanced Oil Recovery (EOR)

Overview

The life of an oil well goes through at least three distinct phases, with various techniques employed to keep oil production at maximum levels. Enhanced oil recovery (EOR) is the third and most advanced stage in this process, whereby oil is forced into the well-head where it can be pumped to the surface. EOR can substantially improve the efficiency of extraction.[172]

EOR can refer to any method of increasing oil production from a reservoir, using sophisticated technological techniques to add energy to a reservoir to stimulate oil production and increase recovery factor, or the amount of the reservoir's total oil that is extracted.[173] EOR also has some considerable drawbacks, including the relatively high cost of its implementation and, in some cases, the unpredictability of its effectiveness.[174]

According to the Petroleum Technology Transfer Council, about 10 percent of all oil produced in the United States in 2009 used enhanced recovery techniques.[175]

Three stages of oil field development

In the first stage of an oil field's development, oil is forced out by pressure generated from gas present in the oil (also known as associated gas).[172] The natural pressure of the reservoir, or gravity, drives oil into the wellbore, combined with artificial lift techniques such as pumps which bring the oil to the surface. Only about 10 percent of a reservoir's original oil in place is typically produced during primary recovery.[174]

In the secondary stage, the reservoir is flooded with water or injected with gas to maintain sufficient pressure levels to displace oil and drive it to the production wellbore.[172] This stage extends a field's productive life and results in the recovery of 20 to 40 percent of the original oil in place.[174]

EOR refers to the tertiary stage of development, which involves the introduction of fluids that the reduce the viscosity, or thickness, of the oil and improve its flow. A variety of fluids are used for this purpose. These fluids typically consist of gases that are miscible (form a homogeneous mixture) with oil, steam, air or oxygen, polymer (long-chained molecule) solutions, gels, or microorganism formulations. Tertiary recovery enables producers to extract up to or over half of a reservoir's original oil content, depending on the reservoir and the technique used.[172]

172 'Enhanced Oil Recovery (EOR)', *Teledyne ISCO*, Retrieved 1 February 2012.
173 'Oil Field Glossary', *Schlumberger*, Retrieved 1 February 2012.
174 'Enhanced Oil Recovery/CO2 Injection', *Fossil Energy*, Retrieved 1 February 2012.
175 'Enhanced Oil Recovery', *Petroleum Technology Transfer Council*, Retrieved 1 February 2012.

Categories of EOR techniques

The primary categories of EOR are thermal recovery, gas injection and chemical injection.[176]

- Thermal EOR has historically been the most widely applied.[177] This method involves the introduction of heat, most commonly in the form of steam, into a reservoir to reduce the viscosity of the oil to be extracted.[176]
- Gas injection uses gases such as nitrogen or carbon dioxide that expand in a reservoir to push additional oil to the production wellbore. Other gases can also be used to dissolve in the oil to lower its viscosity and increase its flow rate.[176] Other gases, such as hydrocarbon gases and flue gases (the combustion exhaust gas of a power plant, for example), can also be used in this method of EOR.[177]
- Chemical EOR generally involves the flooding of a reservoir with water-soluble polymers, or long-chained molecules, to help reduce the surface tension that often prevents oil from moving through a reservoir.[176] This effects a more efficient displacement, and therefore better recovery, of moderately viscous oils.[177]

A number of other EOR processes have also evolved, including the injection of carbonated water, microorganisms, foams, alkaline, and other substances. These have shown varying degrees of promise but require additional development to enter into more common use.[177]

According to the US Department of Energy in December 2011, thermal techniques accounted for over 40 percent of EOR production in the United States, gas injection accounted for nearly 60 percent, and chemical techniques accounted for about one percent.[176]

Offshore Drilling

Overview

Offshore wells are drilled in much the same way as their onshore counterparts—with several allowances for the offshore environment, such as a subsea drilling template which allows for accurate drilling while allowing for movement of the drilling platform.[178]

There are two basic types of offshore drilling rigs: those that can be moved from place to place, allowing for drilling in multiple locations, and those rigs that are permanently placed. Moveable rigs are often used for exploratory purposes because they are much cheaper to use than permanent platforms. Once large deposits of hydrocarbons

176 'Enhanced Oil Recovery/CO2 Injection', *Fossil Energy*, Retrieved 1 February 2012.
177 'Enhanced Oil Recovery (EOR)', *Teledyne ISCO*, Retrieved 1 February 2012.
178 'Offshore Drilling Basics', *Diamond Offshore*, Retrieved 10 February 2012.

have been found, a permanent platform is built to allow their extraction. In addition to the drilling template, a blowout preventer is installed on the sea floor. This system, much the same as that used in onshore drilling, prevents any oil or gas from seeping out into the water.[179]

New depth records for drilling reached 7,625 feet in the Gulf of Mexico, and Shell Oil's platform *Troll*, which stands in the North Sea in 1,000 feet of water, 1,500 feet high, became one of two man-made objects visible with the naked eye from the surface of the moon.[180]

A report by the National Research Council found that offshore oil and gas drilling was responsible for just 2 percent of the petroleum spilled in North America's oceans, compared with 63 percent from natural seepage and 22 percent from municipal and industrial waste. Coast Guard reports show that the amount of oil spilled in U.S. waters dropped from 3.6 million barrels in the 1970s to less than 500,000 in the 1990s.[181]

The offshore oil industry was the focus of much attention following the *Deepwater Horizon* rig explosion in April 2010 which killed 11 people and unleashed the largest offshore oil spill in U.S. history. In its wake, the US federal authorities clamped down on offshore oil activity, instituting a six-month moratorium on deep-water drilling.[182]

History

In the late 19th century, after drilling a large number of wells, early oilmen noticed that those nearest the ocean were the best producers.[180] However, the executor and the date of the first offshore rig is contested, with some sources naming T.F. Rowland as the inventor of offshore drilling as he was the owner of a patent for his offshore drilling rig design in 1869[179] and others citing H.L. Williams as the executor of the first offshore drilling well in 1887, in Summerland, California. Williams' first well extended about 300 feet into the Pacific ocean.[180] *USA Today* puts the date of the first U.S. offshore oil production as 1896, also in California.[181]

The first offshore well out of sight of land was completed in 1947 off the coast of the Gulf of Mexico by the Kerr-McGee Corporation[183] , and marked the beginning of the modern offshore industry as it is known today. By 1949, 11 offshore fields were found in the Gulf of Mexico with 44 exploratory wells.[180]

The Second World War also sparked technological progress with regards to the offshore oil industry after its conclusion, including the work of the US Army's oceanography and weather service, which created a corps of well-trained specialists who forecast wind, wave, and soil conditions. In addition, it sparked improvements in communications which could be adapted for use offshore, as well as vessels designed for

179 'Offshore Drilling', *NaturalGas.org*, retrieved 10 February 2012.
180 'About NOIA- History of Offshore', *National Ocean Industries Association*, retrieved 10 February 2012.
181 'Worth the risk? Debate on offshore drilling heats up', *USA Today*, 14 July 2008.
182 'Gulf Coast business still suffering from offshore drilling slowdown', *Fuel Fix*, 6 February 2012.
183 'History of the Offshore Oil and Gas Development in Louisiana', *Bureau of Ocean Energy Management*, retrieved 10 February 2012.

the war which could be purchased at low prices after the war.[184]

Worldwide operations

The offshore industry was key to Brazil's energy reserves, with the the 2007 discovery of the Tupi field some 200 miles (320 kilometres) south of Rio de Janeiro in the Atlantic Ocean. According to energy consultants *IHS-CERA*, Brazil has nearly 48 billion barrels of oil in water of depths of 2,000 feet or greater.[185]

In Africa, the two biggest offshore layers have been Angola and Nigeria. New offshore producers include Ghana with the Jubilee field, Sierra Leone, and Liberia.[185]

While the Gulf of Mexico has been producing offshore for many years, IHS CERA say that the Gulf still holds nearly 13 billion barrels of recoverable deepwater oil.[185]

As of February 2012, there were 113 mobile offshore drilling units in the Gulf of Mexico region, 118 in the Europe/Mediterranean Sea region, 72 units in offshore West Africa, and 121 in the Middle East offshore market.[186]

Opposition and Controversy

The debate about offshore drilling stems from questions over how much oil potentially could be recovered from underwater fields versus the time and cost, both in dollars and environmental impact, related to that process.[187]

The prospect of offshore drilling in the Arctic has been a source of controversy despite the fact that the oil is believed to lie less than 500 metres below the surface of the ocean. However, environmentalists say weather conditions would make it difficult to respond in the event of an oil spill, and say the potential results of an oil spill make the risks of drilling for offshore oil unfeasible. Despite this, Norway has been carrying out Arctic exploration.[185]

In Brazil, Margot Stiles, a marine scientist with the conservation organization Oceana, said research funded by Petrobras has helped to discover the deep-sea corals and other ecological treasures in Brazil's offshore drilling region. But she fears the company's operations could put that ocean environment in jeopardy.[185]

"We've been working to limit offshore oil drilling because we just don't see that it's safe," she said. "After the Gulf oil spill people definitely have a greater appreciation for the limits of deep sea drilling technology, and the limits of what we can do to keep things safe."[185]

Environmental groups say that pollution from offshore rigs causes a wide range of

184 'History of the Offshore Oil and Gas Development in Louisiana', *Bureau of Ocean Energy Management*, retrieved 10 February 2012.
185 'The Next Prospects: Four Offshore Drilling Frontiers', *National Geographic*, 19 April 2011.
186 'IHS Petrodata Weekly Rig Count', IHS, 3 February 2012.
187 'Offshore Drilling: Is Energy Worth the Ecological Disaster of Oil Spills?', *Tree Hugger*, June 2010.

health and reproductive problems for fish and other marine life and exposes wildlife to the threat of oil spills that would devastate their populations.[188]

Natural Gas

What is natural gas?

About 85 percent of natural gas produced from conventional wells is methane, a highly flammable compound made up of one carbon atom and four hydrogen atoms.[189] It is colourless and, in its pure form, odourless. As the gas has no odour, gas companies often add a chemical to the gas to give it a distinctive smell so that gas leaks may be detected by smell.[190]

The units of measurement used for natural gas are generally based on volume and measured in cubic feet (a cubic foot being one foot long, by one foot wide, by one foot deep). This volume is usually expressed in BCF (billion cubic feet), TCF (trillion cubic feet) and MCF (thousand cubic feet).[191]

According to the US Department of Energy, for many years natural gas was considered worthless and discarded, and is still released by flaring today in many countries.[190]

Natural gas can be found as either associated gas, non-associated gas, wet gas (a type of non-associated gas) or coal bed methane.[189]

Non-associated gas

Non-associated gas is gas which is found in reservoirs which do not contain significant quantities of crude oil.[192] It often occurs at greater depths where heat has split all of the hydrocarbons into smaller, lighter gas molecules. Shale gas is one type of unconventional non-associated gas.[189]

Associated gas

Associated gas is found in association with crude oil, either dissolved in the oil or as a 'cap' of free gas above the oil. Where it cannot be used, associated gas is either reinjected into the well, flared or vented.[193]

Coal bed methane

Coal bed methane (CBM) or coal seam gas (CSG) is the natural gas extracted from coal

188 'The Case Against Offshore Drilling', *Greening Forward*, Retrieved 10 February 2012.
189 'Oil and Gas Resources and Their Uses', *TEEIC*, retrieved 13 February 2012.
190 'Natural Gas', *US Department of Energy*, retrieved 13 February 2012.
191 'Natural Gas Measurement', *KGM*, retrieved 13 February 2012.
192 'NON-ASSOCIATED GAS DEFINITION', *Oil and Gas Glossary*, retrieved 13 February 2012.
193 'Oil and Gas Resources and Their Uses', *A Barrel Full*, retrieved 13 February 2012.

beds during underground coal mining.

History of natural gas

In the absence of pipelines, through the 1800s the natural gas which was found was used almost exclusively as a fuel for lamps. However the invention of the 'bunsen burner' in 1885 proved that gas could be used to provide heat for cooking and warming buildings.

The construction of pipelines allowed natural gas to be brought to new markets. One of the first substantial pipelines was built in 1891 in the US, however few pipelines were built until after the Second World War in the 1940s.[194]

Role of natural gas in the energy mix

The International Energy Association estimated in 2011 that natural gas could overtake coal and rival oil by 2035 to account for over 25 percent of global energy demand.[195]

According to the *Petroleum Economist*, the growing interest in gas as an element in today's energy mix represents a "structural shift in energy markets." Natural gas holds several benefits as a fuel for a low-carbon future, including:

- the lowest carbon footprint of all fossil fuels.
- a shorter lead time to build gas-fired power plants and greater operational flexibility.
- ability to reduce greenhouse gas emissions by 25 percent in the transport sector compared to traditional motor fuels.[196]

The International Energy Agency (IEA) also points out that gas can help to diversify energy supply and so improve energy security.[197]

Natural Gas Flaring

Gas flaring is the disposal by burning of unwanted associate natural gas released from an oil field by burning it. It is widely used where there is no infrastructure to make use of the gas. However it is widely recognized as a waste of energy and as environmentally dangerous in contributing carbon emissions to the atmosphere.[198]

The top four 'flarers' internationally by the Global Gas Flaring Project (GGFP)'s 2011

194 'The History of Natural Gas', *US Department of Energy*, retrieved 13 February 2012.
195 'Gas could make up 25% of global energy mix by 2035: IEA', *Platts*, 2011.
196 'Unconventional Gas's Global Potential', *Petroleum Economist*, 18 July 2011.
197 'Are We Entering a Golden Age of Gas?', *IEA*, 2011.
198 'Global Gas Flaring Estimates',*NOAA*, retrieved 15 February 2012.

statistics were Russia, Nigeria, Iran and Iraq. However according to *Iraq Oil Report*, gas flaring is a global problem on the descent as producing countries are increasingly magnetising the gas in a maturing market for the fuel. Between 2009-2012 the practice saw a 22 percent decrease on a global level, despite outliers such as Iraq where the level increased.[199]

Fuel Subsidies

Global snapshot

Government control of the domestic prices of petroleum products is a common feature in developing countries.[200] However fuel subsidies cover a wide range of government actions that lower the cost of fossil fuels.[201] A report by the Organisation for Economic Co-operation and Development (OECD) in 2011 listed over 250 individual budgetary and taxation mechanisms for altering the price of fossil fuels,[202] and therefore estimating fuel subsidies can be difficult. The most commonly used methodology for quantifying fuel subsidies, known as the price-gap approach, calculates subsidies applied to fossil fuels that are consumed directly by end-users or consumed as inputs to electricity generation.[203] This approach compares an average price paid by the end-user with a reference price that corresponds to the full cost of supply.

According to Washington-based Center for Global Development, most oil exporters subsidise their fuel prices domestically, sometimes at very low prices and implying a large cost for governments.[204] The International Energy Agency (IEA) estimates that fossil-fuel subsidies amounted to US$ 409 billion worldwide in 2010, and they predict that subsidies could rise to US$ 660 billion by 2020, equating to 0.7 percent of global Gross Domestic Product (GDP).[205] Deutsche Bank said that in 2010, 70 percent of fuel subsidies were made in the world's major oil and gas exporting nations, and that such subsidies have been instrumental in driving an increase in domestic demand within Organization of the Petroleum Exporting Countries (OPEC) countries and other oil-exporting countries in the 2000s.[206]

The table below illustrates the 15 countries that spent the most on fossil-fuel subsidies in absolute terms in 2010 (US$ billions), along with the relative value of such subsidies

199 'Wasted money, global concern over Iraq's persistent gas flaring',*Iraq Oil Report*, 1 November 2011.
200 'The Magnitude and Distribution of Fuel Subsidies: Evidence from Bolivia, Ghana, Jordan, Mali, and Sri Lanka', *IMF*, 2006.
201 'Fossil Fuel Subsidies', *Price of Oil*, retrieved 19 April 2012.
202 'Inventory of estimated budgetary support and tax expenditures for fossil fuels', *OECD*, 2011.
203 'Fossil-fuel subsidies – methodology and assumptions', *International Energy Agency*, retrieved 19 April 2012.
204 'Nigerians Demand Cheap Gas, But Fuel Subsidies Are NOT Pro-Poor', *Center for Global Development*, 6 January 2012.
205 'World Energy Outlook 2011', *International Energy Agency*, 2011.
206 'Crude Oil: Iceberg Glimpsed Off West Africa', *Deutsche Bank*, 2 February 2012.

compared with their Gross Domestic Product (GDP).[207][208]

Country	Total Fossil-Fuel Subsidies (US $ billions)	Fossil-Fuel Subsidies as a share of GDP
Iran	80.8	22.6%
Saudi Arabia	43.5	9.8%
Russia	39.3	2.7%
India	22.3	1.4%
China	21.3	0.4%
Egypt	20.3	9.3%
Venezuela	19.9	6.9%
UAE	18.2	6%
Indonesia	16.0	2.5%
Uzbekistan	12.0	30.5%
Iraq	11.4	13.8%
Algeria	10.6	6.6%
Mexico	9.5	0.9%
Thailand	8.4	2.7%
Ukraine	7.9	5.60%

Criticism

The International Energy Agency (IEA) said in a 2011 report that the normal rationale for fuel subsidies is that they promote economic development and alleviate poverty. However they argued that subsidies can have unintended consequences such as encouraging wasteful consumption, discouraging energy efficiency and reducing the competitiveness of renewable fuels. Crucially the IEA rejected the argument that fuel subsidies promote development, arguing that instead they foster inequality through disproportionately benefiting richer households who are more likely to own fuel-consuming cars and electrical appliances. Therefore the IEA concluded that fuel subsidies are an extremely inefficient means of assisting the poor, with only eight percent of the US $409 billion spent on fuel subsidies in 2010 reaching the poorest 20 percent of the global population.[209] G20 leaders have also criticised fuel subsidies, agreeing in 2009 to "rationalise and phase out over the medium term inefficient fossil-fuel subsidies",

207 'Fossil fuel subsidies: a tour of the data', *The Guardian*, retrieved 19 April 2012.
208 'Fossil-Fuel consumption subsidy rate as a proportion of the full cost of supply, 2010', *International Energy Agency*, 2012.
209 'World Energy Outlook 2011', *International Energy Agency*, 2011.

with the leaders of the Asia-Pacific Economic Cooperation (APEC) making a similar commitment the same year.[210]

In March 2012 a United Nations Development Programme (UNDP) report put forward the case for eliminating fossil fuel subsidies, arguing that the savings made could be used to help the poorest citizens cope with rising world energy prices. On top of this, the report said that the move would address climate change, reduce energy waste, cut government expenditure and minimise social inequality.[211] Balazs Horvath, the report's lead author, pointed out that in Europe and Central Asia the elimination of fuel subsidies has been followed by both economic growth and a fall in greenhouse gas production, which "gives quite a bit of weight to the argument that this can work". Between 1990 and 2008 gross domestic product (GDP) expanded by 22 percent in the region whilst carbon emissions fell by 28 percent - the largest regional decline in the world.[212]

Elimination of subsidies

The elimination of fuel subsidies presents a political dilemma, due to the social unrest which can often result.[213]

For example the proposed removal of fuel and transport subsidies was one of the key motivations behind the violent 'Caracazo' riots in Venezuela in 1989.[214] Furthermore, in the first quarter of 2012 alone, multiple protests and strikes were launched against the prospect of fuel subsidy cuts.

In January 2012 Nigeria experienced a wave of protests in response to the government decision to remove subsidies on imported oil products, forcing the government to partially re-instate the subsidies.[215] Ghanaian fuel prices increased by about 20 percent when their fuel subsidy was cut at the end of 2011, [216] causing civil society groups to talk of nationwide strikes[217][218] and forcing a policy reversal in February 2012.[219] In March 2012 the Indonesian government was forced to rule out a fuel subsidy cut after weeks of protests across the country. Indonesian officials were wary of the political consequences of fuel price hikes; in 1998 a fuel price rise in Indonesia helped trigger student riots that toppled the 32-year Suharto dictatorship.[220]

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210 'Inventory of estimated budgetary support and tax expenditures for fossil fuels', *OECD*, 2011.
211 'From Transition to Transformation', *United Nations Development Programme*, retrieved 18 April 2012.
212 'Cutting fuel subsidies key to sustainable development - report', *Alert Net*, 13 April 2012.
213 'Removal of Fuel Subsidies in Nigeria: An Economic Necessity and a Political Dilemma', *Brookings Institute*, 10 January 2012.
214 'Caracazo Was 'Forerunner',to Anti-Neoliberalism Protests, States Venezuela's Chávez', *Venezuela Analysis*, 6 October 2011.
215 'Crude Oil: Iceberg Glimpsed Off West Africa', *Deutsche Bank*, retrieved 19 April 2012.
216 'How Ghana, Tanzania, Uganda tackle fuel subsidy', *BusinessDay*, 18 January 2012.
217 'Ghana Reinstates Fuel Subsidy But Higher Transport Fares Remain', *SaharaReporters.com*, 8 February 2012.
218 'Protests, strikes may erupt in Ghana over removal of fuel subsidy', *Punch*, 19 January 2012.
219 'Ghana: mixing politics and fuel prices', *Financial Times*, 9 February 2012.
220 'Emerging Asia struggles to cut soaring fuel subsidies', *Financial Tribune*, 1 April 2012.

Fuel subsidies in Libya

Former Oil Minister Shukri Ghanem in 2003 unveiled proposals for economic reform, including plans to cut some $5 billion worth of subsidies, following decades during which the state had been subsidising 93 percent of the value of basic commodities, notably fuel. In May 2005 there a 30 percent hike in fuel prices and 6 percent increase in diesel prices was introduced. This had a great impact on Libyan citizens, particularly as there were few public transport alternatives available for travel purposes.[221]

Later, as a short-term response to the aspirations created by the 2011 revolution, the interim government in Libya raised wages and subsidies.[222] According to a 2012 IMF Report, spending on wages and subsidies in Libya is projected to increase to 30 percent of GDP. The paper warns that in the medium to long term, if the level of recurrent spending is inconsistent with appropriate budgetary prioritisation, it could lead to a damaging appreciation of the exchange rate, warning that the spending pattern was undermining prospects for fiscal sustainability.[223]

Oilfield services industry

Oilfield services companies assist drilling companies in the oil industry in setting up oil and gas wells. Such companies may manufacture, repair or maintain the equipment used in oil extraction and transport. Services can include seismic testing (mapping the geological structure beneath the ground), transport services (such as movement of land and water rigs) and directional services (such as angled or horizontal holes).[224] National Oil Companies (NOCs) and international oil companies (IOCs) often lack such technical and geological skills and so turn to service companies.[225]

According to a 2010 report by GBI Research, the global oilfield services industry has witnessed considerable growth in recent years, is expected to become a US $200 billion industry by 2015 (an increase on $140 billion in 2008). In part this is due to the growth in activity in offshore fields around the world. However the global economic downturn in 2009 did lead to a period of slower growth.[226]

221 'Libya: Economic Reforms Anger Citizens',*Carnegie Endowment*, 20 June 2005.
222 'Libya's Post-Conflict Recovery Better Than Expected, IMF Says',*Tripoli Post*, 13 November 2012.
223 'Libya - Staff Visit Concluding Statement',*IMF*, 4 May 2012.
224 'Industry Handbook: The Oil Services Industry', *Investopedia*, retrieved 12 March 2012.
225 'The oil-services industry: Rigging the market', *Economist*, 23 June 2011.
226 'The Future of the Oil Fields Services Industry to 2015 - Rebound in Exploration and Drilling Activity Drives Growth', *GBI Research*, May 2010.

Major trends

Unconventionals and offshore drilling

Industry observers predict that the burgeoning unconventional energy industry will create a boost in demand for the services industry. Production of shale oil and other unconventionals brings logistical and technological challenges and demands a huge increase in the number of rigs supplied. A surge in offshore drilling activity is also predicted to boost demand. The *Economist* reported, for example, that America's Halliburton was planning to boost its workforce of 60,000 by 25 percent over 2011. Dahlman Rose, a bank, estimated that global exploration budgets would rise by around 14 percent in 2011 to $533 billion.[227]

According to the *Economist*, the United States is the centre of the oilfield service boom, where firms pioneered the technique of horizontal drilling in order to access shale oil and shale gas.[227]

Demand for local content

According to Ayman Asfari, CEO of UK-based Petrofac, NOCs are increasingly demanding to see 'local content' (ie. local operators) playing a part in new contracts for exploration, production and plant construction. This puts international oil companies at a disadvantage and creates an opportunity for oil services companies to build assets with local partners, maintain that asset for a period of time and then 'hand it back' to the NOC to run in the long term.[228]

Key industry players

According to *Arabian Oil and Gas*, as of 2008 the ten largest oilfield service companies globally were:

1. Schlumberger Limited
2. Halliburton
3. Saipem
4. Transocean Ltd.
5. Baker Hughes
6. Fluor
7. Weatherford International
8. BJ Services Company
9. Petrofac
10. China Oilfield Services Ltd.

An *Economist* report suggests that by offering a full range of oilfield services, the "big four" of the industry (Schlumberger, Halliburton, Baker Hughes and Weatherford International) enjoy an advantage over smaller firms, as NOCs often prefer to deal with only one firm rather than deal with several.[227]

227 'The oil-services industry: Rigging the market', *Economist*, 23 June 2011.
228 'Ayman Asfari on Petrofac's road to Damascus', *Telegraph*, 30 October 2010.

In 2011 a group of business school professors carried out a study to identify the 100 most innovative companies globally. They found that the oilfield services industries accounted for six of the top 100. Two of these were Schlumberger and Halliburton, and a further two were leading drilling equipment companies FMC Technologies and Cameron International. The remaining two were China Oilfield Services and Tenaris SA.[229]

229 'Musings: The Innovators in The Oilfield Service Industry Identified', *RigZone*, 30 October 2010.

Regulatory Framework

Overview of Libyan Regulation

Oil industry regulation today

Libya's oil industry is run by the state-owned National Oil Corporation (NOC), which is the body responsible for implementing the exploration and production sharing agreements (EPSAs) with international oil companies (IOCs).

Since the introduction of the EPSA contractual framework in the 1970s, several versions have been released, the latest being the EPSA IV, introduced for the first time with Libya's first post-sanctions licensing round in January 2005.[230] IOC participation in Libya's oil concessions was initially as high as 49 percent. However, changes to the production sharing agreements under the EPSA IV Licensing Round in 2005 limited IOC production shares. The Libyan government has since required that IOCs already operating in the country rewrite existing contracts to comply with the new framework.[231]

The government was looking to hold its first post-Gaddhafi licensing round in 2013, as part of a long-term plan to raise its crude production capacity above 2 million barrels per day (bpd).[232]

Review of Gaddhafi-era contracts

Following the 2011 revolution, the National Transitional Council (NTC) announced that it was setting up a 20-strong Oil Committee with the power to end, amend or renegotiate Gaddhafi-era oil contracts,[230] sometimes referred to as the 'Twenty Committee". The group began a major review of nearly 10,000 business contracts signed under Gaddhafi, including in the energy sector, to ensure fairness and hunt for evidence of corruption.[233] The government was expecting to complete the contracts review by mid-2013.[234]

230 'Understanding the Libyan Oil & Gas production sharing agreement Framework', *Clyde & Co*, retrieved 22 January 2013.
231 'Libya Oil and Gas Profile', *A Barrel Full*, retrieved 21 October 2011.
232 'Libya puts licensing round on 2013 agenda', *Upstream Online*, 21 June 2012.
233 'Libya tries to calm wary investors over review', *The National*, 20 May 2012.
234 'Libya hope to launch new oil and gas licensing round in 2013', *Interfax Natural Gas Daily*, 12 December 2012.

Legislative basis for oil and gas sector

Petroleum Law 1955

The Petroleum Law No. 25 was enacted in 1955, which provided a legal basis for the oil industry and precipitated a period of rapid growth in exploration activity. The first concessions were awarded in 1955 and by 1968, 137 concession agreements had been awarded to 42 different companies.[235]

Previously, the Minerals Law of 1953 had been in force, which enabled surveying to be carried out, however the Petroleum Law was the first to allow drilling operations. The Petroleum Commission was soon established as the autonomous public agency responsible for implementation of the Law, but was abolished in 1963 and powers transferred to the newly established Ministry of Petroleum Affairs.

