



June 14, 2014

ISSUE BRIEF: IRAQ'S OIL SECTOR

BACKGROUND

Oil prices rise on Iraq turmoil

Oil markets have reacted strongly to the turmoil in Iraq, the world's seventh largest oil producer, in recent weeks. International Brent oil prices hit 9-month highs over \$113 a barrel on June 13 following the takeover by the Islamic State of Iraq and Syria (ISIS) of Mosul in the north as well as some regions further south with just a few thousand fighters. ISIS has targeted strategic oil operations in the past, attacking and shutting the Kirkuk-Ceyhan pipeline. In Syria, the group holds the Raqqa oil field.

POTENTIAL GROWTH

The OPEC nation is expected to be largest contributor to global oil supplies through 2035

Iraq's potential to increase oil production in the coming decades is seen by analysts as a key component to global growth. The IEA's 2013 World Energy Outlook forecasts Iraqi crude and NGL production to ramp up to 5.8 million b/d by 2020 and to 7.9 million b/d by 2035 in the base case scenario, making it the single largest contributor to global oil supply growth through 2035. Iraq produced roughly 3.4 million b/d in May, according to the IEA. The IEA's medium-term outlook forecasts Iraqi production could reach 4.8 million b/d by 2018.

OIL RESERVES

Vast reserves are among the cheapest to develop and produce in the world

Iraq has the world's fifth largest proven oil reserves, with estimates ranging between 141 billion and 150 billion barrels. About 75 percent of Iraq's oil reserves are located in Southern Mesopotamia, a region with a predominantly Shia population and thus far unaffected by the ISIS offensive. Five of Iraq's seven so-called super-giant oil fields holding proven reserves greater than 5 billion barrels are located in the south, accounting for 60 percent of the country's total proven reserves and the bulk of production.

Fields are typically smaller in the central and northern parts of Iraq, with the exception of the East Baghdad field in the Sunni-dominated central region and the Kirkuk field in the north bordering the Kurdish and Sunni-populated areas. About 8 percent of Iraq's proven reserves are located in Central Mesopotamia, and 17 percent of the reserves are in the Northern Zagros Foldbelt. Kurdish forces took control of the city of Kirkuk on June 11, and now control the oil producing area around the giant Kirkuk field. ISIS forces occupied Mosul and reportedly control large areas in Iraq's Northern Nineveh province, including some of the smaller oil fields around Mosul.



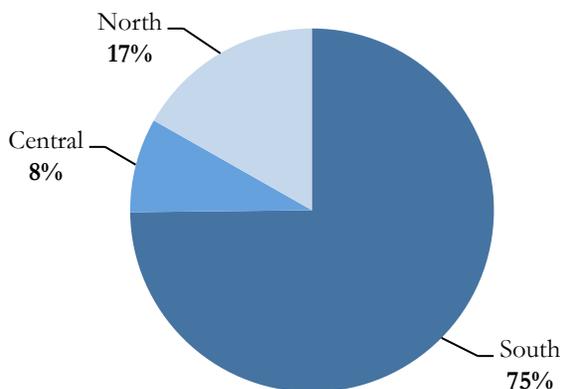
Proven Oil Reserves

<i>billion barrels</i>	BP	EIA
Venezuela	298	298
Saudi Arabia	266	268
Canada	174	173
Iran	157	155
Iraq	150	141
Kuwait	102	104
UAE	98	98
Russia	87	80
Libya	48	48
Nigeria	37	37
US	35	31
Kazakhstan	30	30
Qatar	24	25
China	17	24
Brazil	15	13

Source: BP Statistical Review of World Energy, EIA



Proven Iraqi Oil Reserves by Region Percent share of total*



* based on end-2011 reserve
Source: IEA data

The Kurdish region remains under-explored, relative to the south of Iraq. The IEA estimates that the area controlled by the Kurdistan Regional Government (KRG) contains 4 billion barrels of proven reserves. This area excludes the giant Kirkuk field, which is not formally part of the Kurdistan autonomous region. However, Kurdish government officials recently estimated that the Kurdish region could contain as much as 45 billion barrels of unproven oil resources.

