



FUPRE-ENERGY  
BUSINESS SCHOOL

# EBS

## Spotlight

January 2026 Edition



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# Cover Story

## EBS Spotlight



### Energy Management in a Decarbonisation-Driven Energy Transition Era: The Role of FUPRE Energy Business School

The global energy sector is undergoing an unprecedented transformation. Driven by the urgent need to decarbonise, nations and industries are reevaluating how energy is produced, distributed, and consumed. This transition is not simply about replacing fossil fuels with renewables; it is about re-imagining energy systems to be more resilient, efficient, and sustainable. At the centre of this transformation lies the critical need for knowledge, innovation, and leadership; the discipline of energy management, and institutions such as the FUPRE Energy Business School (EBS) are playing a pivotal role in shaping the future, making a distinctive impact.

#### Navigating the Energy Transition

The energy transition is characterised by a deliberate move away from fossil fuels towards renewable and low-carbon alternatives. This shift demands robust strategies in energy efficiency, carbon reduction, and sustainable investment. Effective energy management has become the cornerstone of this transition, ensuring that organisations can balance the trilemma of reliability, affordability, and sustainability while meeting ambitious climate targets.

#### Energy Management in the Transition Era

Energy management has become the strategic backbone of the decarbonisation agenda. It encompasses the optimisation of energy use, integration of renewable technologies, and the balancing of sustainability with economic growth.

In a world where climate commitments are intensifying, effective energy management ensures that organisations can meet ambitious targets without compromising reliability or affordability. Energy Management that translates lofty climate goals into actionable pathways.

#### FUPRE Energy Business School: A Catalyst for Change

FUPRE-EBS is uniquely positioned to advance this agenda. As a leading institution dedicated to energy education and business leadership, it provides the intellectual and practical foundation required to navigate the complexities of the energy transition. Through its programmes and research, the school enables professionals to:

-  Design and implement strategic and sustainable energy management frameworks aligned with global sustainability & decarbonisation goals.
-  Leverage innovation and digital technologies to enhance efficiency and reduce carbon footprints.
-  Engage in policy and regulatory discourse to influence frameworks that support clean energy adoption, while driving systemic change across industries and governments.
-  Develop leadership capacity to drive organisational and national energy transformation.



## Building Capacity for a Net-Zero Future

The role of FUPRE-EBS extends beyond academic instruction. It is about cultivating a generation of leaders who can anticipate challenges, seize opportunities, and deliver solutions in a rapidly evolving energy landscape under the climate of geopolitical uncertainties. By fostering collaboration between academia, industry, and government, the school ensures that its graduates are not only equipped with knowledge but also empowered to act as change agents in the global pursuit of net-zero.

In summary, The decarbonisation-driven energy transition is reshaping the future of economies and societies. Energy management is at the heart of this transformation, and institutions like FUPRE Energy Business School are positioned to train professionals to lead with vision and competence. As Nigeria and the wider world accelerate towards a sustainable future, FUPRE-EBS stands as a beacon of excellence, guiding the way with knowledge, innovation, and leadership.



## Director's Desk

### Building the Future Leadership of the Energy Industry



The global energy landscape is undergoing a profound transformation. From the accelerating transition to cleaner energy sources, to the growing demand for efficiency, innovation, and responsible governance, the industry is being reshaped in ways that require not only new technologies, but new thinking and leadership.

At FUPRE Energy Business School, we recognize that the future of the energy industry will be defined as much by business acumen, policy insight, and ethical leadership as by engineering and technical expertise. Our mission is therefore clear: to develop professionals who can bridge the gap between technical knowledge and strategic decision-making in an increasingly complex energy environment.

Nigeria and Africa stand at a critical crossroads. With vast energy resources and a young, dynamic population, the opportunities before us are immense. Yet these opportunities can only be fully realized if we cultivate leaders who understand the economics of energy, the realities of global markets, the imperatives of sustainability, and the importance of sound corporate governance. With all these, energy business education must move beyond theory and respond directly to industry needs.