The law divided the country into four zones across the provinces of Tripolitania, Cyrenaica and Fezzan and intended to create on 'open door' policy. The stated intention was "to induce the largest number of oil companies to come to Libya to carry out oil operations herein" and thereby create competition. This stood in contrast to the rest of the Middle East at the time, where large concessions were often granted to one oil major or a joint subsidiary of two. In the Libyan law, there was also no most-favoured-nation clause, as existed in Iran, Iraq and Saudia Arabia.[236]

The 1955 Petroleum Law, as amended by the successive versions of the EPSAs, continues to apply in 2013. However Libya began a review of its petroleum law in 1998.[235]

Evolution of EPSA framework

In 1972, with the aim of nationalising Libya's oil industry, the NOC introduced participation agreements to replace the former concession agreements. The participation agreements transferred 51 percent of all concessions to NOC. Most of the IOCs accepted the new terms voluntarily, but others had their interests nationalised in whole or part. The assets of British Petroleum (BP) were the first to be nationalised.[237] Between 1988 and 2001 Libya awarded 47 blocks on EPSA III terms.[235]

In 1974 the Libyan Government introduced the first exploration and production sharing agreement (EPSA). Ten EPSA I contracts were signed in the 1974-1979 period. The government introduced EPSA II in 1979 to reduce concerns over reserve replacement ratios.[235] Nevertheless, during the 1980s the NOC's makeshift gesture of admitting East European companies to explore oil coupled with the more appealing conditions of the EPSA II agreements failed to solve the country's basic problem of insufficient exploration, according to Libya specialist Dirk Vandewalle. Aside from Eastern European companies, Libya proved unable to attract many new companies despite the known existence of acreage.[237]

235 'Libya - local content in law', *Menas Local Content Online*, retrieved 21 October 2011.
236 Waddams, F. 'The Libyan Oil Industry', *Taylor & Francis*, 1980.
237 Vandewalle, Dirk J. 'A History of Modern Libya', p159-60, *Cambridge University Press*, 2006.

Faced with the collapse of oil prices in the mid-1980s, low internal production, the effect of the economic sanctions and financial difficulties linked to considerable expenditures on the Great Man-made river project and Misrata steelworks, the government introduced the EPSA III framework in 1988 with improved terms in order to attract investors. A particular attraction for the IOCs were the terms relating to cost recovery.[238] Between 1988 and 2001 Libya awarded 47 blocks on EPSA III terms.[239]

In January 2005 the latest model for exploration and production, the EPSA IV, was introduced.[239]

EPSA III

EPSA III refers to the third version of the contractual framework used by Libya's National Oil Corporation (NOC), introduced in 1988 to succeed the preceding EPSA II system and used through the 1990s, to determine new exploration and production sharing agreements (EPSA) with international oil companies (IOCs) operating in the country.[240]

Features

With the aim of encouraging investment, improved terms were offered under the EPSA III framework and between 1988-2011 Libya awarded 47 blocks under EPSA III.[239]

The terms of the EPSA II were amended for the EPSA III in order to entice investors. Dirk Vandewalle, author of various publications on Libya, considers that the strategy partly paid off, as by the end of 1995 there were two dozen foreign oil companies operating once again in Libya. However he highlights that many of these companies were newcomers and had neither the experience nor the capital required for large-scale exploration investments. Therefore, the EPSA III framework suffered as Libya's NOC was forced to diversify its partners for exploration and production due to the country's confrontation with the West.[238]

The EPSA III framework featured significantly higher production shares for IOCs, compared to the later EPSA IV framework introduced, which entailed higher Libyan government shares.[241] Drilling activity over the period of the EPSA III framework stagnated, with US sanctions from 1986 restricting the involvement of international companies, and stiffening contract terms. The number of active wells over the period fluctuated between roughly 40-50, having peaked at over 250 in the late 1960s.[242]

238 Vandewalle, Dirk J. 'A History of Modern Libya', p159-60, *Cambridge University Press*, 2006.
239 'Libya - local content in law', *Menas Local Content Online*, retrieved 21 October 2011.
240 'Outside View: Libya's oil prospects', *Ali and Partners*, 09 July 2009
241 'German Oil Firm RWE Makes Two More Discoveries In Libya', *WikiLeaks*, 22 September 2008
242 'Libya Upstream:Past Performance and Future Potential', *PFC Energy*, 30 November 2004

EPSA IV

EPSA IV is the most recent model of contract used by the Libyan National Oil Corporation (NOC) to govern contracts with international oil companies (IOCs) operating in Libya. The principal difference with its predecessor, the EPSA III framework, was that winners were now determined largely based on how high a share of production a company was willing to offer the NOC. In other words, whichever companies offered the NOC the greatest share of profits would most likely win the bid under the EPSA IV.[243] A leaked US diplomatic cable from 2008 reports that Assam Ali Elmessallati, who at that time bore the title Committee Member for Investment and joint venture Follow-Up, was the architect of the new process.[244]

Terms and features

Exploration work under this model is funded entirely by the private sector operator or consortium, and the foreign oil companies initially bear 100 percent of costs for a minimum of five years, while the NOC retains exclusive ownership.[245] The management of the joint venture company is assigned to a committee comprising of two NOC representatives and one from the outside investor, and voting is unanimous. Other features of EPSA IV include: open competitive bidding and transparency; joint development and marketing of non-associated natural gas discoveries; standardized terms for exploration and production; and non-recoverable bonuses. EPSA IV builds on the previous models under which significant components were left to negotiations.[243]

Impact on IOCs

According to a US State Department cable from 2008, under previous EPSA agreements the IOCs had enjoyed deals based on a fixed margin, thereby insulating them from fluctuations in the market price of oil by receiving a fixed price for every barrel produced. However, under the new deals the foreign companies can reap higher profits per barrel when oil prices are high.[244]

An additional element of the new terms is that the ties between the IOCs and their local Libyan operating partners are less direct in two distinct ways. Firstly, development plans for existing fields would no longer be run through the Libyan operators but negotiated directly with the NOC which owns them. A representative from the US Embassy in Tripoli believed that this would lead to the sweeping aside of traditional resistance to new investment and technologies on the part of Libyan national companies, and to a boost in production levels. The new EPSA framework also includes a new anti-corruption measure that prevents the individual state-run operating companies from being involved in the tendering process, as deals would be agreed directly with the

243 'Outside View: Libya's oil prospects', *Ali & Partners*, retrieved 19 October 2011.
244 'Oxy's 30-year Extension In Libya And What Lies Ahead For Other Iocs', *WikiLeaks*, 13 July 2008.
245 'World energy outlook 2005: Middle East and North Africa insights ', *OECD Publishing*, 2005.

NOC. This new arrangement created 'Joint Project Teams', ostensibly allowing for a more streamlined decision-making process. Finally, the new EPSA agreements incorporated extensive IOC-provided training programs for Libyan nationals, which aimed to help ensure the creation of Libya's next generation of energy sector experts.[246]

The US Embassy representative saw a shortcoming of the new contracts due to the fact that the foreign companies could no longer 'book' reserves to the same degree in the past, which carried the benefit of guaranteeing access to proven quantities of oil and gas to shareholders. Analysts have observed that this means that stock values would be evaluated differently in an environment where reserves are harder to replace. Non-Western IOCs in particular (Indian, Japanese, Chinese and others) were said by the author of the cable to be driven by a desire to book reserves in order to assure supply in their domestic market.[246]

Post-Sanctions licensing rounds

January 2005

The first licensing round held following the lifting of US and UN sanctions against Libya took place in January 2005. Fifteen areas were on offer, 163 companies registered and 13 were approved to bid; 9 onshore and 6 offshore permits were awarded. In this instance, the US firms dominated and were awarded 11 out of the 15 permits, with US-based Occidental Petroleum alone taking nine. European companies were not awarded any blocks in this round. Low production shares and large signature bonuses were characteristic of the winning bids.[247]

October 2005

The second round of EPSA bids were awarded in October 2005, with 26 areas on offer; 48 companies submitted bids, with a wider range of new entrants including Statoil, Nippon and Japex. Almost all of the blocks on this occasion were awarded to European and Asian companies.[247]

December 2006

During the third round in December 2006, there were 14 areas on offer, onshore and offshore across all main basins; 47 companies qualified to bid, 10 contracts were awarded and winning companies included Gazprom, PetroCanada, Wintershall and ExxonMobil.[247]

At the fourth round of bidding in December 2007, the focus was entirely on gas with 12 areas on offer; 54 companies pre-qualified to bid, 34 as operators, with the bid opening seeing 13 bidders. Five of the six companies awarded licenses (Shell, Sonatrach, Occidental and RWE) were already engaged in Libya, and there was a 50 percent award

246 'Oxy's 30-year Extension In Libya And What Lies Ahead For Other Iocs', *WikiLeaks*, 13 July 2008.
247 'Doing Business In Libya', *Deloitte*, 26 June 2008.

rate, in contrast to the previous 3 rounds which saw a success rate of 87 percent.[248]

The winning bids during this round featured low production sharing percentages for the IOCs, but in a departure from past rounds only Shell offered a signing bonus as part of its winning bid. The NOC publicly claimed that the results had been positive for Libya, but leaked diplomatic cables revealed that they had privately conceded some disappointment that more companies did not choose to bid. Some IOC representatives considered that the limited number of bids signaled dissatisfaction with increasingly stringent terms and operating conditions, while others maintained the terms for winners were consistent with previous rounds and that IOCs remained willing to absorb thin production sharing margins and often pay substantial signing bonuses in order to secure access and book reserves.[249]

Contract renegotiations

From 2008 onwards several international oil companies, beginning with Occidental and their partner OMV in June 2008, renegotiated their contracts with the NOC to bring them in line with the EPSA IV framework. Substantial up-front signing bonuses were typical, with Oxy paying a US $1 billion signature bonus and committing to a $2.5 billion investment plan.[250] On 17 July 2008, the Libyans continued their policy of redefining contracts in line with the new rubric by renegotiating the contract for an international consortium operated by Spain's Repsol, in partnership with France's Total, Austria's OMV, and Norway's Saga Petroleum.[251]

In 2009, NOC Chairman at the time Shukri Ghanem said that he would continue to pursue the goal of converting all IOC contracts to EPSA-type agreements.[252] However, as of early 2011 there were no reports of successful contract negotiations between the NOC and the Waha Oil Company, consisting of US oil majors Marathon, ConocoPhillips and Hess.

Types of Oil Contracts

Several types of oil contracts are in use throughout the world: concessions, in which the contractor owns the oil in the ground; production sharing agreements (PSA), in which the contractor owns a share of oil once it is out of the ground; service contracts, in which the contractor receives a fee for extracting the oil from the ground (service contracts are often depicted as a subset of PSAs); and joint ventures (JVs), in which the state enters into partnership with one or more oil companies. Energy consultancy

248 'Doing Business In Libya', *Deloitte*, 26 June 2008.
249 'Libyan Epsa Gas Bidding Round: International Majors' Interest Is Tempered', *WikiLeaks*, 13 December 2007.
250 'Oxy's 30-year Extension In Libya And What Lies Ahead For Other Iocs', *WikiLeaks*, 13 July 2008.
251 'European Oil Companies Extend Contracts In Libya', *WikiLeaks*, 23 July 2008.
252 'Shokri Ghanem Outlines Plans For Libya's National Oil Corporation', *WikiLeaks*, 11 February 2010.

OpenOil's book *Oil Contracts: How to read and understand them* notes that it is rare to find any contract that fits cleanly into any one of these categories, however, and in reality most contracts combine some elements of each.[253]

All oil contracts must address two key issues, according to Revenue Watch Institute (RWI): how profits, often called 'rents', are divided between the government and participating companies and how costs are to be treated.[254]

Concessions

Concessions are the oldest form of a petroleum contract, having first been developed during the oil boom in the United States in the 1800s.[253] When they were introduced around the world, concessions were one-sided contracts favouring companies, according to Revenue Watch, when many of the resource-rich nations of today were dependencies, colonies, or protectorates of other states or empires.[254]

Concessions are based on the system of land ownership used in the United States, in which a land owner owns all resources in the ground under the land he owns and theoretically all resources in the air above it. Concessions grant an area of land, sub-soil resources included, to a company so that if a company discovers oil on a piece of land, it owns that oil. In concession contracts the contractor also has exclusive rights to explore and prospect for oil in that pre-defined area. While the benefit to companies comes directly in the form of ownership over any oil and gas found, governments granting concessions benefit in the form of taxes and royalties on oil and gas produced.[253] Companies compete by offering bids, often coupled with signing bonuses, for the license to these rights. This type of agreement is quite common throughout the world and is used in Kuwait, Sudan, Angola, and Ecuador, among other countries.[254]

Advantages and disadvantages

For governments, concession contracts have the advantage of being relatively straightforward compared to other kinds of agreements, and the degree of professional support and expertise required is often less complex than that needed to negotiate joint ventures or PSAs. Also, the host government keeps the fees paid by the contractor regardless of whether oil is found and commercial production takes place. All financial risks of development, including the costs of exploration, are absorbed by the contractor. The main disadvantage, for governments, of concession contracts is that companies bidding for the contract tend to be more cautious in their bids. If there oil and gas reserves are not proven then there is no guarantee that a company's costs will be covered, so the host government may not maximize its potential return.[254]

Production sharing agreements

Production sharing agreements (PSAs), sometimes called production sharing contracts (PSCs), does not vest a contractor with ownership over the oil in the ground; owner-

253 'Understanding Oil Contracts', *OpenOil*, retrieved 14 January 2013.
254 'A Reporter's Guide to Energy and Development', *Revenue Watch*, retrieved 14 January 2013.

ship of the resource lies with the state. In this situation the PSA is drafted so that a contractor can extract the government's oil on behalf of the government. The PSA was first used in Indonesia in 1966, when the government decided to maintain ownership of the oil in the ground, so that the international company had the right to explore for oil but gained the right to own it and sell it (or a portion of it) once it had been extracted. In Indonesia, according to Revenue Watch, the concession licensing method had been discredited as a legacy of imperialistic and colonial periods and the PSA system was developed in the context of a broader movement of "resource nationalism" among oil-producing countries worldwide.[255] Since that time PSAs have spread globally and are now a common form of doing business, especially in Central Asia and the Caucasus.[256]

Oil companies are entitled to cost recovery for operating expenses and capital investment, and receives money from annual earnings - 'cost oil' - to this effect. Once the companies have used annual earnings to repay themselves, the rest - 'profit oil' - is shared according to the agreed percentage division with the host government.[256]

Advantages and disadvantages

All financial and operational risk rests with the international oil companies in the PSA arrangement, and a host government has the added advantage that it shares any potential profits without having to make an investment, unless it agreed to do so. For companies, the advantage in some countries is that the PSA is superior to all other present and future laws, with the result that the government effectively surrenders its right to adopt new laws and regulations if they adversely impact any rights of the oil company under the PSA.[256]

A disadvantage of the PSA for host governments is that it puts a premium on highly professional negotiations, and the government must have access to technical, environmental, financial, commercial, and legal expertise. This is more feasible for some oil-rich countries than others.[256]

Service contracts

Like a PSA, a service contract does not give an ownership right to oil in the ground. Unlike a PSA, in a service contract the international company never actually gains ownership, or 'title', to the oil produced either. In these cases the company is simply paid a fee for its services in extracting the government's oil.[255]

Joint ventures

Another arrangement, sometimes considered to be a fourth type of contractual arrangement, is the joint venture (JV), which involves the state, through a national oil company, entering into a partnership with an oil company or a group of companies. The JV itself is in this case awarded the rights to explore, develop, produce and sell

255 'Understanding Oil Contracts', *OpenOil*, retrieved 14 January 2013.
256 'A Reporter's Guide to Energy and Development', *Revenue Watch*, retrieved 14 January 2013.

petroleum.[257] Because there is no commonly-accepted form or structure for JVs, they are less commonly used as the basic agreement between an oil company and a host government. JVs require host governments and companies to do things jointly, so if the parties fail to work together the negotiations can be painstaking and disagreement common.[258]

Advantages and disadvantages

For the government, the only advantage of a JV is that it is not alone in decision-making on oil and gas matters and can count on the expertise and shared stake of a major international company. One of the main disadvantages of JVs is that they require more extended negotiations and require much more legal advice because their format is so ambiguous. Additionally, costs must also be shared between the parties, meaning that the host government is a direct and responsible participant in the natural resource extraction, and responsibility also brings with it liability, including for environmental damage.[258]

257 'Understanding Oil Contracts', *OpenOil*, retrieved 14 January 2013.
258 'A Reporter's Guide to Energy and Development', *Revenue Watch*, retrieved 14 January 2013.

International Entities

Operating Environment in Libya

Overview

Since 1973, petroleum rights have been granted under a series of production sharing agreements (PSAs) and from 1979 the National Oil Corporation (NOC) was allowed to enter into agreements with foreign companies.[259]

Foreign oil producers in Libya now operate through joint ventures (JVs) with the NOC. From 2003 onwards, the NOC began to transfer all contracts signed with international oil companies (IOCs) to the more stringent EPSA IV model, which reduced IOC profit shares in return for extending the period of their licenses. However, by the time fighting broke out which led to the revolution in 2011, not all contracts had yet been transferred to the new framework.

In 2007 JVs involving foreign firms producing oil and gas in Libya were forced to change their names to better reflect the country's history and geography. For example, the JV operated by Spain's Repsol became Akakus Petroleum Operations (APO), a reference to the Akakus mountains in the south of the country. Similary, Italian Eni opted for Mellitah Gas, named after the region where it operates west of Tripoli. Total's operation became Mabruk Oil, the word 'mabruk' meaning 'congratulations' in Arabic.[260]

As of 2008, the top operator in Libya by acreage was the NOC, followed by Occidental, Repsol, BP, RWE, OMV, ExxonMobil, Woodside, Eni and StatoilHydro.[261]

Regulatory Framework

According to the *Tripoli Post*, many Libyan experts consider the terms of Libya's EPSA IV contracts to be favourable and transparent but remain among the toughest in the oil industry. The publication claimed that the EPSA IV agreements are not popular among IOCs and that they have caused a number of them to pull out of the Libyan market during the later years of the Gaddhafi regime. Oil major Shell's withdrawal from its operations in the country in 2012 was cited as a sign that these companies and the Libyan government "do not see eye to eye".[262]

259 'Oil and Gas in Libya - Overview ', *Mbendi*, retrieved 21 October 2011.
260 'Libya - The Operators & Fields - The Foreign Oil Producers', *The Free Library*, retrieved 21 October 2011.
261 'Doing Business in Libya', *Deloitte*, retrieved 21 October 2011.
262 'Shell's Pulling Out of Libya: A Warning Message to both Oil Authorities, People', *Tripoli Post*, 31 May 2012.

Following the revolution that toppled the Gaddhafi regime, the National Transitional Council (NTC) appointed a group of 20 people to review nearly 10,000 business contracts, including oil contracts, signed under the former regime, with the aim of detecting corrupt activities. While this contributed to investor uncertainty, Deputy Chairman of the NTC Mustafa El Huni attempted to calm investors over the move by stating that "we have no intention to nationalise or to do something radical. Even if it's an unfair agreement or unfair contract, we'll sit down with a spirit of cooperation and we'll come to agreement with those entities."[263] However in January 2013 *Reuters* reported that the committee set up to review the oil deals had made little progress due to the slow handover of documentation, according to one of its members. and had been dissolved when the mandate of the transitional authorities ended with the July 2012 elections. No new task force had been set up at the time.[264]

Security

According to the *Wall Street Journal*, the heightened security fears arising from the killing of the US envoy to Libya in September 2012 has slowed the return of foreign oil workers returning to Libya. The events caused IOCs in the country to intensify their security precautions. According to the report, even before the death of the US envoy, some oil service companies and those with exploration concessions revised their staffing plans for Libya.[265]

Oil installations became a focal point of popular protests in post-revolution Libya, with demonstrations in 2012 shutting down the eastern Zuetina oil terminal, disruptions which threaten to cut output. Amrita Sen, chief oil analyst at Energy Aspects, told *Reuters* in early 2013 that "we have seen time and time again over the last few months protests have shut down refineries and refineries are directly linked to oilfields... It's a cumulative effect of constant struggles like this that impact output."[266]

BP

Type	Public Limited Company
Traded as	LSE:BP
Founded	1909 (as Anglo-Persian Oil), 1954 (as British Petroleum)
Headquarters	London, UK
Key people	Carl-Henric Svanberg (Chairman), Bob Dudley (CEO)
Revenue	US $386.46 billion (2011)[267]

263 'Libya tries to calm wary investors over review', *The National*, 20 May 2012.
264 'Libya's silence on oil deals a setback for transparency', *Reuters*, 25 January 2013.
265 'Security Fears Cloud Libyan Oil Growth', *Wall Street Journal*, 14 December 2012.
266 'Libya's east heightens calls for control of oil', *Reuters*, 20 May 2012.

Profit	US $26.10 billion (2011)[267]
Total assets	US $293.07 billion (end 2011)[267]
Total equity	US $112.48 billion (end 2011)[267]
Employees	83,400 (end 2011)[268]
Website	www.bp.com

Global snapshot

BP is a British global energy company headquartered in London, ranked in 2010 by Platts as the second largest energy company in the world based on financial performance, trailing ExxonMobil. It improved its position from fourth in the rankings in 2008.[269]

BP began business as Anglo-Persian Oil in 1909,[270] which exported its first cargo of oil in March 1912 from Abadan in Iran. From 1914 until the 1980s, the British government were the company's principal stockholder and since then BP have acquired the Standard Oil Company in 1987, merged with US company Amoco in 1998 and acquired Atlantic Richfield and Burmah Castroland in 2000.[271]

At the end of 2011 BP had total proven global reserves of 17.75 billion barrels of oil equivalent (boe) and produced 2.35 million barrels of oil per day (bpd) through the year.[268]

However, BP has since 2010 been dealing with the aftermath of the Macondo oil spill in the Gulf of Mexico, the US's largest ever oil disaster. The Deepwater Horizon oil well explosion killed 11 workers and is estimated to have affected around 1,000 miles of shoreline, 200 miles of which were thought to be 'heavily oiled'. However, the exact extent of the spill has been disputed by different parties.[272] The company made the decision to sell none-core assets in order to pay for the clean-up operation and to compensate victims. In October 2011, BP finally received authorisation to resume drilling at the site[273] and in November 2012 the company settled all claims with the US Department of Justice and the Securities and Exchange Commission for $4.5 billion.[274]

267 'Annual Reporting 2011', *BP*, 2012.
268 'BP at a glance', *BP*, retrieved 17 December 2012.
269 'Platts Top 250 Global Energy Company Rankings', *Platts Energy*, retrieved 25 October 2011.
270 'Business: The Company File From Anglo-Persian Oil to BP Amoco', *BBC News*, 11 August 1998.
271 'BP PLC', *History.com*, retrieved 25 October 2011.
272 'Deepwater Horizon and the Gulf oil spill - the key questions answered', *The Guardian*, 20 April 2011.
273 'Oil giant BP reaches 'turning point'', *BBC News*, 25 October 2011.
274 'Record $4B Settlement For BP On Criminal Charges Regarding Macondo Accident', *Forbes*, 15 November 2012.

BP operations in Libya

History

In May 2000 BP agreed a major Exploration and Production deal with Libya, announced as 'BP's single biggest exploration commitment', along with its Libyan partner the Libyan Investment Corporation (LIC). The initial exploration commitment was set at a minimum of US $900 million, with significant additional appraisal and development expenditures upon exploration success.

During the civil conflict of 2011 BP kept its operations on standby and when 'force majeure' was lifted in May 2012, BP announced it would drill 17 new exploration wells in Libya, both onshore and offshore.[275] The company said in 2012 that it could spend US $20 billion in the country over the next ten years.[276]

Activities and contracts

When the conflict broke out in 2011 BP was not carrying out any production activities in Libya, but the company had started an exploratory drilling programme in the west of the country.[277]

In 2012 BP had two exploration blocks in the country, one onshore and one offshore in the Bay of Benghazi. As of May 2012 the company had spent around $900 million on exploration but was in the early stages of the process. Officials did not envisage producing oil and gas for at least ten years.[276]

BP also committed to spend $50 million on education and training projects for Libyan professionals during the exploration and appraisal period, and, upon success, a further $50 million from commencement of production. The education and training programmes were intended to be designed and managed in partnership with the National Oil Corporation (NOC).[278]

China National Petroleum Corporation

Type	Government-owned Corporation
Founded	1988
Headquarters	Beijing, PR China
Key people	Jiang Jiemin (President)
Revenue	US $352.33 billion (2011)[279]

275 'BP commits to Libyan exploration campaign', *Reuters*, 1 November 2012.
276 'BP to resume oil operations in Libya', *BP*, 29 May 2012.
277 'BP's contracts in Libya 'still valid' despite turmoil', *The Telegraph*, 17 March 2011.
278 'BP Agrees Major Exploration and Production Deal with Libya', *BP*, 29 May 2007.

Net Income	US $16.32 billion (2011)[279]
% change on previous year	+13.6%
Total assets	US $481.07 billion[279]
Total equity	US $240.53 billion[279]
Employees	1,668,072 (2012)[279]
Website	www.cnpc.com.cn

Global snapshot

Government-owned CNPC is China's largest integrated oil and gas company, with exploration and production projects in China and 30 other countries. It is an oilfield services provider in 50 countries and operates some older refineries and a gas pipeline network in China (including 70 percent of the country's crude oil pipelines). CNPC has a network of 18,000 petrol stations across China.[280]

CNPC was established in 1998 and reorganised in 1998 to become an integrated company.[281] CNPC is the controlling shareholder of Petrochina Company Limited.[282] In 2009 the company completed more than 1,900 exploration wells and reported proved reserves of more than 1 billion metric tons of oil equivalent.[280]

In 2012 CNPC was ranked 6th on CNN's Global 500 list of the world's largest corporations.[279] CNPC's 2010 Annual Report notes that CNPC has been seeking a greater international role over the past five years.[283] According to the Fortune Global 500, part of CNPC's strength comes from its partnerships with governments of oil-rich countries and the multinational companies that operate there. In 2011 CNPC was working with Russia, Venezuela, Iraq and Qatar, and had partnered with oil majors BP, Total and Shell.[279]

CNPC operations in Libya

History

CNPC entered the Libyan market in 2002 when it won a contract to build a pipeline in the western part of the country, investing jointly with Italy's Agip. A few years later in 2005 the company signed an exploration and production agreement with the National Oil Corporation of Libya (NOC) to explore oil reserves.[284]

When conflict broke out in 2011, CNPC had 391 Chinese employees in the country, all

279 'Global 500: China National Petroleum', *CNN Money*, retrieved 18 December 2012.
280 'China National Petroleum Corporation: Company Description', *Hoovers*, retrieved 8 December 2011
281 'History', *CNPC*, retrieved 18 December 2012.
282 'Investor Relations', *Petrochina*, retrieved 18 December 2012.
283 '2010 Annual Report', *CNPC*, 2010
284 'China National Petroleum's newest headache: Libya',*Tilt*, 1 March 2011.

of which were evacuated in February 2011.[285] As of January 2013 there were no reports that CNPC had returned to operate in Libya.

Activities and contracts

In Libya, CNPC operates through its wholly owned subsidiary the Great Wall Drilling Company (GWDC).[286]

In December 2005 CNPC signed a risk exploration contract for Block 17-4, in collaboration with the Libyan National Oil Corporation (NOC). The block is located in the Pelgaian Basin off the north-west coast of Libya and covers an area of 2.566 square kilometres, with a depth of 200-400 metres. The contract is one of Libya's exploration and production sharing agreements (EPSA) and covers five years of exploration and 25 years of production.[287]

Aside from its stake in exploration blocks, CNPC also built a set of 520-kilometre twin pipelines linking the Wafa field and Mellitah export facilities, from where oil and gas products are exported to Europe and elsewhere.[288]

ConocoPhillips

Type	Public Limited Company
Traded As	NYSE:COP
Founded	1875 (Conoco Inc.) 2002 (merger with Phillips Petroleum)
Headquarters	Houston, Texas
Key people	James Mulva (Chairman and CEO)
Products	Oil, natural gas, petroleum, lubricant, petrochemicals.
Revenue	US $251.23 billion (2011)[289]
Net Income	US $12.44 billion (2011)[289]
% change over previous year	+9%[289]
Total assets	US $153.23 billion (end 2011)[289]
Total equity	US $65.73 billion (end 2011)[289]

285 'CNPC halts production in Libya, withdraws staff',*Reuters*, 28 February 2011.
286 'CNPC terminates 6 overseas projects, estimates losses of 1.2 bln yuan',*Xinhuanet English*, 22 August 2011.
287 'CNPC in Libya',*CNPC*, retrieved 21 January 2013.
288 'CNPC to build oil and gas pipelines in Libya',*Alexander's Oil and Gas Connections*, 23 August 2002.
289 '2011 Annual Report', *ConocoPhillips*, 2011.

