



[Countries](#)

## Sudan and South Sudan



Last Updated: September 5, 2013 ([Notes](#))

[full report](#)

### Overview

*South Sudan gained independence from Sudan in July 2011. Most of the oil is now produced in South Sudan, but the country is landlocked and remains dependent on Sudan because it must use Sudan's export pipelines and processing facilities. In early 2012, South Sudan voluntarily shut in all of its oil production because of a dispute with Sudan over oil transit fees.*

The unified Sudan has been producing oil since the 1990s. Most of the producing assets are near or extend across the de facto border between Sudan and South Sudan. When South Sudan became independent in July 2011, it gained control over most of the oil production. But South Sudan is landlocked and remains dependent on Sudan because it must use Sudan's export pipelines and processing facilities.

In January 2012, South Sudan voluntarily shut in all of its oil production because of a dispute with Sudan over oil transit fees. Following South Sudan's secession, Sudan requested transit fees of \$32-36/barrel (bbl) in an attempt to make up for the oil revenue loss, while South Sudan offered a transit fee of less than \$1/bbl. Tensions escalated at the end of 2011 when Sudan began to confiscate a portion of South Sudan's oil as a payment for unpaid transit fees, and shortly after, South Sudan shut down production. After nearly 15 months of intermittent negotiations, South Sudan restarted oil production in April 2013. Despite the progress that has been made to reconcile differences, several unresolved issues remain and production may be curtailed again in the future.

Oil plays a vital role in the economies of both countries. According to the International Monetary Fund (IMF), oil represented around 57 percent of Sudan's total government revenue and around 78 percent of export earnings in 2011, while it represented around 98 percent of total government revenues for South Sudan in 2011. The IMF projected that Sudan's oil earnings substantially declined following the South's secession. According to IMF estimates, oil accounted for 32 percent of total export earnings and 30 percent of Sudan's total government revenue in 2012.



## Historical background

*Prior to independence, the unified Sudan had fought two civil wars. The second civil war ended with the signing of the Comprehensive Peace Agreement that was put in place from 2005 to 2011. South Sudan gained its independence from Sudan in July 2011. However, there are still unresolved issues that have caused tension between both countries after independence. The border between the two countries is undefined and some areas along the border remain contested.*

Since its independence in 1956 from joint British and Egyptian rule, there have been several armed conflicts in Sudan that have affected the country's economic development, particularly its natural resources. The longest conflicts in the unified Sudan were the two civil wars that were fought between the Northern Sudanese government in Sudan and the Southern Sudan region (1955-1972 and 1983-2005). The North/South civil war ended with the signing of the Comprehensive Peace Agreement (CPA) that was in place from 2005 to 2011. The CPA set standards for sharing oil revenue (50:50 split) and a timetable toward a referendum on the South's independence. A referendum took place in January 2011 in which the people of the South voted to secede from Sudan. In July 2011, Sudan became two countries: Sudan (Khartoum) and South Sudan (Juba).

The border separating Sudan and South Sudan is still not officially defined, and some areas remain contested. The current de facto border was established when Sudan gained independence in 1956; it is known as the 1956 border. The CPA called for the border to be demarcated, and a Technical Border Committee (TBC) was established in 2005 to

demarcate the 1956 border. The committee agreed on most of the border, but five areas remain disputed, according to a report by the [International Crisis Group](#).

One of the most contentious areas, which was excluded in the TBC's mandate, is the Abyei area, located between Northern Bahr al Ghazal, Warrap, and Unity states. Oil was discovered in Abyei in 1979, which escalated tensions between both sides. The Abyei Boundary Commission (ABC) was authorized to define the territory, and in 2005 it ruled that the Heglig and Bamboo oil fields fell within Abyei. The North contested the ruling because it placed a significant portion of its oil reserves in the disputed territory. The dispute was later sent to The Permanent Court of Arbitration (PCA) in The Hague. In 2009, PCA redefined the Abyei area and placed Heglig and the Bamboo fields outside of Abyei.

A referendum was scheduled for January 2011 to determine whether Abyei would join Sudan or South Sudan, but this did not occur because of disagreements over voter eligibility. Although uncertainties over border demarcation and the ownership of Abyei remain, the Heglig and Bamboo fields are considered today to be in Sudan's South Kordofan state.