Iraq's Western Desert, which currently has no proven reserves, is also believed to contain considerable hydrocarbon deposits. The Western Desert is the least explored among the main hydrocarbon basins in Iraq, and it is thought to contain more natural gas than oil.

Iraq's reserves are among the cheapest to develop and produce in the world. According to the IEA's estimates, a supergiant field in Iraq with 1 million b/d of peak production capacity can be developed for \$10-15 billion and produced for as little as \$2 per barrel.

OIL PRODUCTION

Concentrated in the south, Iraqi oil production constitutes about 4 percent of global production

Iraq was the world's seventh largest producer of crude oil and lease condensates in 2013 and is currently OPEC's second biggest producer. Nearly 75 percent of Iraqi oil production is concentrated in the south, where the country's largest fields are located. Iraq represents a sizeable part of global oil supplies, accounting for about 4 percent of global oil production in the first quarter of 2014.

Crude Oil Production in 2013 *	
In 1,000 b/d	
Russia	10,019
Saudi Arabia	9,685
United States	7,455
China	4,164
Canada	3,350
Iran	3,200
Iraq	3,054
UAE	2,820
Kuwait	2,650
Mexico	2,562
Nigeria	2,369
Venezuela	2,300
Brazil	2,024
Angola	1,784
Kazakhstan	1,568

* Includes lease condensate. Source: EIA

Super-Giant Fields in Iraq with Reserves Greater than 5 Billion Barrels		
Field	Region	Proved Reserves at end-2011
West Qurna	South	43
Rumaila	South	17
Majnoon	South	12
Zubair	South	8
Nahr Umr	South	6
East Baghdad	Central	8
Kirkuk	North	9

Source: IEA World Energy Outlook 2012

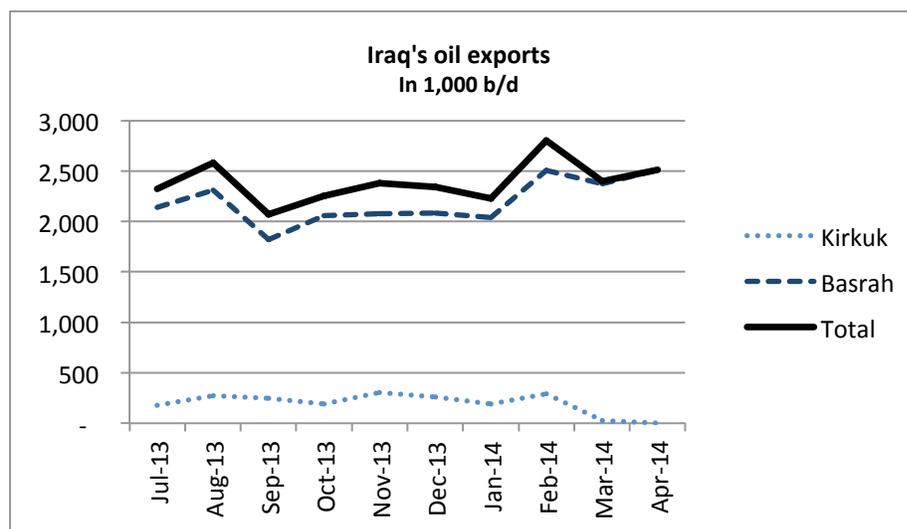


Most technical service contracts awarded to major international oil companies and large NOCs targeted the redevelopment of these giant fields, and international operators were largely successful in ramping up production in the south. About a quarter of Iraqi oil production comes from northern fields, including more than 200,000 b/d from the Kirkuk field alone. Iraq's production ramp-up was fairly rapid until mid-2012, when it reached 3.0 million b/d for the first time since 1979, but the country has struggled to increase production further from this level in the 18-month period between mid-2012 and late-2013. This was due to a combination of infrastructure bottlenecks and unattractive fiscal terms, which prompted many IOCs to limit investments to the minimum level required in the technical service contracts.