Employees	29,800 (end 2011)[290]
Website	www.conocophillips.com

Global snapshot

According to Forbes, in 2012 ConocoPhillips was the 27th largest company in the world by market capitalisation.[291] The company's global production in 2011 averaged 1.62 million barrels of oil equivalent (boe) per day and had proven reserves of 8.4 billion boe at the end of 2011. As of 2012 they had operations in almost 30 countries.[292] Conoco has four core activities: petroleum exploration and production; natural gas gathering, processing and marketing (including a 50 percent interest in DCP Midstream); petroleum refining, marketing supply and transportation; and chemicals and plastics production and distribution (through a 50 percent interest in Chevron Phillips Chemicals Co).[293]

Despite being formed following a merger with Phillips Petroleum company in 2002, Conoco can trace its beginnings back to 1875 in Utah when it was founded as the Continental Oil Company. Phillips Petroleum was founded 30 years later. When the two companies joined forces in 2002, they created the third largest energy company in the United States.[294]

In July 2011 ConocoPhillips announced that in 2012 it would separate its profitable upstream business from their lower margin downstream activities of refining and marketing. CEO James Mulva claimed that "the integrated structure is no longer creating the value it had done in the past" and argued that this would help to bring a sharper focus to managing both businesses.[295] By splitting in two, ConocoPhillips will become the US' largest pure Exploration and Production (E&P) firm, and will be more than twice the size of its nearest competitor, Occidental Petroleum.[296]

ConocoPhillips operations in Libya

History

US oil firms had their contracts suspended in the 1980s after the US imposed sanctions on Libya, however in 2005 ConocoPhillips and several other firms such as ExxonMobil resumed their operations in the country after a 19 year absence. ConocoPhillips, in a partnership with Marathon and Hess, together forming the Waha (Oasis Group) consortium, paid US $1.3 billion to resume activities.[297]

290 '2011 Annual Report', *ConocoPhillips*, 2011.
291 'ConocoPhillips', *Forbes*, retrieved 16 January 2013.
292 'Corporate Overview', *ConocoPhillips*, retrieved 16 January 2013.
293 'Who We Are', *ConocoPhillips*, retrieved 12 October 2011.
294 'Company History', *ConocoPhillips*, retrieved 12 October 2011.
295 'Should BP split?', *The Economist*, 30 July 2011.
296 'The Two Faces of ConocoPhillips', *Petroleum Economist*, 17 August 2011.
297 'ConocoPhillips, Marathon return to Libya', *Houston Business Journal*, 29 December 2005.

The majority of international oil companies (IOCs) had the terms of their contracts with the NOC renegotiated in 2008, sparking widely held expectations that the Oasis Group would also be moved to the new agreements, under the new Exploration and Production Service Agreement system EPSA IV. However, were no reports that the contract with the Group was in fact re-negotiated before the revolution of 2011.[298]

In March of 2011, ConocoPhillips announced that it had temporarily closed its offices in Libya and evacuated expatriate employees and their dependents. The company assured that it was in compliance with sanctions and was not exporting oil from Libya.[299] On taking power the Libyan National Transitional Council (NTC) stated in September 2011 that it will honour the current contracts signed with big oil companies, including deals with ConocoPhillips.[300]

Activities and contracts

ConocoPhillips operates in Libya as a member of the Waha (Oasis Group) consortium in the hydrocarbon-rich Sirte basin, holding a 16.3 percent stake in the consortium.[299]

Over 2011 Conoco's average daily net production stood at 8,000 barrels of oil equivalent (boe) per day. However production restarted following the conflict in November 2011 and by February 2012 net production was again estimated at a level of 40,000 barrels per day (bpd).[299]

Eni

Type	Public Limited Company
Traded	BIT:ENI NYSE:ENI
Founded	1953
Headquarters	Rome, Italy
Key people	Roberto Poli (Chairman), Paolo Scaroni (CEO)
Revenue	€109.59 billion (approx. US $144.73 billion), 2011.[301]
Net Income	€7.8 billion (approx. US $10.3 billion), 2011.[301]
% change over previous year	+5.7%

298 'Shokri Ghanem Outlines Plans For Libya's National Oil Corporation', *WikiLeaks*, 11 February 2010.
299 'Libya', *ConocoPhillips*, retrieved 12 October 2011.
300 'Libya's Oil Industry: Don't Expect a Quick Comeback', *Time World*, 6 September 2011.
301 'Annual Report 2011',*Eni*.

Total assets	€142.94 billion (approx. US $188.86 billion), end 2011.[301]
Total equity	€60.39 billion (approx. US $79.79 billion), end 2011.[302]
Employees	79,000 (2011)[302]
Website	www.eni.it

Global snapshot

Eni is one of Italy's largest companies and the worlds nineteenth largest oil company by production.[303] It operates in the oil and natural gas, petrochemicals, and oil field services industries, and has expanded into power generation. The Italian government holds a share of more than 30 percent in the company,[304] which operated in more than 70 countries worldwide as of 2011.[305]

At the end of 2011 Eni had estimated net proven reserves of 7.09 billion barrels of oil equivalent (boe),[306] and in 2012 the company was producing 2.2 million barrels per day (bpd) globally.[303]

Eni operations in Libya

History

Eni has been active in Libya since 1959. A key event in the history of the company's presence in the country was the 1997 discovery of the Elephant oil field, which launched production in 2004.

Between 1996-1999 Eni concluded several agreements with the National Oil Corporation (NOC) over a joint development venture in the Wafa field and in the Bahr Essalam field, located offshore 110 kilometres (km) north of Tripoli. In 2008 Eni, along with other international oil companies (IOCs), renegotiated the terms of their production contracts with the NOC, committing them to paying substantial upfront bonus payments.[307]

Saipem, an Eni company, also built the Greenstream gas pipeline, part of the Western Libya Gas Project (WLGP), used to export natural gas produced in Libya to Italy.[308] Eni had a 75 percent stake in the project. However 2010 saw Eni divest to the NOC a 25 per-

302 'Annual Report 2010',*Eni*
303 'The World's Biggest Oil Companies', *Forbes*, 16 July 2012.
304 'Eni SPA Company Profile', *Yahoo Finance*, retrieved 4 October 2011.
305 'ENI SPA', *Bloomberg Business Week*, retrieved 04 October 2011.
306 'Oil and Natural Gas Reserves', *Eni*, retrieved 18 December 2012.
307 'French Total-led Consortiums Accept Lower Production Shares In Libya',*WikiLeaks*, 4 June 2009.
308 'Greenstream',*Eni*, retrieved 22 January 2013.

cent stake in Greenstream BV, the company owning and managing the pipeline.[309]

In the run-up to the 2011 conflict was the largest foreign player in terms of hydrocarbon production[310] The company relied on the country for 13 to 14 percent of its total production. However, the majority of operations were suspended from February 2011 onwards due to the civil conflict.[311]

Activities and contracts

In Libya Eni operates through its subsidiary Eni North Africa B.V.[312] Eni participates in Mellitah Oil and Gas, a joint venture with the National Oil Corporation (NOC).[313]

The company has oil production contracts in Libya in force until 2042 and gas contracts in force until 2047.[314] In December 2011 Libya's National Transitional Council (NTC) issued a statement saying that agreements between Eni and the previous Libyan regime would be re-examined. However in January 2012 the Council issues a further statement, clarifying that it only planned to review Memorandums of Understanding (MoUs) rather than final contracts.[315]

Eni's oil production capacity in Libya is just over 300,000 barrels per day (bpd), of which nearly 50,000 bpd is condensate and the remainder is crude.[316] Total production during the 2011 conflict fell from about 280,000 bpd before war broke out to 50,000 bpd in the July.[311] However in late September 2011 Eni resumed oil production in Libya, with the hope of having a large part of its output restored by the end of the year[311] Eni was the first international company to resume production in the country, and as of late 2012 had reached pre-war production levels.[314]

In December 2012 Eni CEO Paolo Scaroni presented a plan to the Libyan Prime Minister and Petroleum Minister to invest US $8 billion in Libya over the coming ten years to develop its upstream business. This would be targeted at developing ongoing production as well as new exploration activities. Scaroni also said that a social sustainability agreement, worth about $400 million, had also been discussed.[314]

ExxonMobil

Type	Public Limited Company
Traded as	NYSE:XOM
Founded	1999

309 'History of Eni's presence in Libya',*Eni*, retrieved 4 October 2011.
310 'Activities in Libya',*Eni*, retrieved 04 October 2011
311 'Eni Restarts Production from Libya Wells',*Financial Times*, 26 September 2011.
312 'Eni Field Trip: Libya',*Eni*, October 2004.
313 'Libya's oil industry improving rapidly after war',*BBC*, 9 December 2011.
314 'Eni to invest $8 billion to boost Libya production',*Reuters*, 16 December 2012.
315 'Shell, ENI contracts to stand as Libya ships more crude: NOC',*Platts*, 5 January 2012.
316 'Libya: Country Profile',*Energy Information Administration*, June 2012.

Headquarters	Texas, USA
Key people	Rex Tillerson (Chairman and CEO)
Revenue	US $486.43 billion (2011)[317]
Net income	US $41.06 billion (2011)[317]
% change on previous year	+34.8%[317]
Total assets	US$ 349 billion (end 2011)[317]
Total equity	US$ 154.4 billion (end 2011)[317]
Employees	82,100 (end 2011)[317]
Website	www.ExxonMobil.com

Global snapshot

In 2012 ExxonMobil topped the Fortune 500 list of the largest American corporations ranked by revenue.[318] It began life as the Standard Oil Company in 1882 and became ExxonMobil in 1999 as an alliance of of two of the direct descendants of John D. Rockefeller's Standard Oil Company, Exxon and Mobil.[319] The company has several divisions and hundreds of affiliates with names including ExxonMobil, Exxon, Esso or Mobil.[320]

At the end of 2011 the company held global proven reserves of 24.9 billion barrels of oil equivalent (boe)[321] and average global net production over 2011 was 4.51 million boe.[317]

In 2008, on the back of soaring global oil prices, ExxonMobil became the world's most valuable firm when shares soared by over 40 percent in a year.[322] In 2010 they acquired XTO Energy, a leading developer of unconventional resources including shale oil and gas which requires advanced drilling techniques.[323] In August 2011, Exxon secured a $3.2 billion joint venture with Rosneft on high risk deep-sea exploration in the Arctic and Russian Black Sea.[324]

ExxonMobil operations in Libya

In 2005, ExxonMobil returned to Libya after the lifting of US sanctions, following an absence of almost 25 years. Previous incarnations Exxon and Mobil both once had significant business interests in Libya, producing the country's first oil field and shipping

317 '2011 Summary Annual Report', *ExxonMobil*.
318 'Fortune 500: ExxonMobil', *CNN Money*, retrieved 18 December 2012.
319 'Our History', *ExxonMobil*, retrieved 7 October 2011.
320 'ExxonMobil Corporate Profile', *Reuters*, retrieved 7 October 2011.
321 'Exxon Mobil clinches Arctic oil deal with Rosneft', *Wall Street Journal*, 23 February 2012.
322 'The age of oil', *The Economist*, 24 February 2005.
323 'Exxon Mobil to buy XTO Energy in big U.S. gas bet', *Reuters*, 14 December 2009.
324 'Exxon Mobil clinches Arctic oil deal with Rosneft', *BBC News*, 30 August 2011.

oil to market. However, the companies pulled out of Libya in the early 1980s after US-Libyan relations deteriorated.[325]

Geologists for Jersey Standard (which became known by its trade name Esso) in fact first surveyed Libya in 1947. In 1965, Esso Libya began building the Marsa el Brega LNG plant, one of the first LNG (liquefied natural gas) plants in the world, and operated it until 1981.[326]

In 2009, ExxonMobil Libya Ltd, the company's affiliate in the country, started drilling the first deepwater exploration well in Libya in collaboration with the Libyan National Oil Corporation (NOC) offshore in the Sirte Basin, north-east of the city of Misrata.[327] However, reports by Exxon executives in 2010 suggested that the well was commercially unviable and ultimately proved to be unsuccessful.[328]

In March 2011, spokesmen for Exxon claimed that the company had evacuated all expatriate employees from the country, but claimed that their operations were relatively unaffected.[328] As of early 2013 it was unclear whether Exxon had restarted operations in the country.

Gazprom

Type	Public Limited Company
Traded as	RTS:GAZP LSE:OGZD
Founded	1989[329]
Headquarters	Moscow, Russia
Key people	Victor Zubkov (Chairman), Alexei Miller (Vice-Chairman and CEO)
Revenue	US $117.62 billion (2011)[329]
Net Income	US $31.67 billion (2011)[329]
Total assets	US $302.55 (end 2011)[329]
Employees	393,000 (2012)[329]
Website	www.gazprom.com

325 'Oil giant Exxon returns to Libya', *BBC News*, 6 December 2005.
326 'Early milestones', *ExxonMobil Middle East and North Africa*, retrieved 7 October 2011.
327 'ExxonMobil Commences Drilling Libya's First Deepwater Well', *ExxonMobil Media*, 16 July 2009.
328 'Exxon offshore Libya well not a success-exec', *Reuters*, 16 September 2010.
329 'Gazprom', *Forbes*, retrieved 19 December 2012.

Global snapshot

Moscow-based Gazprom is primarily engaged in the operation of gas pipeline systems and gas supply to European countries but is also involved in oil production and refining activities. In 2012 Gazprom was the second largest oil company in the world by production[330] and the world's fifteenth largest publicly listed company.[329] It was also the world's largest gas producer, with average daily production standing at 9.7 million barrels of oil equivalent (boe) per day.[330] Via its subsidiaries and affiliates, the company has operations established in the UK, Serbia, Uzbekistan, Kyrgyzstan, Tajikistan, Vietnam, India, Iraq, Algeria, Libya, Equatorial Guinea, Bolivia and Venezuela, among others.[331]

Russia's significant share of the world's gas makes it the country's most important asset and the *Economist* magazine suggests that this makes Gazprom arguably its most important company.[332] Founded in 1989, Gazprom grew out of the USSR's Gas Industry Ministry and was part-privatized from 1993 with the large-scale sale of state assets in post-Soviet Russia. The Russian Government holds a controlling stake of just over 50 percent and former Russian president Dmitri Medvedev previously occupied the post of Gazprom Board Chairman.[333] In total the company operates around 70 fully-owned subsidiaries, including one whose shareholder committee Chairman is former German Chancellor Gerhard Schroder. In addition Gazprom also owns a bank, newspapers, radio stations, television stations, film studios, cinemas and real estate.[334]

Gazprom accounts for 18 percent of the world's gas reserves, 70 percent of Russian gas reserves and 15 percent of global gas production. In 2011 Gazprom also presided over 161.7 thousand kilometres (km) of gas pipelines, the largest gas transportation system in the world.[335]

Gazprom operations in Libya

History

Gazprom's activities in North Africa have been of some political significance, according to the *Economist*. Of particular concern for gas-importing European nations have been reports of the spectre of a so-called 'gas OPEC' or 'gas cartel', following Russian courting of Algeria, Iran, and more recently Libya, as a means of gaining leverage over European states. However, this prospect was deemed unlikely by experts due to the regional nature of the gas markets and consumption, compared to the global nature of oil markets. This came on the back of talks between Gazprom CEO Miller and Muammar Gaddhafi regarding Russian purchase of a significant portion of Libya's oil and gas

330 'The World's 25 Biggest Oil Companies', *Forbes*, 16 July 2012.
331 'Gazprom OAO', *Reuters*, retrieved 10 October 2011.
332 'Russia's energetic enigma', *The Economist*, 6 October 2005.
333 'Gazprom reports quarterly profits of $16bn', *The Guardian*, 30 August 2011
334 'In Thrall to Gas: The City Where Gazprom Is King', *Spiegel Online*, 2 March 2011.
335 'Annual Report 2010', *Gazprom*, retrieved 10 October 2011.

exports.[336]

According to industry lawyer Robert Amsterdam, evidence of the significance of Libyan gas to Russia (and consequently Gazprom) can be found in the reports of the Russian Government writing off US $4.5 billion of Libyan debt in 2008, reportedly in exchange for new contracts with Russian state-held firms.[337]

In February 2011, due to the political unrest in Libya, Gazprom made the decision to halt all operations and evacuate foreign personnel from the country. The hostilities in Libya also caused the suspension of Gazprom's entry into the project at the Elephant oil field. Under the farm-out agreement for the Elephant production sharing agreement (PSA), Gazprom was to acquire 50 percent of Eni's stake in the consortium at the oil field, equating to 33.3 percent of the international consortium as a whole. Gazprom reported that the parties would resume negotiations once circumstance are more settled in Libya.[338]

In March 2012 the *Voice of Russia* reported that Gazprom had discussed the possibility of resuming joint oil and gas projects with the new Libyan government.[339]

Activities and contracts

In Libya, Gazprom operates through a special subsidiary company set up to represent the company's interests in the country, Gazprom Libya BV.[340] Over recent years Gazprom has been undertaking an aggressive exploration campaign in Libya.[341]

Following tender procedures in Libya during 2006-7 and an exploration and production sharing agreement (EPSA) signed with the National Oil Corporation (NOC), Gazprom obtained the right to explore and develop hydrocarbons in the licensed blocks No. 19 (Mediterranean Sea offshore) and No. 64 (300km south of Tripoli). As of the beginning of 2011, seismic surveys had been completed and preparations for exploratory drilling had been completed for both projects.[338] As a result of the the fourth EPSA bidding round (the first to focus on natural gas), Gazprom were one of the international oil companies (IOCs) to be awarded a lucrative contract for a block in the southern Ghadames basin, beating off competition from Gaz de France after agreeing to take a significantly smaller percentage of eventual production (9.8 percent).[342]

336 'A gas OPEC', *The Economist*, 5 February 2007
337 'Gazprom, Libya, and the Gas OPEC', *RobertAmsterdam.com*, 22 April 2008
338 'International Projects', *Gazprom*, retrieved 10 October 2011
339 'Gazprom, Libya discuss resuming joint oil and gas projects*The Voice of Russia*, 26 March 2012
340 'Libya', *Gazprom*, retrieved 10 October 2011
341 'Russian NOCs abroad:*Oil & Gas Eurasia*, September 2009
342 'Libyan Epsa Gas Bidding Round: International Majors' Interest Is Tempered', *RobertAmsterdam.com*, 13 December 2007.

Hess Corporation

Type	Public Limited Company
Traded as	NYSE:HES
Founded	1933
Headquarters	New York, USA
Key people	John Hess (Chairman and CEO)
Revenue	US $38.47 billion (2011)[343]
Net Income	US $1.7 billion (2011)[343]
% change over previous year	(20.2%)
Total assets	US $39.14 billion (end 2011)[343]
Total equity	US $18.59 billion (end 2011)[343]
Employees	14,350 (end 2011)[343]
Website	www.hess.com

Global snapshot

Forbes ranked Hess Corporation as the 268th largest company in the world by market capitalisation in 2012. It is an integrated global company working in both the Exploration and Production (E&P) and Marketing and Refining (M&R) sectors. E&P activities take place primarily in Algeria, Australia, Azerbaijan, Brazil, Brunei, China, Denmark, Egypt, Equatorial Guinea, France, Ghana, Indonesia, the Kurdistan region of Iraq, Libya, Malaysia, Norway, Peru, Russia, Thailand, the United Kingdom and the United States.[344]

Hess was founded by Leon Hess in 1933, who went on to lead the company for six decades. In 1969 Hess Oil and Chemical Company merged with Amerada Petroleum Company to form Amerada Hess. However, in 2006 the company reverted to being known as the Hess Corporation.[345]

Hess operations in Libya

History

US oil firms had their contracts suspended in the 1980s after the US imposed sanctions on Libya. However in 2005 Hess Corporation, along with other firms such as Exxon-

343 '2011 Annual Report', *Hess*, 2012.
344 'Hess Corporation', *Forbes*, retrieved 16 January 2013.
345 'History', *Hess Corporation*, retrieved 13 October 2011.

mobil, resumed their operations in the country after a 19 year absence. Hess, in a partnership with ConocoPhillips and Marathon known as the Oasis Group, paid $1.3 billion to resume activities.[346]

In the wake of the political unrest in early 2011, Hess suspended all output in March of that year.[347] Production restarted in November 2011[348] and in November 2012 press reported that Hess' quarterly profits had nearly doubled, largely due to the company's resumed operations in Libya, where Waha operations added 23,000 barrels per day (bpd) to output, compared to no production in Libya during the same period a year previously.[349]

Activities and contracts

Hess operates in Libya as a junior partner in the Waha (Oasis Group) consortium in the hydrocarbon-rich Sirte basin, in which it holds a 8.2 percent stake.[350]

In addition to its producing assets as part of Waha, Hess carries out exploratory activities at the offshore block Area 54, 38 miles off the coast of Libya in the Sirte basin. This area was acquired in mid-2005 and hydrocarbons were discovered in 2008.[351]

Marathon Oil Corporation

Type	Public Limited Company
Traded as	NYSE:MRO
Founded	1887
Headquarters	Houston, Texas
Key people	Clarence P. Cazalot Jr (President and CEO)
Revenue	US $14.66 billion (2011)[352]
Net Income	US $2.95 billion (2011)[352]
% change on previous year	+14.7%[352]
Total assets	US $31,37 billion (end 2011)[352]
Total equity	US $17.16 billion (end 2011)[352]
Employees	3,322 (end 2011)[353]

346 'ConocoPhillips, Marathon return to Libya', *Houston Business Journal*, 29 December 2005.
347 'Occidental, Hess, Total Halt Crude Production in Libya', *Bloomberg*, 2 June 2011.
348 'Operations', *Hess*, retrieved 23 January 2013.
349 'Hess Profit Doubles due to Libya', *Libya Business News*, 3 November 2012.
350 'Libya', *ConocoPhillips*, retrieved 12 October 2011.
351 'Operations', *Hess*, retrieved 13 October 2011.
352 '2011 Annual Review', *Marathon Oil Corporation*.

Website	www.marathon.com

Global snapshot

Marathon Oil Company is a Houston-based international energy company engaged in exploration and production, oil sands mining and integrated gas. Its worldwide production operations are focused in North America, Africa and Europe.[354]

The company's origins lie in the purchase of the Ohio Oil Company by John D. Rockefeller's Standard Oil Trust in 1889, but the company resumed independent production following the dissolution of Standard Oil in 1911. The Ohio changed its name to the Marathon Oil Company in 1962 in honour of its brand name motor fuel. Having been bought out by United States Steel in 1982, the steel business was finally sold off in 2001.[355] In May of 2011, Marathon's Board approved the spin-off of its downstream business, Marathon Petroleum Corporation.[356]

At the end of 2011 Marathon had proven reserves of 1.8 billion barrels of oil equivalent (boe).[357] As of 2012 Marathon was developing strategic growth assets in US unconventional liquid-rich plays and deepwater Angola. Production in these assets was expected to grow at a 25 percent annual growth rate through until 2015, with liquids accounting for around 70 percent of the mix.[358]

Marathon operations in Libya

History

US oil firms had their contracts suspended in the 1980s after the US imposed sanctions on Libya. However in 2005 Marathon, along with other firms such as ExxonMobil, resumed their operations in the country after a 19 year absence.[359] Analysts estimated that in 2011, Libya contributed approximately 2 percent of Marathon's cash flow.[360]

A leaked US diplomatic cable dating from 2009 suggested that Marathon may have benefited from a diplomatic row between Canada and Muammar Gaddhafi, following the Libyan leader's aborted trip to Canada. Petro-Canada was asked to slash their production activities as a result of the spat, and Marathon was instructed to increase its own

353 '2011 Annual Review', *Marathon Oil Corporation*.
354 'About Us', *Marathon Oil Corporation*,retrieved 11 October 2011.
355 'About Us: History', *Marathon Oil Corporation*,retrieved 11 October 2011.
356 'Marathon's Board Approves Spin-Off of Marathon Petroleum Corporation', *OilVoice*, 25 May 2011.
357 'Marathon Oil Sets 2013 $5.2 Billion Capital, Investment and Exploration Budget', *Offshore Source*, retrieved 19 December 2012.
358 '2011 Annual Review', *Marathon Oil Corporation*, retrieved 11 October 2011.
359 'More US oil firms return to Libya', *BBC*, 30 December 2005.
360 'Oil Stocks Most Exposed to Libya', *Barron's*, 24 February 2011.

production to make up for the shortfall.[361]

In February 2011 Marathon successfully evacuated its expatriate employees from Libya following the political unrest and complied with all US sanctions related to Libya.[362]

In December 2011 Marathon official confirmed that some output had restarted at Waha Oil Company[363] but as of January 2013 the company's official website stated that the return of operations in Libya to pre-conflict levels remained unknown and that the consortium partners were assessing the condition of their assets.[362]

Activities and contracts

Marathon is a member of the Waha Oil Company consortium, which acquired exploration and production rights in Libya in the mid-1950s, holding a 16.33 percent working interest in the concession.[364]

As of October 2011, no reports had been encountered of a resumption of production by the consortium in which Marathon participates in Libya. Damage assessment was said to be in progress, but there was extensive damage reported at the Sidra terminal as well as protests stemming from demand for a change of management. The Waha Oil Company fields had a pre-war capacity of 400,000 barrels of oil per day (bpd).[365]

Occidental Petroleum

Type	Public Limited Company
Traded as	NYSE:OXY
Founded	1920
Headquarters	Los Angeles, USA
Key people	Ray R. Irani (Chairman), Stephen Chazen (President and CEO)
Revenue	US $23.93 billion (2011)[366]
Net income	US $ 6.64 billion (2011)[366]
% change on previous year	+45.3%[366]
Total assets	$60.04 billion (end 2011)[366]
Total equity	$37.62 billion (end 2011)[367]

361 'Petrocanada Caught In Qadhafi's Cross-hairs', *WikiLeaks*, 27 October 2009.
362 'Libya', *Marathon Oil Corporation*, retrieved 11 October 2011.
363 'Libya's Largest Oil Port to Resume Exports', *Wall Street Journal*, 30 December 2011.
364 'Our Business', *Waha Oil Company*, retrieved 11 October 2011.
365 'Libya Oil Output to Double by November', *Petroleum Economist*, 10 October 2011.
366 'Annual Report 2010', *Oxy*.

Employees	over 40,000 (2011)[367]
Website	www.oxy.com

Global snapshot

Occidental Petroleum, often referred to as "Oxy" due to its abbreviation on the NYSE stock exchange[368] has oil and gas operations consolidated in three core areas: the US, the Middle East and Latin America. In 2011 the company's US operations accounted for 59 percent of worldwide production, the Middle East and North Africa 37 percent and Latin America 4 percent.[367]

The company was founded in California in 1920. Chairman Ray Irani was elected on the death of Armand Hammer in 1990, who had headed the company since 1957.[369]

At the end of 2011 Oxy held 2.3 billion barrels of oil equivalent (boe) in reserves and average daily production was 428,000 barrels per day (bpd).[367] According to a feature in *Forbes* magazine, the secret of the company's success is "no wildcatting" and company president Steve Chazen, a former investment banker, commented in 2010 that "we're in the oil recovery business, not the oil discovery business".[370]

Occidental operations in Libya

History

Occidental began operations in Libya in 1965, the company's only operation in North Africa, and in 1967 made the first of several giant discoveries. They were the first US company to resume oil operations in Libya after US sanctions were lifted in 2004, re-entering its original producing areas in 2005.[371] Oxy saw significant growth in the Middle East and North Africa region from the year 2000 onwards.[372]

In 2006 Oxy expended more than 70 percent of its worldwide exploration budget in Libya, making Libya a key market for the company.[373]

Prior to the outbreak of fighting in 2011, Occidental produced 13,000 barrels of oil equivalent (boe) per day, according to *Rigzone*.[374] In early 2011 the company ceased operations in the country as a result of the unrest;[375] however reports in October 2011 claimed that the 70,000 bpd Nafoora field in Libya, where Occidental operates, had re-

367 'Annual Report 2010', *Oxy*.
368 'Occidental Petroleum Corp Profile', *Reuters*,retrieved 06 October 2011.
369 'Corporate History', *Oxy*, retrieved 19 December 2012.
370 'Occidental Petroleum's Path to Easy Oil', *Forbes*, 3 November 2010.
371 'Our Business in Libya', *Oxy*, retrieved 06 October 2011.
372 'Our Business in the Middle East', *Oxy*, retrieved 06 October 2011.
373 'Oxy's 30-year Extension In Libya And What Lies Ahead For Other Iocs', *Wikileaks*,13 July 2008.
374 'OXY: Libya Oilfields Are Producing, Amount Unknown', *Rigzone*, 28 February 2011.
375 'Libya', *Oxy*,retrieved 25 January 2011.

started production, making it the first US company to produce crude in the country since the overthrow of Gaddhafi.[376]

Activities and contracts

Following success in the January 2005 EPSA bid round, where the company won acreage in nine different areas, Oxy in 2007 held a told exploration and production acreage in Libya of approximately 130,000 square kilometres. [377]

In June 2008 Occidental was one of the first IOCs to renegotiate its contracts in Libya, signing a total of five Exploration and Production Sharing (EPSA) contracts with the National Oil Corporation (NOC) and extending the duration of the contract. The renegotiated contracts involved a US $1 billion signature bonus and Oxy's commitment to a $2.5 billion investment plan, with the NOC matching an equal amount. Oxy intended to drill some 400 wells starting in 2011. Following the ratification of the contract extensions, US Embassy representatives saw Eni, PetroCanada and Oxy as the leaders in the Libyan energy sector.[377] However, former CEO Ray Irani claimed in 2010 that Oxy's results since re-entering Libya in 2005 have been disappointing, and production stood at only 6,000 barrels per day (bpd) in 2010, down from 21,000 bpd two years earlier.[378]

OMV

Type	Public Limited Company
Traded as	WBAG:OMV
Founded	1956
Headquarters	Vienna, Austria
Key people	Gerhard Roiss (CEO)
Revenue	€35.05 billion (approx. US $46.54 billion), 2011.[379]
Net Income	€1.57 billion (approx. US $2.08 billion), 2011.[379]
% change on previous year	+30%
Total assets	€28.41 billion (approx. US $37.72 billion), 2011.[379]
Total equity	€13.48 billion (approx. US $ 17.9 billion), 2011.[379]

376 'Occidental Libya production resumes', *Upstream Online*, 06 October 2011.
377 'Oxy's 30-year Extension In Libya And What Lies Ahead For Other Iocs', *Wikileaks*,13 July 2008.
378 'Occidental Petroleum's Path to Easy Oil', *Forbes*,11 March 2010.
379 'Annual Report 2011', *OMV*, 2012.