FUPRE Energy Business School is committed to this vision. Through industry-relevant programmes, executive education, and strategic partnerships, we are positioning ourselves as a hub for knowledge, dialogue, and capacity development within the energy sector. Our focus is on producing graduates and professionals who can lead responsibly, innovate boldly, and contribute meaningfully to national and global energy goals. We believe strongly in collaboration. The challenges facing the energy industry cannot be solved in isolation. Academia, industry, regulators, and policymakers must work together to shape solutions that are practical, inclusive, and forward-looking. As a business school embedded within a specialised Energy University, we are uniquely positioned to serve as a meeting point for these critical conversations.

As we look ahead, our commitment remains unwavering: to support the development of a resilient, competitive, and sustainable energy industry through education, research, and engagement. We invite industry stakeholders to partner with us in this journey, to share insights, mentor future leaders, and co-create solutions that will define the next chapter of energy development.

The future of energy leadership starts with purposeful learning today. At FUPRE Energy Business School, we are proud to be part of shaping that future.

# Editor's Desk



As we present this January edition of EBS Spotlight, it is fitting to reflect on the breadth of insights captured and the unifying theme that underscores them all: the pivotal role of the FUPRE Energy Business School (EBS) in shaping the future of Nigeria's energy sector and beyond. Each article in this edition speaks to the challenges and opportunities of a rapidly evolving global energy landscape, while affirming the School's commitment to excellence, relevance, and leadership. Our cover story sets the tone by examining energy management as the backbone of the global decarbonisation agenda. It highlights how institutions like FUPRE-EBS are equipping professionals to design sustainable frameworks, leverage innovation, and engage in policy discourse. This reflects the School's value proposition: preparing leaders who can translate ambitious climate goals into actionable strategies.

The Vice-Chancellor's perspective reinforces the importance of aligning academia with industry needs. FUPRE's mandate to develop human capital, foster local content, and drive research is amplified through EBS, which bridges theory with practice. This nexus ensures that graduates are not only academically grounded but also industry-ready, embodying the School's ethos of relevance. Leadership is a recurring theme in this edition. The Director's message emphasises the need for professionals who combine technical expertise with business acumen, policy insight, and ethical responsibility. FUPRE-EBS positions itself as a hub for cultivating such leaders, ensuring Nigeria and Africa can harness their energy resources responsibly and competitively.

The comparative analysis of Venezuela's petroleum sector governance offers sobering lessons for Nigeria. It underscores the importance of strong institutions, credible regulations, and investor trust. For FUPRE-EBS, this is a reminder of its role in fostering thought leadership and policy dialogue, equipping stakeholders to avoid pitfalls and strengthen Nigeria's energy governance. The discussion on Nigeria's Petroleum Industry Act (PIA) highlights both progress and gaps in sector coordination. It calls for institutional governance over transactional leadership. Here again, FUPRE-EBS emerges as a knowledge hub, preparing professionals to uphold efficiency, equity, and environmental responsibility in line with national reforms.

The sustainability section provides practical pathways for decarbonisation, from renewable energy adoption to carbon removal strategies. These insights align with FUPRE-EBS's mission to train experts who can balance economic growth with environmental stewardship, ensuring Nigeria remains competitive in a net-zero future. Equally important are the voices of students and milestones achieved by the School. These narratives remind us that FUPRE-EBS is not only an institution of learning but also a community of innovators, dreamers, and achievers. They embody the School's promise of nurturing the next generation of petroleum and energy experts. Across every sector of this newsletter, one message resonates clearly: FUPRE Energy Business School is a catalyst for excellence and relevance in energy leadership. Its programmes, research, and partnerships are designed to:

- Build technical and managerial capacity for Nigeria's energy future.
- Align education with industry needs and global sustainability goals.
- Foster ethical, strategic, and innovative leadership.
- Serve as a trusted hub for dialogue between academia, industry, and policymakers.

