

THE MULTIPLE DIMENSIONS OF ENERGY SECURITY IN A CHANGING WORLD

Insights for Libya and Nigeria

Global Energy Intelligence Report

August 2026

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Preface

About this Summary Report

The analysis extends the work presented by CIRUU Energy's CEO titled, ***'The Energy Transition–Energy Security Nexus, Advancing the Analysis on Libya's Energy Security Reality: Performing While Reforming'*** to the **SPE Libya Section** at its July **Webinar 2: "Energy Balance," of the Energy Jeel Initiative 2026**. That session concerned Libya's energy balance and the conditions under which a hydrocarbon-rich state converts endowment into security. This report carries the argument forward and widens it to include Nigeria.

This is not a comparative study. We do not benchmark Libya against Nigeria, rank them, or score them on a common index. Doing so would be an analytical error. They are different states with different constitutional orders, resource geometries, security environments and working theories of what an energy sector is for. Libya is a fractured state with Africa's largest oil reserves, a functioning export machine and a failing domestic system. Nigeria is a federal democracy of some 230 million people whose upstream has recovered while its electricity system has not.

What they share is one analytical problem, and interrogating it is why this report exists: each is a producer state trying to run an energy security doctrine written by and for hydrocarbon-importing states. We therefore read each country separately against the same fourteen-dimension frame and issue two separate recommendation packages, with no attempt to harmonise them.

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1 Executive Summary

1.1 Our Hypothesis

The 2026 Hormuz shock handed Libya and Nigeria the strongest pricing position either has held in a generation. It lasted 110 days. Neither converted it, and the binding constraint is institutional, not geological. That is the whole report. What follows is either the evidence for it or the instructions for escaping it. We would put the argument to a cabinet in one line: *you have just been paid a windfall, and you cannot show us what it bought.*

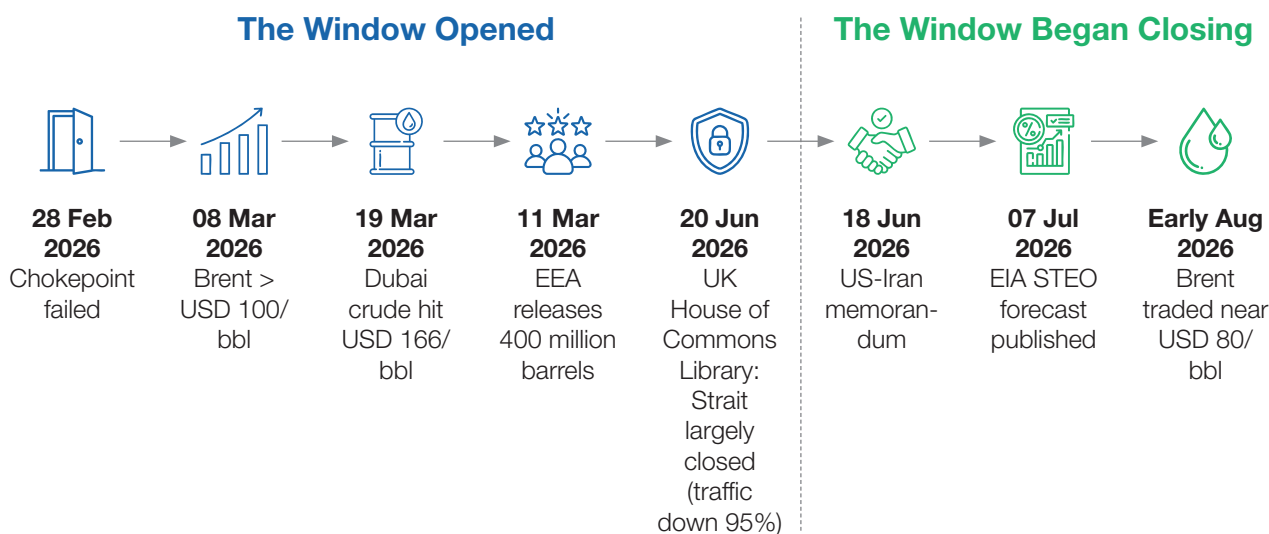


1.2 The Window Opened On 28 February and Began Closing On 18 June

Three events in five months reordered the energy security landscape. Both countries sat inside all three, and the first has already reversed.

The chokepoint failed, then reopened: From 28 February 2026, roughly 20 mb/d of crude and products and about a fifth of global LNG trade became unreliable. Brent passed USD 100/bbl on 8 March for the first time in four years and peaked at USD 126/bbl; Dubai crude hit a record USD 166/bbl on 19 March; European gas doubled inside a week and QatarEnergy declared force majeure. On 11 March all 32 IEA member states unanimously released 400 million barrels from emergency reserves, the largest collective action in the Agency's history and more than double both 2022 actions combined. On 20 June the UK House of Commons Library still assessed the Strait as largely closed, with crude carrier traffic down 95%.

Then it turned. Following the US and Iran memorandum of 18 June 2026, transits resumed. In its 7 July Short-Term Energy Outlook, the EIA put Brent at an average of USD 103/bbl in 2Q26 falling to USD 70/bbl by 4Q26, forecast USD 82/bbl for 2026 and USD 65/bbl for 2027, and expects a return to "the pre conflict state of oversupply" after 3Q26, with inventories building 2.7 mb/d in 4Q26 and 5.0 mb/d across 2027. Brent traded near USD 80/bbl in early August. A year earlier the IEA's Summit Background Paper had warned that chokepoint volumes "are expected to increase over the medium term, posing additional risks to oil and natural gas supply security." The warning was correct and it was not acted on.



OPEC fractured: The United Arab Emirates left on 1 May 2026 after fifty-nine years. Libya and Nigeria remain, and their relative weight has risen at precisely the moment the instrument's cohesion has fallen. That is an increase in nominal influence over a diminished asset.

Nigeria joined the IEA: On 2 July 2026 Nigeria became the fourteenth Association country, in what Dr Fatih Birol called "a milestone for global energy governance." This is the period's most consequential governance development for either country, and we treat it with more scepticism than celebration. Association status carries no 90-day stockholding obligation. Nigeria has joined the information architecture of collective energy security without joining its insurance mechanism. That gap is where the opportunity sits.

1.3 What the Windfall Bought

We ran the arithmetic that neither government has published, and the result is the sharpest finding in this report.

