OPINION

A cautious approach to energy transition

E&P offshore Angola
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Africa needs a progressive multi-tier energy transition that balances different types of both fossil and renewable energy sources, writes *NJ Ayuk*, Executive Chairman, African Energy Chamber.*

When we hear about 'energy transitioning', or rather '*the* energy transition' – the global effort to cut down CO_2 emissions and tackle climate change by moving from high to low carbon sources of power – the word 'transition' tends to lose its meaning. In most arenas of public debate on the topic, arguments quickly descend into an outright demand for a ban on coal, oil and gas. We have heard this from many public figures and political and social leaders.

In South Africa, a place where only 85% of the population has access to a mostly unreliable power supply, (but still one of the highest electricity penetration rates in Sub-Saharan Africa), there are calls by community leaders to close down coal-fired power plants. But, as South African Minister of Mineral Resources Gwede Mantashe put it at the Africa Oil Week in November 2019: 'If we stop coal too quickly, we will certainly breathe fresh air, but it will be in complete darkness without electricity!' He added – and this is a statement that is fundamentally absent from public debate today – that: 'We do not believe that the different energy sources – oil, gas, coal, and renewables – are exclusive from each other, they are complementary.'

By no means am I trying to deny the urgency of tackling the source-causes of CO_2 emissions and climate change. Abiding by the Paris Agreement goals is of paramount importance for the future of our society. But I believe that radical, ill-informed demands only delay the process of reaching real and manageable solutions.

Two-fold challenge

There are two relevant points to make when it comes to transitioning the African energy sector to a low carbon economy. One is that African nations stand to lose the most and the fastest when it comes to the effects of climate change. Droughts and natural disasters are already taking place more regularly, and with greater severity than ever before, so there can be no doubt of the motivation to address the issue. African leaders are not only painfully aware of that reality, many of them, including leaders of oil and gas producing nations, such as Gabon's President Ali Bongo Ondimba, have proven themselves champions of environmental preservation on the international stage.

Second, in many ways, Africa benefits from not having many legacy investments that could stop it from moving to new technologies. Indeed, this is an argument made by many that say the Continent should immediately drop fossil fuel generation and move to wind farms and solar parks. However, it is easy to forget that not having the burden of legacy investments is a result of not having power at all. Two-thirds of Sub-Saharan Africa does not have access to a reliable power supply; a third does not have access to power at all. Compare that to Europe, or North America, or even North Africa, where those burdensome legacy investments grant electricity access to 100% of the population.

I am not suggesting we should not couple energy generation expansion with environmental concerns to bet on economically viable options that are also carbon-efficient and reduce emissions. That is exactly what I champion. However, can we truly demand that new generation comes simply from solar parks because the price per MW coming from solar is competitive, even lower in some places, than power generated from gas? Can we state that without acknowledging the intermittency of solar and wind generation and, most of all, the cost of battery storage, without which solar and wind power can only be relied upon for a third of generation time?

Transition is happening

The energy transition is already happening across the African continent. Kenya, with its geothermal power generation network, is on the way to producing nearly all of its power from renewables. The Taiba Ndiaye wind project in Senegal recently

added 158 MW of clean energy to its grid. The Nzema solar power station in Ghana, on its own, will be responsible for up to 6% of the country's power mix. And, in 2018, South Africa signed contracts with 27 independent renewable energy power producers to install 2.3 GW of generation capacity in the next five years.

So, the transition is taking place, and at a fairly quick pace. But the majority of African nations need to add power generation capacity rather than replace existing capacity for more sustainable means of generation. And in many places, renewables are simply not viable options. However, if we think of natural gas as a significantly cleaner fuel for power generation, instead of pairing it with heavy oils and coal, we might be looking at a much more viable and environmentally sustainable alternative than if we simply try to impose solar and wind generation across the board.

Just look at Nigeria. With its zero-gas flaring programme, the country is trying to achieve two things – prevent gas flaring, which is extremely damaging for the environment, and harness that resource to produce electricity in an economically and environmentally sustainable manner, while also powering a larger gas-based industry of fertilisers and other byproducts that will not only create jobs but produce wealth and contribute to the African agricultural industry. This is what a sustainable, economical and ecological energy transition policy should look like. Africa cannot afford cost-raising mitigation; any measures taken to green its energy usage must also be cost-reducing.