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## Oil

*Most of Sudan's and South Sudan's proved reserves of crude oil and natural gas are located in the Muglad and Melut basins, which extend into both countries. Natural gas associated with oil fields is flared or re-injected. Both countries currently do not produce or consume marketed natural gas.*

According to the *Oil & Gas Journal* (OGJ), Sudan and South Sudan have 5 billion barrels of proved crude oil reserves as of January 1, 2013. According to BP's 2013 Statistical Review, approximately 3.5 billion barrels are in South Sudan and 1.5 billion barrels are in Sudan. The majority of reserves are located in the oil-rich Muglad and Melut basins, which extend into both countries. Oil is transported through two main pipelines that stretch from the landlocked South to Port Sudan. Because of civil conflict, oil exploration prior to the 2011 independence was mostly limited to the central and south-central regions of the unified Sudan.

Natural gas associated with oil fields is mostly flared or re-injected. Despite proven reserves of 3 trillion cubic feet, gas development has been limited. In 2010, the unified Sudan flared approximately 11.8 billion cubic feet of natural gas, according to the latest data from the National Oceanic and Atmospheric Administration (NOAA), which represents about 0.2 percent of the total gas flared globally.

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## Oil sector regulation

In Sudan, the Ministry of Finance and National Economy (MOFNE) regulates domestic refining and oil imports. The Sudanese Petroleum Corporation (SPC), an arm of the Ministry of Petroleum, is responsible for exploration, production, and distribution of crude oil and petroleum fuels in accordance with regulations set by the MOFNE. The SPC purchases crude oil at a subsidized cost from MOFNE and the China National Petroleum Corporation (CNPC). According to the IMF, SPC purchased light crude (Nile Blend) at a fixed price of \$49/bbl, instead of the international price of \$110/bbl for light crude, and \$82/bbl for heavy

crude (Fula Blend) in 2011.

After purchasing the crude, SPC then contracts with local refineries to process it. It sells the domestically refined and imported fuels to distribution and marketing companies at subsidized prices set by the MOFNE, according to the IMF. Locally refined products are sold at a price lower than production costs, and imported fuels are sold below the cost of importation. The IMF estimated that fuel subsidies accounted for 14 percent of total government expenditures in 2011 and 15 percent in 2012. Fuel prices in Sudan are lower compared to nearby countries. According to the IMF, the subsidy is exported to neighboring countries as Sudan's subsidized fuel is often smuggled across its borders.

South Sudan created the [2012 Petroleum Act](#), which outlines the institutional framework governing the hydrocarbon sector. The Act established the National Petroleum and Gas Corporation (NPGC). NPGC is the main policymaking and supervisory body in the upstream, midstream, and downstream segments of the hydrocarbon sector and is authorized to approve petroleum agreements on the government's behalf. The Ministry of Energy is responsible for the management of the petroleum sector.

The Sudan National Petroleum Corporation (Sudapet) is the national oil company in Sudan, and the Nile Petroleum Corporation (Nilepet) is its counterpart in South Sudan. At the end of 2011, South Sudan nationalized Sudapet's assets in the South and transferred them to Nilepet, according to a Foreign Reports Bulletin. Both companies are active in their respective country's oil exploration and production and are often minority shareholders in joint ventures with foreign oil companies because of their limited technical expertise and financial resources.

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## International oil companies

*International oil companies from Asia dominate the oil sectors of Sudan and South Sudan. The China National Petroleum Corporation, India's Oil and Natural Gas Corporation, and Malaysia's Petronas hold large stakes in the leading consortia operating oil fields and pipelines. National oil companies Sudapet (Sudan) and Nilepet (South Sudan) also hold small stakes in operations.*

International oil companies (IOCs), primarily from Asia, dominate the oil sectors in both countries. They are led by CNPC, India's Oil and Natural Gas Corporation (ONGC) and Malaysia's Petronas. These companies hold large stakes in the leading consortia operating in both countries: the Greater Nile Petroleum Operating Company, the Dar Petroleum Operating Company, and the Sudd Petroleum Operating Company.