As Nigeria and the wider world navigate the complexities of energy transition, FUPRE-EBS stands as a beacon of knowledge, innovation, and leadership. This edition of EBS Spotlight resonates the School's enduring mission: to educate for energy excellence and to shape leaders who will define the future of the sector.

# Strengthening the University

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## Industry Nexus for Energy Development



The energy sector stands at the heart of national development, economic growth, and global sustainability. As the world confronts energy transition, climate responsibility, and evolving market realities, universities with specialised mandates like Federal University of Petroleum Resources, Effurun (FUPRE) must play a decisive role in shaping solutions and developing the human capital required for the future need of the energy sector.

The Federal University of Petroleum Resources, Effurun (FUPRE), was established with clear national responsibilities. These responsibilities include developing high-quality human resources to boost local content in the Nigerian oil, gas and energy sector, creating and delivering advanced education and training programs for industry experts, conducting research, consultancy, and development in all technical and managerial areas of the oil and gas industry and leading efforts to promote the economic growth of the local community and wider society through specialized education, training and outreach. These mandates remain as relevant today as ever. Our commitment is to produce graduates and knowledge that respond directly to industry needs while advancing national and global energy objectives.

A key pillar of this commitment is the strengthening of the link between academia, and industry. Through initiatives such as the FUPRE Energy Business School, we are expanding our engagement beyond traditional academic training to include executive education, policy dialogue, and industry-focused research. This approach ensures that learning remains practical, relevant, and aligned with real-world challenges.

Nigeria's energy future will depend on leadership that understands not only resources and technology, but also governance, economics, sustainability, and social responsibility. Universities must therefore educate the whole leader: intellectually grounded, ethically guided, and strategically minded. At FUPRE, we are intentionally building this capacity across our academic and professional programmes.

This month, we reaffirm our openness to collaboration with industry operators, regulators, development partners, and policymakers. Meaningful progress in the energy sector requires shared vision, continuous dialogue, and joint problem-solving. FUPRE remains ready to serve as a trusted partner and knowledge hub in this collective effort.

As we look ahead, our resolve is firm. We will continue to align teaching, research, and innovation with the evolving needs of the energy industry, while upholding the highest standards of academic excellence. Together, we can shape an energy sector that is resilient, competitive, and sustainable for generations to come.

**Professor Ezekiel O. Agbalagba**

Vice-Chancellor

Federal University of Petroleum Resources, Effurun





## Rules Over Rhetoric: Insights from Venezuela on Nigeria's Petroleum Sector Governance

Wumi Iledare, PhD, FNAEE, SrFUSAAE, FEIN, LSU Energy Institute Professor Emeritus.  
Principal Facilitator, FUPRE Energy Business School, and Executive Director,  
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The White House meeting held on January 3, 2026, between President Donald Trump and senior executives from major oil corporations, highlighted a persistent challenge in global petroleum governance: the ongoing conflict between political objectives and investment realities. The event featured a strong public appeal, with the president encouraging U.S. oil firms to invest up to \$100 billion to revitalize Venezuela's oil sector. However, the discussions reflected significant reservations. Darren Woods, CEO of ExxonMobil, characterized Venezuela as "uninvestable" due to deficient legal frameworks, insufficient investor protections, and a history of expropriation. His evaluation was based on principles of political economy and investment theory, rather than rhetoric or ideology.

This situation reflects institutional challenges rather than issues related solely to oil. While Venezuela possesses substantial hydrocarbon resources, it faces a deficit of trust. In capital-intensive, long-term sectors such as upstream petroleum, trust is established through credible regulations, enforceable contracts, regulatory autonomy, and consistent leadership—not merely through assurances from presidential authorities, security guarantees, or nationalist rhetoric. Without these foundational elements, investment capital tends to remain on the sidelines or seek opportunities elsewhere.