Looking upstream

The same debate can be held on the issue of oil and gas E&P. Over the last 15 years, several new discoveries across the African continent have opened the promise of oil and gas wealth to a number of countries, many of which are amongst the world's poorest – Chad, Guinea, Liberia, Mali, Mauritania, São Tomé and Príncipe, Sierra Leone, Togo. This is not surprising, Africa is the world's new frontier of oil and gas resources because it is also one of the least explored.

So, opportunity still abounds for oil and gas companies, but also for African nations to take advantage of their own resources to develop and grow. How could they not? Most of these countries only saw themselves free from colonial oppression half a century ago. Since then, many of those went through dramatic internal political and military instability. Only now are we finally seeing the emergence of a more stable, cooperative and forward-looking leadership throughout the Continent, with a generation of young people educated and capable of taking advantage of the opportunities that exist in their own countries.

These nations have not enjoyed the 100-plus years of oil, gas and mineral wealth that built the US economy or filled the Norwegian $1tn national wealth fund. How can they be asked to look away from those resources when demand for those very resources is still growing everywhere else on the planet, when the shale boom in the US defies any environmental agreement, when China continues to build coal-fired power plants? No, the answer cannot be to call for African nations to restrain their own development. What is necessary is to ensure that oil and gas exploration is done in the cleanest, most efficient way possible, with the strictest standards to limit flaring, environmental damage and the use of outdated technologies.

Petroleum Review's December 2019/January 2020 issue featured an interview with Mohammad Sanusi Barkindo, OPEC's Secretary General. In his comments, he epitomised the issue at hand: 'We need to remember that for oil and gas, the environmental challenge is not oil and gas. It is the emissions that come from burning them. We believe that solutions can be found in cutting-edge technologies, such as carbon capture, utilisation and storage (CCUS) and others, that reduce and ultimately eliminate these emissions. We will need a very broad portfolio of cleaner and more efficient emission removal technologies to tackle climate change across all available carbon-based energy sources,' he said. What this means is that we need to design policies and implement technologies that guarantee the biggest carbon efficiency, both for the extraction, processing and final use of these energy sources.

Oil E&P itself has to be driven by carbon efficiency, particularly as the world makes a shift towards stronger environmental concerns about the origin of its energy resources. Hopefully, there will be a clearer understanding amongst consumers of the stark environmental difference between producing a barrel of heavy crude oil from the Canadian tar-sands versus that of Rabi Light in Gabon. That public perception will also mark the work of international oil companies (IOCs), now 'energy companies', that will transition to having a combined portfolio of renewables and hydrocarbon investments while focusing on the most sustainable and least polluting methods of extracting those resources. That will be the definition of the energy transition we prefer, and Africa will be the sand-box where a climate-resistant energy infrastructure will be designed.

In his article, Barkindo added that: 'From the regional perspective, there is a contrasting picture between the two major regions – declining OECD demand and expanding demand in the non-OECD. Driven by an expanding middle class, high population growth rates and stronger economic growth potential, oil demand in the non-OECD is expected to increase by 21.4mn b/d between 2018 and 2040.'

This demand, particularly in Africa, will come from higher standards of living, widespread access to power, industrial development, etc. While much of it can, by then, be powered by renewable sources of power, the funds to finance this transition will have to come from exploring the continent's natural resources to build strong economies, and that means extracting oil and gas.

The IEA's *Africa Energy Outlook 2019* makes this very clear when it concludes that: 'Drawing on rich natural resources and advances in technology, the continent could by 2040 meet the energy demands of an economy four times larger than today's, with only 50% more energy.' Fatih Birol, Executive Director, IEA, stated at the report's launch: 'Africa has a unique opportunity to pursue a much less carbon-intensive development path than many other parts of the world... To achieve this, it has to take advantage of the huge potential that solar, wind, hydropower, natural gas and energy efficiency offer.' The need to make use of a combination of sources and, at this initial stage, particularly of natural gas, seems evident as the continent has been home to 40% of global gas discoveries this past decade.

So, the way forward is one of using the economic wealth of Africa's hydrocarbon resources to fund a more efficient and cleaner power generation network that uses both renewable and fossil fuels to support electrification, industrial and social-economic development. ●

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