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AFRICA'S ENERGY: POTENTIAL

Africa has massive fossil fuel deposits. According to a 2019 Africa report by the IEA and other official data, the continent has:

- **450 billion barrels of oil in recoverable resources.**
That's the equivalent of 13-14 years of global consumption in pre-Covid times.
- **100 trillion cubic meters of gas.**
*That's worth about \$14 trillion dollars at today's depressed gas and LNG prices.
It is also the equivalent to 73 billion metric tons of LNG – which is 1,000 times the annual Japanese import volume.*
- **Africa has 300 billion tons of coal.** Of those, 72% lie in South Africa.
That's equivalent to two millennia of Japanese imports.
- **Africa also supplies very 1 in 6 tons of the world's uranium.**
Two of the continent's two major supplying countries - Namibia and Niger - together mine more than either Canada or Australia. The third uranium supplier from Africa is South Africa. It has a small output compared to Namibia and Niger.

The capacity for renewable energy is arguably even greater.

- **SOLAR: The IEA said in 2019 that the continent is capable of adding 15 GW of solar power a year until 2040.**
*That's the same as the annual deployment picture for the U.S.
We're talking about more than 300 GW of solar installations.
Comparison: Japan has 56 GW – and that is triple its volume from a decade ago.*

To put it another way: a 2014 study by the International Renewable Energy Agency (IRENA) said that **Africa can generate 660,000 Twh of power a year from solar.**
That 1,000 times more than what the annual consumption of electricity in the whole of the Africa continent.

- **WIND:** There is great potential in Ethiopia, Kenya, Senegal and South Africa. Again, the same IRENA assessment saw **Africa's potential is at 460,000 Twh.**
That is 20 times more than the electricity consumption of our planet.

- GEOTHERMAL — Kenya is also at the forefront of geothermal energy development in Africa. **Kenya plans to increase output of geothermal power by 10 times to 5 GW within a decade.** Japan is involved in plant construction and HR development. Fuji Electric Co. was awarded a contract to complete the Olkaria Geothermal power station in Kenya. This is the first project for Fuji Electric in Africa.
- NUCLEAR: Despite its ample uranium resources, Africa has almost zero nuclear power. **The continent's only nuclear generation facility is a 35-year old station, the Koeberg, in South Africa,** which has just two 930 MW reactors. **And yet, this one station supplies 6.7% of South Africa's electricity.**
Let's not forget, South Africa accounts for 40% of all of Africa's power demand for industrial use.

Nuclear energy has a lot of challenges, but it is emissions-free generation. Many African countries have registered an interest in nuclear power. For now, however, the World Nuclear Association lists just 7 African countries as “developing plans” for nuclear power: Nigeria, Kenya, Morocco, Algeria, Ghana, Rwanda, Ethiopia. In other African countries nuclear power is “under discussion.”

AFRICA'S ENERGY: REALITY

The reality of Africa's energy picture is more complicated.

As mentioned earlier, the potential for solar and wind is vast. The reality is that the entire African continent has (as of 2019) installed just:

- **5 GW of Solar power**
That's less than the island of Kyushu in Japan, which has 8GW
- **5.5 GW of Wind power**

Why has the introduction of renewable energy been so small? Energy institutes say this is related to several issues:

- perceived high-risk in terms of security
- high transaction costs
- limited institutional capacity within government to handle the projects
- massive improvements to power grid infrastructure needed to handle renewables

The opportunities for renewable energy in Africa still exist, but the reality is also that as of today nearly all of the countries on the continent earn a significant part of their national revenue from fossil fuel sales.

The fossil fuel energy sector in Africa has also struggled to fulfil its potential despite a very promising first decade of the 21st century.

- OIL: **Between 2000 and 2010, Sub-Saharan African accounted for a quarter of all production growth in oil between 2000 and 2010.** That helped oil exports jump 50%, and raised national income from oil exports by three times.

Since then, oil exports have waned due to

- regulatory uncertainties
- militant attacks
- theft and piracy
- growing global competition with new producing areas, such as U.S. shale

As a result, **sub-Saharan Africa is earning 30-40% less from oil sales than it was a decade ago.**

- OIL PRODUCTS: A shocking fact is that despite being a major oil exporter, **Africa is the world's top importer of refined oil products and Africa is also the world's second-biggest importer of diesel.**

One reason is that Africa has a fairly small amount of oil refining capacity. **Facilities on the continent have a nameplate capacity of 3.5 million barrels per day. That's the same as the capacity of Japan** – which at one-tenth of the population of Africa. However, petroleum product consumption per person in Africa is much smaller. So, *even with Africa's existing capacity, it should be able to meet about three-quarter of its needs.*

It doesn't meet these needs for a second, more important reason. The oil refineries are old, badly maintained, and too simple to allow for upgrades. **The utilization rates of these refineries are as low as 9% in Nigeria.**

For comparison, the run rates of Japanese refineries are around 70%.

- NATURAL GAS: The oil story is repeated here. Massive growth in the first decade of the century was followed by stagnation in the last 10 years due to uncertain business environments and social unrest.

One massive project is **the Trans Saharan Gas pipeline**. It is supposed to be a new source of gas for the European Union, a way for Europe to diversity supplies away from Russia. However, **this project has been in the planning stages for 30 or more years** as one security scare after another has halted progress. The Amenas hostage crisis in 2013 also included Japanese workers and shocked many in Japan.

Even today, it is unclear when construction on this pipeline will begin.