# Venezuela: Resource Abundance, Institutional Fragility



## Resource vs. Production Gap

Venezuela possesses some of the largest proven oil reserves globally, yet production remains far below potential due to governance and investment constraints. This gap illustrates that resource abundance alone cannot drive economic growth.

## Institutional Fragility Indicators

Investor confidence is undermined by sovereign risk, inconsistent policies, and weak legal protections. These factors demonstrate how fragile institutions can impede the effective management of natural resources.

## Foreign Oil Companies' Exit & Legal Battles

Expropriations and unilateral contract changes forced firms like ExxonMobil and ConocoPhillips to exit Venezuela, leaving billions in compensation claims unresolved. Political interference directly impacts investment security.

## Risk Factors for Investors

Upstream oil investments are highly sensitive to political and institutional risks. While Venezuela's reserves are vast, poor policy consistency, low legal protection, and high sovereign risk make investment precarious.

Venezuela's situation demonstrates an important concept frequently underestimated in countries endowed with significant natural resources: while geology may generate interest, it is the strength of institutions that drives investment decisions. Although Venezuela possesses some of the largest proven oil reserves globally, it serves as a notable example of how sovereign risk, inconsistent policies, and discretionary governance can undermine the economic potential of substantial hydrocarbon assets.

Investor confidence has been eroded by repeated expropriations, unilateral contract amendments, politicized regulatory processes, and diminished legal protections. ExxonMobil and ConocoPhillips—both subject to asset seizures—are still awaiting compensation totaling billions of dollars. In this context, proposals to have companies “start afresh” or operate on an “even plate,” as reportedly suggested by President Trump, unintentionally exacerbate concerns regarding time inconsistency. When prior losses are disregarded, assurances for future protection lack credibility.

From a petroleum economics perspective, these factors are critical. Upstream oil investments demand irreversible capital commitments and are susceptible to long-term political risk. Investors assess such risks based not on speculative optimism, but by evaluating institutional stability. At present, the signals emanating from Venezuela remain unfavorable.

# Capital Discipline and the Limits of Political Persuasion



The hesitation of major international oil companies to invest in Venezuela is indicative of a broader transformation in industry practices since 2015. The prioritization of capital discipline now characterizes the sector, with shareholders emphasizing financial returns over indiscriminate reserve accumulation. Additionally, environmental, social, and governance (ESG) standards have further limited involvement in regions associated with poor governance and inadequate human rights protections. Under such conditions, large-scale investments cannot be justified solely by geopolitical considerations or executive advocacy.

Deploying technical teams, as suggested by Exxon, represents a real-options approach, a cost-effective means of maintaining future investment possibilities without significant capital commitments. This should not be interpreted as an expression of confidence. While smaller or privately owned enterprises may be willing to accept higher risks for potential early-mover advantages, larger firms with global portfolios, reputational considerations, and exposure to litigation are unable to do so.

This discrepancy between political narratives and pragmatic investment decisions is not exclusive to Venezuela; it is a recurring phenomenon in economies reliant on petroleum revenues that tend to equate sovereign authority with genuine investor assurance.



## Nigeria's Moment of Reflection

The Venezuela's experience should serve as a catalyst for thoughtful analysis in Nigeria, rather than detached observation. While there are distinctions between the two contexts, the underlying lessons hold considerable relevance. Nigeria's abundance of resources is accompanied by ongoing challenges related to policy inconsistency, overlapping institutional mandates, and discretionary approaches to governance. Additionally, Nigeria continues to seek global upstream investment amid an increasingly competitive environment.

The Petroleum Industry Act (PIA) was implemented specifically to confront these issues. By delineating policy, regulatory, and commercial functions, the Act aims to move away from personality-driven administration toward robust, rules-based institutions. In this context, President Bola Tinubu's recent appointment of Board members to the PIA regulatory bodies merits recognition, as it enhances institutional credibility and marks progress towards realizing the legislation's intended governance framework.