Employees	29,800 (end 2011)[379]
Website	www.omv.com

Global snapshot

OMV is one of Austria's largest listed industrial companies.[380] Headquartered in Vienna, Austria, it operates in three segments: Exploration and Production (E&P), Refining and Marketing (R&M), and Gas and Power (G&P). The E&P segment engages in the exploration, development and production of oil and gas resources primarily in Romania and Austria, North Africa, the Middle East and the Caspian region. The R&M segment operates the refineries that process oil and gas into petroleum products at Schwechat, Austria; Burghausen, Germany; and Petrobrazi and Arpechim, Romania.[381]

Among the acquisitions made by OMV during the 2000s were the acquisition of 25.1 percent of the Rompetrol Group in 2002 (sold in 2005), the acquisition of a 51 percent stake in the Romanian oil and gas group Petrom in 2004, an 100 percent stake in Borealis, and a 34 percent stake in Turkish oil and gas group Petrol Ofisi.[382] In 2008, an attempted hostile takeover of Hungarian oil and gas company MOL by OMV was thwarted and the merger notification withdrawn after the European Commission said it would not accept conditions for the deal proposed by OMV.[383] In 2009, OMV went on to sell its remaining stake in MOL to Russian oil producer Surgutneftegaz.[384]

Over the course of 2010, OMV strengthened its position by increasing its stake in Turkish Petrol Ofisi to 97 percent. This acquisition is a step in OMV's growth strategy aimed as positioning Turkey as a third hub, besides Austria and Romania. From the company's perspective, Turkey is of strategic importance as it gives access to the resource-rich Caspian basin and Middle East.[385] Additionally, OMV was driving the Nabucco gas pipeline project, aimed to increase Europe's security of supply.[379]

In 2011 OMV's oil and gas production stood at 288,000 barrels of oil equivalent (boe) per day, with an oil/gas mix of roughly 50/50. Proven reserves were around 1.13 billion boe at year-end. A significant part of production comes from the core countries Romania (about 60 percent) and Austria (about 13 percent), with the remainder coming from the international portfolio.[386]

380 'Welcome to OMV, an integrated, international oil and gas company', *OMV*, retrieved 10 October 2011.
381 'OMV AG (OMV:Vienna)', *Bloomberg Business Week*, retrieved 10 October 2011.
382 'Milestones of the OMV success story', *OMV*, retrieved 10 October 2011.
383 'European Commission closes door on OMV-MOL merger plan', *Real Deal*, 7 August 2008.
384 'Hungary's MOL says OMV may have been Russian front', *Reuters*, 1 April 2009.
385 'OMV to fully control Turkish Petrol Ofisi', *Trend*, 23 October 2010.
386 'E&P Profile', *OMV*, retrieved 16 January 2013.

OMV operations in Libya

History

OMV has been present in Libya since 1975 and made a major expansion in 1985 when it acquired 25 percent of Occidental Petroleum's producing assets in the country when Occidental left the country following a deterioriation in US-Libyan relations.[387]

Prior to 2011 Libyan oil accounted for 10 percent of OMV's global output.[388] OMV's Libyan production was at normal levels until 20 February 2011, when it was halted due to the anti-Gaddhafi revolt in the country. Company officials stated in September 2011 that looted camps and poor logistics would make a return to production in Libya slow and arduous, and could take up to 18 months for production to normalise.[389] In August 2012 the company said that production levels for the time being would likely remain stable at 90 percent of pre-crisis levels.[390]

Activities and contracts

OMV is joint venture partner in 12 Production and Exploration blocks and the daily production rate in 2010 was around 33,000 barrels of oil per day (bpd). In Libya, OMV is the operator in only one block, in the Sharara field.[387]

Along with several other international oil companies (IOCs), OMV renegotiated the terms of its contracts with the Libyan National Oil Corporation (NOC) in 2008 under the new EPSA IV framework. The new terms significantly reduced production shares for the IOCs and included a US $1 billion signature bonus payable by the international companies. The new exploration and production sharing agreement (EPSA) covered two blocks, NC115 AND NC186 in the Murzuq Basin, and extended the duration of the contracts up until 2032.

Under the former agreement for Block NC115, the NOC held a 75 percent share and OMV 7.5 percent, with Repsol holding 10 percent and Total 7.5 percent). The NOC share was increased on this occasion to 87 percent, with OMV's share reduced to 3.9 percent. Repsol retained 5.2 percent and Total 3.9 percent. Under the former agreement for Block NC186, the NOC held a 60 percent share and OMV 9.6 percent, with Repsol retaining 12.8 percent, Total 9.6 percent and Saga 8 percent. At this block, the NOC's share under the new agreement was increased to 88 percent and OMV's to just 2.88 percent. Repsol were left with 3.84 percent, Total 2.88 percent and Saga 2.4 percent.[391]

387 'Libya', *OMV*, retrieved 10 October 2011.
388 'OMV says will take time to restore pre-war Libya output', *Reuters*, 7 November 2012.
389 'OMV eyes slow, difficult return to Libya', *Reuters*, 22 September 2011.
390 'OMV sees Libyan output reliable again by year end', *Reuters*, 8 August 2012.
391 'European Oil Companies Extend Contracts In Libya', *Wikileaks*, 23 July 2008.

PetroCanada/Suncor

Type	Public Limited Company
Traded as	TMX:SU NYSE:SU
Founded	1919
Headquarters	Calgary, Alberta
Key people	John T. Ferguson (Chairman of the Board), Richard L. George (CEO)
Revenue	CAD $39.33 billion (approx. US $39.88 billion), 2011.[392]
Net Income	CAD $4.3 billion billion (approx. US $4.36 billion), 2011.[392]
% change on previous year	+12.4%
Total assets	CAD $74.78 billion (approx. US$75.83 billion), 2011.[392]
Employees	13,026 (end 2011)[392]
Website	www.suncor.com

Global snapshot

Suncor Energy became Canada's largest oil company and "flagship Canadian corporation", as described by Suncor's president and CEO Rick George, following a merger with Petro-Canada in 2009. As a result of the arrangement, Petro-Canada investors would receive a 40 percent share of the entity and Suncor shareholders would own the remaining 60 percent of the new firm. Management hoped that as a result of the move, the combination would become a more efficient player and would insulate both from potential foreign takeovers.[393]

Suncor has had a track record as an oil sands pioneer since the 1960s, when the Great Canadian Oil Sands project was established in Fort McMurray.[394] The company is one of Canada's largest oil sands producers, and Suncor was pumping out 228,000 barrels of oil per day (bpd) from properties in Alberta in 2009.[393]

Oil sands aside Suncor Energy, together with is subsidiaries, is involved in the acquisition, exploration, development, production and marketing of crude oil and natural gas in Canada and internationally; transportation and refining of crude oil; and marketing of petroleum and petrochemical products, primarily in Canada. The company's international and offshore segment is active in offshore Newfoundland and Labrador, in the

392 '2011 Annual Report', *Suncor Energy*, 2012.
393 'Suncor, Petro-Canada announce merger', *CBC News*, 23 March 2009.
394 'History', *Suncor*, retrieved 11 October 2011.

North Sea, as well as in Libya and Syria.[395]

PetroCanada/Suncor operations in Libya

History

Suncor is still known as Petro-Canada in Libya, and holds a 49 percent working interest in Harouge Oil Operations, which is a joint venture company (JV) with the National Oil Corporation (NOC) of Libya. Harouge was charged with developing and producing from existing fields, including Amal, Ghani, En Naga and Ed Dib.[396]

A leaked US State Department cable from October 2009 reveals that the Libyan government had demanded that Petro-Canada cut its oil production by 50 percent due to a diplomatic row between Libya and Canada over Gaddhafi's aborted trip to Canada in late September that year. Reportedly, PetroCanada was forced to conduct contingency planning to evacuate staff, while other Canadian citizens in Libya feared expulsion.[397]

The same cable reported that Petro-Canada detailed 50 of its staff to work in Harouge in order to provide on-the-job training and share new technologies such as enhanced oil recovery (EOR) and improved oil recovery (IOR), with mixed results. Petro-Canada General Manager Will Duncan was skeptical, according to the cable, about whether the Libyans wanted the advice, and commented that the Libyan middle-managers of NOC-owned companies projected the attitude that Libya had continued to produce oil during the embargo "just fine" and if need be, could do so again.[397]

In Feburary 2011, Suncor evacuated all of it expatriate staff in Libya and shut down field operations in the face of civil unrest.[398] In June of the same year, CEO Richard George commented that Suncor would not return to Libya until Muammar Gaddhafi had been removed from power. This followed statements from Canadian government officials that Canada would officially recognise the National Transitional Council (NTC) in Libya.[399] In early September 2011, Canada announced the lifting of sanctions on Libya.[400] Harouge began re-starting production in late 2011 and as of September 2012 Suncor's working interest production from Libya was approximately 39,800 bpd. The company announced it was "cautiously optimistic" about a full return to business in Libya.[396]

Activities and contracts

Prior to the 2011 revolution, Suncor had significant onshore acreage holdings in Libya, which it had acquired through predecessor companies. Exploration and production sharing agreements (EPSAs) were signed in 2008, providing access to production over

395 'Suncor Energy Inc.', *Yahoo Finance*, retrieved 11 October 2011.
396 'Libya', *Suncor Energy*, retrieved 11 October 2011.
397 'Petrocanada Caught In Qadhafi's Cross-hairs', *WikiLeaks*, 27 October 2009.
398 'Suncor shuts Libya operations, evacuates staff', *Reuters*, 25 February 2011.
399 'Arab Spring Looks Ominous for Canada's Suncor', *Petroleum Economist*, 16 June 2011.
400 'Harouge joint venture planning to resume production', *Suncore Response*, 27 September 2011.

the next 25 years through the redevelopment of existing fields, as well as opportunities to explore in the hydrocarbon-rich Sirte basin. In addition to ongoing production through Harouge, Suncor was the EPSA exploration operator and as of late 2011 had acquired 15,000 square kilometres of new 3D seismic data. The company has also embarked on a project to drill 49 exploration/appraisal wells.[401]

PGNiG

Type	Partially state-owned
Traded as	WSE:PGN
Founded	1976
Headquarters	Warsaw, Poland
Key People	Grażyna Piotrowska-Oliwa (CEO)
Revenue	PLN 23 billion (approx. US $7.4 billion), 2011.[402]
Net Income	PLN 1.63 billion (approx. US $530 million), 2011.[402]
% change over previous year	(33.7%)[402]
Total Assets	PLN 37.97 billion (approx. US $12.25 billion), end 2011.[402]
Total Equity	PLN 24.5 billion (approx. US $7.91 billion), end 2011.[402]
Employees	32,000 (end 2011)[402]
Website	www.pgnig.pl

Global snapshot

The PGNiG Group (Polish Petroleum and Gas Mining) is the only vertically integrated gas company in Poland[403] and is Poland's largest gas distributor. The company has a 98 percent market share in Poland, buying about two-thirds of its 14.4 billion cubic meters (bcm) of gas a year from Russian Gazprom.[404] PGNiG is 70 percent owned by the Polish government.[405]

Aside from Poland, the company operates internationally in countries including Belgium, Denmark, Egypt, Norway, Pakistan, Russia, Kazakhstan, Uganda, the Czech Repub-

401 'Libya', *Suncor Energy*, retrieved 11 October 2011.
402 'Annual Report 2011', *PGNiG*.
403 'Polish Oil and Gas Company (PGNiG)', *Gulf Oil and Gas*, retrieved 16 January 2013.
404 'PGNiG to Gain $930 Million on Gazprom Deal; Shares Rally', *Bloomberg*, 6 November 2012.
405 'PGNiG to Gain PGNiG to return to Libya', *Petroleum Economist*, 7 November 2012.

lic, Austria, Germany, Belarus, Ukraine and Hungary. It first listed on the Warsaw stock exchange in 2005, and is one of the largest companies with a listing there.[406]

PGNiG operations in Libya

PGNiG bought acreage in two blocks in the Murzuq Basin in 2007 but was forced to suspend operations in February 2011 when the civil war broke out.

When the company made the decision to explore in the country in late 2012, Vice President Jacek Gutowski underlined the importance of Libyan gas to Poland, stating that "we are looking for other opportunities for gas supply to our country" and that "it was not a question of whether we would come back to Libya but how and when." The company said it was planning to drill four exploration wells in Libya in 2013 and to continue with its seismic work.[407]

Repsol YPF

Type	Public Limited Company
Traded as	BNAD:REP
Founded	1986
Headquarters	Madrid, Spain
Key people	Antonio Brufau Niubó (Chairman and CEO)
Revenue	€ 72.84 billion (2011)[408]
Net Income	US $2.84 billion (2011)[408]
Total assets	US $88.78 billion (end 2011)[408]
Employees	33,454 (end 2011)[408]
Website	www.repsol.com

Global snapshot

Repsol is a Spanish integrated oil and gas company, operating in over 35 countries in the areas of exploration, production, refining and marketing. It was formed in 1986 following the merger of various state-owned oil companies.[409]

Until 2012 the majority of its assets were located in Spain and Argentina, as a result of its takeover of Argentinian firm YPF in 1999. However in April 2012 the Argentinian

406 'Annual Report 2011', *PGNiG*.
407 'PGNiG to Gain PGNiG to return to Libya', *Petroleum Economist*, 7 November 2012.
408 'Repsol YPF', *Forbes*, 2012.
409 'Repsol Broadens Its Horizons', *Petroleum Economist*, 9 July 2009.

government passed a law to seize the assets of Repsol in Argentina. Repsol estimated its assets in the country were worth US $10.5 billion. Argentina rejected the valuation and later that year Repsol filed a complaint with the World Bank's arbitration body in Washington. For their part, the Argentinian government blamed Repsol for draining YPF of its resources since acquiring a controlling stake in the 1990s and not investing enough to cope with growing internal demand.[410]

In late 2012 Repsol was producing at a level of 339,000 barrels of oil equivalent (boe) per day globally.[411] and at the end of 2010 Repsol had proven reserves (excluding YPF) totaling 1.1 billion boe. These reserves were mainly located in Trinidad and Tobago (36 percent), 46 percent in other South American countries (Venezuela, Peru, Brazil, Ecuador etc.), 12 percent in North Africa (Algeria and Libya), 5 percent in the Gulf of Mexico and around 1 percent in Spain. The company portfolio was essentially exposed to Spain and Peru downstream, and South America and Africa upstream.[412]

In 2012 Repsol's Antonio Brufau was named "CEO of the year" at Platts Global Energy Awards for successfully directing the company's trajectory, especially after the expropriation of YPF.[413]

Repsol operations in Libya

History

Repsol has had a presence in Libya since the 1970s and by 2011 production in Libya represented around 3.8 percent of the company's global output.[414]

In February 2011, Repsol shut down production at Libya's El-Sharara oil field, which contributed 13 percent of Libya's estimated 1.6 million bpd output. This was in reaction to growing upheaval in the country leading to the ouster of Gaddhafi.[415] In November 2012 the company reported that production in Libya was again at 44,000 barrels per day (bpd)[411] and was planning to resume exploratory drilling in early 2013 as the industry recovered from the war.[416]

Activities and contracts

As of 2011 Repsol had rights over 10 blocks, nine of which are onshore and one in the offshore basin of Sirte. Eight of the blocks are exploratory and two are for production.[414]

410 'Argentina: Repsol files YPF nationalisation complaint', *BBC*, 4 December 2012.
411 'After nationalisation Repsol recovers while YPF struggles', *Petroleum Economist*, 12 November 2012.
412 'Reserves and investments', *Repsol*, retrieved December 2011.
413 'Antonio Brufau named CEO of the Year at Platts Global Energy Awards', *Repsol*, 30 November 2012.
414 'Repsol of Spain Says It Is Operating Normally in Libya', *Bloomberg*, 21 February 2011.
415 'Repsol, Eni suspend Libya oil output, ports disrupted', *Reuters*, 22 February 2011
416 'Repsol 'closing in' for Libya drill', *Bloomberg*, 9 November 2012.

The I/R field, discovered in 2006, entered production in June 2008 and is forecast to reach a production level of 75,000 bpd once installations are completed 2012-13. Production at the "K" field was approved by the NOC in December 2008 and came on-stream in May 2010.[417]

In 2009, Repsol made its first offshore hydrocarbon discovery off the coast of Libya, at the NC202 block. Repsol was to lead the development and holds a 21 percent stake, with the NOC holding 65 percent and OMV 14 percent.[418]

In 2008 Repsol renegotiated its contracts with the Libyan National Oil Corporation (NOC), agreeing to significantly reduced terms for the right to continue work, including large up-front signing bonuses. The renegotiated deal extended Repsol's projects to 2032.[419]

Shell

Type	Public Limited Company
Traded as	LSE:RDSA NYSE:RDSA
Founded	1907
Headquarters	The Hague (Netherlands), London (UK)
Key People	Peter Voser (CEO), Jorma Ollila (Chairman)
Revenue	US $484.49 billion (2011)[420]
Net Income	US $31 19 billion (2011)[420]
% change over previous year	+52.3%[420]
Total Assets	US $345.26 billion (end 2011)[420]
Total Equity	US $171 billion (end 2011)[420]
Employees	90,000 (end 2011)[420]
Website	www.shell.com

Global snapshot

Anglo-Dutch company Shell was ranked in first place on the 2012 Global Fortune 500 list of the world's most valuable companies.[421] It engages worldwide in the upstream,

417 'Upstream Operations by Country', *Repsol 2010*, retrieved 06 October 2011
418 'Repsol makes new oil discovery in Libya', *Repsol*, 21 April 2009
419 'Libya Commercial Round-up For July 2008', *WikiLeaks*.
420 'Annual Review 2011', *Shell*.
421 'Global 500:Royal Dutch Shell', *CNN Money*, retrieved 19 December 2012.

downstream and corporate segments, and also has interests in chemicals and other energy-related businesses.[422] In 2012 Shell was also ranked as the 7th largest oil company worldwide by production, with average daily production of 3.9 billion barrels of oil equivalent (boe) per day.[423]

The company name 'Shell' and the corporate logo were decided upon due to founder Marcus Samuel's background in importing and exporting oriental shells. He and his brother renamed their oil transport company the Shell Transport and Trading Company in 1897. Royal Dutch was a company formed to develop oil fields in the Dutch East Indies and the two companies joined forces in order to protect themselves against competitor Standard Oil. The full merger of the two companies came in 1907.[424]

According to CNN, as access to oil gets tighter Shell is looking to develop its alternative energy assets and in 2010 signed an agreement with a Brazilian biofuel company called Cosan that makes ethanol from sugarcane. In 2011 Shell was also developing technology to build the first floating, liquefied natural gas (LNG) plant, which would give the company an edge over competition when it comes to accessing fuel in deep water. This will be particularly critical as Shell has signed off on new drilling projects in the Gulf of Mexico and off the coast of Brazil.[425]

Shell operations in Libya

History

In Libya Shell holds interests in Area 89, NC211-215, NC211-C and NC212 onshore blocks, and was drilling two wells in the country before the civil war of 2011 broke out.[426]

In addition the company worked on upgrading the liquefied natural gas (LNG) plant at Brega to raise capacity from 500,000 tonnes per year to 3.2 million,[426] after signing an agreement in 2005.[427] The *Guardian* reported controversy around the signing of the Shell contract for the Brega plant upgrade, asserting that during a March 2004 visit to Libya by former British Prime Minister Tony Blair, several meetings were held with Libyan and Shell officials. Allegedly British government officials discussed Shell's business in the region and helped to promote the UK's wider energy agenda, angering US rivals in the process.[426]

Activities and contracts

In May 2012 Shell announced that it was halting its exploration and drilling operations in two Libyan blocks, citing "disappointing results".[428] However later that year in

422 'Royal Dutch Shell Profile', *Reuters*, retrieved 12 December 2011.
423 'The World's 25 Biggest Oil Companies', *Forbes*, 7 July 2012.
424 'The beginnings', *Shell*, retrieved 19 December 2012.
425 'Global 500:Royal Dutch Shell', *CNN Money*, retrieved 12 December 2011.
426 'Shell ends current operations in Libya',*Arabian Oil and Gas*, 29 May 2012.
427 'Shell takes a new step for Libyan LNG',*Egypt Oil and Gas*, 27 January 2008.
428 'BP to resume oil operations in Libya',*BBC*, 29 May 2012.

November, the company said it remained interested in oil and gas exploration opportunities in the country despite abandoning drilling in two blocks earlier in the year.[429]

Statoil

Type	Partially state-owned
Traded as	OSE:STL NYSE:STO
Founded	1972
Headquarters	Stavanger, Norway
Key people	Helge Lund (CEO), Svein Rennemo (Chairman)
Revenue	US $119.55 billion (2011)[430]
Net Income	US $6.3 billion (2011)[431]
% change on previous year	+116.4%431
Total assets	NOK 768.6 billion (approx. US $138.4 billion), 2011.430
Total equity	NOK 285.2 billion (approx. US$51.36 billion), 2011.430
Employees	30,300 (end 2011).431
Website	www.statoil.com

Global snapshot

Statoil, formerly known as "StatoilHydro", became the largest offshore operator in the world following its merger with Norsk Hydro in 2007.[432] The Norwegian government is the largest shareholder in Statoil with 67 percent.[433] However the head of Statoil for Canada, Stale Tungesvik, has told press that Statoil behaves like a private company and the state has no role in its management.[434] Statoil was also named the most transparent of the world's 105 publicly traded companies by pressure group Transparency International in 2012.[435]

429 'Shell says still interested in Libya oil exploration',*Reuters*, 7 November 2012.
430 'Annual Report 2011', *Statoil*.
431 'Fortune 500: Statoil', *CNN Money*, retrieved 19 December 2012.
432 'Statoil to buy the natural gas and oil operations of Norsk Hydro for $28 billion', *New York Times*, 18 December 2006
433 'The World's 25 Biggest Oil Companies', *Forbes*, 7 July 2012.
434 'Norway's state-owned energy giant Statoil wants to be judged on its own actions', *Financial Post*, 15 October 2012.
435 'Statoil tops, Gazproms flops in transparency ranking', *Barents Observer*, 10 July 2012.

In Europe Statoil is the second-largest supplier of natural gas[436] and internationally, Statoil has operations in 34 countries and is listed on the New York and Oslo stock exchanges.[437]

At the end of 2011 Statoil had proven reserves of 5.43 billion barrels of oil equivalent (boe).[438] As of 2012 the company was producing between 1.8 and 2.1 boe daily, according to differing estimates,[439][440] but was aiming to increase this figure to 2.5 million boe per day by 2020 by ramping up its unconventional exploration and North Sea operations.[440]

Statoil operations in Libya

History

Statoil established a Libyan office in Tripoli in 2005, the same year in which the group was allocated licenses for two onshore operations. This marked the beginning of a five-year exploration programme. Statoil was to draw on its experience in neighbouring Algeria, where the group has had activities since 2003.[441]

In February of 2011, Statoil closed its office in Tripoli and withdrew all non-Libyan personnel, in the wake of rising protest and violence across the country.[442] The company re-opened its Libya office in March 2012, with the priority of restoring pre-war output levels. A company spokesman said that damage to facilities was "less than we feared beforehand". Press reported that Statoil was positioning itself for potential upcoming contracts in the country.[443]

Activities and contracts

Statoil participates in land-based oil production and exploration activities in the Mabruk field and in the Murzuk basin, and has been pursing exploration opportunities in other parts of the country. At the end of 2010, Statoil employed 44 people in Libya and was producing 4,400 barrels of oil per day (bpd). Prior to the civil unrest beginning in spring 2011, the company had set high ambitions for a production increase to 2.2 million barrels per day by 2012.[444]

Statoil shares the operations at the Mabruk field, where it owns 5 percent equity, with French Total. Production came onstream at this field in 1995; at the end of 2009 it counted 59 productive wells. Following the renegotiation of the production sharing

436 'Norway's state-owned energy giant Statoil wants to be judged on its own actions', *Financial Post*, 15 October 2012.
437 'Statoil in Brief', *Statoil*, retrieved 07 October 2011
438 'Annual Report 2011', *Statoil*.
439 'The World's 25 Biggest Oil Companies', *Forbes*, 7 July 2012.
440 'Shale to spur Statoil output drive', *Petroleum Economist*, 28 November 2012.
441 'Libya office officially opened', *Statoil*, 12 December 2006
442 'Statoil flees Libya but oil prices rise', *Views and News from Norway*, 22 February 2011
443 'New Libya contracts 'in Statoil sights'', *Libya Business News*, 4 April 2012.
444 'Libya', *Statoil*, retrieved 07 October 2011

agreement (PSA) at this site by the Libyan National Oil Corporation (NOC) in 2008, Statoil's share was reduced from 25 to 5 percent.[445]

At the Murzuq field, Statoil owns 2.4 percent equity and operates alongside Spain's Repsol. This field came onstream in 2003, counted 93 productive wells at the end of 2009 and the license is due to expire in 2038.[445] The oil from the Murzuq fields is transported by pipeline to the Zawia terminal for lifting by ship.[446]

Total

Type	Public Limited Company
Traded as	Euronext:FP NYSE:TOT
Founded	1924
Headquarters	Courbevoie, France
Key people	Christophe De Margerie (CEO), Thierry Desmarest (Chairman)
Revenue	€166.55 billion (approx. US $220.51 billion), 2011.[447]
Net Income	€12.28 billion (approx. US $16.26 billion), 2011.447
% change on previous year	+16.1%447
Total assets	€164.05 billion (approx. US $217.24 billion), end 2011.447
Employees	96,104 (end 2011)[448]
Website	www.total.com

Global snapshot

In 2012 Total was the world's 13th largest oil company by production, with an average of 2.7 million barrels of oil equivalent (boe) produced per day.[449] It has operations in more than 130 countries.[448]

The company has been through several name changes through its history. It was founded as the Compagnie Francaise des Pétroles in 1924 and in 1927 it made its first discovery at the Baba Gurgur oil field in northern Iraq. The company renamed itself Total CFP in 1985 and later in 1991 the name was changed to Total. At this time the French

445 'International Production 2009', *Statoil*, retrieved 07 October 2011
446 'Libya', *Statoil*, retrieved 19 October 2011
447 'Form 20F 2011', *Total*.
448 'Group Presentation', *Total*, retrieved 19 December 2012.
449 'The World's 25 Biggest Oil Companies', *Forbes*, retrieved 19 December 2012.

government owned over 30 percent of the company's stock, but reduced this to less than 1 percent by 1996. When Total took over Belgian Petrofina in 1999 it became known as Total Fina and after merging Elf Aquitane in 2000 it was temporarily named TotalFinaElf.[450]

At the end of 2011 the company had proven reserves of 11.4 billion barrels of oil equivalent (boe).[451]

Total operations in Libya

History

Total has been present in Libya for 50 years. In 2012 the company was involved in a partnership with the Libyan National Oil Corporation (NOC) on a number of projects, including the development of the Mabruk field in the Sirte Basin, and the Al Jurf field near the Tunisian border.[452]

Total's production in Libya was halted in spring of 2011 amid rising turmoil in Libya, first at the Mabruk field and later at Al Jurf. However production was relaunched at the Al Jurf field in late September of the same year.[453]

The Guardian reported that the rebel leaders who overthrew Gaddhafi made clear that countries active in supporting their insurrection (notably Britain and France) should expect to be treated favourably in the post-war industry. However the government in Tripoli denied the existence of a reported secret deal by which French companies would control more than a third of Libya's oil production in return for French support for the revolution. The French foreign minister also claimed to be unaware of the reported deal.[454]

Activities and contracts

The development of the Mabruk oil field, a tight and complex field 170 kilometres south of Sirte, began in 1994. The field is jointly operated with Statoil and Total owns 37.5 percent of the field's operating company.[455] The Mabruk field was producing 30,000-50,000 barrels per day (bpd) of crude before operations were halted in 2011.[456]

Total also operates the offshore Al Jurf platform jointly with a Libyan state oil company and German producer Wintershall.[457] The NOC enjoys a 50 percent share of the

450 'An illustrated history of Total', *Total*, retrieved 19 December 2012.
451 'Group Presentation', *Total*, retrieved 19 December 2012.
452 'TOTAL Profile', *Libyan National Oil Corporation*, retrieved 04 October 2011.
453 'France's Total restarts Libyan oil production', *Agence France Presse*, 23 September 2011.
454 'The race is on for Libya's oil, with Britain and France both staking a claim', *Guardian*, 1 September 2011.
455 'Mabruk Oil Operations Company Profile', *Libyan National Oil Corporation*, retrieved 4 October 2011.
456 'Total to Progressively Stop Output at Libyan Mabruk Field', *Bloomberg*, 2 March 2011.
457 'Total restarts Al-Jurf production', *Upstream Online*, 23 September 2011.

venture, Total 37.5 percent and Wintershall the remaining 12.5 percent.[458]

In 2009, the consortia in which Total is involved renegotiated the terms of their production contracts with the NOC in line with Libya's preferred rubric for exploration and production sharing agreements (EPSAs). The renegotiated terms included the payment of a US $500 million up-front signing bonus. Under the new contracts, each consortium would henceforth take 27 percent of oil production, down from 50 percent under the previous agreement. However, the production share agreed by Total was still greater than those recently negotiated by other international oil companies (IOCs), according to a leaked US diplomatic cable.[459]

Wintershall

Type	Public Limited Company
Trade as	FWB:BAS (BASF)
Founded	1894
Headquarters	Kassel, Germany
Key people	Rainer Seele (CEO)
Revenue	€12.1 billion (approx. US $16.1 billion), 2011.[460]
Net Income	€2.1 billion (approx. US $2.8), 2011.[460]
Employees	2,281 (end 2011)[460]
Website	www.wintershall.com

Global snapshot

With an annual production of 130 million barrels oil equivalent (boe), Wintershall is Germany's largest crude oil and natural gas producer. The company is a wholly owned subsidiary of BASF, a diversified chemical company with a specialty in energy. In Europe, the BASF subsidiary trades and sells natural gas.[461]

Wintershall deliberately focuses on selected core regions where the company has regional and technological expertise: Europe, North Africa, South America, Russia and the Caspian Sea region. As of 2011, they also had growing exploration activities in the Middle East.[462] In 2011 the company was producing 113,000 barrels of oil equivalent

458 'TOTAL Profile', *Libyan National Oil Corporation*, retrieved 4 October 2011.
459 'French Total-led Consortiums Accept Lower Production Shares In Libya', *Wikileaks*, 4 June 2009.
460 'Wintershall at a Glance', *Wintershall*, retrieved 16 January 2013.
461 'Oil and Gas', *BASF", retrieved 16 January 2013.*
462 'The world is our oyster: Wintershall's core regions.', *Wintershall*, retrieved 10 October 2011.