Take the EIA's own numbers. Brent averaged USD 103/bbl in 2Q26 against the Agency's USD 65/bbl forecast for 2027, a premium of USD 38/bbl. Applied to Libya at 1.4 mb/d over the 91 days of the quarter, that is roughly 127 million barrels and about USD 4.8 billion of gross revenue above a normalised price. Applied to Nigeria at 1.56 mb/d of crude, roughly 142 million barrels and about USD 5.4 billion. Call it USD 10 billion between them in a single quarter, on conservative assumptions and before condensate.

The question we would put to either government is not how that money was spent. It is what capability it bought.

Libya's answer arrived on 19 July: a 1,350 MW system collapse from Misrata to the Egyptian border that also took out the eastern Man-Made River and therefore the water supply. Nigeria's answer, in the same quarter, was a NGN 358.32 billion electricity subsidy and 87.2 million people still without power. A windfall that leaves the domestic system weaker than it found it is not a windfall. It is a transfer with no asset on the other side.

Brent Oil Price



Averaged in 2Q26

USD 103/bbl

EIA 2027 Forecast

USD 65/bbl

Premium of

USD 38/bbl

Libya



1.4 mb/d

Over 91 days of the quarter



≈ 127

Million Barrels



≈ USD 4.8

Billion
of gross revenue above a normalised price

Libya's Answer



Arrived on **19 July:**

A 1,350 MW System Collapse

From Misrata to the Egyptian border that also took out the eastern Man-Made River and therefore the water supply

Nigeria



1.56 mb/d

of crude over 91 days of the quarter



≈ 142

Million Barrels



≈ USD 5.4

Billion
of gross revenue above a normalised price

Nigeria's Answer



NGN 358.32 Billion

Electricity Subsidy



87.2 Million People

Still Without Power

1.4 The Asymmetry that Breaks the Borrowed Framework

DNV's *Energy Transition Outlook 2025* ran the world twice, once with energy security policy and once without. That counterfactual is the analytical spine of this report. Energy security policy lowers global energy related CO₂ by 0.9% in 2040, but asymmetrically: Europe –3.2%, the Indian Subcontinent –2.9%, Greater China –2.0%, against North America +0.9%, MENA +1.1% and sub-Saharan Africa +0.3%.

Read plainly: Energy security decarbonises importers and carbonises producers. When a European minister says, “energy security,” the operative content is build renewables, electrify, cut import exposure. When a Libyan or Nigerian official repeats the phrase, the operative content under DNV's own modelling is produce more hydrocarbons. The vocabulary is shared. The physics of the response is opposite. IEA investment data confirms the mechanism: roughly 70% of the five-year increase in global transition spending came from net fossil fuel importers. The transition as currently financed is an importers' security programme. Producers are not driving it, are not being paid for it, and are exposed to it.



Energy Security Policy Lowers
Global Energy Related Co2 By

0.9%

In 2040

But Asymmetrically:

Decarbonises Importers



Europe

-3.2%



Indian
Subcontinent

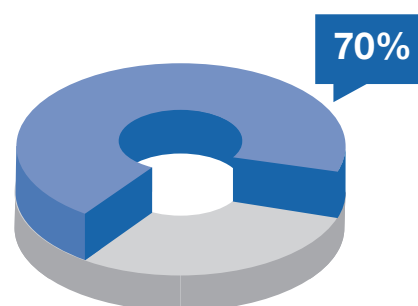
-2.9%



Greater China

-2.0%

IEA Investment Data Confirms The Mechanism:



of the five-year increase in
global transition spending came
from net fossil fuel importers.

Decarbonises Importers



North
America

+0.9%



Mena

+1.1%



Sub-Saharan
Africa

+0.3%

1.5 Where the Two Countries Actually Stand

Libya's upstream recovered and its power system collapsed in the same month. Crude reached 1.4 mb/d on 21 June 2026, some 1.449 mb/d with condensate and a thirteen year high, with NOC expecting 1.5 mb/d before year end. The first licensing round in some eighteen years closed in June with production sharing agreements signed by Repsol, Eni, QatarEnergy, TPAO and MOL. In the same window Libya has run five to seven hours of daily load shedding since June, with roughly 1,000 MW lost to gas and heavy fuel shortages, a further 700 MW lost at Zawia after armed clashes, and the 19 July collapse. GECOL expects to return some 600 MW after maintenance, which closes part of the gap and none of the governance problem.

The governance fact is sharper than the engineering one. GECOL's Director-General notified the Prime Minister in writing on 4 June 2026 and formally requested a temporary halt to gas exports to Italy so that domestic supply could be prioritised. The request was ignored. On 18 July, after the blackout, the Prime Minister publicly called for "serious charges against GECOL and FDCC heads." The state chose export commitments over domestic supply, in writing, with the operator's warning on file, and then blamed the operator. This is not a capacity failure. It is an accountability failure, and it is the single most important Libyan finding in this report.

Nigeria's upstream recovered and its electricity system did not. June 2026 production reached 1,735,398 b/d of total liquids, 104% of the OPEC quota, with crude at 1.56 mb/d and a 74-month high. Oil theft is down roughly 91% from the 2021 record of 37.6 million barrels. Against that: 87.2

million Nigerians lack electricity, the largest absolute access deficit on earth for a fourth consecutive year; average available generation in Q1 2026 was 4,457.96 MW, down 17.45% quarter on quarter against some 13,625 MW licensed; the quarterly subsidy was NGN 358.32 billion, 51.95% of the GenCo invoice; and the grid suffered a total collapse on 23 January and a partial collapse on 27 January. Tripling tariffs for the Band A cohort, households taking about 40% of national electricity, has not closed the gap.

Two cautions attach to the recovery, and both are commercial rather than moral. First, the theft reduction rests on militarised enforcement and NGN 267.98 billion of NNPC pipeline security spending over sixteen months, about NGN 16 billion a month, rather than on institutional legitimacy in the Niger Delta, where the PIA's 3% host community trust remains far below the 10% communities demanded. Resilience has been purchased, not built, and purchased resilience is fiscally and politically reversible. Second, the price signal is not converting reliably into supply. Between January 2025 and January 2026 Nigeria underproduced its 1.5 mb/d quota by 18.12 million barrels, worth about USD 1.31 billion or NGN 1.76 trillion at an average Bonny Light price of USD 72.08/bbl, and production fell 10.6% in February 2026 with prices above USD 100/bbl. A system that cannot lift more when it is paid more is constrained by something other than incentive. Nor did the Dangote refinery, at 650,000 b/d nameplate, deliver price security: domestic petrol prices rose 47% during the Hormuz spike, because pricing remains import parity linked. Refining capacity is not, by itself, energy security.