A similar fate has befallen many other gas pipeline projects in Africa. The political and social unrest has made overseas energy firms very cautious about investing in energy projects that span several countries. Most of the investments have gone into single-country projects, where the risks may be more contained.

- COAL: Most of the world is turning away from coal to natural gas a cleaner energy source. However, in the case of Africa, the shift would be from biomass to gas, as opposed to from coal. About half of the continent's energy still comes from burning wood and other biomass. As such, it is hard to predict the future of the coal industry in Africa.

JAPAN'S INVOLVEMENT IN AFRICA

Based on the above description of Africa's natural resources, and knowing Japan's need to import most of its energy resources, it would be natural to assume that the relationship would be largely based on the extraction and sale of commodities. However, **economic growth in Africa is turning it into an investment story**. This is based on projections for Africa's domestic markets.

Clearly, **outgoing Japanese Prime Minister Abe Shinzo saw this and tried to motivate Japanese companies to do the same**. As Abe indicated in his TICAD 2016 speech, Africa is no longer an economic aid project – it's now a real business partner.

With a combined GDP of \$3 trillion and a population of 1.2 billion people, the African continent could be a good place for Japanese companies to expand, especially as their domestic markets are shrinking in the face of depopulation. Within 5 years, Africa will have a bigger population than China or India. It also has the world's youngest population — a median age of 20, compared to a global media of 30 years old.

This population and economic growth are forecast to grow Africa's spending power to around \$2.5 trillion by 2030, equivalent to half of the level of Japan. Energy demand on the continent is likely to double within 20 years, according to IEA forecasts.

Moreover, what Africa needs to drive growth is infrastructure: power lines, grids, refineries, machinery, turbines, ports, transport infrastructure, etc. Those are all the things that Japan excels at and the products and services that underpin Japan exports.

Japan can and should invest in African commodities to secure its resource needs in years to come, especially in natural gas and LNG value chain. But, in addition to this, **Africa has become a major FDI story that Japanese firms have – so far – largely avoided**.

PM Abe in 2016 promised investments of around \$30 billion in Africa over the three years until the next TICAD meeting. Only about two-thirds of that materialized. The promise PM Abe made to the TICAD leaders in Yokohama in 2019 was more modest: \$20 billion over the next three years.

However, PM Abe also said that Japan would commit even further to human development on the continent, highlighting that the partnership that Japan offered to Africa was more sustainable compared to other foreign investors.

Of course, PM Abe was clearly referring to the gains that Asian rival China has made in

Africa. Chinese investment has been vast and rewarded with many large-scale infrastructure contracts.

As a comparison:

- Japan's FDI to Africa in 2017 was less than a quarter of China's (\$9 billion vs \$43 billion)
- Japanese companies have nearly 800 operations on the continent. Chinese ones have 3,700, with about half of activity centering on South Africa.
- China is already one of Africa's largest investors, surpassing France, India and the United States with investments in railways and manufacturing.
- In 2018, the volume of Chinese trade in Africa was \$204 billion. Japan's total import and export volume, on the other hand, was \$17 billion.

From the point of view of Africa, both investors are likely welcome. The growth opportunities on the continent show that this does not have to become an either-or story and Japan and China have many opportunities to build strong partnerships.

Still, Japan needs to move faster if it is to seize some of the best opportunities in Africa.

To date, Japanese firms have been cautious to commit to large-scale projects due to:

- high debt loads of many African nations; many Japanese infrastructure exports are based on loans, the private sector is concerned about repayments;
- Political, security, economic and regulatory risks; the 2013 attack on a natural gas facility in Algeria remains in the minds of the Japanese;
- Japanese companies have seen easier opportunities in Southeast Asia and concentrated their energy investments in this closer geographic area.

To stimulate more Japanese investments, the Japanese government has to come in as a strong supporter. Great evidence for what can be achieved when the private sector joins with the state is the massive LNG project in Mozambique, led by Total.

This summer, the Japanese government was instrumental in making sure the \$14 billion project secured investments and financing. Notably, the equity investment came both from the private sector (Mitsui & Co.) and the state (JOGMEC). The lending was shared between the Japan Bank for International Cooperation and the nation's top-three private banks. The government's Nippon Export and Investment Insurance agreed to handle default risk.

As a result, it became one of the largest ever overseas investments in Africa.

Several Japanese utilities (JERA, Tokyo Gas, Tohoku EPCO) have agreed to buy 30% of the LNG production from 2024, securing the future of the business.

Just a year earlier, Japanese engineering firm JGC won a 400 billion-yen (\$3.73 billion) construction order for another LNG project Mozambique, this time run Exxon.

Why did the Japanese government give such strong backing to the Mozambique project over other FDI candidates? One reason is probably geopolitical.

PM Abe had clearly signaled in his 2019 TICAD speech a strategic vision for a “free and open Indo-Pacific”. This means East African projects are likely to tick both the commercial box and the political one, empowering coastline nations to support the checks and balances on China’s ambitions in the Indo-Pacific.

The same rationale would explain Japan’s backing of a port project in Madagascar, which won a 45-Billion-yen Official Development Assistance Loan, and the focus on Kenya and its geothermal developments.

CONCLUSION: TIME TO BE BRAVE

There is clearly a limit to how many export-orientated energy projects, such as the one in Mozambique, Japan can support – both from a financial and demand perspective. Thus, **the best way for Japan to pursue its geopolitical agenda and help its companies prosper is by increasing the motivation for the private sector to eke out FDI opportunities in Africa.**

The continent’s growth story has more potential than energy exports. Smart money from Japan needs to work harder on overcoming local issues in order to secure future growth.