**Table 1: Main oil companies in Sudan and South Sudan**

Consortium/subsidiary	Company	Country of origin	Share (percent)
Greater Nile Petroleum Operating Company (GNPOC)	CNPC	China	40
	Petronas	Malaysia	30
	ONGC	India	25
	Sudapet*	Sudan	5
	Nilepet*	South Sudan	5

Dar Petroleum Operating Company (DPOC)	CNPC	China	41
	Petronas	Malaysia	40
	Nilepet	South Sudan	8
	Sinopec	China	6
	Egypt Kuwait Holding	Egypt	3.6
	Other partner(s)	--	1.4
Sudd Petroleum Operating Company (SPOC)	Nilepet	South Sudan	41.9375
	Petronas	Malaysia	33.9375
	ONGC	India	24.125
Petro Energy E&P	CNPC	China	95
	Sudapet	Sudan	5
Star Oil	Ansan Wikfs	Yemen	66
	Sudapet	Sudan	34

*Note: \* Sudapet holds a 5-percent share in GNPOC's operations in Sudan, and Nilepet holds a 5-percent share in GNPOC's operations in South Sudan.*

*Source: Company websites, IHS Edin, and Middle East Economic Survey (MEES)*

## Production

*Oil production in Sudan and South Sudan is declining because of natural declines at maturing fields. Sudan has set ambitious goals to increase production from new fields and to increase recovery rates at existing fields, but production continues to fall short of Sudan's goals.*

Today, nearly all the oil produced in Sudan and South Sudan originates from the Muglad Basin (Blocks 1, 2, and 4, Block 5A, Block 6, and Block 17) and Melut Basin (Blocks 3 and 7). Currently, oil produced from Blocks 2, 4, 6, and 17 is counted as Sudan's production, while oil from Blocks 1, 3, and 7 belongs to South Sudan.

Small-scale oil production in the unified Sudan began in 1992 and grew rapidly in 1999 with the completion of the GNPOC export pipeline that runs from the Heglig processing facility to Port Sudan. Total oil production reached its peak of 486,000 bbl/d in 2010, but declined to around 453,000 bbl/d in 2011. The fall in output was driven by production declines due to maturing oil fields and lack of investment in Sudan, as well as a shortage of skilled workers in South Sudan in 2011. In April 2011, production was briefly disrupted in South Sudan when a number of North Sudanese workers in Southern fields were temporarily expelled. For the remainder of 2011, some oil facilities experienced labor shortages that adversely affected production, as some skilled workers migrated back to the north after the secession.

In 2012, combined production from Sudan and South Sudan plummeted to around 115,000 bbl/d because South Sudan shut in all of its production at the end of January 2012. In less than one month, South Sudan closed production at: Blocks 3 and 7, Block 1, and Block 5A. Total unplanned disruptions in both countries averaged about 315,000-320,000 bbl/d in

2012, and peaked at about 370,000 bbl/d in mid-2012 because of military clashes around Sudan's Heglig field that temporarily halted production. The disruption estimates take into account adjustments to South Sudan's effective capacity and assumes that a portion of pre-shut-in production was compromised because of technical issues surrounding the shut-in and its duration.

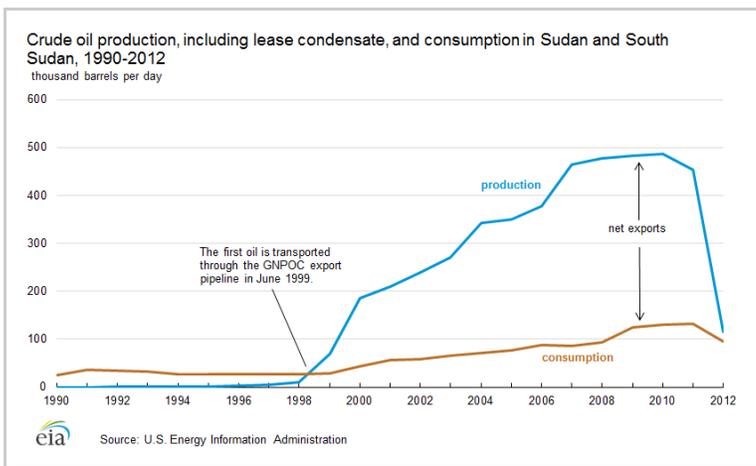
Sudan had set ambitious goals to increase its output to more than 180,000 bbl/d by the end of 2012. However, the country's production continued to fall mostly because of natural declines and, to a lesser extent, unplanned disruptions. Production was disrupted at the Heglig field in Block 2 for several months in mid-2012 after military clashes between Sudan and South Sudan resulted in a temporary halt in production and significant damage to the central processing facility. Oil fields at Sudan's Block 6, which produce the Fula blend that is refined and consumed domestically, experienced natural declines. At the end of 2012, Sudan brought two new fields online: the Hadida field in Block 6 and al-Barasaya in Block 17. Hadida and al-Barasaya are expected to reach capacity before the end of 2013 at 20,000 bbl/d and 10,000-15,000bbl/d, respectively.