Libya's Upstream Recovered



1.4 mb/d on 21 June 2026
1.449 mb/d With Condensate



Thirteen Year High



NOC Expecting 1.5 mb/d Before
Year End



First Licensing Round In - 18 Years
Closed



PSAs Signed By Repsol, Eni,
QatarEnergy, TPAO and MOL

Nigeria's Upstream Recovered



1.735 mb/d Total Liquids in June
2026



1.56 mb/d Crude — 74-Month High



Oil Theft Down 91% Since 2021



87.2 Million Nigerians Lack Electricity



4,458 MW Available vs 13,625 MW
Licensed

1.6 The Prize, And the Clock

The IEA forecasts 10.5 GW of Nigerian solar PV additions to 2030, the second largest in sub-Saharan Africa, of which 5.5 GW is distributed, and attributes this to “fossil fuel subsidy phase-outs and continuous blackouts.” Nigeria’s transition is being driven by energy insecurity, not by climate policy, a live instance of Breetz, Mildenerberger and Stokes (2018): transitions advance where they solve a politically salient problem, not where they are morally correct. Nigeria’s task is to get in front of a transition already happening without it, and to do so before the Pakistan dynamic the IEA flags as a “forewarning” becomes Nigeria’s, in which cheap imported solar erodes the ratepayer base and leaves low-income households carrying fixed network charges.

For Libya, IRENA models movement from a marginal net electricity position in 2018 to +4.33 to +5.77 TWh of net exports by 2040, with Tunisia and Egypt importing Libyan power. That is a prize of a different order from gas: it converts irradiance into a durable, non-depleting, Europe facing revenue line. Against it: committed Libyan power investment for 2021–2025 of USD 0.3 billion against Egypt’s USD 36 billion and Algeria’s USD 23 billion, roughly

0.8% of the regional total; a solar share of installed capacity below 0.1%, the lowest in North Africa, with zero wind; and the fact that Libya has signed but not ratified the Paris Agreement and has submitted no NDC, the only North African state in that position, which forecloses NDC linked climate finance and removes any CBAM defence.

Three clocks are running at once: DNV puts global oil into plateau and visible decline after 2032, halving by 2060, with transport oil demand peaking at 53 mb/d in 2029. Gas plateaus to 2040, then falls to 3,800 bcm by 2060, a quarter below today, with only sub-Saharan Africa and the Indian Subcontinent growing continuously, and both remaining small. The durable growth market for Nigerian gas is domestic and regional, not European. Meanwhile 2026 to 2028 brings some of the largest annual LNG capacity expansions ever recorded, and the IEA puts the peak of the solar, wind and battery cost decline curves at 2030. The UN Special Representative told the Security Council on 18 June that Libya “now has a clearer set of political options with a narrowing window in which to act.” That applies to the energy file exactly as it applies to the political one.



10.5 GW

Nigerian solar PV additions to 2030 (EA forecast)



5.5 GW

Of which distributed
Second largest in sub-Saharan Africa)



Driver

“Fossil fuel subsidy phase-outs and continuous blackouts”



Clock

Get in front of the transition before Pakistan dynamic hits

1.7 The Single Test

Both countries will be judged over the next thirty-six months on one question, and it is not a question about barrels.

Can a producer state make and keep a published allocation rule, between export and domestic use, between rent and reinvestment, between today’s revenue and tomorrow’s capability, and be held to it by an institution that outlasts the individuals who signed it?

Libya answered on 4 June 2026 and answered poorly. Nigeria has answered partially, through the PIA and the Electricity Act, and has not yet answered durably.

2 The Changing World

2.1 The Emergency Was an Audit, And Both Countries Failed It

The Hormuz closure was not primarily a supply event. It was a test of institutional membership, and it returned an unambiguous result. States that had built collective insurance drew on it. States that had not, did not.

The 400-million-barrel release of 11 March was available to 32 members because those members hold a 90-day net import stockholding obligation and a standing procedure that converts a crisis into coordinated action within days. Neither Libya nor Nigeria could participate, and neither could have. Libya holds no meaningful strategic product reserve while importing refined fuels.

Nigeria's first physical demonstration of the gap was a 47% petrol price rise despite hosting the largest refinery built in Africa in a generation.

The lesson is precise and uncomfortable: a producer with no product stock and no price stabilisation rule is more exposed to a price spike than an importer with both. Producers experience a shock as a fiscal windfall and an affordability crisis at the same time, and the second arrives faster than the first can be spent. Nigeria's Q1 experience is the clean demonstration. Libya's July fuel shortage is the same mechanism in a weaker state.



2.2 The Institutional Re-ordering

Three membership facts now define the governance position of both countries.

01

Nigeria's IEA Association is real and incomplete:

It confers data participation, policy review, technical programmes and standing in the Agency's analytical work. It does not confer the 90-day stockholding obligation, and therefore not the collective action entitlement that obligation purchases. The distinction is not ceremonial: it is the difference between holding insurance and reading the actuarial tables. Nigeria's highest leverage governance act is to close that gap voluntarily, which we develop at recommendation N1.

02

OPEC's authority is falling while both countries' share of it rises:

The UAE's exit removes a large, disciplined, low-cost producer and a meaningful share of the organisation's spare capacity. What remains carries more Libyan and Nigerian weight and less collective ability to defend a price. Neither should treat elevated standing inside OPEC as a substitute for capabilities it does not have.

03

The African institutional layer is thickening and should be read for what it is:

The Africa Energy Bank began operations in Abuja on 1 July 2026 with about USD 5 billion of initial capital against a stated USD 10 billion phase one programme for oil and gas, funded through the Africa Energy Investment Corporation with Nigeria, Angola and Ghana among the first contributors, and a target of some USD 15 billion of assets by 2030. Reported capital figures vary, and we record the range rather than reconcile it. Our reading is commercial. Five billion dollars does not close an investment gap measured in tens of billions a year. Its value is precedent, not balance sheet: the first continental vehicle designed to underwrite energy assets Western development finance has withdrawn from, in a continent holding around 20% of world population, receiving about 2% of global clean energy investment, and importing over 60% of the refined product it consumes.