(boe) per day globally, comprising both oil and natural gas.[460]

According to the *Petroleum Economist* Wintershall is an increasingly important part of BASF's business and analysts highlight its widening geographical presence as one of its main strengths, such as its success in securing an exploration license in an offshore field in Qatar in 2008.[463] Since 2000, crude oil and condensate production has declined year-on-year by 14 percent to 5.8 million tons in 2010, however natural gas production rose by 5 percent in 2010 to 14.3 billion cubic metres (bcm).[464]

In addition Wintershall is part of a consortium of companies which collaborated to build the Nord Stream natural gas pipeline under the Baltic Sea,[465] which delivered first gas to Europe in October 2012.[466] In September 2011 Wintershall announced that it had also agreed with Russia's Gazprom to take a 15 percent stake in the project company in charge of developing the offshore section of South Stream, a 940 kilometre pipeline project which will run across the Black Sea and connect south-eastern Europe directly with Russia from 2015.[465]

Wintershall operations in Libya

History

Wintershall began its exploration and production presence in Libya in 1958. As of 2011, the company had invested more than US $2 billion and drilled over 150 wells to become one of the largest oil producers in the country.[467] As of May 2012 Wintershall was the second largest international oil company (IOC) in Libya, accounting for nearly 6 percent of all output.[468]

Wintershall reported in February of 2011 that they were temporarily suspending their operations and evacuating their 130 international personnel in the face of escalating political unrest.[469] But the company restarted production later in 2011, where facilities were undamaged, according to the company's website. By 2012 the company managed to restore and stabilise production at 80 percent of pre-revolution levels.[467]

In May 2012 Wintershall issued a warning that the current terms offered in the Libyan oil and gas sector by the new government, considered by some experts as the toughest in the industry, could impact on decisions regarding future investment in Libya.[468]

Activities and contracts

Prior to the 2011 revolution, Wintershall was producing around 100,000 barrels of oil

463 'Wintershall Delivers for BASF', *Petroleum Economist*, 01 June 2009.
464 'Company Profile', *Wintershall*, retrieved 10 October 2011.
465 'Wintershall aquires a stake of South Stream', *Wintershall*, retrieved 10 October 2011.
466 'Twin Pipeline System Fully Operational', *Nord Stream*, retrieved 7 February 2012.
467 'Wintershall in Libya', *Wintershall*, retrieved 10 October 2011.
468 'Shell's Pulling Out of Libya: A Warning Message to both Oil Authorities, People', *Wintershall*, 31 May 2012.
469 'EU, oil companies begin Libya evacuations', *The Guardian*, 21 February 2011.

per day (bpd) in Libya, at eight onshore oil fields in concessions 96 and 97 in the Libyan desert, about 1000 kilometres south-east of Tripoli. The largest deposit where Wintershall produces is the onshore oil field Sarah near the Jakhira oasis. A facility has also been set up there for treating the associated gas from oil production so that the gas and condensate can be transported to the coast for sale. In addition, in 2006 Wintershall acquired the license for another exploration area covering more than 11,000 square kilometres in the south-east of Libya.[470]

At the offshore Al Jurf field, Wintershall holds a 6.7 percent interest in the consortium operating the facilities. The Libyan National Oil Corporation (NOC) holds 73 percent of the venture and French Total another 20.25 percent. The FPSO (floating production storage and offloading) facility at the site has a storage capacity of more than 900,000 barrels.[471]

In 2008 the NOC renegotiated the terms of its production sharing agreements (PSAs) with the consortium operating the Al Jurf field, including Wintershall, which forced the international companies to accept smaller production shares. The new terms included a US $500 million signing bonus payable to the NOC. The contract was extended until 2032.[472] According to a leaked US diplomatic cable from February 2010, the Chairman of the NOC Shukri Ghanem believed that Wintershall planned to leave Libya in 2016 when its current concession agreement ends.[473]

Wintershall claims to be one of few firms that no longer flares the gas associated with crude oil production in Libya. Instead, the entire gas is collected via central processing plants and sent to power stations for electricity generation.[474]

470 'Wintershall in Libya', *Wintershall*, retrieved 10 October 2011.
471 'Libya's Offshore Al Jurf Field in Block C 137 Starts Production', *Gulf Oil and Gas*, 9 May 2003.
472 'French Total-led Consortiums Accept Lower Production Shares In Libya', *WikiLeaks*, 4 June 2009.
473 'Shokri Ghanem Outlines Plans For Libya's National Oil Corporation', *WikiLeaks*, 11 February 2010.
474 'E&P in Brief, A Wintershall Fact Sheet', *Wintershall*, retrieved 10 October 2011.

State Entities

Libyan Ministry of Oil

The Libyan National Oil Corporation (NOC), which manages the national oil and gas industry, was created by the Ministry of Oil and sits under it.[475]

In November 2012 Abdelbari al-Arusi was appointed head of the Ministry of Oil, replacing interim Minister Abdul Rahman Ben Yezza who held the post for just over a year. Al-Arusi has previous experience at Sirte Oil Company, which was interrupted by an eight year stay in Libya's Abu Salim prison as punishment for being a member of the then underground Muslim Brotherhood movement. Deputy minister Omar Shakmak remained in his position following Libya's official liberation.[476]

Subsidiaries

The Ministry of Oil owns 100 percent of the following subsidiary companies: the Brega Marketing Company; the Arabian Gulf Oil Company; the Sirte Oil Company; and the Zawia Oil Refining Company. In addition the Ministry participates directly in joint venture Companies with international oil companies. These are Akakus Oil, Heritage Oil, Mabruk Oil, Mellitah Gas, Waha Oil and Zuetina.[477]

Central Bank of Libya (CBL)

The Libyan Central Bank is wholly owned by the Libyan state.[478] Its functions include issuing banknotes and coins; stabilising the currency; managing reserves of gold and foreign exchange; acting as banker to the commercial banks; supervising commercial banks; advising the state on formulation and implementation of financial and economic policy; and managing and issuing all state loans.[479]

The Libyan Foreign Bank is an offshore institution owned by the Central Bank.[480]

Governance

Management is entrusted to a Board of Directors, with the Governor as Chairman. The

475 'Oil Ministry plans to split NOC in two; 'unlikely',to placate Benghazi', *Libya Herald*, 28 November 2012.
476 'New Libya oil minister: corrosion expert steps from the shadows', *Reuters*, 28 November 2012.
477 Official sites of respective companies, retrieved 20 January 2013 .
478 'Libya all about oil, or central banking?',*Asia Times Online*, 14 April 2011.
479 'History',*Central Bank of Libya*, retrieved 30 January 2013.
480 'U.N. sanctions lifted on Libya's central bank',*Reuters*, 16 December 2011.

Governor is responsible for policy implementation and management of affairs.[479]

Farhat Bengdara was governor of the Central Bank from 2006 to 2011, when he defected to Turkey during the Libyan revolution.[481] As of January 2013, Saddek Omar Elkaber was current governor of the Bank.[482]

History

The CBL represented the monetary authority in Libya. It was established in 1951, and began operations in 1956, with the objective of maintaining monetary stability in Libya and promoting the sustained growth of the economy in accordance with the economic policy of the state. It replaced the Libyan Currency Committee.[483]

In a 2011 interview, defected former governor Bengdara stated that 95 to 96 percent of the Central Bank's money was held in the US and Europe.[484]

Sanctions were imposed on the bank by the UN during the uprising that year. But in December 2011 the UN Security Council finally lifted sanctions on both the Central Bank and the LFB in order "to underpin the social and microeconomic stability of the new Libya."[480]

In a statement released in April 2011, the anti-Gaddhafi rebels reported that they had designated the Central Bank of Benghazi as a monetary authority competent in monetary policies in Libya, and had appointed a new governor, with temporary headquarters set up in Benghazi.[485] It is unclear what became of the bank subsequently.

As a country Libya faced a sharp liquidity crunch during the uprising, which had a serious impact on investment levels. But in June 2012 the Central Bank lifted restrictions on withdrawing money from banks and urged business people and companies to deposit their money in banks. Governor Elkaber also said that a recently approved Islamic banking law would soon go into effect, a law that aims to attract deposits to Shariah-compliant lenders outside the banking system.[486]

Official website: www.cbl.gov.ly

Libyan Investment Authority (LIA)

Snapshot

The Libyan Investment Authority (LIA) is the country's sovereign-wealth fund, which is tasked with investing Libya's savings abroad. The LIA manages some US $50-70 bil-

481 'Why and how Farhat Bengdara shifted to Turkey?',*Farhat Bengdara Blog*, 28 October 2012.
482 'Board of Directors',*Central Bank of Libya*, retrieved 30 January 2013.
483 'History',*Central Bank of Libya*, retrieved 30 January 2013.
484 'Libyan cash may be hidden in the desert',*Financial Times*, 17 May 2011.
485 'Libya all about oil, or central banking?',*Asia Times Online*, 14 April 2011.
486 'Libya Lifts Restrictions on Bank Withdrawals to Boost Confidence',*Bloomberg*, 7 June 2012.

lion of assets and owns several stakes in big European firms, including 3 percent of UniCredit, Italy's biggest bank, and 3 percent of Pearson, a media group headquartered in London. The funds held by the LIA in 2011 amounted to $10,000 for every Libyan, according to *The Economist*.[487]

The source of the sovereign wealth fund is primarily surplus oil revenues from Libyan oil reserves, and as a government entity, the fund ultimately answers to the Libyan Prime Minister. The LIA is governed by a Board of Trustees consisting of a mix of government officials and Libyan banking experts.[488] As of October 2011, Mohammed Layas held the position of Chairman and Rafiq al-Nayed had been appointed as interim Chief Executive.[489]

Structure and subsidiaries

About $25 billion of the fund's assets fall under LIA subsidiaries and operating companies, such as the Long Term Investment Portfolio and Libyan Arab Foreign Investment Company (Lafico).[489] According to the International Monetary Fund (IMF), the LIA invests mostly abroad although some of its investments are channeled to the domestic Libyan oil sector and to the Libyan Development and Investment Fund (which had holdings of approximately $13 billion as of 2010).[490] In addition, the LIA is in charge of the assets of OilInvest (former owner of the Tamoil Group).[491]

History

The LIA was set up in 2006 by Saif al-Islam, one of Muammar Gaddhafi's sons,[492] taking over ownership of a number of other previously started state investment companies, notably the Libyan Foreign Investment Company (Lafico), founded in 1981.[493] It quickly became a high profile vehicle for the Libyan regime's efforts to re-engage with the global economy. Mohammed Layas, who had held senior positions at the Libyan Foreign Bank and Bahrain-based Arab Banking Corporation (ABC), joined as Chairman and Mustafa Zarti was appointed as deputy head.[494]

Allegations of mismanagement

Despite claims to the contrary by LIA executives, there have been numerous reports of alleged cases of mismanagement, accusing the LIA of becoming a complex network of investments run by a tight-knit circle, including a close friend of Saif al-Islam himself. An audit by professional services firm KPMG in May 2010 depicted an "institution in

487 'From Tripoli to Mayfair. Tracking down Libya's mysterious sovereign-wealth fund', *The Economist*, 10 March 2011.
488 'Libyan Investment Authority', *Investopedia*, retrieved 19 October 2011.
489 'After Gaddhafi: A Spent Force', *Financial Times*, 8 September 2011.
490 'Libya: Investment Climate Statement', *WikiLeaks*, 14 January 2010.
491 'LIA', *Libyan Investment Authority*, retrieved 19 October 2011.
492 'Libyan sovereign wealth fund 'missing $2.9bn'', *BBC News*, 26 August 2011.
493 'Libyan Investment Authority', *SWF Institute*, retrieved 26 October 2011.
494 'After Gaddhafi: A Spent Force', *Financial Times*, 8 September 2011.

deep disarray", according to the *Financial Times*, unable to manage its ambitious investment strategy. Many of the deals made were politically motivated, according to the *Financial Times*, especially in LIA dealings with Italy following the signing of a treaty of friendship with Tripoli in 2008.[494]

The *Financial Times* also claims that some deals involved links with the Libyan elite, such as a $300 million investment in Palladyne International Asset Management of the Netherlands, one of whose directors was the son-in-law of Shukri Ghanem, former chairman of the Libyan National Oil Corporation (NOC). According to reports in the newspaper, as business ties grew, close-knit personal relationships also flourished in the LIA's dealings . In another example, the LIA would often use ABC as its bank when investing overseas. Mahmoud Zewam, head of portfolio management at ABC, also sat on the Board of the LIA, and Layas was chairman of ABC as well as of the Libyan sovereign wealth fund.[494] In the later years of the Gaddhafi regime, the LIA began to invest in Libya's upstream oil industry, although that had previously been the prerogative of the National Oil Corporation.[495]

In 2007 BP signed a major bilateral exploration deal to re-enter Libya during a visit by British Prime Minister Tony Blair to Gaddhafi. The British oil major partnered with the LIA, splitting the portions 85 percent (BP) to 15 percent (LIA). According to press reports, the deal was likely to involve an investment of $2 billion to explore offshore in the Sirte Basin and onshore in the Western Ghadames Basin.[495] Since leaving his post, press reports have made links between Blair's commercial lobbying activities and his influence on those figures managing the LIA.[496] *BBC News* reported in 2010 that NOC Chairman Ghanem had recommended that the LIA buy a stake in the troubled BP.[497] However, there have been no reports of this recommendation being followed through.

When Sami Rais was appointed LIA Chief Executive in October 2009. He reportedly attempted to impose stricter corporate governance but met stiff resistance from loyalists to Saif al-Islam Gaddhafi.[498]

Future

Reports in August of 2011 claimed that some US $2.9 billion were missing from the accounts of the Libyan Sovereign Wealth Fund, according to the *BBC*, and that those investigating the body had found "misappropriation, misuse and misconduct of funds". Mahmoud Badi, a former civil servant in the Gaddhafi regime had been appointed by Ali Tarhouni, the member of the National Transitional Council (NTC) responsible for oil and finance, on an interim basis in order to carry out investigations.[499]

According to the *Financial Times*, the LIA will be required to play a leading role in funding post-conflict reconstruction in Libya.[498] When al-Nayed was appointed interim head of the LIA by the NTC, he said that his first priority was to raise emergency funds

495 'BP Snares Huge Libyan Gas Fields', *Red Orbit*, 31 May 2007.
496 'Tony Blair 'visited Libya to lobby for JP Morgan', *The Telegraph*, 18 September 2011.
497 'BP 'good value' says leading Libyan oil executive', *BBC News*, 6 July 2010.
498 'After Gaddhafi: A Spent Force', *Financial Times*, 8 September 2011.
499 'Libyan sovereign wealth fund 'missing $2.9bn'', *BBC News*, 26 August 2011.

for the provisional government by using frozen overseas assets to generate loans. Of the LIA's $19 billion in cash, $17 billion was said to be held by the Central Bank, whose assets were also frozen at the time. Al-Nayed also announced his intention to bring greater transparency to the wealth fund by creating an independent task force to probe irregular transactions. The LIA was to report to the NTC until the provisional government formed a new board of directors and trustees.[500]

As of October 2011, there was not yet a clear, public picture of where the LIA's funds were located, however the bulk of the fund's assets were said to sit in cash and liquid assets, which could prove more difficult for Western governments to identify.[501] In January 2012 Mustafa Abdul Jalil, chairman of the National Transitional Council (NTC), said that there would be a reassessment of Libya's financial commitments given the amount of reconstruction needed in Libya itself, but that Libya would increase its investments in Sudan, particularly in agriculture and property.[502]

Official website: www.lia.ly

Tamoil

Snapshot

The Tamoil Group is a downstream oil company formerly controlled by its Libyan-owned holding company Oilinvest, until the latter dissolved in March 2011 during the civil war, theoretically leaving Tamoil without an ultimate owner.[503]

The Group is present in several European countries and in all parts of the downstream oil industry, including: the supply and trading of crude oil and refined products; shipping; refining of crude oil; storage and distribution; marketing and retailing; lubricants; and bunkering. They operate refineries in Italy (Cremona), and Switzerland (Collombey).[504] In 2007, Tamoil owned more than 3,000 service stations in Europe, mainly located in Italy, as well as oil refineries in Italy, Switzerland, Spain and Germany.[505]

History

Historically, Libya's international downstream operations have been carried out via two sister companies, known as Tamoil Europe and Tamoil Africa. The ultimate holding entity for Tamoil Europe was Oilinvest (Holdings), registered in the Dutch Caribbean territory of Curaçao. Oilinvest (Netherlands) controlled eight direct subsidiaries registered in Italy, Switzerland, Cyprus, Britain, Germany and Monaco. Several addi-

500 'Libya Fund Seeks to Free Asset Loans', *Financial Times*, 31 August 2011.
501 'From Tripoli to Mayfair. Tracking down Libya's mysterious sovereign-wealth fund', *The Economist*, 10 March 2011.
502 'Libya undecided on future of African investments', *Guardian*, 10 March 2011.
503 'Tamoil Faces Sanctions As Holding Company Wound Up', *PennEnergy*, 01 April 2011.
504 'Tamoil's Activities in Europe', *Tamoil*, retrieved 18 October 2011.
505 'Libya's Tamoil bought by US firm', *BBC News*, 6 June 2007.

tional companies were held through an indirect Dutch subsidiary, Tamoil Beheer.[506]

Libya's acquisition of the Tamoil brand in 1988 formed part of a pattern of national oil companies buying refining and marketing assets in developed markets to serve as an outlet for their crude oil production. Oilinvest originally functioned as a front for the Libyan government, with the National Oil Corporation (NOC) holding a 70 percent stake alongside the Libyan Arab External Bank (15 percent) and the Libyan Investment Authority (LIA), with 15 percent.[506]

In 2007 Tamoil was on the verge of being bought out by US private equity firm Colony Capital in a deal valued at $5.4 billion. The Libyan government would have maintained a 35 percent stake in the company.[507] However in March 2008 then head of the LIA Mohammed Layas announced that the deal had been canceled and that the Libyan government had signed a deal transferring ownership of Tamoil holding company Oilinvest to the recently founded Libyan Investment Authority.[508]

Impact of 2011 international sanctions

In the wake of civil unrest in Libya in 2011, the Tamoil Group was told it was not covered by EU sanctions imposed against the Libyan nation and could operate independently despite the measures, due to its complex ownership structure.[509]

However, despite exemption from official sanctions, many partners such as Shell and BP halted supplies of fuel to Tamoil service stations, resulting in the Group bringing forward closure at its Swiss refinery for planned maintenance. In addition, Tamoil did not succeed in escaping the effect of sanctions in Africa, where Uganda announced in March that it would freeze Tamoil East Africa's $375 million of assets in the country.[506]

Significantly, in late March 2011 the holding company Oilinvest was wound up, severing connections between the LIA and Tamoil. It therefore became unclear the influence the Libyan government now held over the company.[506] A further setback came in September 2011, when the contract for the construction of the African Eldoret Kampala pipeline was cancelled. The Kenyan and Ugandan governments cited that they had lost confidence in the firm's ability to carry out operations after the fall of Gaddhafi's regime, which had pledged to finance over 70 percent of the costs.[510] The exact nature of the ownership of Tamoil remained unresolved as of February 2013.

Official website: www.tamoil.com

506 'Tamoil Faces Sanctions As Holding Company Wound Up', *PennEnergy*, 1 April 2011.
507 'Libya's Tamoil bought by US firm', *BBC News*, 6 June 2007.
508 'Libya cancels sale of Tamoil to US firm', *High Beam Research*, 04 March 2008.
509 'Libya's Tamoil Says It's Not Under EU Sanctions', *Wall Street Journal*, 24 March 2011.
510 'Tamoil Oil Pipeline Contract Cancelled', *AllAfrica*, 06 September 2011.

Libyan NOC and its subsidiaries

Libyan National Oil Corporation (NOC)

Years	NOC Chairmen
1970-(data missing)	Salem Mohammed Amesh
(data missing) - 1980	Omar Muntasir
1990 - 2000	Abdulla Salem El-Badri
2002-2006	Abd-al-Hafi Mahmud al-Zulaytini
2006-2011	Shukri Ghanem
2011 -	Dr Nuri Berruien (interim)

The NOC of Libya is a state-owned company that controls Libya's oil and gas production through a number of fully owned subsidiaries and participation in joint ventures (JVs). In combination with its subsidiaries, it accounted for around half of the country's oil output as of 2011.[511] Established in 1970, the parent company counted 700 employees as of 2008. [512] The NOC oversees all petroleum activities in Libya including oil and gas exploration, drilling and production; refineries operation; petrochemical production; marketing and distribution of petroleum products and petrochemicals.[511]

In 2010, the Energy Intelligence Group included the Libyan NOC at number 25 in their ranking of the Top 100 World Oil Companies.[513] As of November 2012 the chairman of the NOC was Nuri Berruien.[514]

History

The NOC was created on 5 March 1970 through Law No. 24, replacing the older Libyan General Petroleum Corporation (Lipetco, established by royal decree in 1968).[515] With its creation the headquarters were moved from Benghazi to Tripoli.[516]

Its mandate according to Law No. 24 is to "endeavour to promote the Libyan economy by undertaking development, management and exploitation of oil resources" and to

511 'Libya: Research Profile', *Oil and Gas Directory Middle East*, retrieved 18 October 2011.
512 'A Rare Peek Inside Libya's National Oil Corporation', *Wikileaks*,1 December 2008.
513 'The Energy Intelligence Ranks NOC 25 Among the World's Top 100 Companies', *National Oil Corporation*, retrieved 17 October 2011.
514 'Libya reaches 1.6 million b/d output milestone, promises more to come', *Petroleum Economist*, retrieved 17 October 2011.
515 'National Oil Corporation-Lipetco in the 1960s', *International Directory of Company Histories*, retrieved 25 October 2011.
516 'Libya's east heightens calls for control of oil', *Reuters*, 18 January 2013.

participate in the "planning and executing the general oil policy of the state". Created as part of Colonel Muammar Gaddhafi's vision for Libya following the overthrow of the monarchy in 1969, it was similar to its predecessor in that it would function under the supervision and control of the Minister of Petroleum. Its first appointed chairman was Salem Mohammed Amesh.[517]

The law under which the NOC had been established restricted new ventures with foreign firms to those in which the latter took on all the risks of the pre-commercial exploitation period. The NOC played a major part in the Libyan government's new strategy of higher oil prices and the moves toward a norm of production-sharing arrangements and phasing out the previous system of concessions.[517]

The 1970s was a period of nationalisations in Libya which saw further consolidation of the NOC's power. In 1971 it took over production operations at the Sarir field following the nationalisation of BP's Libyan concession, and by 1974 production sharing agreements (PSAs) had been reached with Exxon, Mobil, Compagnie Francaise des Petroles, Elf Aquitaine and Agip, all on a 85/15 basis onshore and an 81/19 basis offshore.[517]

The 1980s was a decade overshadowed by increasingly problematic US-Libya relations following allegations of Libyan support for terrorist activities, resulting in unilateral US sanctions being imposed in 1986. However, the decade was also one of joint venture projects. In order to offset the US sanctions and to offer incentives to other foreign companies, changes were made to the NOC's regulations regarding joint ventures.[517]

In 2006, a few years after sanctions were lifted, US-educated former Libyan Prime Minister Shukri Ghanem became Chairman of the NOC,[518] in which post he oversaw the return to the country of foreign oil companies.[519] In the same year, the National Energy Council (NEC) was formed, composed of the Ministers of Industry, Planning, Economy, Finance and Labour, as well as Ghanem and PM-equivalent Baghdad Al-Mahmoudi. The entity was intended as a consultative body, but concerns were raised about the potential resulting politicization of the energy sector.[520] In 2008, leaked US diplomatic cables suggested that Ghanem was seeking to tender his resignation as NOC boss, especially after Muatassim Gaddhafi, a son of Muammar Gaddhafi, requested US $1.2 billion in cash or oil shipments in his capacity as National Security Advisor. The cable reported that Ghanem fear that Muatassim or his confederates might seek revenge if the funds were not forthcoming.[521] When Ghanem decided to stay on in the role, *Reuters* reported there was relief among foreign investors at the return of a Western-friendly face at the helm of the NOC.[522]

Further leaked cables from 2008, one the other hand, suggested widespread disaffection within the NOC with Ghanem's autocratic style and lack of technical proficiency

517 'National Oil Corporation', *Funding Universe*, retrieved 17 October 2011.
518 'Libya's top oil official has defected: TV reports', *Reuters*, 17 May 2011.
519 'Shukri Ghanem obituary', *Guardian*, 8 May 2012.
520 'Libyan Noc Chairman Ghanem's Views On Petroleum Issues', *WikiLeaks*, 19 October 2006.
521 'National Oil Corporation Chairman Shukri Ghanem may see to resign soon', *The Telegraph*, 31 January 2011.
522 'FACTBOX-Who is Libyan oil chief Shokri Ghanem?', *Reuters*, 1 June 2011.

compared to his predecessor el-Badri. This in turn caused tensions among international operators and governments over the human capacity limitations at the Corporation as an operating partner.[523] However, Ghanem remained in his post until conflict broke out in 2011, when he announced his defection in June to join the opposition rebels.[522]

The future of the NOC

There was much debate over the form the NOC would take following the overthrow of Gaddhafi's regime in 2011. Reports in September 2011 claimed that a regional power struggle was emerging as Tripoli and Benghazi competed to host the Corporation.[524] Following the 2011 war, workers in the east called for more powers in a region accounting for around 80 percent of the country's oil wealth.[525]

Newly appointed Minister of Oil Abdelbarli al-Arusi proposed splitting the NOC into an upstream exploration and production body based in the capital and a downstream refining and petrochemicals company in Benghazi. But eastern civil groups and worker unions called for the whole body to be relocated to the east. According to a *Reuters* report, the citizens of this region, starved of revenues during the Gaddhafi era, still felt marginalised by Tripoli in post-revolution Libya.[525]

In early 2013 Yussef al-Ghariani, head of the executive committee of the oil and gas workers' union, was working on a proposal which created two bodies, one in charge of gas and another in charge of oil.[38]

Arabian Gulf Oil Company (Agoco)

Snapshot

The Arabian Gulf Oil Company (Agoco) is a fully owned subsidiary of the National Oil Corporation (NOC) and is Libya's second-largest state-owned oil company.[526] As of January 2013 Agoco had around 6,000 employees, of which around a third were based at the headquarters in Benghazi.[38]

History

Agoco's roots go to 1971 when the Arabian Gulf Exploration Company (Ageco) was created following the nationalisation of assets belonging to BP, Chevron and Texaco.[527]

In 1980, Ageco and the Umm-al-Jawabi Oil Company were amalgamated, creating the Libyan Arabian Gulf Oil Company. By 1989, Agoco's production was 400,000 barrels per

523 'A Rare Peek Inside Libya's National Oil Corporation', *WikiLeaks*, 1 December 2008.
524 'Shell execs in Tripoli discuss Libya return', *Reuters*, 5 October 2011.
525 'Libya's east heightens calls for control of oil', *Reuters*, 18 January 2013.
526 'Libya crisis: no 'happy ending' for Colonel Gaddhafi', *BBC News*, 13 March 2011.
527 'Agoco Joins Rebels As Oil Industry Splits Down The Middle', *Penn Energy*, 1 April 2011.

day (bpd), making it the largest individual oil producer in the country. Agoco was implicated in the broader oil policy of the government, which was to initiate and invest in new projects while maintaining control.[528]

During the 2011 conflict, Agoco broke from the Gaddhafi-controlled NOC and announced plans to use oil sales to fund the opposition rebel forces.[526]

Activities

Agoco operates five major oil fields: Sarir, Messla, Naffora, Beda and Hammada. The company also operates refineries in Tobruk and Sarir. Agoco's main business is the production of oil from its fields in the desert and pumping the crude oil through hundreds of kilometres of pipelines to the coast.[529] Before the popular protests began in the spring of 2011, Agoco was a key part of the industry driving Gaddhafi's regime and was producing 440,000 bpd out of its fields fields in the south-west of the country, perhaps one barrel in every 100 traded on markets around the world every day.[530] This production represented roughly 40 percent of total Libyan crude oil production.[531]

Brega Petroleum Marketing Company

Snapshot

Established in 1971 and based in Tripoli, the Brega Petroleum Marketing Company deals with marketing and distributing petroleum products as well as related commodities all over the country. Its activities include: establishing and maintaining storage tanks and gas stations; renting and operating petroleum tankers and ships and constructing pipeline networks.[532]

It was created to be the monopoly marketer and distributor of petroleum products of the Libyan state's share of oil and gas production in the country, although in recent years some small private distribution companies have been allowed inside Libya.[533]

Official website: www.brega.ly

Zawia Oil Refining Company

The Zawia Oil Refining Company is a subsidiary of the Libyan National Oil Corporation

528 'National Oil Corporation', *Funding Universe*,retrieved 18 October 2011.
529 'Connecting Green Ideas', *SAF Tehnika*, retrieved 18 October 2011.
530 West, Johnny 'Karama! Chapter 17: Of Oil, Revolution and Complicity', retrieved 18 October 2011.
531 'Connecting Green Ideas', *SAF Tehnika*, retrieved 18 October 2011.
532 'Brega Petroleum Marketing Co.', *PetrolPlaza*, retrieved 18 October 2011.
533 'Ghanem announces third private distribution company', *Wikileaks*, retrieved 26 October 2011.

