Advisory Outlook

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The Bottom-up Refining Revolution (2 of 4)

Olumide Adeosun

As Nigeria grapples with current economic realities, the market dynamics for refined products reinforces the country's potential to become West Africa's refining hub. The inherent opportunity for Nigeria's erstwhile dormant refining sector holds bright prospects for the future and a recognition of key drivers will accelerate the imminent refining revolution.

Ayodele Oluleye

The first article in this series provided an analysis of the current state of the refining sector and highlighted the existing gaps in the supply of refined petroleum products within Nigeria and the West African region.

This installment highlights three scenarios which depict possible outcomes in the refining sector up until 2030. The scenarios are based on our thesis that Nigeria can and should become a net exporter of refined products by start of the next decade.

Taking the Leap

Nigeria's refining sector is currently not operating at full potential and laudable attempts are being made by the current administration to drive private investment. These include plans to upgrade existing refineries and the issuance of 25 refining licenses (conventional and modular) to indigenous companies. These initiatives, if executed rigorously, will drive growth and reforms within the sector in the medium to long term.

The combined capacity of the 25 candidate refineries stands at approximately 1.6 million bpd. Three (3) of the licensed companies are billed to construct conventional stick-build plants with capacity estimated at over 850,000 bpd, while 22 licenses are to construct modular units estimated at about 700,000 bpd in combined capacity.

Scenarios and Our Projections

We have run our thesis, (Nigeria will become a net exporter of refined products by start of the next decade) through a number of scenarios which depict possible outcomes in the refining sector up until 2030. The scenarios are based on some forward assumptions about refining in Nigeria and the West Africa region. Our outlook illustrates the potential of the sector with focus on the volumes that modular refineries can contribute to bridging the supply gap in the country and regionally. These are presented in three different scenarios.

In our scenarios, key assumptions are made across refinery setups: modular and conventional. Modular refineries are assumed to be setup close to crude sources either within existing refineries or on onshore marginal fields. They are also assumed to be setup close to consumption clusters thereby making them better positioned for domestic supply. On the other hand, conventional refineries are assumed to be setup to source for crude internationally and to supply both international and domestic markets.

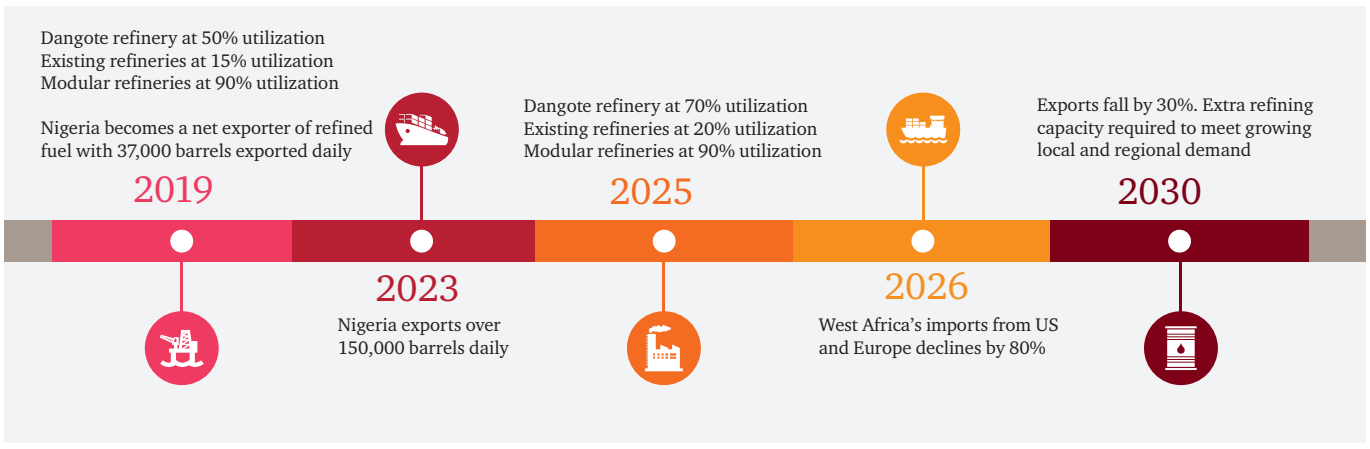
The 650,000 bpd Dangote refinery, a crucial development within the sector, is expected to come onstream by 2019. At optimal utilization, the refinery is capable of meeting the country's demand, however a major headwind to achieving a fully optimized run, is availability of crude feedstock. At full capacity, the refinery will require about 19 (1 million barrel) cargoes of crude monthly, approximately half of Algeria's (third largest producer in Africa) production. For the initial years of operation, this may be a significant challenge. Therefore, the current supply gap within the country and region creates an opportunity not just for conventional refineries such as the Dangote refinery but also for modular refineries which will be setup primarily to meet domestic demand. This provides the "bottom-up" supply into the fuels value chain. Another critical assumption is that the modular refineries yield will be limited to fuel oils and diesel as the lightest hydrocarbon produced.