2.3 Why Importers' Doctrine Does Not Transfer

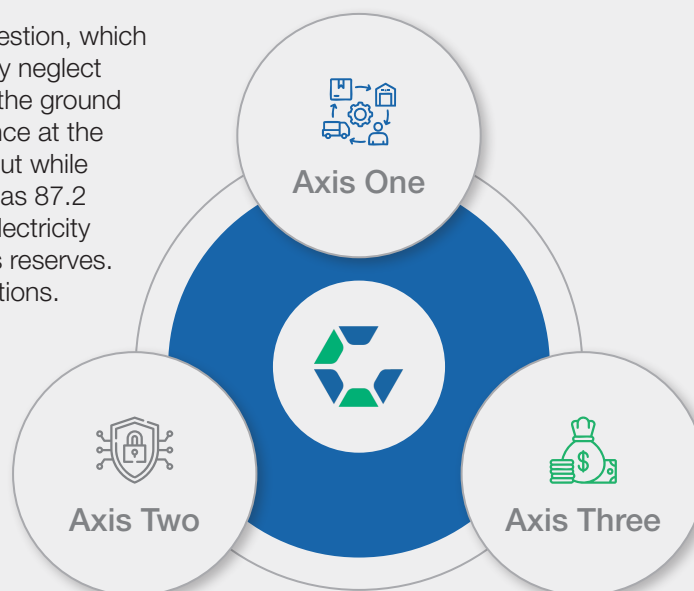
The IEA's working definition, energy security as "the uninterrupted availability of energy sources at an affordable price," was written for importers, in 1974, in response to a supply interruption imposed by exporters. Every word of it faces the receiving end of a barrel. The **APERC four A's** extend it usefully and preserve the orientation; the **WEC Energy Trilemma** adds equity and environmental sustainability; Cherp and Jewell make the decisive move, that the concept is incoherent until three questions are answered explicitly: security *of what, for whom, and for which values*.

For producer states the frame needs one more step, and it is not rhetorical.

Three axes must be read at once.

Security of Domestic Supply

The classic importer question, which producers systematically neglect because abundance in the ground is mistaken for abundance at the socket. Libya blacked out while exporting gas. Nigeria has 87.2 million people without electricity atop Africa's largest gas reserves. Same error, two jurisdictions.



Security of Demand

The producer's own question, and the fifth A that importer doctrine has no reason to name. It covers the durability of export markets, the terms on which they will accept the product, and the regulatory conditions attached to entry. CBAM, EU methane import rules, the LNG supply wave and DNV's post 2032 oil plateau are all demand security phenomena, and none is visible in a framework built around availability at an affordable price.

Security of the Transmission from Revenue to Capability

Whether resource income converts into a state that can plan, regulate and deliver, or into rent that erodes the capacity to do any of those things. This is the axis on which Karl's Paradox of Plenty operates and on which the comparative institutional literature has most to say, from Luong and Weinthal to Al-Kasim on Norway's unambiguous separation of directorate, ministry and operating company. It is the axis on which both countries' energy security will be decided, and it is entirely absent from the Summit's framework.



2.4 The Money Has Already Moved



It is a verdict on the absence of any instrument an investor can underwrite: no bankable PPA template, no independent offtaker credit, no dispute mechanism, no currency arrangement. Libya is not short of capital. It is short of contracts.



Every institutional recommendation in this report is, read financially, a cost of capital intervention, and that is a stronger case for governance reform than the moral one.

Global energy investment runs at approximately USD 3.3 trillion a year, of which some USD 2.2 trillion is clean energy, roughly twice fossil fuel investment. Grids and storage take about USD 400 billion annually, and the IEA identifies transformer and cable supply chains, not capital, as the binding constraint. Against that, African energy investment in 2025 was about a third lower in real terms than in 2015.

Two consequences follow directly.

Capital is abundant and bankability is scarce:

Libya's USD 0.3 billion across 2021–2025 is not a verdict on Libyan solar resource, which is among the best in the Mediterranean basin. It is a verdict on the absence of any instrument an investor can underwrite: no bankable PPA template, no independent offtaker credit, no dispute mechanism, no currency arrangement. Libya is not short of capital. It is short of contracts.

Cost of capital is the transition variable that matters most:

EMDE cost of capital runs two to three times developed economy levels, so the same solar plant, with the same modules and the same irradiance, produces electricity at materially different cost depending only on the jurisdiction's risk premium. For a capital intensive, zero fuel cost technology, financing cost is generation cost. Every institutional recommendation in this report is, read financially, a cost of capital intervention, and that is a stronger case for governance reform than the moral one.

3 The Fourteen Dimensions At A Glance

The parent report reads each dimension separately for each country. The table records the operative finding in each case. It is not a scorecard, and the two columns are not comparable. Each column is one country read against one dimension.



#	Dimension	Libya: Operative Finding	Nigeria: Operative Finding
1	Holistic approach to energy security	Energy policy is an export policy with a domestic afterthought; no institution owns the whole balance	Architecture exists (PIA, Electricity Act) but ownership of cross cutting risks is unassigned
2	Oil and gas security in a just and fair transition	Production is the part that works; the binding issue is unpriced, unannounced gas reallocation	Upstream recovery is purchased monthly; the gas plan is export weighted against a domestic growth market
3	Energy and economic security	Subsidies near 20% of GDP; 80% of production exported; rising energy intensity without electrification	Petroleum funds over 55% of revenue and about 85% of exports; subsidy reform started, not completed
4	Technology and innovation potential	Innovation capacity concentrated in NOC; no national programme outside hydrocarbons	Real innovation is occurring in distributed energy, ahead of and outside policy
5	Security in the age of electricity	Total system collapse, 1,350 MW, 19 July 2026; water supply lost with the grid	4,457.96 MW available against about 13,625 MW licensed; two collapses in January 2026
6	Securing clean energy supply chains	Price taker on technology; the acute exposure is transformers, spares and specialist labour	10.5 GW of solar to 2030 arriving as imports with no standards or certification regime
7	Natural disasters, extreme weather, climate change	Derna 2023 established that the failure mode is maintenance, not meteorology	Alau Dam 2024 established the same; no NDC linked adaptation finance for energy assets
8	Strengthening energy resilience	No defence plan, no black start standard, no strategic product stock	Resilience purchased through security spend rather than built into networks
9	Human capital	Deep technical cadre in NOC and GECOL; no transferable skills or diaspora channel	Large engineering base; the constraint is regulatory and system operator capability
10	Major current risks	Nine registered; all governance risks wearing engineering costumes	Nine registered; mostly second order consequences of correct reforms
11	Emerging threats	Cyber exposure undefined; counterparty and sponsor concentration rising	Ratepayer erosion, product supply concentration, regulatory fragmentation
12	Stakeholder perspectives and regional context	The Mediterranean electricity ring is the unclaimed regional position	ECOWAS and WAPP are the unclaimed regional position
13	Expanding the scope of energy security	The insecure commodities are electricity, water and products, not oil	The insecure commodity is electricity, unambiguously and by an enormous margin
14	Common principles: resilience, flexibility, diversification, co-operation	Diversify by product and destination, not by field	Co-operation must be domestic and federal before it is international

Read across all fourteen, four findings emerge that neither country's planning fully reflects.