Despite falling short of its production goal in 2012, Sudan still hopes to boost production in the future by ramping up new fields and increasing oil recovery rates at existing fields. Sudan recently launched bidding for blocks that are clearly located in Sudan and included some offshore acreage. In addition, Sudan signed an agreement with Norway in 2012 to increase oil recovery rates at current fields from 23 percent to 47 percent, according to the Middle East Economic Survey (MEES). According to MEES, this is likely a long-term strategy, and it would take time before clear increases are noticeable.

**Table 2: Sudan and South Sudan oil fields, blends, and operators**

Country	Location	Main fields	Blend	Operator
Sudan	Block 2	Heglig, Bamboo	Nile	GNPOC
Sudan	Block 4	Diffra, Neem	Nile	GNPOC
Sudan	Block 6	Fula, Hadida	Fula	Petro Energy
Sudan	Block 17	al-Barasaya	NA	Star Oil
South Sudan	Block 1	Unity, Toma, Munga	Nile	GNPOC
South Sudan	Block 3 & 7	Palogue, Adar-Yale	Dar	DPOC
South Sudan	Block 5A	Mala, Thar Jath	Nile	SPOC

Source: Rystad, Middle East Economic Survey (MEES), and Energy Intelligence Group



## Negotiations, cooperation agreements, and oil production restart

While oil production was shut in, representatives from Sudan and South Sudan met several times in Addis Ababa, Ethiopia for negotiations that were mediated by the African Union. After months of impasse, Sudan and South Sudan reached a provisional agreement on oil transit fees in August 2012. Both sides agreed upon a transit fee of \$8.40/bbl for the use of the pipeline that transports the Nile Blend from Heglig to Port Sudan and \$6.50/bbl for the use of the Petrodar pipeline that delivers the Dar Blend produced in Blocks 3 and 7 to Port Sudan. An additional \$2.60/bbl processing and transit fee was included, which raised the total fee to \$11/bbl and \$9.10/bbl, respectively. Both countries also agreed that South Sudan would pay its neighbor \$3.028 billion over the course of three and a half years to compensate for the loss of oil revenue. Although the agreement signified a major step forward, officials in Sudan refused to reach a deal on when to restart oil production until a pact on security issues was achieved.

On September 27, 2012, both sides signed a series of [cooperation agreements](#) on a host of post-independence issues, such as sharing oil revenue, border demarcation, security, migration, banking, and trade.

The agreement on oil called for the resumption of oil production in South Sudan and granted that country access to use oil transportation and processing facilities in Sudan. It stipulates that South Sudan will pay Sudan processing, transit, and transportation fees to use facilities and pipelines in Sudan. The total fee to use the GNPOC facilities and pipeline is \$11/bbl; the Petrodar facilities and pipeline fee is \$9.10/bbl, as agreed upon in the August 2012 provisional agreement. The \$3.028 billion compensation can be paid over time at a rate of \$15/bbl and must be paid within three and a half years. The total fees associated with moving the crude oil to Sudan's export terminal, in addition to the compensation fee, bring the total payment to \$24.10/bbl for Petrodar and \$26/bbl for GNPOC.

Both sides agreed to cancel and forgive any claims of oil-related arrears and outstanding financial claims. This includes South Sudan's previous claims that Sudan diverted the South's crude oil to the refinery in Sudan. However, Sudan is still expected to give the South proceeds from the oil confiscated prior to the shutdown and shipped by the Trafigura Group in February 2012. The agreement on oil also stipulates that if operations related to production or use of processing and/or transportation facilities becomes technically or economically unsustainable, then the country must provide a 60-day notice prior to shutting down production or suspending access to processing and transportation facilities.

