

China's Energy Needs in Africa: Impact on

Chinese Economy

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ABSTRACT

China is the world's most populous country with a fast-growing economy that has led it to be the largest energy consumer and producer in the world. China's rapidly increasing energy the demand for oil, natural gas, coal, hydroelectricity, electricity, nuclear energy. It has made China extremely influential in world energy markets. China looks Africa as the alternative energy source.

Keywords: Oil, Natural Gas, Energy, China, Africa

I. INTRODUCTION

The rapid economic growth of the People's Republic of China has fueled a demand for energy. In 2010, China surpass Japan become the world's second- largest economy in the world. China has managed to maintain its staggering growth in Gross Domestic Product (GDP) 7.0% in 2015 and 6.8% in 2018.

China has quickly risen to the top ranks in global energy demand over the past few years. China became the largest global energy consumer in 2011 and is the world's second-largest oil consumer behind the United States. The U.S. Energy Information Administration (EIA) reports that China surpassed the United States at the end of 2013 as the world's largest net importer of petroleum and other liquids, in part because of China's rising oil consumption. China's oil consumption growth accounted for about 43% of the world's oil consumption growth in 2014.12.8% of consumption of oil in the world in 2017.

Natural gas use in China has also increased rapidly over the past decade, and China has sought to raise natural gas imports via pipeline and as liquefied natural gas (LNG). China is the world's top coal producer, consumer, and importer and accounts for almost half of global coal consumption, an important factor in world energy-related carbon dioxide emissions.

China energy has demand not only in oil but also in natural gas (LNG), coal, hydroelectricity, electricity, and nuclear energy etc. All the sources of energy China has dependent upon the alternative source of energy, beyond the Middle East countries. So China's energy demand fulfill through in Africa and Central Asia.

II. CHINA'S ENERGY NEED IN AFRICA

African oil is also of high quality. A quarter of China's oil imports come from Africa: from Algeria, Angola, Chad, Sudan, Nigeria, Gabon and Equatorial Guinea. The thirst for oil is becoming so important that even the "One China Principle" is being disregarded since Chad has diplomatic relations with Taiwan. A new pipeline from Chad to Cameroon opened in 2003 so that the oil from Chad can be transported directly to a major port.

New deep-water oil discoveries have been made in the Gulf of Guinea, more specifically in Nigeria, Angola and Equatorial Guinea. Even though Africa is notorious for its political and economical challenges, international oil companies are continuing to invest in the continent. This is because Africa is economically attractive for foreign investors as good conditions are offered by African leaders and most of the oil is being found offshore, which has advantageous for the loading of tankers and provides a degree of stability in oil production levels.

III. AFRICA: ALTERNATIVE SOURCE OF ENERGY

The contemporary shifts in the global economic system are linked to the political economy of the current global demand for energy. With volatility in the Middle East threatening the global supply of oil, and with it China's demand for sustainable long-term access to crude oil, the Asian giant China and India is turning to towards Africa.

Global energy demands have made Africa an increasingly important player. The continent currently contributes 12% of the world's liquid hydrocarbon production. West African oil is attractive because of its low-sulphur content, which makes it highly desirable for environmental purposes. Africa will supply raw materials for 30% of the world's hydrocarbon production. It therefore comes as no surprise that Africa has become the commercial playground for competing interests from both the continent's traditional development partners and the rising powers of India and China.

In January 2006, the Chinese government released its African policy as a White Paper. While the White Paper set out the principles governing China's overall diplomatic and economic relationship with Africa, it also identified resource co-operation as one of the cornerstones of Beijing's engagement with the continent.

The Chinese government encourages and supports competent Chinese enterprises to co-operate with African nations in various ways on the basis of the principle of mutual benefit and common development, to develop and exploit rationally their resources, with a view to helping African countries to translate their advantages in resources to competitive strength, and realise sustainable development in their own countries and the continent as a whole.

China's mutual interest and co-operation in developing Africa's natural resource sector, it also illuminates the fact that this sector has become a potential area of investment for Chinese state-owned enterprises (SOEs) and its aspirant multinationals as part of the government's 'Going Global' strategy. Driven by the need to satisfy the demands of the expanding domestic economy, China is pursuing a dynamic, holistic approach to its energy partnerships in Africa.

Clearly, China's commercial footprint on Africa is having a major impact on the natural resource sector, most notably in the energy industry. Table-1 given below clearly shows that, crude oil has become the dominant import from Africa. The dominance of Africa's oil and mineral sector in China's engagement with the African continent, it is the business opportunities that have emerged for its corporations that have entrenched Beijing's interest in Africa.