The constraint is institutional, not geological, and it is diagnosable:

Libya is producing at a thirteen year high and cannot keep its lights on. Nigeria holds Africa's largest gas reserves and the world's largest electricity access deficit. Neither is a resource problem, a technology problem or, at the margin, a capital problem. Both are allocation problems: the failure to make, publish and keep a rule about who gets the energy, who gets the revenue, and who is accountable when the rule is broken.

01

Energy security means something different for a producer, and both are using a borrowed framework:

The Lancaster House architecture is the best available and it was written by and for importers. A framework that cannot express the DNV asymmetry gives the same advice to Oslo, Abuja and Tripoli, and is wrong in at least two of them.

02

The strongest demand side position in a generation was also the shortest, and it has already turned:

MENA gains ten per cent of global production share over the next five years; Libya has closed its first licensing round in eighteen years; Nigeria has met 104% of quota at a 74-month high and joined the IEA. And Brent has round tripped from USD 126 to near USD 80 inside five months, with the EIA forecasting USD 65 for 2027. The oil plateau arrives after 2032, the gas plateau at 2040, the technology cost inflection at 2030. The strategic error available to both is to mistake a cyclical strength for a structural one, and the 2026 price path has demonstrated the difference at the countries' own expense.

03

Almost everything that matters most is cheap:

Of the sixteen recommendations in section 6, exactly one, Nigeria's transmission and system operator programme, is primarily capital expenditure. The rest are acts of institutional design: an allocation rule, a defence plan, a certification regime, a published number, a settled percentage, a submitted document. That is the most encouraging finding in this report and the least comfortable, because it removes the explanation both countries most often reach for.

04

④ The Transition Triad: Critical Raw Materials, Energy Transition, Just Transition

Three questions are usually handled separately in producer state planning and should not be. Critical raw materials set what the transition costs. The transition sets how long the hydrocarbon window stays open. The justice question sets whether either is politically survivable. For Libya and Nigeria, they are one problem, and we treat them as one.



4.1 Critical raw materials: the dependency that replaces the one being escaped

The IEA's Global Critical Minerals Outlook 2026, published 16 July 2026, is the most consequential market intelligence available to either country's transition planning, and it runs against most African policy commentary.

Concentration is increasing, not decreasing:

The average market share of the top refining country rose to 72% in 2025 from 70% in 2023, and leading refiners took over three quarters of refined supply growth in the past two years. Manufacturing concentration is more extreme: roughly 85% to 98% of battery cell capacity, 80% to 95% of solar PV, 50% to 65% of wind. Some 75% of *planned* refined mineral projects sit in today's leading jurisdictions, so announced investment is reinforcing concentration rather than diluting it.

Export control is now a routine instrument of statecraft:

Chinese tariff codes under export control have tripled since 2023, and the 2025 controls on heavy rare earths were assessed by the IEA as putting USD 6.5 trillion of annual downstream production outside China at risk. Birol's framing is the one to carry into a boardroom: *"vast amounts of economic value depend on relatively small volumes of critical minerals, whose supply chains remain highly concentrated and are therefore vulnerable."*

Prices have re-rated and investment has fallen:

Between January 2025 and April 2026 lithium more than doubled, cobalt rose about 130% and tungsten rose sixfold. Yet critical minerals investment fell 9% in 2025, with battery metals down more than 20%, the largest decline in over a decade. A market where prices double while investment falls is pricing political risk, not geology. Advanced economy public finance commitments reached about USD 65 billion in 2025, four times the 2023 level.

Three consequences follow for Libya and Nigeria, and none is the one usually asserted:

The buy side consequence is immediate. Both are, and will remain this decade, price takers on clean energy technology. The IEA finding that learning rates are declining as industry prioritises security over least cost, with cost curves peaking around 2030, carries a hard planning implication: the cheapest solar either country will buy for some years may be the solar it buys in the next five. Planning that assumes indefinite deflation will over forecast affordability in the 2030s, which strengthens the case for moving quickly on grid scale procurement.

The sell side consequence requires discipline. Both have live minerals ambitions, and both are exposed to the failure mode their petroleum sectors know well, in which an announcement is scored as a project.

Libya's position has moved from rhetorical to institutional in the past year:

The National Mining Corporation engaged the United States Geological Survey across late 2025 and early 2026 on mapping Libya's mineral resources. The reported scope is advanced survey work in the Murzuq and Tibesti corridors, across rare earths, gold, phosphate, potash, manganese and iron ore, the last with an indicated 795 million to 1.6 billion tonnes at Wadi ash-Shati. This is exactly the low cost, asymmetric payoff option the parent report recommends, and Libya has begun to take it. The disciplined reading is that a geological survey is a credible national asset and a mineral endowment is not yet a mineral industry. The distance between them is measured in licensing law, title security, dispute resolution and a decade of drilling. Complete the survey, publish it, and award no concession before a public geological database exists.



3.3 Million Tonnes

of lithium within an estimated 94.8 million tonnes of total mineral resources in Kaduna State (June 2026).



6,000 Tonnes Per Day

West Africa's largest lithium processing plant inaugurated at Endo, Nasarawa State (6 July 2026).



Local Processing Mandate

Federal mandate requires local processing of minerals before export.

Nigeria is further advanced and correspondingly more exposed:

In June 2026 the Nigerian Geological Survey Agency verified a new polymetallic province in Kaduna State containing platinum group metals, gold, nickel, copper, lithium and rare earths, with approximately 3.3 million tonnes of lithium within an estimated 94.8 million tonnes of total mineral resources. On 6 July 2026 West Africa's largest lithium processing plant was inaugurated at Endo, Nasarawa State, at 6,000 tonnes of ore per day, under a federal mandate requiring local processing before export. Three observations we would make in the room rather than in an appendix.

First, the local processing mandate is the right instinct and the wrong instrument on its own:

Zimbabwe's raw export ban and the DRC's cobalt quota show that export restriction moves value only where the restricting state can supply capital, power and offtake at competitive terms. Nigeria's binding constraint on beneficiation is not policy will. It is firm, cheap, reliable electricity, the commodity section 3 records as its deepest deficit. A lithium refinery is an electricity intensive asset in a country averaging 4,458 MW of available generation. Nigeria's minerals strategy sits downstream of its electricity strategy, and no mandate reverses that ordering.

Second, title and licensing governance will decide whether this endowment generates revenue or litigation:

The 2026 revocation of five Basin Mining titles over NGN 2.494 billion of unpaid service fees,

and the disputed ownership claims attached to it, signals in both directions: it demonstrates enforcement capacity and exposes speculative licence accumulation and unresolved beneficial ownership. A credible public geological database and a transparent licensing regime must precede large concession awards, not follow them.