Nonetheless, it is important to acknowledge that substantial reform efforts are still required.



# The Missing Link:

## Strategic Sector Coordination

A significant issue remains unresolved: Nigeria's oil and gas sector still lacks a resolute, influential coordinator. This isn't a plea for centralized control or a revival of old command frameworks before the PIA; instead, it's a request for responsible and effective coordination that upholds the principles of the PIA. Such coordination is essential for maintaining institutional harmony, clear policy communication, and alignment between national priorities and regulatory actions.



I raised this point during the Buhari administration when the industry operated without a tangible leader. Today, the dangers of failing to address this gap have grown more acute. The sector now confronts falling output, increasing expenses, the challenges posed by the global shift toward cleaner energy, security concerns, and fierce competition for investment. Relying on improvisation rather than structured governance invites poor results.

When coordination falters, even robust institutions can lose direction. Regulatory bodies may become isolated, policies may send mixed signals, and investors could be left uncertain about the industry's future. Overall, ambiguity replaces trust.





## Transactional Leadership Versus Institutional Governance

The central issue is leadership philosophy. Transactional leadership, which emphasizes quick deals and short-term benefits, might generate attention but does not usually lead to lasting investment results. In contrast, institutional governance, grounded in consistent rules and accountability, may seem less dynamic but is essential for long-term capital development.

Venezuela's situation demonstrates the risks when transactional practices overshadow strong institutions, a scenario Nigeria should strive to avoid. While the PIA sets necessary boundaries, these only work if leaders uphold and reinforce them.

This highlights the importance of sector coordination. An effective coordinator can safeguard regulatory independence, clarify policy goals, and keep the Quad-E principles—efficiency, effectiveness, equity, and environmental responsibility—at the core of sector management. Without such coordination, issues like elite dominance, agency conflicts, and policy shifts become more likely.

## Investors Respond to Rules, Not Rhetoric

The principal takeaway from Venezuela's experience, and from the broader field of global petroleum economics, is clear: investor decisions are influenced by established regulatory frameworks rather than rhetoric. Security assurances lacking legal specificity do not provide sufficient confidence to investors. Similarly, fiscal incentives are ineffective without the guarantee of contract enforceability and appeals to patriotism cannot replace the necessity for reliable institutions.

This insight is equally relevant to Nigeria's interactions with international oil companies, Indigenous producers, and financial stakeholders. Attracting capital requires more

than persuasive speeches; it necessitates the consistent implementation of the Petroleum Industry Act (PIA), transparent licensing procedures, stable fiscal policies, and demonstrable respect for regulatory boundaries.

Announcing substantial investment figures without the support of strong institutional foundations remains a political gesture rather than a tangible economic achievement.





## Concluding Remarks

The prospects of nations endowed with abundant natural resources depend not merely on the magnitude of their reserves, but fundamentally on the integrity and reliability of their governance frameworks. The decline of Venezuela's oil sector was attributable not to resource limitations, but to a deficit of trust in its institutions. It is imperative that Nigeria does not replicate this experience.

Nigeria remains at a pivotal juncture. In contrast to Venezuela, the country has implemented comprehensive petroleum sector reforms, maintains access to global capital markets, and engages a diverse range of investors. Nigeria retains the opportunity to restore and enhance trust before irreversible damage occurs. However, this opportunity is finite. Prolonged uncertainty in leadership, ineffective coordination, and ambiguous policy directives incur escalating costs. Current production setbacks translate into future revenue shortfalls, hesitation in investment leads to eventual capital outflows.

The recent White House meeting about Venezuela has important lessons for Nigeria and shouldn't be seen as just a distant geopolitical issue. It shows that simply having resources isn't enough to attract investment, and being a sovereign nation doesn't automatically bring in capital—strong institutions are crucial for both. While it's worth noting the progress made so far, pushing ahead with reforms is still essential. Creating a capable and accountable sector coordinator, as outlined in the Petroleum Industry Act (PIA) and protected from political interference, would go a long way toward building investor trust and strengthening Nigeria's petroleum sector.