China's three largest national oil companies, China National Offshore Oil Corporation (CNOOC), China National Petroleum Corporation (CNPC) and China Petroleum and Chemical Corporation (Sinopec) have either acquired stakes in established African operations, or have entered into prospecting deals and exploration contracts with major oil producing countries. These include Nigeria, Angola, Sudan, Equatorial Guinea, Gabon and Chad. Oil producing countries in Africa are given below.

TABLE - 1: Oil: Production

					<i>Growth rate per annum</i>			
	Thousands of barrels per day	Production in million tonnes	Thousands of barrels per day	Production in million tonnes	Thousands of barrels per day	Production in million tonnes	Thousands of barrels per day	Production in million tonnes
Country Name	2015		2016		2016		Share	
Algeria	1558	67.2	1579	68.5	1.4%	1.6%	1.7%	1.6%
Angola	1826	88.7	1807	87.9	-1.1%	-1.2%	2.0%	2.0%
Chad	73	3.8	73	3.8	0.6%	0.6%	0.1%	0.1%
Republic of Congo	257	12.9	238	11.9	-7.6%	-7.8%	0.3%	0.3%
Egypt	726	35.4	691	33.8	-4.8%	-4.8%	0.8%	0.8%
Equatorial Guinea	289	13.5	280	13.1	-3.1%	-3.3%	0.3%	0.3%
Gabon	230	11.5	227	11.4	-1.1%	-1.1%	0.2%	0.3%
Libya	432	20.3	426	20.0	-1.4%	-1.5%	0.5%	0.5%
Nigeria	2329	112.0	2053	98.8	-11.9%	-12.1%	2.2%	2.3%
South Sudan	148	7.3	118	5.8	-20.0%	-20.0%	0.1%	0.1%
Sudan	109	5.4	104	5.1	-5.0%	-5.0%	0.1%	0.1%
Tunisia	65	3.0	63	2.9	-3.3%	-3.8%	0.1%	0.1%
Other Africa	255	12.6	233	11.6	-8.7%	-8.6%	0.3%	0.3%
Total Africa	8297	393.7	7892	374.8	-4.9%	-5.1%	8.6%	8.6%
China	4309	214.6	3999	199.7	-7.2%	-7.2%	4.3%	4.6%
India	876	41.2	856	40.2	-2.3%	-7.2%	0.9%	0.9%

Source: BP Statistical Review of World Energy, June 2017, 66th edition, access on 12 January, 2018

In Africa has share 8.6% of world oil production in thousands of barrels per day where as China 4.2% and India 0.9%. In Africa produce 374, 393 in million tones oil 2016 and 2015 receptively. Algeria, Angola, Nigeria are highest oil production in thousands of barrels per day in Africa. China had very good political and diplomatic relations with the entire major oil producing countries in Africa.

TABLE - 2: Natural Gas: Production

Country Name	Production in billion cubic metres	Production in million tonnes oil equivalent	Production in billion cubic metres	Production in million tonnes oil equivalent	Production in billion cubic metres	Production in million tonnes oil equivalent
	2015		2016		Share	
Algeria	84.6	76.1	91.3	82.2	2.6%	2.6%
Egypt	44.3	39.8	41.8	37.6	1.2%	1.2%
Libya	11.8	10.6	10.1	9.1	0.3%	0.3%
Nigeria	50.1	45.1	44.9	40.4	1.3%	1.3%
Other Africa	19.3	17.4	20.2	18.2	0.6%	0.6%
Total Africa	210.0	189.0	208.3	187.5	5.9%	5.8%
China	136.1	122.5	138.4	124.6	3.9%	3.9%
India	29.3	26.4	27.6	24.9	0.8%	0.8%

Source: BP Statistical Review of World Energy, June 2017, 66th edition, access on 12 January, 2018

The natural gas production in Africa is 210, 208 billion cubic meters in 2015, 2016 respectively. The total share of natural gas production in Africa is 5.9% in the world. China always import of natural gas from Africa. Algeria, Egypt, Libya, Nigeria counties are mainly produce natural gas (LNG) in Africa.

In 2017, China’s natural gas imports rose 24.9 percent year on year to 54.165 million tonnes. Liquefied Natural Gas (LNG) imports increased 47.7 % to a record high of 29.092 million tones. Imports of natural gas rose 26.9 percent year on year to 68.6 million tonnes in 2017, data from the General Administration of Customs (GAC) showed. In December alone, China imported 7.9 million tonnes of natural gas with total value of 19.8 billion yuan (about 3 billion U.S. dollars).