Third, the window to capture refining value is narrow and the competition is subsidised:

With 75% of planned refining projects in incumbent jurisdictions and USD 65 billion of advanced economy public finance deployed against diversification, a new entrant's realistic entry points are concentrate production, midstream processing, module and pack assembly, mounting structures and cabling. Not cell manufacture, not polysilicon, not electrolyzers. Nigeria's own NCDMB experience is the most relevant guidance available: local content works where it is sequenced against demonstrated capability, and it produces rent where percentages are mandated ahead of capability.

The third consequence is one neither country has priced. Libya's acute supply chain risk is not minerals at all. It is transformers, turbine spares and specialist labour. Losing some 700 MW at Zawia when armed clashes prompted an OEM engineering team to leave is a supply chain failure in the strictest sense: the input that failed was skilled foreign personnel, and no inventory policy substitutes for it. The mitigations are unglamorous: strategic spares inventory, arrangements enabling OEM personnel to remain on site, and a programme to transfer critical maintenance competence to Libyan engineers, so that a foreign team's departure becomes a disruption rather than a shutdown.

4.2 Energy Transition: What Each Country is Transitioning From, and To



The transition is not one process:

For an importer it substitutes domestic generation for imported fuel. For a producer it is two simultaneous and partly contradictory processes: the domestic transition, about electricity and access, and the export transition, about the terms on which the world will keep buying hydrocarbons. Conflating them is the most common analytical error in producer state planning, and both make it.



Libya's domestic transition has barely begun, and its export transition is being decided for it:

Solar is below 0.1% of installed capacity, the lowest in North Africa, with zero wind, against a National Strategy for Renewable Energies and Energy Efficiency 2023–2035 target of 4 GW by 2035. There is movement: REAoL completed implementation procedures for a 500 MW solar project at Sadada in July 2026, alongside hybrid solar programmes for public buildings. We would score that as a start and not yet as a project, because no tariff, cost, financial close or competitive tender has been disclosed. Meanwhile the export transition arrives through European regulation rather than Libyan choice: CBAM, EU methane import rules and a European gas demand entering structural decline. Libya's most valuable transition asset is the one it has not claimed, IRENA's projected +4.33 to +5.77 TWh of net electricity exports by 2040, requiring a repaired Tunisia to Libya interconnector and closure of the Mediterranean ring. Electricity export is the only Libyan revenue line that is non depleting, Europe facing and unaffected by the post 2032 oil plateau.



Nigeria's domestic transition is running ahead of its policy, and its export transition is under hedged:

The 10.5 GW of solar to 2030 is a market response to blackouts and subsidy removal, not a policy outcome. That is a strength, because it demonstrates real willingness to pay for reliability, and a governance emergency, because the customers leaving the grid first are the ones who pay for it. The export question is the one dimension 14 poses: who buys Nigerian gas in 2040? Nigeria's demand security and its access deficit are the same problem stated twice, and the domestic and regional market is not the consolation prize for failed export ambition. It is the only durable demand Nigeria has.



7–9 Years

Oil Demand Window



~15 Years

Gas Demand Window



10.5 GW

Solar Capacity By 2030



3% → 10%

Host Community Allocation Gap



87.2M

People Without Electricity

4.3 Just Transition: From Moral Claim to Commercial Instrument

In importing countries “just transition” mostly means protecting consumers and workers in coal and heavy industry. For Libya and Nigeria, it means something larger: whether states that contributed marginally to cumulative emissions, holding assets whose value is a function of other countries’ policy choices, can monetise those assets on a timetable that permits development. The claim is legitimate and should be made. It is also not a plan, and the danger for both is to mistake the moral argument for the commercial one.

The commercial argument is set by DNV’s demand trajectory, and it is unsentimental: a window roughly seven to nine years for oil and roughly fifteen for gas, low-cost producers gaining share within a shrinking total, and only domestic and regional demand growing throughout. A justice claim without a monetisation plan becomes a grievance. A monetisation plan without a justice claim becomes a domestic political crisis.

Four operational components follow, and neither country has legislated any of them.

Distributional justice inside the state: The 10.5 GW of solar to 2030 is a market response to blackouts and subsidy removal, not a policy outcome. That is a strength, because it demonstrates real willingness to pay for reliability, and a governance emergency, because the customers leaving the grid first are the ones who pay for it. The export question is the one dimension 14 poses: who buys Nigerian gas in 2040? Nigeria’s demand security and its access deficit are the same problem stated twice, and the domestic and regional market is not the consolation prize for failed export ambition. It is the only durable demand Nigeria has.

Community legitimacy as a commercial variable: The PIA’s Host Communities Development Trust provides 3% of actual operating expenditure against the 10% communities demanded. That gap is not a negotiating detail. It is the reason enforcement costs some NGN 16 billion a month. Assess the trust percentage and the security expenditure together as the total cost of maintaining production, and the case for revisiting the percentage becomes commercial rather than concessionary. We would run it as a business case, not as a concession.

Worker transition and decommissioning: The Summit’s oil and gas agenda names responsible decommissioning and worker redeployment as components of a just transition. Neither country has a legal framework for either. Both should be written into the next round of EPSA and PSC revisions rather than deferred, because retrofitting decommissioning obligations onto signed agreements is the lesson every mature province has learned expensively. For Libya, the technical cadre inside NOC and GECOL is a transferable skills asset with a decade of optionality, and it will not stay one if it is neither retrained nor retained.

Energy poverty as the binding constraint, not the aspiration: The 87.2 million figure is not a lagging indicator of a system in transition. It has been the world’s largest for four consecutive years, and it will not close in a market designed around customers who can pay. The test of a just transition is not whether emissions fall. It is whether the allocation rule, when it is finally published, gives something to the constituency that cannot pay for it.

5 Risk Registers

The parent report registers nine risks per country. The six highest priority entries follow. The registers are not comparable and are not intended to be read against one another.