## Energy Transition & Sustainability – insights on renewable energy, decarbonisation, and green initiatives.

### Dr Amieyeofori V Felix, PhD

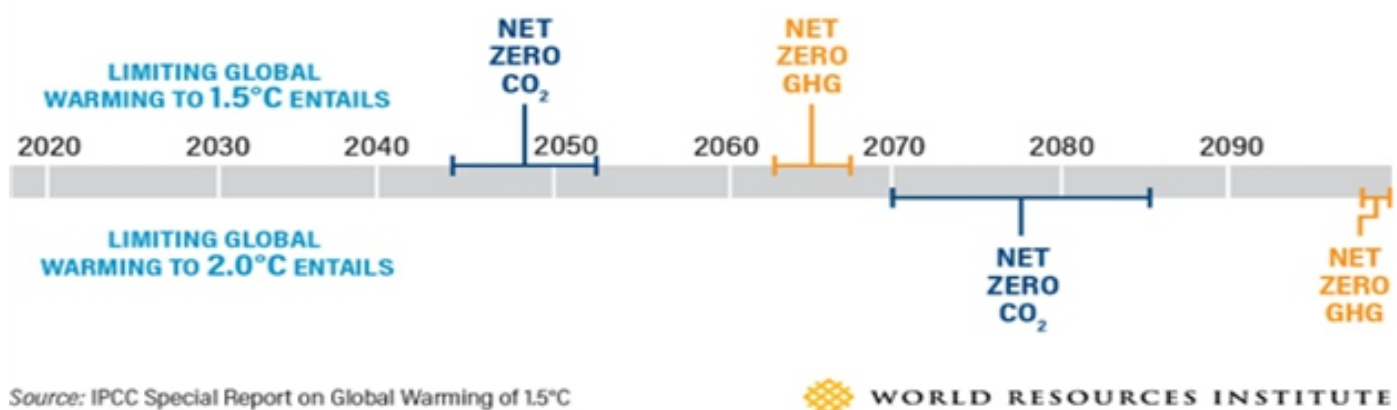
Sustainable Energy Engineering), MD/CEO, Entek Integrated Resources Limited, Director/Faculty, FUPRE EBS.



## Decarbonization

Decarbonization is a gradual process of reducing carbon emissions into the atmosphere; it aims to lower the amount of CO<sub>2</sub> emitted from human activity, with the ultimate goal of eliminating all human-made CO<sub>2</sub> emissions in the atmosphere. The impetus for decarbonization is the Paris Agreement, the international treaty adopted in 2015 with ambitions to limit global warming to 1.5 degrees Celsius from pre-industrial levels. To meet climate targets set by the Paris Agreement, many countries and organizations across the world have been adopting and implementing decarbonization strategies to help them reach 'net zero' by 2050.

### Global timeline to reach net-zero emissions



**Figure 3: Global timeline to reach net-zero emissions. Source: Bernoville, 2024.**

Net zero essentially means the reduction of all carbon emissions to zero, with any unavoidable emissions balanced out by the absorption or reduction of an equivalent amount of CO<sub>2</sub> elsewhere.

Reducing greenhouse gas emissions will curb global temperatures, which have been steadily increasing since the Industrial Revolution and rising at a rate of 0.20 degrees Celsius every decade since 1982. The ten warmest years on record have all occurred within the last decade, with 2023/2024 being the hottest. Rising global temperatures have caused extreme weather, rising sea levels, ecosystem disruptions, and threats to food, water, and health. These impacts destabilize economies, worsen inequality, and displace communities, posing a serious threat to both people and the planet

## Process of Decarbonization

In order to be carbon neutral, the involvement of society, governments, and major corporations is vital. Both government policies that drive low-carbon economies as well as initiatives that favor innovation and sustainable development are necessary to make this happen

The process of decarbonization is of two types- the first aspect concerns the reduction of carbon dioxide generated by fossil fuels, while the second involves removing carbon that is already in the atmosphere.