The agreement on security arrangements called for a Safe Demilitarized Border Zone between the shared de facto border. Both sides agreed to withdraw 6 miles from the border to minimize military clashes in the designated 14-mile buffer zone. It also operationalized the Joint Border Verification and Monitoring Mission to oversee and verify the withdrawal. The agreement also reinforced the pledge made by both countries to not lend support to rebel groups against the other country.

On March 12, 2013, Sudan and South Sudan released an implementation matrix with a timeline to carry out the activities in the cooperation agreements. Most notably, the implementation matrix set dates to demilitarize the buffer zone along the shared border and to restart oil production. South Sudan resumed limited oil production on April 6, 2013. Initial production of 4,000 to 6,000 bbl/d came from the Thar Jath field in Block 5A. Production at South Sudan's largest fields in the Upper Nile State (Blocks 3 and 7) started about one month later.

Although production has finally resumed, it is still unclear whether there will be another prolonged shut-in in the near future. In May 2013, shortly after production resumed, South Sudan was forced to partially shut in production for a few days at Blocks 3 and 7 after Sudan turned off the pump station at the central processing facility in Jebelein, Sudan. Sudan claimed it turned off the pump station because of technical problems, but South Sudan believes the decision was politically motivated. The pump station was returned to operations, and the South was able to avoid significant economic and environmental costs that would have occurred if oil flows were disrupted for a longer period of time because of the lack of storage space near the fields.

The main issue that is fueling tension between the two countries is the support for rebel groups. Sudan presented South Sudan with a 60-day notice, starting on June 9, to cut off access to its two main export pipelines after accusing South Sudan of backing rebels that are trying to overtake Sudan's government in Khartoum, an allegation that South Sudan denies. Sudan had postponed the deadline to close the pipelines twice to allow the African Union more time to investigate the allegations and for further negotiations. In early September, Sudan reported that it would continue to allow South Sudan to export its oil through Sudan's pipelines.

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## Oil pipelines

Sudan has two export pipelines that travel northbound across the country to the Bashayer (Bashair) Marine Terminal, located about 15 miles south of Port Sudan. The Petrodar pipeline transports the Dar Blend, a heavy sweet crude, from South Sudan's Blocks 3 and 7. The Dar Blend sells at a discount to the Nile Blend along with Brent, the international benchmark for the crude oil price. The pipeline stretches 850 miles, and its design (maximum) capacity is 500,000 bbl/d. It includes several heating units along its length because of the waxy, acidic nature of the crude. The Petrodar pipeline was reportedly filled with water during the time that oil production was shut down.

The GNPOC pipeline transports the Nile Blend, a medium, low-sulfur waxy crude oil, 1,000 miles from the Heglig processing facilities to the Bashayer Marine Terminal. The pipeline has a design capacity of 450,000 bbl/d. The Nile Blend is sourced from Blocks 2 (Heglig and Bamboo fields) and 4 (Diffra and Neem fields) in Sudan and Blocks 1 (Unity field) and 5A (Mala and Thar Jath fields) in South Sudan. Production from all of the oil fields serving the GNPOC pipeline has been naturally declining since 2007. The pipeline remained open

during the production shutdown and transported crude oil from Sudan's fields.

South Sudan is considering the construction of an export crude oil pipeline that would allow the country to bypass the current route through Sudan. South Sudan has been discussing their options with authorities in Kenya, Ethiopia, and Djibouti to possibly build a pipeline either to the Kenyan Port of Lamu or to the Port of Djibouti via Ethiopia. South Sudan has signed a Memorandum of Understanding (MoU) with all three governments to build the pipelines. The latest news on the topic is that Japan's Toyota Tsusho Corporation completed a feasibility study to construct the pipeline to the Port of Lamu and may finance and build the pipeline.

An alternative pipeline route would reduce South Sudan's reliance on Sudan, but the pipeline's construction could take at least two years. In addition, there are no major oil fields scheduled to come online in South Sudan and production has been projected to decline substantially in the next five years, according to a Foreign Reports Bulletin released in March 2012.