PIPELINE NETWORK

Southern Basrah terminal handles most Iraqi exports

Iraq has two major export outlets, the Basrah export terminals in the south and the Kirkuk-Ceyhan crude export pipeline to the north. The Basrah terminals have an estimated nameplate loading capacity of 3.4 million b/d, but bottlenecks in the newly added loading facilities have prevented the terminals from operating at full capacity.



The Kirkuk-Ceyhan pipeline has been targeted by repeated attacks and has been shut by since March 2014. The pipeline has a capacity of 1.6 million b/d but had been operating at around 400,000 b/d prior to being shutdown. Attempts to fix the line been ongoing, but the recent occupation of Mosul and the surrounding areas by ISIS have delayed work.

Source: Iraq's Ministry of Oil website

Existing, Planned and Idle Oil Export Pipelines in Iraq			
Pipeline	Design Capacity	Effective Capacity	Comment
Basra Export Terminal	3.40	2.60	Expansion and debottlenecking underway
Kirkuk-Ceyhan Pipeline	1.60	0.40-0.60	Out of service since Mar 2014
KRG-Turkey Independent Pipeline	0.30	0.30	Eventual capacity of 1.0 mn b/d targeted
Kirkuk-Banias Pipeline	0.70	-	Damaged in the 2003 invasion and out of operation since then
Iraq Pipeline to Saudi Arabia	1.65	-	Idle since the Gulf War in 1991
Basra - Aqaba (Jordan) Pipeline	1.00	-	Planned pipeline

Source: IEA 2013 World Energy Outlook



The Kurdish Regional Government completed the construction and commenced crude exports in an independent export pipeline connecting KRG oilfields with the Turkish port of Ceyhan. The first barrels of crude shipped via the new pipeline were loaded into tankers in May 2014. Threats of legal action by Iraq's central government have reportedly held back buyers to take delivery of the cargoes so far. The pipeline can currently operate at a capacity of 300,000 b/d, but the Kurdish government plans to eventually ramp-up its capacity to 1 million b/d, as Kurdish oil production increases.

Additionally, the country has two idle export pipelines connecting Iraq with the port city of Banias in Syria and with Saudi Arabia across the Western Desert, but they have been out of operation for well over a decade. The KRG can also export small volumes of crude oil to Turkey via trucks.



REFINERIES

Baiji refinery key domestic plant

Iraq has three large and several smaller refineries. About half of Iraq's refining capacity is located in the Northern part of the country. The Baiji refinery is the country's largest.

Iraq's refineries		
	Refinery	Nameplate capacity (b/d)
North	Baiji	310,000
North	Haditha	16,000
North	Kisik	10,000
North	Kirkuk	30,000
North	Qaiarah	20,000
North	Siniya	20,000
North	Erbil	40,000
Central	Daura	210,000
Central	Diwaniya	20,000
Central	Najaf	30,000
Central	Samawa	30,000
South	Basrah	140,000
South	Missan	30,000
South	Nassiriya	30,000

Source: EIA

FOREIGN COMPANIES

Many international majors and large national oil companies operating in Iraq

IOCs and large international NOCs entered Iraq in four successive bid rounds between 2009 and 2012. Given the vast production potential in the country, these bid rounds initially attracted great attention from major global operators, despite the relatively unattractive fiscal terms offered. Several of the major international oil companies, including BP, Shell, Exxon and Eni, as well as some of the largest national oil companies such as Gazprom, Lukoil, PetroChina and CNOOC are now operating in Iraq. Independent operators, including Gulf Keystone, MOL Group, DNO and Afren, are present in the Kurdistan region, where the KRG has been offering more attractive production sharing contracts. Three major IOCs (Exxon, Total, and Chevron) have also entered the Kurdistan region, defying threats by the central government that they may lose licenses in the south.



International oilfield service companies also have sizeable presence in the country, including all of the four major integrated service companies: Schlumberger, Halliburton, Baker Hughes, and Weatherford as do a number of drilling contractors and even some of the large oilfield equipment manufacturers.

Operations in Iraq have been relatively smooth in recent years, apart from one incident in November 2013, when BP, Schlumberger, and Baker Hughes had to temporarily evacuate staff from the Rumaila oil field in the south following a series of violent clashes and protests among oilfield workers.