TABLE - 3: Coal: Production*

Country Name	2015	2016	Growth rate per annum	
			2016	Share
South Africa	142.9	142.4	-0.6%	3.9%
Zimbabwe	2.8	1.7	-37.9%	-
Other Africa	6.0	6.3	5.5%	0.2%

Total Africa	151.7	150.5	-1.0%	4.1%
China	1825.6	1685.7	-7.9%	46.1%
India	280.9	288.5	2.4%	7.9%

*Million tonnes oil equivalent

Source: BP Statistical Review of World Energy, June 2017, 66th edition, access on 12 January, 2018

The People's Republic of China remained the world's leading coal producer, 1685.7 million tonnes in 2016 and 1825.6 in 2015 respectively. India is the second largest coal production in the world, with 288.5, 280.9 million tonnes in 2016 and 2015. Fulfill the coal demand China engages with West Africa.

TABLE - 4: Nuclear Energy: Consumption*

Country Name	2015	2016	Growth rate per annum	
			2016	Share
South Africa	2.8	3.6	29.7%	0.6%
Total Africa	2.8	3.6	29.7%	0.6%
China	38.6	48.2	24.5%	8.1%
India	8.7	8.6	-1.3%	1.4%

*Million tonnes oil equivalent

Source: BP Statistical Review of World Energy, June 2017, 66th edition, access on 12 January, 2018

South Africa is the only country to produce electricity from nuclear energy, 3.6 million tones produce by South Africa in the share of 0.6% of nuclear energy consumption in the world.

TABLE - 5: Hydroelectricity: Consumption*

Country Name	2015	2016	Growth rate per annum	
			2016	Share
Algeria	0	0	-50.5%	0
Egypt	3.2	3.2	-1.0%	0
South Africa	0.2	0.2	32.2%	0
Other Africa	23.5	22.4	-5.1%	2.5%
Total Africa	26.9	25.8	-4.3%	2.8%
China	252.2	263.1	4.0%	28.9%
India	30.2	29.1	-3.6%	3.2%

*Million tonnes oil equivalent

Source: BP Statistical Review of World Energy, June 2017, 66th edition, access on 12 January, 2018

The government of Nigeria has announced the award of a \$5.8 billion contract to build what will be the largest power plant in the country. The 3,050-megawatt Mambila hydroelectric power project in the state of Taraba will be delivered by a consortium of Chinese state-owned construction firms.

TABLE - 6: Electricity: Generation*

Country Name	2015	2016	Growth rate per annum	
			2016	Share
Algeria	68.8	70.2	1.8%	0.3%
Egypt	180.6	187.3	3.4%	0.8%
South Africa	249.7	251.9	0.6%	1.0%
Other Africa	276.3	272.7	-1.6%	1.1%
Total Africa	775.4	782.1	0.6%	3.2%
China	5814.6	6142.5	5.4%	24.8%
India	1308.4	1400.8	6.8%	5.6%

*Terawatt-hours

Source: BP Statistical Review of World Energy, June 2017, 66th edition, access on 12 January, 2018

IV. RENEWABLE ENERGY: CHINA ENGAGES IN AFRICA

1. **Hydropower sharing** - Chinese construction companies are developing a record-breaking hydropower project in Nigeria that has been compared to the world's largest hydropower plant in Yichang in China.
2. **Gibe III Hydroelectric Project, Ethiopia** - Africa is scattered with impressive renewable energy megaprojects. Harvesting the power of the Omo River, approximately 300 K.M. south west of the capital Addis Ababa. It will have an outgoing power capacity of 1.870 megawatts.
3. **Noor Complex Solar Power Plant, Morocco** - The world's largest concentrated solar power (CSP) plant, called the Noor Complex, is being built in the Moroccan desert Noor . It provides 160 megawatts of the project's planned 580 megawatt capacity. Once completed in 2018, the project is expected to provide electricity for 1.1 million people.
4. **Olkaria Geothermal Power Plant, Kenya** - Several renewable power plants are operating in the geothermal fields of Olkaria. Kenya, harvesting the power of underground geothermal energy. The site is located on the floor of the Kenyan Rift Valley, near the shores of Lake Naivasha some 120 kilometers north-east of the capital Nairobi. The Olkaria plant has a capacity of 280 megawatts and is connected to the nation's grid. Geothermal power is big in Kenya, where it accounts for nearly half the country's energy supply.

5. **Lake Turkana Wind Project, Kenya** - The 310 MW Lake Turkana Wind Power Project, which is being developed in the country's North-East, will cover 40,000 acres. The 70 billion Kenyan Shillings (\$690 million) project is the largest private investment in Kenya's history, according to the developers. At least 100 turbines are expected to be ready on site by September, 2016. On completion, the project will comprise 365 wind turbines, each with a capacity of 850 kilowatts, and will be connected to the national grid system. The company hopes to produce 18% of Kenya's electricity generating capacity when it comes online.
6. **The Rwanda Solar Power Field** - An Africa-shaped 8.5 megawatt solar plant east of Rwanda's capital Kigali came into full production in December 2015, its 28,360 photovoltaic panels spread across 17 hectares
7. **Ingula Pumped Storage Scheme, South Africa** - The Ingula Hydroelectric Plant in South Africa has now begun production, and is the fourth of its kind to be built in the country, with some parts still under construction, it has a planned capacity of around 1,100 megawatts and will be one of the largest in terms of power generating capacity once fully operational, according to construction company Salini Impregilo.