**Table 3: Crude oil pipelines in Sudan and South Sudan**

Operator	Start	Destination	Blend type	Aprox. length (miles)	Design capacity ('000 bbl/d)
<b>Main crude oil pipelines</b>					
DPOC	Block 3 and 7	Bashayer Terminal 2, Port Sudan	Dar	850	500
GNPOC	Heglig facilities	Bashayer Terminal 1, Port Sudan	Nile	1000	450
SPOC	Block 5A	Connects to Heglig facilities	Nile	60	200
CNPC	Block 6	Khartoum Refinery	Fula	450	200
<b>Proposed crude oil pipelines</b>					
--	South Sudan	Lamu (Kenya)	--	--	450
--	South Sudan	Djibouti via Ethiopia	--	--	--

*Note: The Bashayer (Bashair) Marine Terminal is located about 15 miles south of Port Sudan.*

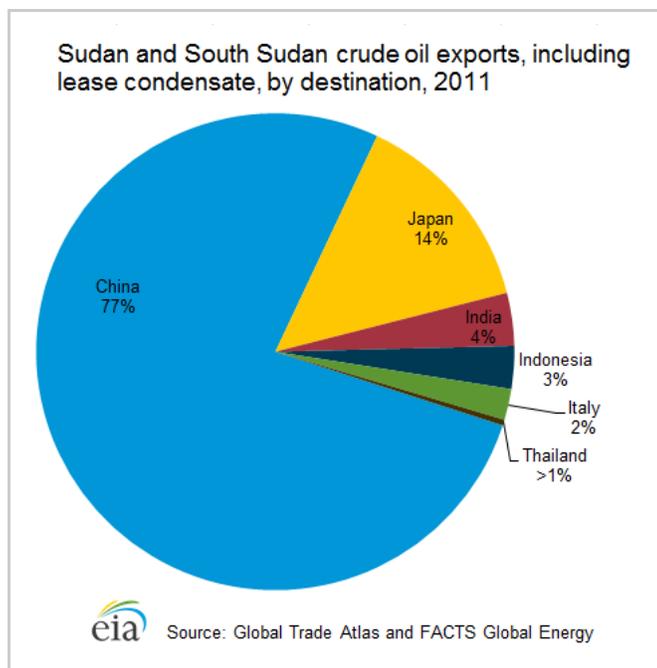
*Source: Petrodar, GNPOC, Energy Intelligence Group, and IHS Edin*

## Crude oil exports

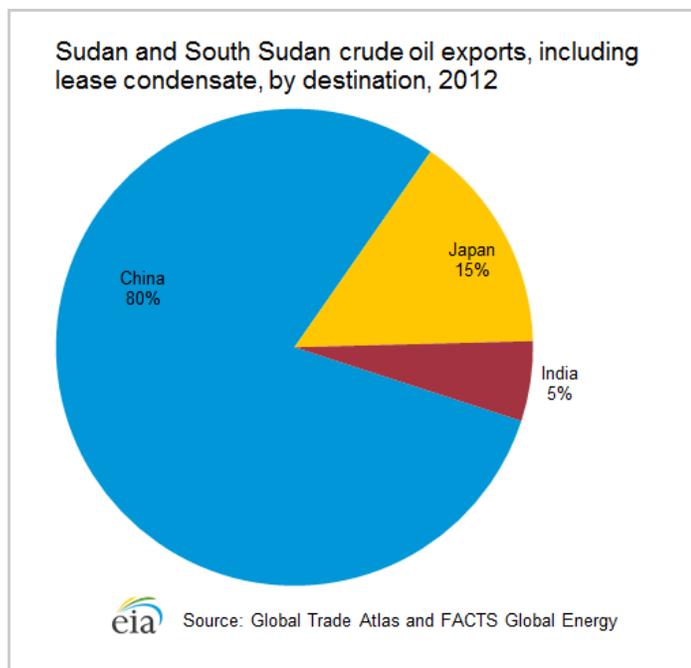
*China is the leading export destination for crude oil from Sudan and South Sudan. In 2011, Sudan's crude exports accounted for 5 percent of China's total crude oil imports, but in 2012 this share fell to less than 1 percent because of the production shutdown in South Sudan.*

Sudan and South Sudan export the Nile and Dar blends mostly to Asian markets. According to estimates based on data from Global Trade Atlas and FACTS Global Energy, total crude oil exports, including lease condensate, averaged around 337,000 bbl/d in 2011. China

imported 260,000 bbl/d from Sudan in 2011, which accounted for 5 percent of total Chinese crude imports, according to FACTS Global Energy.