(NOC) and operates the Zawia Refinery, Libya's second largest located near the capital.[534]

Sirte Oil Company (SOC)

Snapshot

The Sirte Oil Company (SOC) is a fully-owned subsidiary of the Libyan National Oil Corporation (NOC), headquartered in Brega. SOC's operations include exploration, production and manufacturing.[535] According to the US State Department it is one of the most important of the NOC's subsidiaries.[536]

History

SOC was formed as a subsidiary of the Libyan National Oil Corporation in 1982, when Esso Sirte companies (Esso's Libyan subsidiaries) relinquished 50 percent of their shares to the NOC and Exxon's share in Esso Sirte (Exxon being the parent company of both Esso and ExxonMobil)[537] was purchased by the NOC and formed into the Sirte Oil Company.[538] In 1986 the SOC took over the assets of Grace Petroleum, one of the five US companies forced by unilateral US sanctions to leave Libya.[539] The SOC was formerly headed by UK-educated Ali Sugheir, who briefly became interim head of the NOC itself in 2009, replacing Shukri Ghanem temporarily.[536]

Activities

The SOC operates the Raguba field in the central part of the Sirte Basin. The field is connected by pipeline to the main line between the Nasser field, one of the largest in Libya, and Marsa el-Brega. Besides Nasser, SOC is in charge of two other gas fields – Attahadi and Assumud – plus the Marsa el-Brega liquefied natural gas (LNG) plant.[538]

Official website: www.sirteoil.com.ly

534 'Libya: Country Brief', *Energy Information Administration*, June 2012.
535 'Sirte Oil Co.', *National Oil Corporation*, retrieved 18 October 2011.
536 'Libya names Ali Sugheir new Chairman of National Oil Company', *Telegraph*, 31 January 2011.
537 'Esso Extras', *Esso*, retrieved 26 October 2011.
538 'National Oil Corporation', *Funding Universe*, retrieved 18 October 2011.
539 'Energy Profile of Libya', *Encyclopedia of Earth*, 25 August 2008.

Joint Ventures

Akakus Oil Operations (AOO)

Headquarters	Tripoli
Founded	1996
Key People	Abdulmajid Shah (Chairman)[540]
International Partners	Repsol, OMV, Total
% held by NOC	n/a
% held by IOCs	n/a
Production output	340,000 bpd (2011)[540]
Website	www.akakusoil.com

Snapshot

Akakus (formerly Repsol Oil Operations) is a joint venture (JV) shared between the Libyan National Oil Corporation (NOC), Spain's Repsol, Austria's OMV and France's Total.[541] The JV has its headquarters in Tripoli.[542]

History

AOO began producing in 1996, at a level of 50,000 barrels per day (bpd). In December 1997 activities in block NC-115 were commissioned, and in October 1998 a storage terminal and 720 kilometres (km) of transmission pipeline were put into operation. Early production began at the NC-186 block in 2004.[543]

In April 2007 all joint ventures (JVs) involving foreign firms producing oil and gas in Libya were forced to change their names in order to better reflect Libyan history and geography. The JV operated by Repsol at this stage became Akakus Oil Operations, a reference to the Akakus mountains in the south of the country.[544]

540 'Repsol Libya JV May Return To Prewar Output Next Month', *Wall Street Journal* 6 November 2011.
541 'Libya commercial round-up for February 2009', *Telegraph*, 31 January 2011.
542 'Clients', *Petrolcomet Services* retrieved 4 November 2011.
543 'AKAKUS OIL OPERATIONS- LIBYA', *Muscat Regional Forum 2010* 10 May 2010.
544 'Libya - The Foreign Oil Producers', *High Beam Research*, 9 July 2007.

Activities

AOO operates two concessions in the Sahara desert, collectively known as the el-Sharara field[545]. The first is the NC-115 concession area approximately 680 km south of Tripoli, where in 2010, 230,000 bpd were being produced. The second is the nearby NC-186, where in 2010 production was at 130,000 bpd.[543] At the NC-186 field, the NOC holds a 88 percent stake and Repsol the remaining 12 percent.[546]

Oil is piped from oil fields in these areas to the Zawia Terminal on the Mediterranean coast.[547]

Official website: www.akakusoil.com

Harouge Oil Operations (HOO)

Headquarters	Tripoli/Benghazi
Founded	1987
Key People	Mr. Abdulwahab R. En-Neamy (Chairman)[548]
International Partners	PetroCanada
% held by NOC	51%[549]
% held by IOCs	49% (PetroCanada)[550]
Production output	100,000 bpd (2011)[551]

Snapshot

Harouge Oil Operations (HOO), formerly known as Veba Oil Operations, is a joint venture (JV) between the Libyan National Oil Corporation (NOC) and Canadian oil company PetroCanada.

HOO employed over 2,000 employees in 2009 at its offices in Tripoli and Benghazi, as well as in self-sufficient field camps at the oil fields in Amal, Ghani, Jofra, Tibisti and En Naga, and at the terminal in Ras Lanuf.[552]

545 'Welcome to Akakus Company', *Akakus Oil Operations* 10 May 2010.
546 US Department of the Interior 'Minerals Yearbook, 2008, V. 3, Area Reports, International, Africa and the Middle East', p 256 *Government Printing Office* 2010.
547 'Clients', *Petrolcomet Services Co.* retrieved 4 November 2011.
548 'Management Committee', *Harouge Oil Operations* retrieved 7 November 2011.
549 'Libya', *Suncor* retrieved 3 November 2011.
550 'East Libya oil offices abandoned, vehicles looted', *Reuters* 5 March 2011.
551 'Harouge Oil to Begin Pumping Oil from Libyan Field', *BEDigest* 26 September 2011.
552 'About Harouge Oil Operations', *Harouge Oil Operations* Retrieved 3 November 2011.

History

In 1987 Veba Oil Operations was established by the NOC and Veba Oil Libya to explore, develop and exploit eight concessions, mainly located in central Libya's Sirte basin. In 2002, Veba Oil Libya's rights and obligations in these concessions were acquired by PetroCanada and in 2004 Veba Oil Libya was renamed 'Petro-Canada Oil Libya'. In 2008, the NOC and PetroCanada signed six new exploration and production sharing agreements (EPSAs) for eight former concessions, and agreed that HOO should continue to develop oil fields in these concessions on behalf of the owners. Exploration activities within the new contract areas were to be PetroCanada's responsibility.[552]

Activities

In 2009, HOO was developing and producing petroleum from five contract areas with more than 20 fields. The crude oil is pumped from the various fields via export pipelines to the Ras Lanuf terminal, where it is stored in tanks and loaded onto tankers for export.

HOO is also responsible for shipping from Ras Lanuf crude oil from fields operated by other operators.[553]

Official website: www.vebalibya.com

Mabruk Oil Operations (MOO)

Headquarters	Tripoli
Founded	n/a
Key People	Mr. A. Aboulsayen (Chairman)[554]
International Partners	Total
% held by NOC	n/a
% held by IOCs	n/a
Production output	n/a

Snapshot

Mabruk Oil Operations (MOO) is a joint venture operating in Libya between the Libyan National Oil Corporation (NOC) and France's Total.[555]

553 'About Harouge Oil Operations', *Harouge Oil Operations*, retrieved 3 November 2011.
554 'OC Visit to Farwah', *Mabruk Oil Operations* 2 November 2011.
555 'Total's Libyan joint venture Loads First Post-Rebellion Export', *Fox Business*, 3 November 2011.

In 2008 MOO employed 379 employees, of which 59 were expatriates and 320 were locals. Staff are distributed across three main operational sites, with the main office at the Dhat El Imad Complex in Tripoli.[556]

History

In December 1992, a Development and Production and Sharing Agreements (DPSA) for Concession C17 at the Mabruk field was executed with the NOC as first party to the agreement. Mabruk oil operations was second party to the agreement, in which TEP Libye (Total) held a 75 percent stake and SAGA Petroleum a 25 percent stake.[557]

At the Al Jurf field, the license originates from a first contract awarded to Aquitaine Libya in 1968. In 1997 an exploration and production sharing agreement (EPSA) was ratified by the Libyan authorities, valid until 2017, in which the NOC held a 50 percent interest, Total 37.5 percent and Wintershall 12.5 percent.[558]

In March 2007, the NOC announced that the Mabruk joint venture, alongside others such as Akakus and Harouge, would change its name to Mabruk Oil Operations in order to better reflect the history and geography of Libya.[559]

According to US State Department cables, in June 2009 the terms of the joint venture's contract were renegotiated, which necessitated the IOCs Total and StatoilHydro accepting a lower production share. Under the new agreement, the Total-Statoil and Total-Wintershall consortia paid a signing bonus of US $500 million to the NOC, $200 million on signing and the remaining $300 million when the viability of gas exploitation at the Al Jurf field was confirmed. The contract's expiration date was extended from 2027 to 2032 at the Mabruk field, and from 2017 to 2032 at the Al Jurf field.[560]

Activities

The venture operates two main sites, the onshore Mabruk field and the offshore Al Jurf field. As of 2011, at the onshore Mabruk field the NOC enjoyed a 73 percent share, Total a 20.25 percent share and StatoilHydro 6.75 percent. At the offshore Al Jurf field, the NOC also had a 73 percent share, with Total taking 30 percent and German Wintershall 10 percent.[560]

Average production at Mabruk in 2009 was around 20,000 barrels per day (bpd) In 2009 Al Jurf was producing 45,000 bpd.[560]

Official website: www.mabruk-oil.com

556 'Company Profile', *Mabruk Oil Operations*, retrieved 3 November 2011.
557 'Mabruk Overview of C17', *Mabruk Oil Operations*, retrieved 3 November 2011.
558 'Al Jurf Overview of C317', *Mabruk Oil Operations*, retrieved 3 November 2011.
559 'Geography Influences Operators' Name Changes in Libya', *Mabruk Oil Operations*, retrieved 3 November 2011.
560 'French Total-led Consortiums Accept Lower Production Shares In Libya', *Wikileaks*, 4 June 2009.

Mellitah Oil and Gas (MOG)

Headquarters	Tripoli
Founded	2008
Key People	Mohamed Oun (2008 onwards)[561]
International Partners	Eni
% held by NOC	50%
% held by IOCs	Eni (50%)[562]
Production output	280,000 bpd (2011)[563]

Snapshot

Mellitah Oil and Gas is a joint venture (JV) in which the Libyan National Oil Corporation (NOC) and Italian oil company Eni are equal partners (NOC 50 percent; Eni 50 percent).[564]

In November 2011 Abdul-Rahman Ben Yezza, a former executive of the JV, was named interim Oil Minister for Libya.[565]

History

Mellitah Oil and Gas B.V. Libyan Branch was established in 2008 by the General People's Committee Resolution No. 253, in agreement with the National Oil Corporation (NOC)and Eni North Africa.[566]

Activities

Eni manages its Libya operations through Mellitah, including the Elephant (El Feel) field in the Murzuk basin, Bu Attifel and the Bouri field.[565]

As of December 2011 following the revolution earlier that year, Mellitah was pumping 70 percent of pre-conflict levels, but was still facing technical problems after fields in the desert were damaged by forces loyal to Muammar Gaddhafi.[567]

Official website: www.mellitahog.ly

561 'Handover of Mellitah Oil & Gas B.V.', *Mellitah Oil and Gas*, 12 November 2008.
562 'EU confirms NOC, 5 other Libyan firms added to sanctions list', *Platts*, 24 March 2011.
563 'Eni Restarts Production from Libya Wells',*Financial Times*, 26 September 2011.
564 'Mellitah Oil & Gas restarts gas production from the offshore platform of Sabratha in Libya', *Eni* 2 November 2011.
565 'Libya: Country Profile',*Energy Information Administration*, June 2012.
566 'Company Profile', *Mellitah Oil and Gas B.V.* 2 November 2011.
567 'Libya's oil industry improving rapidly after war', *BBC News*, 9 December 2011.

Waha Oil Company (WOC)

Headquarters	Tripoli
Founded	1986
Key People	Ahmed Amar (Chairman, as of 2012)[568]
International Partners	ConocoPhillips, Hess, Marathon
% held by NOC	59.16% (2011)[569]
% held by IOCs	ConocoPhillips (16.33%), Marathon (16.33%), Hess (8.16%)569
Production output	350,000 bpd (2011)[570]
Website	www.wahaoil.net

Snapshot

Tripoli-based Waha Oil Company (WOC) is a joint venture (JV) shared between US international oil companies Hess, ConocoPhillips and Marathon.[571] In 2011, of all of the National Oil Corporation (NOC) subsidiaries, Waha was the largest oil producer. It was also the second biggest oil producer in Libya.[572]

The company employed 3,200 staff as of early 2011.[573]

History

The company which would become the WOC was established in 1955 and began operations on Libyan soil in 1956 as the Oasis Oil Company.[571] However in 1986 the Waha Oil Company itself was established.

The WOC was one of the companies most adversely affected by the US embargo imposed in 1986, as its oil fields were equipped mainly using US equipment, for which the WOC could not acquire spare parts. As a result, production at the company's giant Waha field fell sharply from around 1 million barrels of oil per day (bpd) at its peak in the late 1960s to around 350,000-370,000 bpd in 2008.[574]

In December 2005 however, the former Oasis Group (Amerada Hess, ConocoPhillips,

568 'Organization Chart', *Waha Oil Company*, retrieved 07 November 2011.
569 'EU confirms NOC, 5 other Libyan firms added to sanctions list', *Platts*, 24 March 2011.
570 'Waha Oil Production Should Hit Pre-War Level by End January', *Libya Business News*, 4 January 2012.
571 'Waha Oil Company', *National Oil Corporation*, retrieved 18 October 2011.
572 'Waha Oil Company', *Oil Voice*, retrieved 18 October 2011.
573 'Libya's Waha Oil Nears End of Workers' Strike', *Wall Street Journal*, 14 October 2011.
574 'Energy profile of Libya', *Encyclopedia of Earth*, 25 August 2008.

and Marathon) reached an agreement with Libya on a return to the country for the first time since 1986 and agreed to pay Libya US $1.8 billion to return to its acreage in the Sirte basin. The NOC subsequently held a 59.16 percent stake, leaving ConocoPhillips and Marathon with 16.33 percent each, and Amerada Hess with 8.16 percent.[575]

While from 2008 onwards many international companies operating in Libya were forced to renegotiate their contracts with the NOC, there are no reports that the Waha Group had renegotiated terms and aligned with the new EPSA IV framework by the time that conflict broke out in 2011.[576]

Following the overthrow of Muammar Gaddhafi in 2011, the WOC was plagued by protests prompted by workers demanding the dismissal of Chairman Elshahab, who was allegedly close to the Gaddhafi regime. The strike ended in November 2011 when Ahmed Amar was named as new Chairman of the JV.[577]

Activities

Prior to the Libyan revolution in 2011, Waha Oil produced more than 350,000 bpd (up to 400,000 bpd by some estimates)[577] In addition to operating the oil fields under its control, the WOC also handles large quantities of oil for a number of companies through its pipelines running from the Sirte Basin to the Es Sider terminal.[578]

During the 2011 conflict there was some damage to workers' accommodation at Waha sites, compounded by fears that mines could have been planted there[579] However in January 2012 Chairman Amar said that by the end of the month WOC should reach pre-war production once again.[580]

Official website: www.wahaoil.net

Zuetina Oil Company (ZOC)

Headquarters	Tripoli
Founded	1986
Key People	n/a
International Partners	Occidental, OMV
% held by NOC	88%[581]

575 'EU confirms NOC, 5 other Libyan firms added to sanctions list', *Platts*, 24 March 2011.
576 'Libyan National Oil Company Chair Confirms Acting Status, Pledges Continuity', *WikiLeaks*, 18 October 2009.
577 'Libya's Waha Oil strike over as new chairman named', *Reuters*, 14 November 2011.
578 'Waha Oil Company', *Oil Voice*, retrieved 18 October 2011.
579 'Libya's Waha Oil Nears End of Workers' Strike', *Wall Street Journal*, 14 October 2011.
580 'Organization Chart', *Waha Oil Company*, retrieved 07 November 2011.
581 'Zuetina Oil Company', *Zuetina* retrieved 1 November 2011.

% held by IOCs	12%[581]
Production output	60,000 bpd (2011)[582]

Snapshot

The Zuetina Oil Company is a joint venture in which the Libyan National Oil Corporation (NOC) and international oil companies Occidental and OMV are partners. In 2009, Zuetina employed 2,474 employees, 2,264 of whom were local.[583]

History

When the assets of Occidental were frozen in 1986, Zuetina Oil Company was incorporated as a Libyan owned company with a mandate to carry out a range of oil operations with concession contracts subject to the production sharing agreements (PSAs) made between the NOC and the international oil companies (IOCs) Occidental and OMV.

Once assets were unfrozen and American IOCs returned to Libya, agreements were signed under the EPSA IV agreements in June 2008.[583]

Following the signing of the production sharing agreement (PSA) in 2008, the NOC had a 88 percent share in Zuetina's operational budget; the international partners Occidental and OMV split a 12 percent share.[583]

Activities

As of early 2011, the Zuetina joint venture was producing 60,000 barrels per day (bpd) from its fields.[582] The crude oil produced has been known on the international market as 'Zuetina Blend' since the late 1960s and is exported via the Zuetina terminal.[583]

Official website: www.zueitina.com.ly

582 'Libya's Zueitina Oil Co Restarts Production - NOC Head', *Fox Business* 18 October 2011.
583 'Zuetina Oil Company', *Zuetina Oil Company*, retrieved 1 November 2011.

Key Infrastructure

Overview of Infrastructure

Terminals

Libya has six major oil terminals and storage facilities on the Mediterranean coast, comprising five in the east of the country - Es Sider (Libya's largest at 447,000 barrels per day (bpd)), Zueitina (214,000 bpd), Ras Lanuf (195,000 bpd), Marsa El Brega (51,000 bpd) and Marsa El Hariga, or Tobruk (51,000 bpd) - and Zawia (199,000 bpd) in the West. In January 2011, before the outbreak of the revolution, these six terminals combined to load 1.157 million barrels per day (bpd). Several smaller oil terminals loaded a combined 333,000 bpd, bringing Libya's total loading volume before the 2011 war to 1.49 million bpd.[584]

In addition to export shut-ins as a result of the 2011 conflict, political protests around the July 2012 elections caused the three major export terminals in the east (Es Sider, Ras Lanuf, and Brega) to be shut down for 48 hours. This shut in half of Libya's exporting capacity and cut production by 300,000 bpd due to blockages.[585]

Refineries

As of 2011 Libya had a total refining capacity of 378,000 bpd. The country has five domestic refineries at Ras Lanuf (Libya's largest), Zawia, Brega, Tobruk and Sarir. The national oil companies in charge of operations are Ras Lanuf Oil & Gas Processing Co (220,000 bpd), Zawia Oil Refining Company (120,000 bpd), Sirte Oil Company (SOC) (8,000 bpd), Tobruk Refining (20,000 bpd) and Sarir Refining (10,000 bpd).[586]

In order to keep up with hydrocarbon output goals, the Libyan government is considering upgrades to refining infrastructure in order to provide the necessary capacity. According to Deputy Oil Minister Omar Shakmak, the plans include possibly building two new refineries, perhaps in the eastern Tobruk region and another in the south.[585]

Pipelines

Oil

Libya is traversed by pipelines connecting producing fields to processing and export

584 'Rebuilding the poor oil-rich country of Libya', *MSNBC*, 24 August 2011.
585 'Libya sees return to pre-war oil output in October', *Reuters*, 26 July 2012.
586 'Factbox: Libya's oil returns; fields, refineries, companies Libya sees return to pre-war oil output in October', *Reuters*, 28 October 2011.

facilities. Two of the longest are the 726-kilometre line connecting the Elephant field to the Mellitah complex, and the 550-kilometre line connecting the Waha fields to the Es Sider terminal.[587]

In mid-2012 German company Wintershall announced plans to build a new 55-kilometre oil pipeline to connect the Nafoora and Amal oil fields at a cost of US $38 million.[588]

Natural gas

The Greenstream natural gas pipeline, a link in the chain of the Western Libya Gas Project (WLGP) operational since 2003, exports the majority of Libya's natural gas produced to European markets.[589]

Terminals and refineries

Es Sider Terminal

Es Sider is Libya's largest terminal, located 35 kilometres west of Ras Lanuf.[590]

Capacity

Es Sider was exporting approximately 350,000 barrels per day (bpd) from the Waha oil fields before civil conflict began in 2011, according to the Energy Information Administration (EIA).[591] The *Financial Times* wrote in March 2011 that the terminal was capable of exporting 447,000 bpd.[592]

The terminal came under direct attack in 2011 during battles between Gaddhafi-loyalist and opposition forces, and according to the EIA there was damage to its storage tanks, metering equipment, and a feeder pipeline. The terminal has been operational again since the beginning of 2012 thanks to temporary fixes, but the EIA wrote in mid-2012 that repairs are still needed for it to perform at full capacity on a sustained basis.[591]

In November 2012, some 150 workers of Waha Oil Company at Es Sider went on strike over a range of pay and contract demands.[593]

587 'North Africa Pipelines map', *Countries of the World*, retrieved 30 January 2013.
588 'Wintershall plans Libyan oil pipeline', *UPI*, 23 July 2012.
589 'Country Analysis: Libya', *Energy Information Administration*, June 2012.
590 'Oil terminals in east Libya 'forced to shut''. *AFP*, 5 July 2012.
591 'Country Analysis Briefs: Libya', *Energy Information Administration*, June 2012.
592 'Oil groups seek Libyan rebels' assurances'. *Financial Times*, 1 March 2011.
593 'Sidra terminal strike threatens 400,000 bd exports', *Libya Herald*, 14 November 2012.

Ownership

The Waha Oil Company, an joint venture (JV) between the Libyan National Oil Corporation (NOC), ConocoPhillips, Hess and Marathon, operates the terminal.[594]

Ras Lanuf Refinery and Terminal

Located on the Gulf of Sidra[595] about 370 kilometres west of Benghazi,[596] Libya's largest oil refinery came on stream in 1985.[597] It is part of a larger complex that includes petrochemical facilities. Its products are sold both locally and exported to the United States and Europe. The complex also includes the Ras Lanuf harbour,[598] one of Libya's six oil terminals.[595]

Capacity and production

Ras Lanuf has a production capacity of 220,000 barrels of oil per day (bpd),[598] accounting for well over half of the country's overall refining capacity.[599]

It is the site of three crude oil pipelines: Messla-Ras Lanuf, Amal-Ras Lanuf, and Defa-Ras Lanuf.[600] The refinery processes crude oils from Sarir and Messla, among other fields. A large portion of its output is supplied to power plants on the Mediterranean coast, while another part is supplied as feedstock to petrochemical plants nearby.[597]

Operations at the refinery were shut down in February 2011 as a result of the uprising and Ras Lanuf was taken over by anti-Gaddhafi forces in August 2011. An attack on the refinery in September killed 17 people and damaged several small storage tanks, but the infrastructure was otherwise left intact. [601]

The refinery restarted output in August 2012 and briefly reached 190,000 bpd of output.[602] However in January 2013 workers at Ras Lanuf went on strike, demanding overtime pay and equal salaries for locals and foreign workers, taking the plant offline until the 30 January.[603]

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594 'Libyan oil output returns to normal, short Jan programmes seen', *Reuters*, 19 December 2012.
595 'Energy Profile of Libya', *The Encyclopedia of Earth* 25 August 2008.
596 'Gaddhafi's forces recapture Ras Lanuf; rebels call for arms', *Rediff News*, 30 March 2008.
597 'LIBYA - The Local Refineries', *APS Review Downstream Trends*, 9 July 2001.
598 'Ras Lanuf Refinery', *Downstream Today*, 10 September 2008.
599 'Libya sees return to pre-war oil output in October', *Reuters*, 26 July 2012.
600 'North Africa Pipelines map - Crude Oil (petroleum) pipelines - Natural Gas pipelines - Products pipelines', *The World Factbook*, retrieved 12 December 2012.
601 'Dubai firm to restart Libya oil flow', *The National*, 4 October 2011.
602 'Libya Ras Lanuf refinery on way to processing 190,000 bpd -NOC', *Reuters*, 24 September 2012.
603 'Workers end strike at Libya's Ras Lanuf refinery -source', *AlertNet*, 30 January 2013.