### 1. Decarbonization through carbon dioxide reduction

A key component of decarbonization is reducing the amount of CO<sub>2</sub> released into the atmosphere, and this can be achieved through various strategies and activities, including

- **Renewable energy:** Transition to renewable energy sources, such as solar, wind, or hydroelectric power, to reduce reliance on fossil fuels.
  - **Energy efficiency:** Improve energy efficiency by upgrading to energy-efficient lighting, equipment, and appliances. Implement smart systems to optimize heating, cooling, and lighting in buildings.
  - **Sustainable transportation:** Encourage the use of electric vehicles, carpooling, public transportation, or biking. Offer incentives for remote work or hybrid work models to reduce travel emissions.
  - **Waste Reduction and Recycling:** Minimize waste generation, implement recycling programs, and encourage the use of eco-friendly materials in manufacturing and packaging.
  - **Supply chain management:** Work with suppliers that prioritize sustainability and use low-carbon materials. Optimize logistics to reduce transportation emissions.
  - **Carbon credits:** Invest in carbon credits to offset emissions that cannot be easily reduced.
- Process optimization: Optimize production processes to use less energy and produce fewer emissions, including using cleaner technologies.

### 2. Decarbonization through carbon removal

This involves removing carbon dioxide already in the atmosphere, through nature-based removal solutions and engineered removal solutions





### 3. Nature-based solutions

leverage natural ecosystems to absorb and store carbon while also promoting biodiversity and ecosystem health. These include:

- **Afforestation and reforestation:** Planting new forests and restoring degraded ones to capture CO<sub>2</sub> through photosynthesis.
- **Wetland restoration:** Restoring wetlands, such as peatlands and mangroves, which are highly effective carbon sinks.
- **Soil carbon sequestration:** Enhancing soil's ability to store carbon by using sustainable agricultural practices, like no-till farming and cover cropping.
- **Agroforestry:** Integrating trees into agricultural landscapes, which captures CO<sub>2</sub> and improves biodiversity.
- **Blue carbon solutions:** Protecting and restoring marine ecosystems, such as seagrass beds and kelp forests, which absorb CO<sub>2</sub> from the atmosphere.

### 4. Engineered carbon removal approaches

use technology to capture and store CO<sub>2</sub> from the atmosphere. These include:



- **Direct air capture (DAC):** Machines that extract CO<sub>2</sub> directly from the air, which can then be stored underground or used in products.
- **Bioenergy with carbon capture and storage (BECCS):** Biomass (like wood or crops) is used to generate energy, and the resulting CO<sub>2</sub> is captured and stored underground.
- **Enhanced weathering:** Spreading minerals, like olivine, that chemically react with CO<sub>2</sub> and store it in solid form.
- **Carbon capture, utilization, and storage (CCUS):** Capturing CO<sub>2</sub> emissions from industrial processes and either storing it underground or converting it into useful products like concrete or fuels.

## Challenges with Decarbonization

Despite its necessity for mitigating climate change, decarbonization faces a number of challenges that make it complex and gradual:



- **High costs:** Transitioning to low-carbon technologies, such as renewable energy and electric infrastructure, requires significant upfront investment.
- **Technological limitations:** Some sectors, like heavy industry and aviation, lack fully developed low-carbon alternatives, making emissions reductions difficult.
- **Infrastructure limitations:** Many regions lack the infrastructure for large-scale renewable energy, electrification, or carbon capture systems, requiring extensive upgrades.
- **Political resistance:** Policy changes to support decarbonization can face opposition from industries, governments, and communities due to perceived economic risks. Effective decarbonization requires global cooperation, but differing national priorities, capacities, and commitments hinder unified efforts.
- **Social resistance:** Shifting consumer habits towards sustainable practices, like transportation options and energy consumption patterns, can be challenging and can take decades for consumers to embrace.