In 2012, crude oil exports from Sudan and South Sudan plummeted to average almost 63,000 bbl/d, much of which was shipped in the first couple of months of the year and represents crude oil that was produced before South Sudan shut in production. China still remained the leading recipient for Sudanese crude and imported slightly more than 50,000 bbl/d in 2012, which accounted for less than 1 percent of total Chinese crude imports.



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## Oil refining and consumption

Oil consumption in Sudan and South Sudan increased by an annual average of around 10 percent between 2000 and 2011 and reached its highest level of 132,000 bbl/d in 2011, most of which was consumed by Sudan. Oil consumption grew because of increased industrialization, improved access to the electricity grid, and rising car ownership, according

to the IMF. However, oil consumption decreased to 95,000 bbl/d in 2012, nearly a 30-percent drop from the previous year, as Sudan's economy was affected by the loss of export revenue when South Sudan's oil production was shut down.

Oil consumption is supplied by domestically refined crude oil, along with imported refined products. Diesel, used for electricity generation and transportation, accounts for most of the consumption, followed by gasoline (transportation) and fuel oil (electricity), according to the IMF. The countries also import diesel, jet oil (aviation), and LPG (cooking and heating) to supplement domestic supply. Sudan and South Sudan export small quantities of refined products, mostly to neighboring countries.

Sudan has two full conversion refineries with a total crude oil distillation capacity of 121,700 bbl/d and three small topping plants with a total capacity of 22,000 bbl/d. The largest refinery, the Khartoum or al-Jaili refinery, is located just north of Khartoum and has a crude distillation capacity of 100,000 bbl/d. It initially came online in 2000 with a capacity of 50,000 bbl/d to process the Nile Blend. The refinery's capacity was expanded in 2006 to also process Sudan's highly acidic Fula Blend. According to one of its operators, CNPC, the Khartoum Refinery was the world's first modern refinery with a delayed coking unit for high-acid and high-calcium crude oil.

The country's other full conversion refinery is the Port Sudan refinery (21,700 bbl/d). The three small topping plants are El Obeid (10,000 bbl/d), Shajirah (10,000 bbl/d), and Abu Gabra (2,000 bbl/d). The Malaysian company Petronas had planned to construct a 100,000-bbl/d refinery in Port Sudan, but plans have been frequently postponed and no progress has been reported.

South Sudan announced that it plans to open a small refinery in Unity State this year with initial capacity of 5,000 bbl/d and a second refinery in the Upper Nile State next year with initial capacity of 10,000 bbl/d.

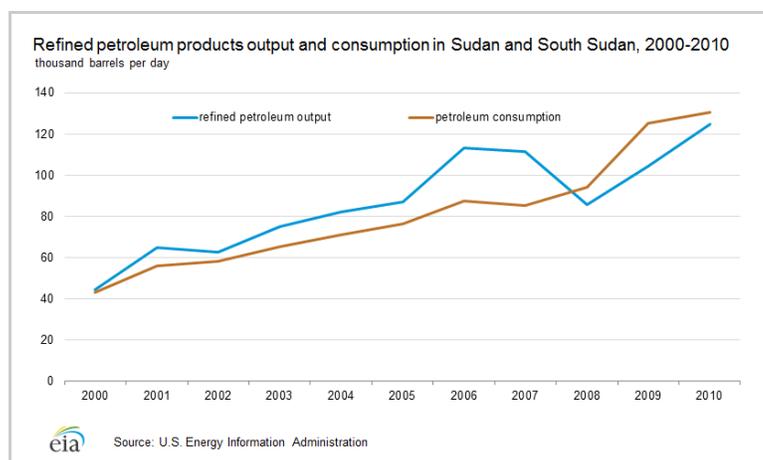
**Table 4: Oil refineries in Sudan and South Sudan**

Country	Refinery	Capacity (000 bbl/d)	Operator
Sudan	Khartoum (al-Jaili)	100	CNPC/Sudanese government
	Port Sudan	21.7	Sudan Petroleum Corporation
	<b>Topping plants</b>		
	El Obeid	10	Sudan Petroleum Corporation
	Shajirah	10	Concorp
	Abu Gabra	2	Sudan Petroleum Corporation
	<b>Total Capacity</b>	<b>143.7</b>	
<b>Planned refineries</b>			
South Sudan	Unity State (Bentiu)		--
	Upper Nile (Tangrial)	10	Ventech Engineers International
<b>Proposed refineries</b>			
Sudan	Port Sudan	100	--
	Khartoum (expansion)	100	--