V. CRITICAL ANALYSES

In analysing the literature on and statements about China's engagement with Africa, it appears that it is fraught with contradictions. On the one hand, African producers have been marginalised and displaced from the market because of the influx of cheap Chinese goods. Yet as consumers these individuals have gained because of the affordability of Chinese products. But as China entrenches itself within the production of high-tech white goods, these very same consumers will again not be able to afford to purchase such goods. This will be because their livelihoods will have been eroded by competition from cheap Chinese goods. Attempting to contextualise the push and pull factors that inform this engagement with Africa, especially from the perspective of the natural resource sector and in terms of the impact that this engagement may have on the continent's development trajectory, is complex.

Chris Alden argues that China's contemporary relations with Africa are driven by four factors. These are: resource security; the need for new markets and investment opportunities; symbolic diplomacy, development assistance and co-operation; and forging strategic partnerships. But this description of the drivers of China's engagement with the continent does not adequately explain the underlying strategic vision of the Chinese vis-a-vis Africa. Through the acquisition of key energy and commodity assets, China seeks to leverage its investments to extract itself from international commodity market pricing.

China's long-term strategy is to secure commodity assets at source, thus bypassing international market pricing. It may even consider establishing its own commodity exchanges already having done so by setting up a diamond exchange in Shanghai to rival that in Antwerp. Thus the price that China pays for specific commodities will be negotiated at source with recipient governments rather than the price determined by the 'market'. This is the underlying factor of China's strategic engagement of African commodity and energy endowed economies.

The core of China's global foreign policy is resource security to enable the country to maintain its current high levels of growth. But the complexities around how these resources are extracted have become critical to China's image as a nation that prioritises respect for sovereignty at all costs. This is especially true in the African context. With Africa's marginalisation from the global economy, the continent badly needs development. It is against this backdrop that the merits or shortcomings of China's engagement can be measured.

China's relationship with Africa is seen as a refreshing alternative to the traditional engagement models of the West. African governments and protagonists see China's engagement as a point of departure from Western neo-colonialism and political conditions. To this end they point to the sophisticated way China combines its need for resources with diplomacy to court African leaders. This is demonstrated in several interrelated ways. Firstly, China accords Africa an equal diplomatic status with the dominant powers in terms of its political engagement. China's leaders include African countries in the same itinerary as visits to either the United States or European Union, for example. Such political symbolism not only legitimises China in the eyes of African countries but it also paves the way for its strategic economic engagement.

China's commercial engagement with Africa is characterized by its 'coalition investment' strategy. Multiple Chinese state-owned companies across diverse industries are politically engaging a recipient African economy in a way that can include tying energy acquisitions to funding for infrastructure development. In many resource-rich African countries, investments in road, rail, and ports have been a characteristic of Chinese energy projects. Angola is a primary example.

This highlights the third and most important point of all, namely the development assistance and co-operation that Beijing extends to African governments as part of its overall commercial engagement. This is channelled through concessional loans and other types of funding to projects such as the construction of hospitals, schools, sport stadiums, government buildings, debt forgiveness, academic training and technical training.

African economies are, however, quickly becoming overly dependent on commodity exports to the Chinese economy. The IMF recently reported in its World Economic Outlook Report that sub-Saharan Africa's growth rate could rise to 6.3% from the current 5% - 5.5% range as a result of the

rise in oil prices and the commodity boom. But if Africa is to better integrate itself into the global economy, it has to shift its current activities in the natural resource sector towards secondary and tertiary production.

VI. CONCLUSION

China's energy demand enter into Africa's natural resource sector will continue to expand in the medium term. With China strategically excluded from the Middle East region for its energy needs, Africa is rapidly becoming China's commercial sphere of influence.

As a result, China now obtains roughly a one third of its energy imports from the African continent. Its mercantilist approach to business in Africa is being led primarily by its state-run corporations which, seemingly, are less cognisant of risk than their western counterparts. Chinese SOEs answerable to political stakeholders rather than private shareholders enjoy a comparative advantage over foreign multinationals when investing in African economies because of the strong, political relations fostered by their government.

For recipient African economies, revenues from oil exports to China need to be utilised to invest in long-term industrial development strategies. In the sustainable development of in Africa is based on if China looks Africa as the alternative source of energy, African do the something to find out their alternative partners to engage.

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