5.1 Libya

Risk:

Domestic Supply Versus Export Allocation



Status:

GECOL warned the Prime Minister in writing on 4 June 2026 and requested a temporary halt to Italian gas exports; request ignored; 19 July blackout followed

Effective Action:

Statutory Domestic Supply Obligation with a published, auditable allocation rule and a defined override procedure

Grid Cascade Exposure



Status:

1,350 MW lost across the eastern system on 19 July 2026; no evidence of an effective defence plan; some 600 MW to return after maintenance

Effective Action:

Under frequency load shedding, islanding scheme, tested black start capability, published restoration standard

Armed Interference With Critical Assets



Status:

About 700 MW lost at Zawia after clashes; OEM engineering team departed; recurrent field and terminal shutdowns

Effective Action:

Critical asset protection agreements; arrangements enabling OEM personnel to remain; competence transfer to Libyan engineers

Export Corridor And Counterparty Concentration



Status:

Gas exports overwhelmingly to one buyer via one pipeline; Greenstream flows fell from 700 to 95 MMscfd against 775 MMscfd capacity; 80% of production exported in 2019

Effective Action:

Diversify by product and destination; electricity export via a repaired Tunisian interconnector is the fastest available diversification

Energy And Water Coupling



Status:

Eastern Man-Made River shut down with the grid on 19 July 2026

Effective Action:

Joint criticality assessment; back-up supply and priority restoration for water conveyance load

Capital Starvation And Climate Institutional Exclusion



Status:

Committed power investment 2021–2025 of USD 0.3 bn against Egypt's USD 36 bn; Paris signed but not ratified, no NDC submitted, the only North African state in that position

Effective Action:

Create one bankable, ring-fenced transaction and let it set the precedent; submit an NDC and ratify, as an infrastructure financing decision

Libya's binding risks are governance risks wearing engineering costumes. Risk 1 is an allocation decision. Risk 2 is a planning standard. Risk 6 is, in part, a diplomatic signature. None requires a unified government, an election or foreign finance to begin. Capital starvation is a consequence of the others rather than an independent variable. Libya is not short of capital because investors dislike Libyan geology. It is short of capital because there is no instrument an investor can underwrite.

5.2 Nigeria

Risk:

Delivered Electricity Capacity



Status:

Average available generation 4,457.96 MW in Q1 2026, down 17.45% on Q4 2025, against about 13,625 MW licensed; total collapse 23 January, partial collapse 27 January 2026

Effective Action:

Treat transmission adequacy, reactive power support and system operator capability as the priority capital programme, ahead of new generation

Utility Financial Condition



Status:

Q1 2026 subsidy NGN 358.32 bn, 51.95% of the GenCo invoice; the quarterly fall attributed to DisCos taking less power

Effective Action:

Sequence a credible cost-reflective pathway with targeted, metered subsidy; make DisCo performance and network investment enforceable conditions

Ratepayer Erosion



Status:

5.5 GW of distributed solar to 2030 catalysed by subsidy phase-out and blackouts; the best paying customers are leaving the grid first

Effective Action:

Regulate and price the distributed segment now, through network charges, standards and interconnection rules, before the residual base becomes uneconomic

Product Supply Concentration



Status:

Dangote at 650,000 b/d nameplate, 700,000 b/d on test; gasoline still partly imported and blended; domestic petrol prices rose 47% during the Hormuz spike

Effective Action:

Build a national strategic petroleum products reserve on the IEA 90-day template; publish stock levels

Host Community Legitimacy



Status:

PIA Trust set at 3% of operating expenditure against the 10% requested; NGN 267.98 bn of pipeline security spend over 16 months

Effective Action:

Reopen the settlement with a transparent, community verifiable mechanism; measure success in security spends avoided

Access Deficit And Demand Security Exposure



Status:

87.2 million people without electricity, the world's largest absolute gap for a fourth year; Decade of Gas targets 10 Bcf/d by 2027 into a global liquefaction expansion of about 250 bcm/yr

Effective Action:

Mini-grid and solar home system market rules; clean cooking as a distinct programme; re-aim marginal gas at domestic and regional demand

Two observations complete the register. The risk that has fallen most sharply is the one Nigeria most often discusses. Crude theft is down roughly 91% from the 2021 peak and output met 104% of quota in June. That is a genuine reversal, and it is purchased monthly. Set against it, 18.12 million barrels of quota underproduction between January 2025 and January 2026, worth about USD 1.31 billion, and a 10.6% production fall in February 2026 with prices above USD 100/bbl. A system that does not lift more when it is paid more is constrained by something other than incentive.

The risks growing fastest are the ones no institution owns: Ratepayer erosion sits between NERC, fourteen state regulators, the DisCos and the Rural Electrification Agency. Product supply concentration sits between NMDPRA, NNPC Ltd and a private refiner. Regulatory fragmentation is, by construction, nobody's exclusive responsibility. Nigeria's most urgent institutional act is not to create new bodies. It is to assign ownership of those three risks to named ones.

6 Recommendations

The two packages are separate and are not to be read against each other. Where a measure appears in both, it is because both countries independently need it, not because one is being held to the other's standard. The design constraint we applied throughout: the highest priority actions must be executable by institutions that already exist, under law that already exists, without waiting for a political settlement, an election, or foreign capital.



6.1 Libya: Eight Recommendations

Instrument and Measure of Success:

Ministerial instrument or NOC and GECOL protocol setting priority order between export and domestic gas, with a defined override procedure and published quarterly compliance.

Success: the choice put to the Prime Minister on 4 June 2026 is made transparently rather than silently

L1

Enact a statutory Domestic Supply Obligation with a published, auditable allocation rule

Instrument and Measure of

Success: Under frequency load shedding, islanding, tested black start, published restoration standard, strategic transformer and turbine spares.

Success: the summer 2027 and 2028 peaks pass without a system wide cascade

L2

Fund grid defence, control and spares before further capacity

Instrument and Measure of

Success: 614 MMscfd flared in 2024, roughly half of domestic consumption, burned while fuel is imported for power. NOC's 60% reduction target liberates some 370 MMscfd.

Success: flare volumes fall against the 2024 baseline with third party assured reporting

L3

Execute flare capture and national methane MRV as one programme

Instrument and Measure of Success:

REAoL completed implementation procedures for 500 MW at Sadada in July 2026 with no disclosed tariff, cost, tender or financial close. Benchmark to the roughly USD 24/ MWh achieved at Tunisia's Tataouine.

Success: awarded competitively, financed and constructed at a published tariff

L4

Convert Sadada into a competitively tendered, sovereign-backed PPA with a published tariff



Sequencing: Within 90 days, the domestic supply obligation (L1) and publication of revenue and product import data (L8), both administrative acts within existing authority. Within 12 months, the grid defence plan (L2), the MRV design (L3), the Sadada tender (L4), the NDC (L6) and the first training cohorts (L7). Within 36 to 48 months, flare capture, a constructed solar project and synchronous interconnection with Tunisia (L5). Everything up to twelve months requires no political settlement, no election and no external finance. Libyan energy security is not waiting on Libyan politics to the degree Libyan policy discourse assumes. It is waiting on decisions current institutions are already empowered to take.