Ownership

In March 2009 the refinery's operator, Libya's National Oil Corporation (NOC), agreed to a joint venture (JV) with a unit of Dubai's Al Ghurair Group to invest US $2 billion to upgrade Ras Lanuf.[604] Each side took half ownership of a new company called the Libyan Emirati Refining Company (Lerco),[605] which owns the refinery and manages its operations.[606] Due to the instability in Libya in the subsequent years the upgrade plans had to be put on hold, but in December 2012 Al Ghurair stated that it had no intention of selling its stake in Ras Lanuf.[607]

Industry sources told *Reuters* in mid-2012 that there was a dispute between the NOC and Al Ghurair over payments for crude oil, which delayed resumption of operations.[608]

Brega Complex

Brega, located on the Gulf of Sidra about 200 kilometres west of Benghazi,[609] is home to Libya's second-largest hydrocarbon complex.[610] It consists of the oldest oil refinery in Libya (on stream since 1970),[611] a gas plant producing liquefied natural gas (LNG) and a petrochemical complex. Brega provides gasoline to communities in the region reaching as far as Benghazi.[612]

During the 2011 revolution Brega repeatedly changed hands between Gaddhafi and rebel forces in the 2011 war,[610] and the complex was badly damaged. Gaddhafi forces destroyed at least four oil storage tanks, while NATO bombed the complex clubhouse, a communications tower and other facilities after learning that they were being used to store weapons. Upon fleeing the complex after the fall of Tripoli in late August, Gaddhafi loyalists reportedly also left behind 40,000 anti-personnel and anti-tank mines around the town of Brega and 6,000 mines on a nearby beach.[612]

Refinery

The oil refinery is a topping and reforming facility with a nominal capacity of 8,400 barrels per day (bpd).[613]

604 'Dubai's Al-Ghurair to Upgrade Libyan Oil Refinery (Update1)', *Bloomberg* 10 March 2009.
605 'Dubai firm to restart Libya oil flow', *The National*, 4 October 2011.
606 'Ashurst advises NOC on another major joint venture', *Ashurst*, 16 March 2009.
607 'Al Ghurair: No Plans to Sell Stake in Ras Lanuf', *Libya Business News*, 12 December 2012.
608 'Libya Ras Lanuf refinery on way to processing 190,000 bpd -NOC', *Reuters*, 24 September 2012.
609 'NATO says hit military targets in Libya's Brega', *Reuters*, 25 June 2011.
610 'Libyan rebels: Eastern oil terminal Brega taken', *Guardian*, 20 August 2011.
611 'LIBYA - The Local Refineries', *APS Review Downstream Trends*, 9 July 2001.
612 'Oil workers saved key parts of Libya's lifeblood', *The Seattle Times*, 24 September 2011.
613 'Sirte Oil Co - Simple Oil Refinery in Brega, Libya', *MBendi Information Services*, retrieved January 2011.

Natural gas plant

The LNG plant at Brega, built in 1970, is the world's second ever to come on stream. No substantial upgrades have been made to the plant since it came on stream and, according to market analyst IHS Global Insight, it was as of October 2010 in need of modernisation and repair. With its use of outdated facilities, Brega's gas is incompatible with global standards and can be exported to only one regasification train in Spain.[614] Brega once produced up to 3.6 billion cubic metres (bcm) per year, but as of October 2008 had not been capable of producing more than 800 million cubic metres per year for decades, according to *Petroleum Economist*.[615] In 2005, Shell signed a deal with Sirte Oil Company, a subsidiary of National Oil Corporation (NOC), to rejuvenate and expand the LNG plant to restore it to its original nameplate production for a total of $643 million, but the project has experienced numerous delays as a result of organisational problems within NOC and its subsidiaries.[614]

Terminal

Brega is also the starting point of the 670-kilometre Marsa Al Brega-Khoms Intisar gas pipeline, which provides gas for two electricity generating plants situated in Az Zuwaytina and Ajdabya.[616]

Ownership

The complex is owned and operated by Sirte Oil Company (SOC). It was built in the 1960s and was run in partnership with Esso Oil in the 1960s and 70s, but Sirte Oil Company has had control of the Brega facilities since the early 1980s.[617]

Sarir Topping Facility

Sarir is a topping facility 400 kilometres south of Brega[618] that came on stream in 1986. The facility is operated by the Arabian Gulf Oil Company (Agoco)[619] and has a refining capacity of 10,000 barrels per day (bpd).[620] The facility processes crude from the Agoco-operated Sarir field.[621]

614 'Shell Hopes for Near-Term Progress at Libya's Marsa el-Brega LNG', *IHS*, 14 October 2010.
615 'Gas - and Gazprom', *Petroleum Economist* 01 October 2008.
616 'Site Visit to Ajdabiya, Libya', *Inter-Agency Mission Report*, 7 June 2011.
617 'Port Marsa El Brega: Port Detail', *World Port Source*, retrieved January 2011.
618 'Libya - The Local Refineries', *APS Review Downstream Trends*, 11 July 2011.
619 'Libya - Oil Refining & Petrochemical Sectors', *APS Review Downstream Trends*, 14 July 2003.
620 'EIA Country Analysis Briefs', *Energy Information Administration*, February 2011.
621 'Factbox: Libya's oil returns; fields, refineries, companies', *Reuters*, 28 October 2011.

Tobruk Refinery and Terminal

The refinery at Tobruk is located on the coast in north eastern Libya[622] about 160 kilometres west of the Egyptian border.[623] It came on stream in 1985.[624]

The refinery processes oil from the Agoco-operated Sarir field.[625] The refinery is part of a larger complex that includes one of Libya's smaller oil export terminals.[626]

Capacity and production

The refinery has a crude refining capacity of 20,000 barrels per day (bpd)[622] and the export terminal a capacity of 51,000 bpd.[625]

Tobruk restarted operations in mid-September 2011 following the overthrow of Muammar Gaddhafi.[626]

Ownership

The refinery is operated by the Arabian Gulf Oil Company (Agoco),[624] a subsidiary of the Libyan National Oil Corporation (NOC).[627]

Zawia Refinery and Terminal

The Zawia complex is located on the Mediterranean Sea 50 kilometres west of Tripoli.[628] It was completed in 1974 and is Libya's second-biggest refinery.[629]

As of December 2011 the Chairman of the refinery was Nasser El Ghali Sharif [630] and as of mid-2012, around 2,300 workers were employed at the refinery.[631]

Capacity and production

Zawia came on stream in 1974 with a crude processing capacity of 60,000 barrels per day (bpd). Capacity expanded to 108,000 bpd by 1977[632] and by May 2011 the refinery

622 'Libyan oil official sees exports in 10 days', *Wall Street Journal* 15 September 2011.
623 'Dispatch from 'Free Libya': The Right to Laugh at Gaddhafi', *Time* 23 February 2011.
624 'LIBYA - Oil Refining & Petrochemical Sectors', *APS Review Downstream Trends*, 11 July 2005.
625 'Factbox: Libya's oil returns; fields, refineries, companies', *Reuters*, 28 October 2011.
626 'Agoco Exports Some 10 Days Away As Libyan Oil Restart Progresses', *Downstream Today*, 15 September 2011.
627 'No Oil from Libya's Agoco in Near Future', *Petroleum Africa* 18 July 2011.
628 'BBC Video: Rebels capture key Zawia oil refinery', *The Libyan Youth Movement*, 18 August 2011.
629 'EIA Country Analysis Briefs', *Energy Information Administration*, February 2011.
630 'Libya's oil industry improving rapidly after war', *BBC News*, 9 December 2011.
631 'Libya's oil industry defies expectations', *Global Post*, 6 July 2012.
632 'LIBYA - Oil Refining & Petrochemical Sectors', *APS Review Downstream Trends*, 11 July 2005.

had a capacity of 120,000 bpd.[633] The plant has a unit to produce 30,000 tons per year of lubricants for the local market, meeting most of the demand in Tripoli and nearby areas. Part of its production of jet fuel, gasoil and naphtha is for export. It processes heavy Syrian crude oil as well as light and sweet crude from the Shararah field in the Murzuq Basin.[632]

During the 2011 conflict the site was taken over by Muammar Gaddhafi's army, just after it was closed down in an attempt to deprive the government forces of fuel. By December 2011 output was at pre-war levels, as the site had not been as damaged as many had feared, according to the BBC. However some of the storage tanks had bullet holes in them, cars and computers were stolen and a tug was blown up by NATO forces.[634]

The export terminal at Zawia has a capacity of 199,000 bpd.[635]

Ownership

The Zawia complex is operated by the Zawia Oil Refining Company, a fully owned subsidiary of the Libyan National Oil Corporation (NOC).[636]

According to *APS Review Downstream Trends*, Zawia refinery is in need of upgrading because most of its products are of low quality, but the National Oil Corporation's attempts at finding a partner to upgrade the refinery have stalled repeatedly. In March 2005, a $280 million engineering, procurement and construction contract, due to be signed with Uhde,[637] a German engineering firm and unit of ThyssenKrupp,[638] was delayed.[637] As of April 2010, the Corporation was still looking to sell a 50 percent stake in the Zawia refinery to upgrade and expand it to help meet rising domestic product demand. Then chairman Shukri Ghanem said that the NOC was in discussions with American and European companies, but did not provide further details on the interested firms.[639]

Other projects

Western Libya Gas Project (WLGP)

The Western Libya Gas Project (WLGP) is a large-scale integration of upstream, pro-

633 'Libya at the crossroads', *Petroleum Economist* 26 May 2011.
634 'Libya's oil industry improving rapidly after war', *BBC News*, 9 December 2011.
635 'Factbox: Libya's oil returns; fields, refineries, companies', *Reuters*, 28 October 2011.
636 'The biggest 25 refineries in the Middle East', *Arabian Oil and Gas*, 13 October 2011.
637 'LIBYA - Oil Refining & Petrochemical Sectors', *APS Review Downstream Trends*, 11 July 2005.
638 'Company', *ThyssenKrupp Uhde*, retrieved 26 October 2011.
639 'Libya Seeks JV Partner for Refinery Revamp', *Downstream Today* 15 April 2010.

cessing and export facilities[640] and the first major initiative to export Libyan gas to Europe.[641]

Libya became the second country in the world to export liquefied natural gas (LNG) in 1971,[642] but until the establishment of the WLGP in 2004, the only customer for Libya's natural gas was Spain's Enagas.[643] Through the WLGP Libya now exports compressed gas to Italy[641] and the broader European market, in addition to supplying the domestic Libyan market with gas for feedstock or power generation.[643]

The components making up the WLGP are the following:

- gas compression station at Mellitah (MGCS)
- 32-inch Offshore Pipeline (OPL), 516 kilometres (km) long, to export gas from compressor station to Sicily.
- 32-inch offshore spur (SPUR), 7.4 km long, on Sicilian shore approach.
- receiving terminal in Sicily (SRT) to receive gas from the OPC and feed into Italian gas transport network.[644]

Route and capacity

The WLGP involves piping gas from two fields, Bahr Essalam (110 kilometres off the Libyan coast) and Wafa (500 kilometres inland near the Algerian border), to a treatment plant and compressor station at Mellitah, about 80 kilometres west of Tripoli. The gas and crude from Wafa is conveyed to Mellitah via two 530-kilometre pipelines (with diameters of 32 and 16 inches), while two subsea pipelines (36 and 10 inches) bring in gas from Bar Essalam.[645] From Mellitah the gas is sent to Sicily via the Greenstream underwater pipeline, which lies at a maximum depth of 1,127 metres,[641] has a diameter of 32 inches and is the longest pipeline in the Mediterranean.[646] In 2009 Greenstream BV, the company owning and managing the gas pipeline, upgraded it by 3 billion cubic meters per year (bcm/y), bringing its total capacity to 11 bcm/y.[647]

In 2010 the WLGP carried approximately 10.25 bcm, of which 8.75 bcm were delivered via the Greenstream pipeline to Italy, while 1.5 bcm were sold on the Libyan market.[648] Of the gas sent to Europe, Italy's Edison Gas takes about half (4 bcm) and uses it for power generation in Italy. The remaining gas is taken and traded by other European

640 'CALM Buoy for the The Western Libyan Gas Project Wafa Plant', *Bluewater* Retrieved 7 October 2011.
641 'Western Libya Gas Project', *Eni*, retrieved 7 October 2011.
642 'Arab Fund for Economic and Social Development Handbook', *International Business Publications*, 2007.
643 'Energy Profile of Libya', *The Encyclopedia of Earth*, retrieved 8 October 2011.
644 'The Greenstream pipeline', *Eni Greenstream*, retrieved 30 January 2013.
645 'Eni: the Western Libya Gas Project gets underway', *Gulf Oil and Gas*, 10 July 2004.
646 'Greenstream', *Eni*, retrieved 7 October 2011.
647 'Interim Consolidated Report', *Eni*, 30 June 2010.
648 'Annual Report 2010', *Eni*, retrieved 7 October 2011.

companies, mainly Italy's Energia Gas and Gaz de France (around 2 bcm each).[649]

The Greenstream pipeline suffered eight months of stoppages due to the 2011 conflict. Preliminary operations restarted in October of that year.[650]

Ownership

Until 2010 Italian oil company Eni held a 25 percent stake in the development, alongside the Libyan National Oil Corporation (NOC) with the remaining 25 percent. Greenstream BC was the company set up to manage the venture.[651]

The project was launched in 1999 and completed in 2004 at a cost of €8.7 billion. According to the *Petroleum Economist* the project solidified Eni's position as a major player in the Libyan hydrocarbon market. The company's average daily operated production in Libya increasing from 230,000 barrels of oil equivalent per day (boe/d) in 2004[652] to 273,000 boe/d in 2010.[648]

In April 2010 Eni sold one third of its 75 percent stake of Greenstream BV. This divestment brought Eni €93 million but also decreased its share in the company to 50 percent, taking away control of the company.[653]

Petrochemical Facilities

Libya has a total of eight petrochemical manufacturing facilities.[654] The petrochemicals industry in Libya expanded in the 1980s, but later experienced halting progress[655] as expansions planned at the two biggest complexes, Ras Lanuf and Brega, stalled as a result of financial constraints, a slump in the global petrochemical business in the 1990s, and a volatile political climate.[656] Libya's petrochemical sector received a boost in the late 2000s from European, US and Gulf investment. An agreement in 2009 between the Libyan Investment Authority (LIA) and Norwegian fertiliser producer Yara was made to upgrade facilities at Brega, while a venture including Dow Chemicals of the US to upgrade the Ras Lanuf petrochemical facilities[657] was put on hold in 2008.[658]

The petrochemical plant at Ras Lanuf, located on the Mediterranean Coast and oper-

649 'Energy Profile of Libya', *The Encyclopedia of Earth*, retrieved 7 October 2011.
650 'NOC and Eni restart Greenstream pipeline', *Eni*, 13 October 2011.
651 'Sustainability Report 2009', *Eni North Africa*, 2009.
652 'Libya: Gas export project inaugurated', *Petroleum Economist*, 1 November 2004.
653 'Interim Consolidated Report', *Eni*, 30 June 2010.
654 'Petrochemical Manufacturing in Libya - Overview', *MBendi Information Services*, retrieved January 2011.
655 'The Report: Libya 2010', *Oxford Business Group*, 2010.
656 'LIBYA - Oil Refining & Petrochemical Sectors', *APS Review Downstream Trends*, 11 July 2005.
657 'The Report: Libya 2010', *Oxford Business Group*, 2010.
658 'US Dow Chemical quit Libya before civil war - spokeswoman', *AllBusiness*, 26 August 2011.

ated by the Libyan National Oil Corporation (NOC),[659] is Libya's biggest. It came on-stream in 1987.[660]

The petrochemical plant at Marsa al-Brega came on stream in 1978 and produces primarily methanol and fertilisers.[661]

The Abu Kammash petrochemical complex came on stream in the 1970s and a large portion of its output is exported.[662]

659 'Dow, Libya's NOC Team Up', *Downstream Today*, 18 April 2007.
660 'LIBYA - Ras Lanuf', *APS Review Downstream Trends*, 9 July 2001.
661 'LIBYA - Marsa El Brega', *APS Review Downstream Trends*, 14 July 2003.
662 'LIBYA - Abu Kammash', *APS Review Downstream Trends*, 11 July 2005.

Oil and Gas Fields

Overview of Libyan Geology

Libya is the fourth-largest country in Africa by land area[663] and is bounded by the Mediterranean Sea in the north, bordered by Tunisia and Algeria to the west, Niger and Chad to the south, Sudan to the southeast and Egypt to the east. More than 90 percent of Libya is desert or semi-desert,[664] and until oil was struck in the 1950s it had very low economic and strategic promise, according to the *Society for Sedimentary Geology*,[665] other than that offered by its 1,770-kilometre coastline on the Mediterranean Sea.[664]

Geographical overview

Historically, the country was divided into three primary geographical zones: Tripolitania in the northwest (covering 16 percent of the total land area), Fezzan in the southwest (33 percent), and Cyrenaica in the east (51 percent). In 1969 the revolutionary government officially changed the designation of the region Tripolitania to Western Libya, of Cyrenaica to Eastern Libya, and of Fezzan to Southern Libya, but during the 1970s the historical terms continued to be used frequently.[663]

The country struggles with desertification and very limited fresh water resources.[664] Less than two percent of the country receives enough rainfall for settled agriculture. Droughts are common throughout the country, and may extend to over two seasons.[663]

Geological Structure and Oil Producing Basins

Libya has five major sedimentary basins[666] – low areas in the earth's crust where sediments accumulate[667] and economically viable oil reserves are sometimes found.[668] Four of these are major producers of oil. In order of importance, these are: Sirte, Ghadamis, Murzuq, and the Tripolitanian Offshore Basin. Libya has two additional non-productive basins, Al Kufra and the Cyrenaica Platform, respectively in the south-east and north-east of the country.[666]

663 'Libya - Geography', *Mongabay.com*, retrieved 15 October 2011.
664 'Libya: Geography', *CIA World Factbook*, retrieved 6 October 2011.
665 'The History of Exploration of the Petroleum Geology of Libya', *Society for Sedimentary Geology*, 2009.
666 'The Petroleum Geology of Libya', *Society for Sedimentary Geology*, 2009.
667 'Sedimentary Basins - Introduction', *MIT*, 2007.
668 'Basin Modelling', *Science24.org*, retrieved January 2011.

Sirte

The Sirte Basin, in the centre-east of the country, is the youngest and most important in Libya and contains 16 giant oil fields,[669] defined as fields containing more than 500 million barrels of recoverable oil, while a giant gas field contains at least 3 trillion cubic feet (tcf) of gas.[670] The Sirte Basin contains some 45 billion barrels of oil and 33 tcf of gas, or about 117 billion barrels of oil equivalent (boe).[669] With 89 percent of all petroleum reserves discovered in Libya as of 2009, Sirte was ranked 13th among the world's petroleum basins and was considered the most prolific in north Africa. Sirte produces very light, sweet crude with a gravity ranging between 44° and 32° API and a low sulphur content between 0.15 and 0.66 percent.[671]

Ghadamis

The Ghadamis Basin, in the north-west of Libya, covers about 390,000 square kilometres and encompasses portions of southern Tunisia and eastern Algeria. Ghadamis is a productive area with total recoverable reserves of over 3.5 billion boe, with a production of about 950 million boe as of 2009.[672] The Ghadamis Basin is the site of the Wafa field, a key supplier of gas for the Western Libya Gas Project (WLGP).[673]

Murzuq

Situated in the south-west of Libya, the Murzuq Basin straddles the boundaries of Algeria, Niger and Chad. Murzuq has reservoirs with over 5 billion barrels of oil equivalent.[674] It is home to the Shararah[675] and the Elephant.[676]

Tripolitanian Offshore Basin

Situated off Libya's north-west coast, the Tripolitanian Offshore Basin is the site of the El Bouri field.[677]

669 'Sirt Basin Stratigraphy and Hydrocarbon Potential', *Society for Sedimentary Geology*, 2009.
670 'Giant Oil and Gas Fields of the Decade 1990-2000: An Introduction', *AAPG DataPages*, 2001.
671 'The Petroleum Geology of Libya', *Society for Sedimentary Geology*, 2009.
672 'Ghadames Basin Stratigraphy and Hydrocarbon Potential', *Society for Sedimentary Geology*, 2009.
673 'Eni: the Western Libya Gas Project gets underway', *Gulf Oil and Gas*, 10 July 2004.
674 'Muzurq Basin Stratigraphy and Hydrocarbon Potential', *Society for Sedimentary Geology* 2009.
675 'EXCLUSIVE - Libya's Sharara field ready for exports 'within two weeks'', *Petroleum Economist*, 27 September 2011.
676 'Libya - Activities', *Eni*, retrieved 25 October 2011.
677 'Tripolitanian Basin Stratigraphy and Hydrocarbon Potential', *Society for Sedimentary Geology*, 2009.

Overview of Biggest Producing Fields

Libya has the largest proven oil reserves in Africa, but according to the US-based Energy Information Administration (IEA) the country remains underexplored.[678] As of 2005, only about 25 percent of Libya's territory was covered by agreements with oil companies. Reasons for the underexploration of Libya include sanctions, a lack of modern technology, and stringent fiscal terms imposed by Libya on foreign oil companies.[679]

Below is an overview of the country's most important producing fields:

Sarir oil field

The Sarir field is located onshore about 500 kilometres east of Tripoli in the Sirte Basin[680] and contains some 12 billion barrels (bbl) of oil.[681] Sarir is a supergiant oil field[682] and considered to be the largest in Libya.[683] The field was discovered by British BP in 1961 at a depth of approximately 2,700 metres[682] and was pumping around 420,000 barrels per day (bpd) before the 2011 conflict (roughly one quarter of total national production),[683] compared to 250,000 bpd in 1992. Oil produced at Sarir is very waxy, with 37.2 degree API gravity, and is pumped through a 400-kilometre pipeline to the Marsa El Hariga terminal.[682] Production at the field was halted for several months in 2011 due to sabotage attacks by forces loyal to Muammar Gaddhafi.[683]

Sarir is operated by Libyan National Oil Corporation (NOC) subsidiary Arabian Gulf Oil Company (Agoco).[684] BP and Hunt each had a 50 percent stake in the field until Libya nationalised BP's assets in September 1971, after which the NOC acquired the remaining 50 percent from Hunt in July 1973.[682]

Sharara oil field

The giant Sharara oil field is located in Block NC 115[685] of the Murzuq basin, about 730 kilometres south of Tripoli.[686]

The field was discovered by Petrom,[687] a Romanian oil and gas company,[688] in the 1980s[687] and began production in December 1996. By 2006 it was producing about

678 'Country Brief: Libya', *Energy Information Administration*, February 2011.
679 'Energy Profile of Libya', *Encyclopedia of Earth*, 25 August 2008.
680 'Libya Commercial Round-up For October 2008', *Wikileaks* 25 November 2008.
681 'Libyan rebel oil-export prospects limited', *Petroleum Economist*, 13 April 2011.
682 'LIBYA - Arabian Gulf Oil Co.', *All Business*, 9 July 2001.
683 'Libya's Agoco raises Sarir field output to 160000 bpd', *Gulf Oil & Gas*, 13 September 2011.
684 'EXCLUSIVE - Libya's Sharara field ready for exports 'within two weeks'', *Petroleum Economist*, 27 September 2011.
685 'Repsol YPF Libya - Q4 2011', *Lexis Nexis*, 1 October 2011.
686 'Libya's Sharara Field Reaches Output of 300,000 Barrels/Day', *Bloomberg*, 13 February 2012.
687 'The Road to Success', *Schlumberger Limited*, retrieved 20 October 2011.
688 'Important information at one click', *Petrom*, retrieved 25 October 2011.

200,000 barrels per day (bpd) of high quality crude oil.[689] Since mid-1998, the light and sweet crude produced at Sharara has been exported by pipeline through the Zawia terminal west of Tripoli.[690]

The field has a capacity of 400,00 bpd and before the outbreak of conflict in 2011 accounted for a quarter of Libyan production[691] (although some sources cite maximum capacity lower at 340,000 bpd). By February 2012 the NOC announced that production at the site had again reached 300,000 bpd, despite delays over security concerns.[692]

Spain's Repsol holds a 10 percent stake in the Sharara field in partnership with the NOC (75 percent), France's Total (7.5 percent) and Austria's OMV (7.5 percent),[693] through the joint venture (JV) Akakus Oil Operations.[692]

Elephant oil field

The giant Elephant oil field, also known as El Feel,[694] contains more than 1.2 billion barrels (bbl) of reserves, and as of 2007 was the biggest oil field in the Murzuq basin.[695]

It was discovered in 1997 by a consortium led by British company Lasmo, along with Italy's Eni and five South Korean companies at the NC-174 Block, some 750 km south of Tripoli. Elephant began production in 2004 at around 10,000 bpd,[696] a figure that rose to 125,700 bpd by 2010.[694] Elephant is operated by Lasmo,[697] which has been a part of Italy's Eni energy group since Eni acquired the company in December 2000.[698]

The field produces a grade of crude oil marketed as Mellitah.[699]

Waha oil fields

Located in the central/southern part of the Sirte Basin in the centre-east of Libya,[700] the Waha oil fields are the oldest producing fields in Libya, dating back to the 1950s. They had a capacity of around 350,000 barrels of oil equivalent (boe) per day as of 2009,[701] a decrease from about 1 million bpd in 1969 and 400,000 bpd in 1986.[702] In July 2012 the group of fields was producing at a rate of 345,000 barrels of oil equivalent

689 'High Frequency Imaging in an Exploitation Production Environment - The Murzuq Basin, Case History', *European Association of Geoscientists & Engineers 68th Conference & Exhibition',' June 2006.*
690 'LIBYA - The Foreign Oil Producers', *APS Review Gas Market Trends*, 9 July 2007.
691 'EXCLUSIVE - Libya's Sharara field ready for exports 'within two weeks'', *Petroleum Economist* 27 September 2011.
692 'Libya's Sharara Field Reaches Output of 300,000 Barrels/Day', *Bloomberg*, 13 February 2012.
693 'Repsol YPF Libya - Q4 2011', *Lexis Nexis*, 1 October 2011.
694 'Libya - Activities', *Eni*, retrieved 25 October 2011.
695 'Petroleum Geology of Southern Libya', *Seven Continents Science Productions*, 2007.
696 'EIA Country Analysis Briefs', *Energy Information Administration*, July 2007.
697 'Libya - The Operators & Fields', *APS Review Gas Market Trends*, 11 July 2011.
698 'Eni swoops on Lasmo', *BBC News* 21 December 2000.
699 'Country Overview: Libya', *Energy Information Administration*, June 2012.
700 'Libya - Part 2 - Profiles Of The Oil & Gas Fields', *APS Review Oil Market Trends*, 11August 1997.
701 'Libya - Waha Concession', *ConocoPhillips*, retrieved: 20 October 2011.
702 'Libya: Country Analysis Briefs', *Energy Information Administration',' July 2007.*

(boe) per day.[703]

Owned by NOC subsidiary Waha Oil Company, the Waha oil fields are operated by the Oasis Group, an international consortium made up of US-based companies ConocoPhillips, Marathon and Hess.[702]

The concession includes three major projects, Faregh II, NC-98 and North Giato. In 2012 the Libyan government identified blocks NC-98 and North Gialo as key to restoring production levels to pre-sanction levels. At plateau production, NC-98 should deliver 80,000 bpd of condensate and 13.6 million cubic metres per day of natural gas. North Gialo is expected to produce 100,000 bpd of crude and 5.7 million cubic feet per day of gas.[704]

The Waha fields supply crude oil to the marine terminal at Es Sider, on the Gulf of Sidra,[705] via a 430-kilometre pipeline.[706] The pipeline begins in Gialo field, is routed through Waha and Samah then continues north to Dahra before arriving at Es Sider, where tankers berthed just offshore are loaded.[705]

El Bouri Oil and Gas Field

Located in the Tripolitanian Basin about 130 kilometres north west of Tripoli,[707] El Bouri is Libya's first offshore field with a large gas cap.[708] It is the largest producing oil field in the Mediterranean Sea[709] with production at 44,500 bpd as of 2009.[707]

El Bouri is operated by Agip North Africa Middle East (NAME), a part of Eni group,[708] through the joint venture Mellitah Oil and Gas.[710]

Containing an estimated 70.8 billion cubic meters (bcm) of gas and 4 to 5 billion barrels (bbl) of oil, El Bouri was discovered in 1976 in Block NC 41-B in the Libyan sector of the Gulf of Gabes. It lies at a depth of 2,650 metres and covers an area of 32 by 5 kilometres.[711]

El Bouri came on stream in August 1988 at a rate of 12,000 bpd. By the end of 1988 production had risen to 20,000 bpd and in 1989 it rose to 60,000 bpd. Capacity was again raised to 70,000 bpd by mid-1991 after another 27 wells were drilled. A second-phase capacity expansion to 150,000 bpd was reached in 1995, requiring the drilling of 55 new wells from three new platforms, but the field's output fell subsequently because it required enhanced oil recovery (EOR) facilities[711] and by 1998 was averaging production of about 60,000 bpd.[712] Following the disruption of the 2011 conflict the El Bouri

703 'Waha players in Libya campaign', *Upstream Online',' 9 July 2012.*
704 'Libya to ramp up Waha oil and gas production', *2b1st Consulting*, 26 October 2012.
705 'Oil Fields Facilities', *Waha Oil Company* Retrieved 20 October 2011.
706 'Libya - Part 2 - Profiles Of The Oil & Gas Fields', *APS Review Oil Market Trends',' 11 August 1997.*
707 'Sustainability Report 2009', *Eni*, retrieved 20 October 2011.
708 'LIBYA - Agip North Africa & Middle East', *APS Review Gas Market Trends*, 11 July 2005.
709 'The Road to Success', *Schlumberger Limited*, retrieved: 20 October 2011.
710 'Libyan Bouri oil field resumes output at 10,000', *Libya Business News*, 24 November 2011.
711 'LIBYA - Agip North Africa & Middle East', *APS Review Gas Market Trends*, 11 July 2005.
712 'The Road to Success', *Schlumberger Limited*, retrieved: 20 October 2011.

field resumed production, at an initial rate of 10,000 bpd, in November 2011.[713]

The gas-to-oil ratio, which refers to the relative amounts of natural gas and petroleum that are simultaneously removed from the ground,[714] of El Bouri's output has been about 22.7-25.5 cubic meters per barrel, limiting its recovery rate.[711] Because associated natural gas tends to escape the gas-oil solution upon extraction and can continue at each stage of transportation and processing, thereby reducing the volume of oil, wells that have a high gas-oil ratio are generally considered economically undesirable.[714] As of 2005, there were plans in place to lower the gas-oil ratio at El Bouri to about 17 cubic meters per barrel, through the drilling of 15 horizontal wells.[711]

List of Other Fields

The following is a non-exhaustive list of oil and gas fields in addition to Sarir, Shararah, Elephant, Waha and El Bouri,[715] along with estimates of production capacity where available, taken mainly from press sources:

- Abu Attifel (70,000 bpd, 2011)[716]
- Al Jurf (40,000 bpd, 2011)[717]
- Amal (35,000 bpd, 2012)[718]
- Bahr Essalam (35,000 bpd, 2012)[719]
- Beda (5,000 bpd, 2011)[720]
- Ghani, Eddib and surrounding fields (74,000 bpd cumulative capacity, 2012)[721]
- Hamada (2,000 bpd, 2011)[720]
- Jofra, formerly known as Hofra (less than 2,000 bpd, 2012)[721]
- Intisar fields (85-100,000 bpd, 2004)[721]
- Kabir (n/a)
- Mabruk (30-50,000 bpd, 2011) [722]
- Murzuq (n/a)

713 'Libyan Bouri oil field resumes output at 10,000', *Libya Business News*, 24 November 2011.
714 'What Is Gas/Oil Ratio?', *WiseGeek*, retrieved 25 October 2011.
715 'Sustainability Report 2009', *ENI North Africa*, 2009.
716 'Libya: Italian oil firm Eni resumes Abu Attifel pumping', *BBC*, 26 September 2011.
717 'Total restarts Al-Jurf production', *Upstream Online*, 23 September 2011.
718 'Libya says oil field fire 'under control'', *Sweet Crude Reports*, 6 September 2012.
719 'Bahr Essalam award closer', *Upstream Online*, 10 July 2012.
720 'Two Agoco oilfields restarted after delays', *Shabab Libya*, 9 November 2011.
721 'Ghani Field', *Harouge Oil Operations*, retrieved 30 January 2013.
722 'Total to Progressively Stop Output at Libyan Mabruk Field', *Bloomberg*, 2 March 2011.