Scenario 1- Downside

Our Assumptions: Dangote refinery (650,000 bpd) opens its gates mid-2019, operating at 50% utilization, existing refineries (445,000 bpd) are operating at 15% utilization and modular refineries (combined capacity of 100,000 bpd) also come on stream early 2019, operating at 90% utilization. These ramp up to 70%, 20% and 90% respectively by 2030.

Net effect: By 2019, Nigeria becomes Africa's 3rd largest refiner of petroleum products and a net exporter of refined petroleum products. Its exports are estimated to exceed 37,000 bpd (approximately 6 million litres daily). The modular refineries bridge a supply gap of 53,000 bpd (approximately 8.5 million litres daily) in Nigeria.

Nigeria becomes West Africa's refining hub by 2019, supplying the region with at least 37,000 bpd (approximately 6 million litres daily). By 2026, Nigeria's exports to the region exceed 130,000 bpd (approximately 21 million litres daily), reducing the region's imports from US and Europe by approximately 80%.

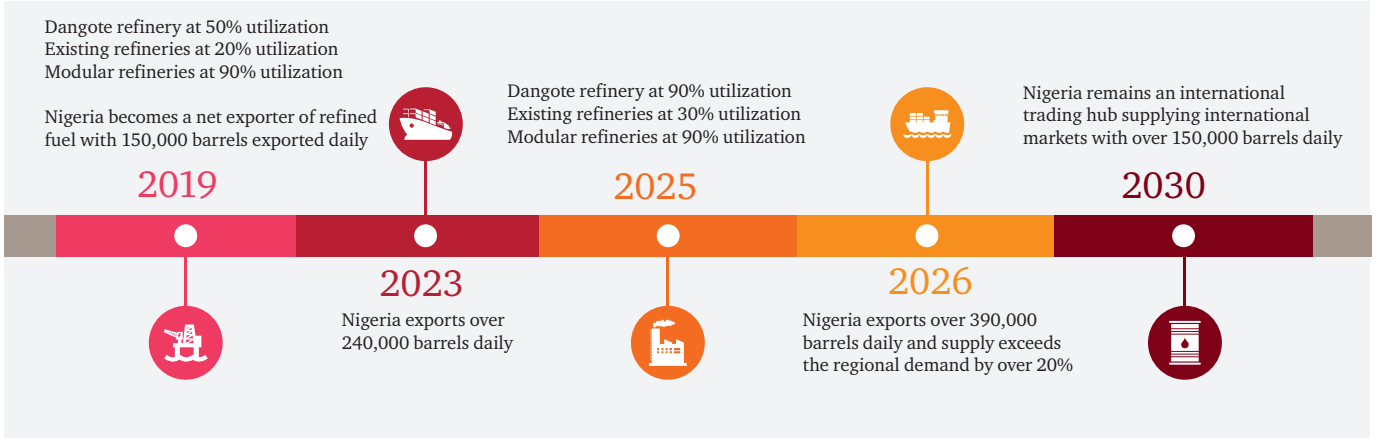


Scenario 2 - Base case

Our Assumptions: Dangote refinery (650,000 bpd) opens its gates mid-2019, operating at 50% utilization, existing refineries (445,000 bpd) are operating at 20% utilization and modular refineries (combined capacity of 200,000 bpd) also come on stream early 2019, operating at 90% utilization. These ramp up to 90%, 20% and 90% respectively by 2030.