Instrument and Measure of Success:

The weak node preventing closure of the Mediterranean ring; IRENA projects +4.33 to +5.77 TWh of Libyan net exports by 2040.

Success: a joint technical works programme agreed and financed

L5

Repair the Tunisia to Libya interconnector and claim the electricity export position

Instrument and Measure of Success:

Success: Unlocks NDC linked climate finance, provides a CBAM defence, establishes a national emissions baseline.

Success: NDC submitted

L6

Submit an NDC and ratify the Paris Agreement, as an infrastructure financing decision

Instrument and Measure of Success:

Competence transfer for critical maintenance; structured re-entry terms for Libyan engineers abroad.

Success: first cohorts trained and OEM dependence measurably reduced

L7

Build a transferable skills programme out of NOC and GECOL, and open a diaspora channel

Instrument and Measure of Success:

Single audited revenue account with published allocation; published product import volumes and prices.

Success: the numbers exist in public and are cited in budget debate

L8

Publish the revenue and product import numbers

6.2 Nigeria: Eight Recommendations

Instrument and Measure of Success:

Become the first Association country to hold itself to a Member grade obligation. Low cost, unambiguously verifiable, and it materially raises standing in the institution just joined.

Success: first tranche held and stock levels published

N1

Build a national strategic petroleum products reserve on the IEA 90-day template, and report against it voluntarily

Instrument and Measure of

Success: Mandatory standards, testing and certification with border enforcement; a distributed asset register; network charges and interconnection rules.

Success: certification regime operating and the residual ratepayer base stabilised

N2

Regularise the distributed solar wave before it erodes the grid it is escaping

Instrument and Measure of

Success: Assess the 3% trust and the NGN 16 bn monthly security spend as a single cost of maintaining production.

Success: monthly pipeline security expenditure falls following settlement

N3

Reopen and settle the host community question, and measure success in security spend avoided

Instrument and Measure of Success:

Test every incremental Bcf/d against domestic industrial, West African regional and gas-to-power demand before LNG export, with the burden of proof on the export case.

Success: marginal gas allocation shifts measurably

N4

Re-aim the Decade of Gas at domestic and regional demand



Sequencing: Within 12 months, the standards and certification regime and distributed asset register (N2), the shared regulatory facility and national cyber standard (N5), the revised gas investment hierarchy (N4), the design of the products reserve (N1) and the IEA work programme (N7). Within 24 months, the first reserve tranche, the host community settlement (N3) and the NEITI and frontier allocation reviews (N8). Over 36 to 60 months, the transmission and system operator programme (N6). Nigeria's cheapest wins are regulatory, and its most expensive necessity is the network. Every recommendation except N6 is an act of institutional design rather than capital expenditure, which is the same finding, arrived at independently, as the Libyan package.

Instrument and Measure of

Success: Common methodologies, joint training and published benchmarking across the fourteen plus state regulators on one synchronous grid. **Success:** facility operating and standard in force

N5

Create a shared national regulatory capability facility for the states, and settle a mandatory national grid cyber standard

Instrument and Measure of

Success: The one recommendation that is primarily capital expenditure, and the least avoidable.

Success: total system collapses reach zero over a rolling twelve months

N6

Make transmission, reactive power and system operator capability the priority capital programme, ahead of new generation

Instrument and Measure of

Success: Named work programmes on emergency response, methane MRV, electricity security and the Voluntary Critical Minerals Security Programme.

Success: programmes agreed and staffed

N7

Convert IEA Association from status into operational programmes within twenty-four months

Instrument and Measure of Success:

Address the 30% of NNPC Ltd profits earmarked for frontier exploration and withheld from the Federation Account, and NEITI's contested governance.

Success: reviews completed and published

N8

Repair the revenue to capability transmission: NEITI, the frontier levy and the Federation Account



⑦ Indicators And The Single Test



7.1 Twelve Indicators: 2026 to 2029

Each of the following is observable from published sources, within the period, by anyone. That is deliberate. A recommendation that cannot be checked by the people it is made for is advocacy, not analysis.

For Libya: Whether gas allocation between Greenstream and domestic generation is governed by a published rule by the summer 2027 peak. Whether the 2027 and 2028 peaks pass without a system wide cascade. Whether Sadada or another solar project is competitively awarded, financed and constructed at a published tariff. Whether flare volumes fall against the 2024 baseline of some 614 MMscfd with third party assured methane reporting. Whether an NDC is submitted. Whether a joint technical works programme with Tunisia on the interconnector is agreed and financed.

For Nigeria: Whether a strategic products reserve moves from design to first tranche and whether Nigeria reports against it voluntarily. Whether total system collapses reach zero over a rolling twelve months. Whether the electricity subsidy share of the GenCo invoice falls for reasons other than DisCos taking less power. Whether monthly pipeline security expenditure falls following a host community settlement. Whether marginal gas allocation shifts measurably toward domestic and regional demand. Whether the number of people without electricity falls below 87.2 million at the next SDG7 measurement.

7.2 Conclusion

This analysis began as an expansion of a presentation on **energy balance and Libya's energy security** to the **SPE Libya Section**, Webinar 2 of the **Energy Jeel Initiative 2026**. A transition is on the right track only when the state can say, in public and in advance, what it will do with the next molecule. The audience for that webinar, students, young professionals and academics in Libya and their counterparts across Nigeria, is not the recipient of this analysis. It is the mechanism. Every institutional recommendation in section 6 will be executed, if at all, by people today in their twenties and thirties in Tripoli, Benghazi, Lagos, Port Harcourt and Abuja. The technical questions are difficult and tractable. The institutional questions are harder, and they are generational.

Both countries are obliged to **perform while reforming**: to run the hydrocarbon business that pays for everything while building the system that will outlast it. Neither can wait for a settled politics to begin.

CIRUU's closing observation is the one the 2026 price path made for us. **The window opened on 28 February and began closing on 18 June. It was worth roughly USD 10 billion to the two countries in a single quarter, and it left a 1,350 MW blackout and an NGN 358.32 billion subsidy bill behind it.** The next window will be shorter. The institutions that would let either country convert it can be built now, cheaply, by people already in post.

The test, restated once: can a producer state make and keep a published allocation rule, between export and domestic use, between rent and reinvestment, between today's revenue and tomorrow's capability, and be held to it by an institution that outlasts the individuals who signed it? Libya answered on 4 June 2026 and answered poorly. Nigeria has answered partially, and not yet durably. Both questions remain open, and both remain theirs to answer.

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