- Nafoora (70,000 bpd, 2011)[723]
- Nasser (50,000 bpd, 2002)[724]
- Omar (n/a)
- Sarah (n/a)
- Wafa (23,000 bpd, 2004)[725]
- Zella (n/a)
- Zenad (n/a)
- Zueitina (60,000 bpd, 2012)[726]

723 'Occidental Libya production resumes', *Upstream Online*, 6 October 2011.
724 'Country Analysis Brief: Libya', *Energy Information Administration*, 2002.
725 'Libyan Algerian Agreement Regarding Al-Wafa and Alrar Fields', *Libyan National Oil Corporation*, 2006.
726 'Libya - energy industry overview', *MENAS Local Content Online*, retrieved 30 January 2013.

Resource Transparency Opportunities

Resource Transparency Movement in Libya

Transparency International

Transparency International operates a system of national chapters around the world, and often writes reports on corruption in specific countries. It also produces the annual Corruption Perception Index, which has been published globally since 1995. In 2010, Libya ranked 146th out of 178 countries surveyed.[727]

Revenue Watch Institute

The Revenue Watch Institute (RWI) has been active in Libya since the 2011 war. In September 2011, RWI held a workshop on oil revenue management in Beirut. Bringing together civil society leaders from seven Middle Eastern and North African countries — Libya, Algeria, Bahrain, Iraq, Kuwait, Morocco and Yemen — the workshop focused on how civil society could influence better management of oil revenue policies. [728]

During the 2011 war, RWI also published articles stressing the need for greater transparency in Libya's oil industry[729] and arguing that the changes in Libya present a valuable opportunity to improve the management of its natural resource revenues.[730]

Global Witness

Global Witness advocated the expansion of United Nations (UN) sanctions on Libya in March 2011, having written an open letter to the UN Security Council proposing such a move, in cooperation with RWI and other groups.[731] Additionally, it issued two press releases in August 2011 calling for the open and transparent managing of Libya's oil

727 '2010 Corruption Perceptions Index', *Transparency International* Retrieved 25 October 2011.
728 'A New Season in Revenue Management?', *RWI Blog* 20 September 2011.
729 'Libya Needs Oil Transparency', *Revenue Watch Institute* 25 August 2011.
730 'Libya - Transparency Snapshot', *Revenue Watch Institute* Retrieved 25 October 2011.
731 'Open Letter to the Security Council on the Need for Expanded Sanctions on Libya', *Global Witness* 17 March 2011.

wealth,[732] [733] and produced a report detailing how this could be done.[734] Global Witness also published an article in May 2011 detailing the involvement of Western banks, including HSBC and Goldman Sachs, in holding Libyan state oil money.[735]

Transparency of Contracts

The drawing up of contracts is necessary in the extractive industries in order to give precise detail and legal specificity to the obligations of a state and company or consortium of companies involved in a project. Many contracts establish important tax, environment and investment provisions with major implications for a producing country.[736]

The 2009 'Contracts Confidential' report from Revenue Watch Institute (RWI) notes that in recent years there has been a growing movement calling for greater contract transparency, within and beyond the extractives sector. International jurisprudence on the right to information, which increasingly supports the disclosure of agreements, as well as domestic freedom of information (FOI) laws across the world, are trends which offer important tools of argument and procedure in breaking the barrier to disclosure while balancing other legitimate interests.[736]

Benefits

According to Ingilab Ahmadov of the Public Finance Monitoring Center in Azerbaijan, it is widely known that a transparent 'company-state' relationship is a key factor for resource-rich countries seeking efficient management of their natural resources to benefit current and future generations. He argues that contract transparency is necessary because an outside observer who wishes to compare similar contracts across or within countries needs a way to determine the extent to which it takes society's interests into account. To judge the fairness of these contracts, one must first have access to them.[737]

Proponents of contract transparency argue that the publishing and scrutiny of contracts allows governments to be held accountable for all contracts they enter into. In their report on the issue, Revenue Watch argue that "contract transparency is critical to addressing better resource management and bringing contract stability to an in-

732 'Libya's oil must now be used to drive development and foster peace', *Global Witness* 24 August 2011.
733 'Oil transparency must underpin negotiations over Libya's future – Global Witness', *Global Witness* 31 August 2011.
734 'Libya's oil must now be used to drive development and foster peace', *Global Witness* Retrieved 25 October 2011.
735 'HSBC and Goldman Sachs held $335m of Libyan state oil money', *Global Witness* 26 May 2011.
736 'Contracts Confidential: Ending Secret Deals in the Extractives Industries', *Revenue Watch*, 2009.
737 'Why is oil contract transparency necessary?',,*Public Finance Monitoring Centre*, retrieved 15 March 2012.

dustry that sees its contracts renegotiated more than any other."[736]

Opposition and counter-arguments

One of the most commonly aired arguments against transparency of contracts is that this openness impairs a company's commercial interests and weakens its competitive position. Confidentiality clauses are a common and legitimate feature in contracts between private parties and are used to prevent information from coming into the hands of public groups.[738]

This assertion is contradicted by proponents of transparency such as Ingilab Ahmadov, who argues that industry specialists in any case are aware of all or almost all contracts. Given the high level of information technology and close cooperation on joint projects in today's oil industry, it is unrealistic to maintain 'trade secrets' as they existed in the 1980s and 1990s. According to Ahmadov, practice has shown that the commercial interests of parties involved in oil and gas contracts do not suffer negatively from the exposure, but on the contrary are able to benefit from a badly needed enhancement of their public image.[739]

Susan Maples, in her report for RWI, suggests that one reason why companies are not eager to embrace contract transparency is that the information asymmetry between different parties resulting from secrecy arrangements allows certain companies an advantage, enabling them to negotiate more favourable commercial deals. Maples admits that the arguments in support of contract secrecy are not negligible arguments, but they overlook the special obligations of governments and the democratic right to information.[738]

EITI and contract transparency

As of 2011, the Extractive Industries Transparency Initiative (EITI) did not make demands on participating countries regarding contract transparency. There have been calls from transparency activists for the initiative to widen its remit to include contract transparency. However EITI representatives argue that it is important that the EITI retains precisely this tight focus in order to foster wider change and provoke debate on broader governance issues.[740]

738 'Contracts Confidential: Ending Secret Deals in the Extractives Industries',*Revenue Watch Institute*, 2009.
739 'Why is oil contract transparency necessary?',*Public Finance Monitoring Centre*, retrieved 15 March 2012.
740 'What needs to change for the EITI remains relevant?',*EITI*, 2 October 2009.

Extractive Industries Transparency Initiative (EITI)

EITI compliance

Countries seeking to achieve EITI Candidate status must meet five sign-up requirements, and for a country to achieve EITI compliance, it has two and a half years to be validated as a Compliant country. Once a country is Compliant, the country must undergo Validation at least every five years, or upon the request from the EITI International Board.[741]

As of January 2013, 18 countries were 'EITI compliant', namely: Azerbaijan, Ghana, Iraq, Kyrgyz Republic, Mauritania, Mozambique, Nigeria, Peru, Timor-Leste, Zambia, Central African Republic, Liberia, Mali, Mongolia, Niger, Norway, Tanzania and Yemen. There were a further 18 'Candidate Countries': Afghanistan, Cameroon, Chad, the Democratice Republic of Congo, Guineau, Sao Tome and Principe, the Solomon Islands, Trinidad and Tobago, Albania, Burkhina Faso, Cote d'Ivoire, Gabon, Guatemala, Indonesia, Kazakhstan, Congo, Sierra Leone and Togo. Madagascar was temporarily suspended at the time.[742]

Validation requirements

Sign-Up

The EITI rules state that a country applying for Candidate status must meet the following sign-up requirements:

1. The government is required to issue an unequivocal public statement of its intention to implement the EITI.

2. The government is required to commit to work with civil society and companies on the implementation of the EITI.

3. The government is required to appoint a senior individual to lead on the implementation of the EITI.

4. The government is required to establish a multi-stakeholder group to oversee the implementation of the EITI.

5. The multi-stakeholder group, in consultation with key EITI stakeholders, should agree and publish a fully costed work plan, containing measurable targets, and a timetable for implementation and incorporating an assessment of capacity constraints.[743]

741 'EITI Implementation', *EITI*, retrieved 27 October 2011.
742 'EITI Countries', *EITI*, retrieved 15 January 2013.
743 'Sign Up', *EITI*, retrieved 27 October 2011.

Preparation

The government is required to: ensure the engagement of civil society in the process; engage companies; and remove legal and regulatory obstacles to the implementation of the EITI. The multi-stakeholder group is required to agree a definition of materiality and the reporting templates, which define what revenue streams are included in company and government disclosures. The organisation appointed to produce the EITI reconciliation report must be perceived as credible, trustworthy and technically competent. The government is then required to ensure that all relevant companies and government entities report and that both company and government reports are based on accounts audited to international standards.[744]

Disclosure

Companies must comprehensively disclose all material payments in accordance with the agreed reporting templates, and government agencies must comprehensively disclose all material revenues. The multi-stakeholder group must also be content that the organisation contracted to reconcile the company and government figures did so satisfactorily, and the reconciler must ensure that that the EITI Report is comprehensive, identifies all discrepancies, where possible explains those discrepancies, and where necessary makes recommendations for remedial actions to be taken.[745]

Dissemination

The government and multi-stakeholder group must ensure that the EITI Report is comprehensible and publicly accessible to encourage that its findings contribute to public debate.[745]

Review and Validation

Oil, gas and mining companies must support EITI implementation, and the government and multi-stakeholder group are encouraged to take steps to act on lessons learned, address discrepancies and ensure that EITI implementation is sustainable. Implementing countries are required to submit Validation reports in accordance with the deadlines established by the Board.[745]

Retaining Compliant Status

Compliant countries must maintain adherence to all the requirements listed above in order to retain Compliant status.[745]

EITI criteria

1. Publication: Regular publication of all material oil, gas and mining payments by companies to governments ('payments', and all material revenues received by governments from oil, gas and mining companies ('revenues' to a wide audience in a publicly accessible, comprehensive and comprehensible manner.

744 'EITI Rules', *EITI*, retrieved 27 October 2011.
745 'EITI Rules', *EITI*, retrieved 27 October 2011.

2. Audit: Where such audits do not already exist, payments and revenues are the subject of a credible, independent audit, applying international auditing standards.

3. Reconciliation: Payments and revenues are reconciled by a credible, independent administrator, applying international auditing standards and with publication of the administrator's opinion regarding that reconciliation including discrepancies, should any be identified.

4. Scope: This approach is extended to all companies including state-owned enterprises.

5. Civil Society: Civil society is actively engaged as a participant in the design, monitoring and evaluation of this process and contributes towards public debate.

6. Work Plan: A public, financially sustainable work plan for all the above is developed by the host government, with assistance from the international financial institutions where required, including measurable targets, a timetable for implementation, and an assessment of potential capacity constraints.[746]

Transparency International

Transparency International (TI) is the world's largest civil society organisation working on issues of corruption and transparency. It was founded in 1993 by Peter Eigen, a former regional director in Africa from the World Bank.

Eigen explained that in his 25 years at the World Bank, bad projects often got funded because they had the support of leading officials, backed by corruption. The purpose of TI was to put the issue of corruption on the agenda of the World Bank, large donor countries, and the development process.[747]

Major Programs

The project for which TI is most known is its Corruption Perceptions Index, an annual report issued since 1995. In it, business people are asked for their perceptions of the influence of corruption in their country.[748]

As well as the index, TI also publishes a range of reports and position papers on various issues related to transparency.[749]

Oil and Gas

In March 2011, TI issued a report about the status of transparency among global oil companies. It follows a 2008 report that was built on a 2005 study by the charity Save

746 'EITI Rules', *EITI*, retrieved 27 October 2011.
747 'Peter Eigen', *Africa Progress Panel*, retrieved 15 January 2013.
748 '2011 Corruption Perception Index, *Transparency International*, retrieved 5 January 2012.
749 'Policy Research, *Transparency International*, retrieved 5 January 2012.

the Children into the same issue, but the methodology was adapted.[750]

Official Website: www.transparency.org

Transparency of Global Oil Companies

In March 2011, Transparency International (TI) issued a report on the transparency of information provided by 42 major oil and gas companies around the world.[750]

Findings

The report summarised its analysis into several main findings:

- Oil and gas companies are increasingly adopting and making publicly available anti-corruption programmes, but there are many companies that still do not publish their anti-corruption codes, policies or measures.

- Public disclosure of partnerships and subsidiaries, including their countries of incorporation, are key elements of organisational disclosure and the average results in this section were relatively high. Many national oil companies have a good level of disclosure. However, disclosure of equity or field partners in upstream operations remains infrequent, despite the fact that equity minority partnerships often present corruption risks.
- Country-level disclosure on international operations has improved since the 2008 PRT report, and reporting on production levels has become a broadly accepted standard and there are examples of good disclosure for financial data and reserves. But country-level disclosure on international operations remains weak; many companies do not disclose any financial data on a disaggregated country-level. The host country environment itself cannot be exclusively blamed for poor disclosure. In the same host countries, often described as 'difficult environments', some companies disclose extensive information, while the others disclose little or none at all.

Key Policy Recommendations

For Companies

- Detailed anti-corruption programmes should be publicly available
- Companies should undertake voluntary independent assurance of anti-corruption programmes
- Companies should publish details of their subsidiaries and fields of operations

750 'Promoting Revenue Transparency: 2011 Report on Oil and Gas Companies', *Transparency International*, retrieved 25 October 2011.

- Oil and gas companies should increase their reporting on a country-by-country basis
- Companies should join the Extractive Industries Transparency Initiative
- Companies should create and maintain up-to-date corporate websites

For National Oil Companies (NOCs)

- All NOCs should introduce internationally or generally accepted accounting standards, as well as publish independently audited accounts
- The relationships between home governments and NOCs should be clear and publicly disclosed

For Public Bodies

- The European Union should amend relevant legislation to require EU-registered companies to report on their operations on a country-by-country basis
- All governments that are home to oil and gas producers should require companies to report on their operations on a country-by-country basis
- Stock exchanges should enforce regulations providing for country-level reporting

For the Investor Community

- International rating agencies and risk analysts should include anti-corruption measures in their risk evaluation models where relevant
- The International Accounting Standards Board should require companies to report key information on a country-by-country basis
- Corporate responsibility indices should include reporting on anti-corruption programmes, organisational disclosure and country-level disclosure

Transparency of Oil Companies in Libya

Companies in the Transparency International's March 2011 report[751] were graded on three criteria: their implementation and promotion of sound anti-corruption programmes to prevent individuals from misappropriating revenues; their disclosure of the financial relationships they have with their partners and their operating subsidiaries; and their publishing of precise information about how much revenue goes to state budgets and how much is retained by companies.

Aggregating the results of these criteria compiled by Transparency International, with 100 percent representing the highest level of transparency and 41 percent representing the aggregate mean, international oil companies operating in Libya placed as fol-

751 'Promoting Revenue Transparency: 2011 Report on Oil and Gas Companies', *Transparency International website* Retrieved 25 October 2011.

lows.

Above average performance transparency:

- Statoil: 75%
- Woodside: 68%
- BP: 64%
- Repsol: 64%
- Marathon: 63%
- Eni: 62%
- Shell: 58%
- OMV: 58%
- Hess: 56%
- ConocoPhillips: 55%
- ExxonMobil: 54%
- Chevron: 52%
- Petrobras 50%
- ONGC: 48%
- Total: 47%
- Wintershall: 47%

Below average performance transparency:

- Inpex: 28%
- Gazprom: 27%
- Sonatrach: 15%
- CNPC: 12%

Two companies operating in Libya, Occidental and PetroCanada, were not included in the report.

Revenue Watch Institute (RWI)

RWI was first launched in 2002 as the Revenue Watch Programme of the Open Society Institute (OSI) and spun off into an independent organisation in June 2006. According to their official site, the Revenue Watch Institute is the only organisation dedicated exclusively to addressing the special problems of oil, gas and mining-dependent countries— "countries where poverty, conflict and corruption too often converge".[752]

Activities

RWI characterises its work as mainly with civil society, helping them oversee extractive industries across the entire value chain, from wellhead to international markets. The organisation also makes many small grants to partner institutions in developing countries.[752]

RWI was a key founding member of the EITI in 2002 and has sat on its International Advisory Board. The institute defines its projects as supporting the EITI process in many countries around the world.[753]

752 'About Us', *Revenue Watch Institute*, retrieved 26 March 2012.
753 'RWI and the EITI', *Revenue Watch Institute*, retrieved 26 March 2012.

RWI also carries out analysis of data found in EITI reports for participating countries. As part of this process they review the quality of recent reports and extract key pieces of revenue data, then rank the various reports according to a set of pre-determined indicators.[754]

Official Website: www.revenuewatch.org

EITI Data Analysis: www.data.revenuewatch.org/eiti

Global Witness

Global Witness is a non-profit organisation headquartered in London which describes itself as exposing "the corrupt exploitation of natural resources and international trade systems, to drive campaigns that end impunity, resource-linked conflict, and human rights and environmental abuses". [755]

Founded in 1993, Global Witness has been a key player in many of the major international mechanisms and initiatives that have been established to address these issues; including the Kimberley Process governing production of diamonds and precious stones, and the Extractive Industries Transparency Initiative (EITI).

Investigations and results

Global Witness claims their investigations have had direct and major impacts, such as the International Monetary Fund (IMF) withdrawal from Cambodia in 1996 over corruption in the logging industry,[756] the imposition of timber sanctions on Charles Taylor's Liberia in 2003,[757] and the precedent-setting arrest of timber baron Gus Kouwenhoven in the Netherlands in 2005.[758]

Oil and Gas

Global Witness started producing reports on the oil and gas industry in 2004 when its report **Time for Transparency** detailed abuse of natural resources in Kazakhstan, Congo Brazzaville, Angola, Equatorial Guinea and Nauru.[759] Reports on Russia's gas trade with the countries of Eastern Europe and the EU followed.[760]

In September 2009 Global Witness produced a report which provided details of the

754 'EITI Reports: Results and Analysis', *Revenue Watch Institute*, retrieved 26 March 2012.
755 'Global Witness, About Us', *Global Witness*, retrieved 24 October 2010.
756 'Our History', *Global Witness*, retrieved 24 October 2010.
757 'Liberia breaches UN Sanctions - whilst its logging industry funds arms imports and RUF rebels', *Global Witness*, 6 September 2001.
758 'Arms dealer and timber trader Guus Kouwenhoven found guilty of breaking a UN arms embargo', *Global Witness*, 7 June 2006.
759 'Time for Transparency', *Global Witness*, retrieved 26 October 2011.
760 'It's a gas - funny business in the Turkmen-Ukraine oil trade', *Global Witness*, retrieved 26 October 2011.

lack of transparency in the way Sudan distributes oil revenues between the government in Khartoum and the autonomous government of South Sudan.[761]

Conflict minerals

Global Witness' work on conflict minerals focuses on the Democratic Republic of Congo (DRC) where fighting is fuelled by the trade in valuable minerals such as cassiterite, coltan, wolframite and gold.[762]

It was also one of the first organisations to bring the world's attention to the problems of conflict diamonds in countries such as Liberia, Sierra Leone, Angola, the DRC, and Cote d'Ivoire. The organisation is an official observer of the Kimberley Process and continues to campaign for the strengthening and effective implementation of its rules.[763] However in December 2011 Global Witness made the decision to leave the process, due to concerns that the mechanism was no longer proving effective in achieving its objective.[764]

Official website: www.globalwitness.org

Publish What You Pay (PWYP)

Publish What You Pay (PWYP) is a global network of civil society organisations calling for oil, gas and mining revenues to form the basis for development and improve the lives of ordinary citizens in resource-rich countries.

From a few, mostly UK-based groups at the time of its launch, as of early 2013, PWYP had created a global network made up of more than 650 member organisations across the world, including human rights, development, environmental and faith-based organisations. In more than 35 countries, network members joined to create national coalitions. Many also collaborate on a regional level.[765]

According to Jonas Moberg of the Extractive Industries Transparency Initiative (EITI), PWYP has created a 'light touch global network".[766] PWYP has often been seen to be the flagbearer of a strategy which says transparency efforts should be led by legal and regulatory requirement, and made obligatory for companies, in contrast to the approach adopted by the EITI, which is consensual.[767]

761 'Fuelling mistrust - The need for transparency in Sudan's oil industry', *Global Witness*, retrieved 26 October 2011.
762 'Conflict Minerals', *Global Witness*, retrieved 30 November 2011.
763 'Conflict Diamonds', *Global Witness*, retrieved 30 November 2011.
764 'Why we are leaving the Kimberley Process - A message from Global Witness Founding Director Charmian Gooch', *Global Witness*, 5 December 2011.
765 'About Us', *Publish What You Pay* retrieved 15 January 2013.
766 'Without PWYP, no EITI', *EITI Blog*, 16 September 2012.
767 'Extractive Industries Transparency Initiative (EITI)', *PWYP*, retrieved 15 January 2013.

History

The call to 'publish what you pay' first appeared in a 1999 report by Global Witness on the oil and banking industries in Angola.

On the back of this, in June 2002 Global Witness, along with fellow founding members CAFOD, Open Society Institute (OSI), Oxfam GB, Save the Children UK and Transparency International UK, launched the worldwide PWYP campaign. The small founding coalition of NGOs was soon joined by others such as Catholic Relief Services, Human Rights Watch, Partnership Africa Canada, Pax Christi Netherlands and Secours Catholique/CARITAS France, along with an increasing number of groups from developing countries.[768]

Activities

PWYP undertakes public campaigns and policy advocacy to achieve disclosure of information about extractive industry revenues and contracts.[768]

The organisation's call for companies to 'publish what you pay' and for governments to 'publish what you earn' form the basis of their activities. However the coalition also calls for transparency and accountable management and expenditure of public funds, as well as the public disclosure of extractive industry contracts and for licensing procedures to be carried out transparently and in line with best international practice.[768]

PWYP's activities consist primarily of advocacy efforts and capacity building of civil society groups. The growing desire to monitor the payments, revenues and expenditures within the extractives sector has also generated an increasing need for technical training around issues such; contracting and taxation regimes; auditing and accounting processes; EITI processes, rules and policies. PWYP collaborates with local and international actors to organise training workshops, conferences and seminars to help meet these needs.[768]

Governance

In 2006 a Strategic Advisory Group (SAG) was established to oversee strategic planning. The SAG is comprised of 12 representatives from a broad spectrum of PWYP members from around the world.

PWYP has an International Coordinator (IC) based in London as well as one full-time regional coordinator for Africa, and coordinators for all national affiliated coalitions. These coordinators are supported and overseen by management committees.

Representatives from the entire coalition meet every two years for an international strategy meeting.[769]

Official Website: www.publishwhatyoupay.org

768 'About Us', *Publish What You Pay,* retrieved 14 December 2011.
769 'How We Are Governed', *Publish What You Pay,* retrieved 14 December 2011.

Natural Resource Charter (NRC)

The Natural Resource Charter, as part of the resource transparency movement, is a set of principles to guide governments' and societies' use of natural resources so these economic opportunities result in maximum and sustained returns for a country's citizens. It outlines tools and policy options designed to avoid the mismanagement of diminishing natural riches, and ensure their ongoing benefits.[770]

Foundation

The charter was conceived by economist Paul Collier, as he worked on his book 'Plundered Planet'. Recognising the precedent set by the Extractive Industries Transparency Initiative (EITI), the charter is an attempt to extend the principles of good governance across every area of natural resource management. A draft of the charter was announced in February 2009.[771] As well as Collier, the charter was sponsored by a number of academics and the Revenue Watch Institute (RWI).[770]

Collier's idea is that natural resources are key to the development of many countries, particularly in Africa. But the reason so many countries have suffered from the 'resource curse' is a series of breaks in a crucial chain of decisions required to ensure effective exploitation of resources: the lack of sufficient investment in the discovery process, failure to impose adequate taxation, shortage of domestic investment of revenue, and the need to 'invest in investments' by building civil service capacity to manage investment portfolios.[772]

Precepts

The charter is made up of a number of precepts, or basic principles. These are thought to be universally applicable to all natural resource producing countries, in the same way as the Universal Declaration of Human Rights. Each of the principles has a detailed explanation and an accompanying document on ways to achieve it on the charter's website.[773]

Overarching Issues

- Precept 1: The development of natural resources should be designed to secure maximum benefit for the citizens of the host country.
- Precept 2: Extractive resources are public assets and decisions around their exploitation should be transparent and subject to informed public oversight.

770 'Natural Resource Charter', *Revenue Watch Institute*, retrieved 15 January 2013.
771 'New Charter to help oil-rich poor countries - launched today', *Natural Resource Charter*, retrieved 24 October 2011.
772 Collier, Paul ', The Plundered Planet: Why We Must--and How We Can--Manage Nature for Global Prosperity', *Oxford University Press*, 2010.
773 'Natural Resource Charter – Precepts', *Natural Resource Charter*, retrieved 24 October 2011.

Upstream Issues

- Precept 3: Competition is a critical mechanism to secure value and integrity.
- Precept 4: Fiscal terms must be robust to changing circumstances and ensure the country gets the full value from its resources.
- Precept 5: National resource companies should be competitive and commercial operations. They should avoid conducting regulatory functions or other activities.
- Precept 6: Resource projects may have serious environmental and social effects which must be accounted for and mitigated at all stages of the project cycle.
- Precept 7: Resource revenues should be used primarily to promote sustained economic growth through enabling and maintaining high levels of domestic investment.

Downstream Issues

- Precept 8: Effective utilisation of resource revenues requires that domestic expenditure be built up and gradually smoothed to take account of revenue volatility.
- Precept 9: Government should use resource wealth as an opportunity to secure effective public expenditure and to increase the efficiency of public spending.
- Precept 10: Government policy should facilitate private sector investments in response to new opportunities and structural changes associated with resource wealth.

Global Responsibility

- Precept 11: The home governments of extractive companies and international capital centers should require and enforce best practice.
- Precept 12: All extraction companies should follow best practice in contracting, operations and payments.

Institution

The charter is at present a draft put together by a group of leading international scholars. In March 2010, the charter announced that it had an advisory board which includes former president of Mexico Ernest Zedillo and African businessman Mo Ibrahim.[774]

774 'The Twelve Precepts', *Natural Resource Charter*, retrieved 15 January 2013.