Net effect: With production figures exceeding 590,000 bpd (approximately 94 million litres daily), Nigeria becomes the largest producer of refined products by 2019. Its exports are estimated to exceed 150,000 bpd (approximately 24 million litres daily) by 2019. The modular refineries bridge a supply gap of 30,000 bpd (approximately 5 million litres daily) in Nigeria.

By 2023, West Africa becomes self-sufficient with over 70,000 bpd (approximately 11 million litres daily) being traded to other regions.

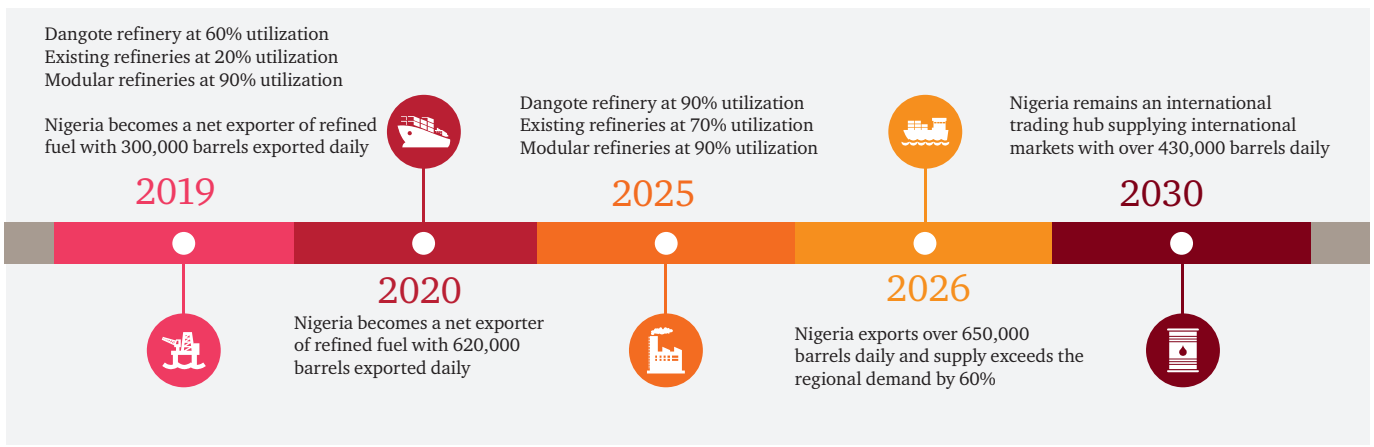


Scenario 3 - Upside

Our Assumptions: Dangote refinery (650,000 bpd) opens its gates mid-2019, operating at 60% utilization, existing refineries (445,000 bpd) are operating at 20% utilization and modular refineries (combined capacity of 300,000 bpd) also come on stream early 2019, operating at 90% utilization. These ramp up to 90%, 70% and 90% respectively by 2030

Net effect: By the turn of the decade, Nigeria assumes the status of the largest producer of refined petroleum products in Africa. Its exports exceed 300,000 bpd (approximately 48 million litres daily) by 2019.

In the same year (2019), West Africa becomes self-sufficient, eliminating the need to source for refined products from US and Europe. Nigeria becomes an international trading hub similar to Asia Pacific, North West Europe and US Gulf Coast (USGC).



Based on the scenarios played out above, the opportunity for modular refineries is quite clear even using the conservative downside scenario. For the upside scenario, the impact of the modular refineries both locally and internationally is evident.

In the next article in this series, we will set out the event triggers for the strategic leaps necessary to catalyze the refining revolution.

About the authors

Olumide Adeosun is an Associate Director & Head, Capital Projects and Infrastructure Advisory practice at PwC Nigeria. His industry experience is from over 10 years in a variety of finance & commercial roles with oil and gas supermajor, BP.
He can be reached at *olumide.adeosun@pwc.com*

Ayodele is a consultant with PwC Nigeria's advisory practice.
He can be reached at *ayodele.oluleye@pwc.com*

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