Energy Transition and the Future of Africa's Energy Security.

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Background

Africa is energy-poor, and her ability to meet up with the People, Planet and Prosperity agenda is intricately dependent on her ability to catalyse growth in her energy sector and ensure widespread access to reliable and affordable electricity. About 640 million Africans representing well above 60% of her population do not have access to electricity, and even those who do continue to wallow in significant blackouts due to erratic power supply.

With ramped up energy demand due to surging population, increased urbanisation and the COVID19 pandemic that retarded Africa's steady growth on energy access, the International Energy Agency predicts around 660 million people without access to electricity in sub-Saharan Africa by 2030 if current trends continue. By the same year, Nigeria, D.R Congo, Uganda, Pakistan, Tanzania, Niger and Sudan are predicted to account for 50% of the total global population without access. These projections lead to the irresistible conclusion that Africa is facing endemic energy poverty which is evident in, among others, poor access to electricity. Meanwhile, the dearth of clean cooking solutions continues to force Africans to resort to biofuels, leading to household air pollution that claimed 697,000 African lives in 2019 alone.

The entire installed generation capacity of Africa's 48 Sub-Saharan countries is just 68 gigawatts, no more than Spain's. For context, the State of California

has an installed capacity of 80 gigawatts across its over 1,500 generation plants and its citizens consume more power heating their pools and playing videogames than the entirety of African countries. Meanwhile, lack of access to reliable energy makes it impossible to power critical medical infrastructure in hospitals, resulting in, for example, unreliable electricity to power refrigerators for proper storage of vaccines, medicines and other critical medical supplies. Meanwhile, due to the dearth of liquefied petroleum gas (LPG), a huge percentage of women in Africa resort to wood, charcoal and other biofuels for their cooking needs, thereby exposing themselves to significant indoor pollution responsible for more deaths than malaria and HIV combined, not to mention the massive deforestation from felling trees to provide those biomass fuels for cooking.

The Energy Transition Problem

Amidst this acute energy poverty faced by Africa comes the global energy transition, causing energy-rich western countries, international organisations and environmentalists to pressure African states to transition to a low-carbon economy powered only by renewables. But if the science is anything to go by, renewables like solar, wind and hydroelectricity are grossly intermittent and thus can't be relied upon to fuel the energy prosperity that Africa so desperately craves. Is it the turbines that only turn when the wind is blowing; the panels that only work when the sun is shining; or the hydro that rapidly declines with drought and only rebounds with increased precipitation? Renewable energy offers a viable alternative to traditional fossil fuel-based energy sources as a low-carbon intensive source of energy, but energy needs have to be met especially as Africa's booming population and economic expansions drive energy demand.

On one hand, Africa's position as having the world's least per capita energy, consuming only 3.3% of global primary energy despite having 16% of global population means that the continent is least responsible for climate change. Therefore, subjecting it to the same energy transition timelines as the West is a deprivation for Africa's right to explore and take adequate advantage of her natural resources and hydrocarbons like the western countries that built their economies off the back of dirty fossil fuels like coal. A hackneyed insistence on

equal transition timelines invariably means forcing the Africa that contributes less than 4% of global emissions to pay the price for others' carbon emissions. On the other hand, the dangers of climate change only necessitate the needs for people to have resilient infrastructure like cement and steel for shelter, fertilizer for food security, pumped irrigation for agriculture, desalination for drought and air conditioning for changing temperatures. All of these are energy intensive which means Africa needs more energy to adapt to climate change, not less. Closing this gap will require ramped up large-scale generation, expanding the grid and catalyzing growth in transmission infrastructure. What will play a crucial role in meeting these growing energy demands? Gas!

Gas to Power

Even as the global energy transition is on the front burner, it is strongly believed that gas will continue to play a significant role as a reliable and low-cost fuel in the energy industry, especially in baseload electricity generation. In addition, natural gas can be utilized as a feedstock to produce other petrochemicals like fertilizer for agriculture and as fuel for transportation. Powering Africa will require increasing gas in her energy mix as a transition fuel, which will give her enough energy security and the fighting chance to reduce her carbon footprints at her own pace.

Continental Africa has proven natural gas reserves in abundance with Nigeria alone sitting on a resource base of 206 trillion standard cubic feet of gas. Algeria, Nigeria, Libya and Egypt are among the world's largest gas producers, not to mention discoveries of extensive offshore deposits in existing mining operations off the coast of the Northern Cape and Southern Namibia, including the Kudu gas field developments by Nampower and in the Western Indian Ocean. Driven by urbanization, industrial demand and its competitiveness over coal in power generation, natural gas is by far the world's fastest growing fossil fuel and a bridge fuel to the energy transition.

Even with the energy transition on the front burner, natural gas is seen to remain crucial in Africa's energy industry as a transition fuel, especially with renewed efforts to unlock gas investments in Nigeria by declaring the decade of gas and passing the Petroleum Industry Act. Similar efforts are either

ongoing or in the pipeline in many other African states. It is simply unacceptable that only 54.4% of Nigerians have access to electricity despite the country's abundant renewable energy potentials and the fact that Nigeria is sitting on a large resource-base of gas with the Nigeria's gas reserves at 208.62 trillion cubic feet. A sound Energy Transition Plan for African countries will lead a pathway to still leverage gas resources as a bridge to achieving carbon neutrality by 2060 or thereabouts as the case may be.

Gas is a clean and safe fuel, 50% cleaner than coal. And given the evolution in technology to curtail the carbon emissions from the by-products of its combustion, gas is a reliable resource to fuel Africa's energy needs and gas-rich African countries, as dependable suppliers of hydrocarbons to global markets, have a role to play and deserve a seat at the table. It is thus important that Africa is allowed to tap into her nascent gas industry to create excellent industrial infrastructure, boost energy access and energy independence, reduce reliance on costly imports, ease vulnerabilities and price shocks and generate revenue for nations struggling to serve their growing societies.

The Way Forward

If we are to build resilient infrastructure and attain the economic prosperity we aspire, the adequate exploration of Africa's hydrocarbons to the benefit of Africans indispensable. There is a pressing need to blend the adequate utilisation of renewable energy resources in the effort to phase out fossil fuels and meet African countries' Nationally Determined Contributions to net zero by the targeted years. Expertise is thus needed not just around technologies and STEM competencies, but also professional services ranging from regulatory control, the interaction of long-term contracts with short-term markets, energy projects financing, etc. With the right legal and fiscal frameworks supported by a strong political will, Africa's energy ruins present an opportunity to turn her fortunes around and penetrate a robust suite of transitioning and renewable energy sources in the energy mix. For the power sector, this will no doubt ramp up generation capacity as a prelude to massive grid expansion and investments in distribution networks.