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*Note: For proposed refineries, progress has been slow, and future plans are unclear.*

*Source: Embassy of Sudan (Malaysia), Sudan Petroleum Corporation, Arab Oil & Gas Journal, the Middle East Economic Survey (MEES), IHS Edin, and IHS World Markets Energy*

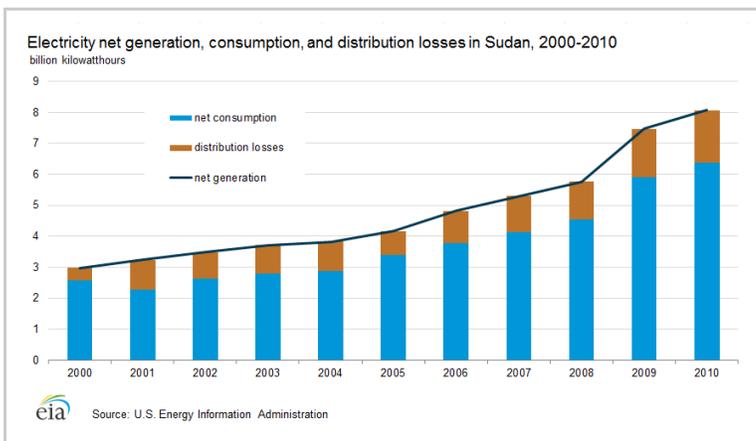


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## Electricity

The unified Sudan generated 8.1 billion kilowatt-hours (KWh) of electricity in 2010. Almost all was generated from oil (3.8 KWh) and hydroelectricity (3.8 KWh), with the remaining 6 percent from biomass and waste (0.5 KWh). Although power generation almost tripled between 2000 and 2010, millions of people are still without access to electricity. According to the latest 2009 estimates from the International Energy Agency (IEA), about 36 percent of the population had access to electricity, higher than the regional average for Sub-Saharan Africa, which was almost 31 percent.

According to Sudan's [Dams Implementation Unit](#), electricity is transmitted through two interconnected regional grids, the Blue Nile and Western grids. The grids cover only a small portion of the country, and the parts not connected to the grid depend on small diesel-fired generators or wood fuel (traditional biomass) for power. Power plants connected to the grid use diesel and residual fuels, according to IHS CERA. Using natural gas to generate electricity could reduce energy costs, but Sudan's natural gas sector is undeveloped; as associated gas at oil fields is flared or re-injected. Hydroelectricity is generated from five dams: Roseires, Sinnar, Jebel Aulia, Khashm el-Girba, and Merowe. The newest hydro plant, Merowe, is located on the Nile River and has the country's largest generation capacity at 1,250 Megawatts (MW). According to IHS CERA, South Sudan has around 20 MW of total installed capacity that is fueled by oil. The largest source of power is the 12-MW Warsila plant in Juba, South Sudan. According to EIA's latest estimate, total electricity installed capacity in both countries was 2,338 MW in 2010.



## Notes

- Data presented in the text are the most recent available as of September 5, 2013.
- Data are EIA estimates unless otherwise noted.

## Sources

- Africa Oil and Gas Monitor (Newsbase Afroil)
- Arab Oil & Gas Journal
- BP Statistical Review of World Energy
- Business Monitor International
- CIA World Factbook
- Economist Intelligence Unit
- Energy Intelligence Group
- European Coalition on Oil in Sudan
- FACTS Global Energy
- Foreign Reports Bulletin
- Global Trade Atlas
- Global Witness
- Greater Nile Petroleum Operating Company (GNPOC)
- IHS CERA
- IHS Edin
- IHS World Markets Energy
- International Crisis Group
- International Energy Agency
- International Monetary Fund
- Lloyd's List Intelligence APEX
- Middle East Economic Survey (MEES)
- Oil and Gas Journal
- Petrodar
- Reuters News Service
- Rystad
- Satellite Sentinel Project
- Sudan Embassy
- Sudan Petroleum Corporation
- World Bank