## Sectors that are the hardest to decarbonize

Limiting the average global surface temperature rise to 1.5°C above pre-industrial levels will require all sectors of the economy to decarbonise by 2050. However, there are currently sectors that are hard to decarbonise – namely heavy-duty trucks, shipping, aviation, iron and steel, and chemicals and petrochemicals. These sectors alone represent a quarter of the world's energy consumption and a fifth of total CO<sub>2</sub> emissions. This is likely to increase in the coming decades if they continue to rely on fossil fuels.

Heavy-duty trucks represent only about 9% of global vehicle stock (IDTechEX, 2019), yet they are responsible for almost a quarter of all transport-related CO<sub>2</sub> emissions. Heavy-duty trucks rely almost exclusively on diesel, petrol and natural gas. Biofuels account for less than 5% of total consumption in the sector. In the last few years, the sector has made some progress towards decarbonisation. The emissions intensity of new trucks has decreased by around 14% since 2019, partly due to efficiency measures, operational improvements, and an increase in biofuels in the fuel mix. Significant progress has been observed in terms of electric trucks owing to several factors. These include: their superior efficiency; expected earlier market availability at scale; and benefits from synergies with technological advances in battery electric cars, which are already being deployed in large volumes.

Shipping can be decarbonized through active adoption of energy efficient technologies and operational measures to reduce energy demand and CO<sub>2</sub> emissions in the short term. Such technologies and measures include shore power, improved route planning, high efficiency propellers, wind assisted propulsion, waste heat recovery systems and speed optimisation, among others. Other potential decarbonization methods include electrification of ports that can lead to short-term emissions reductions through, e.g. cold ironing. Additionally, use of electric vessels such as ferries and coastal and river transports could play an important role in decarbonising short and inland routes. Sustainably produced biofuels are short to medium-term options for

shipping, while in the medium- to long-term, green hydrogen-based fuels (e-fuels), such as green methanol, ammonia and methane, could play a significant role in the sector's decarbonization.

The aviation sector can be decarbonized through continued improvement of energy efficiency measures and technologies such as improved aerodynamics, weight reduction and the integration of more efficient engines, and also from a modal shift in short distance travel, likely to rail transport. This sector can also benefit from sustainable, low-carbon biofuels which are considered as the most technologically straightforward pathway to decarbonise aviation. Finally, synthetic fuels can also play a significant role in the decarbonisation of aviation through the use of e-kerosene in the medium term, and in the long term, possibly by green hydrogen

The iron and steel sector can use hydrogen-based reduction of iron ore, and indirect use of clean electricity, in the form of hydrogen, to decarbonise primary steel production. Direct use of renewable heat and biomass for furnace heaters and other downstream steel production can contribute to a reduction in residual emissions from low-carbon steel production, and finally, CO<sub>2</sub> capture, utilisation and storage (CCUS) measures can be retrofitted to existing traditional fossil-fuel-based steel production.

The chemical and petrochemical sectors can be decarbonized through effective adoption of circular economy principles, emerging technologies for multiple heating processes such as e-crackers, high-temperature heat pumps, electric resistance furnaces and induction furnaces able to reach temperatures between 200°C and 1 000°C. Also primary petrochemicals can be replaced by bio-based chemicals, and the substitution of renewable ammonia for conventional ammonia, and carbon dioxide capture, utilisation, and removal measures are all potential measures of decarbonizing the chemical and petrochemical sectors.

## Absolute decarbonization vs. intensity decarbonization

Absolute emissions targets are defined as rigid goals for reducing greenhouse gas emissions, while intensity emissions targets are more flexible and take into account a variety of economic factors including growth, industry, and supply chains. Absolute emissions targets are more often favored by politicians and governing bodies, for instance the Paris Agreement sets the hard target of keeping global warming under 1.5 degrees Celsius.

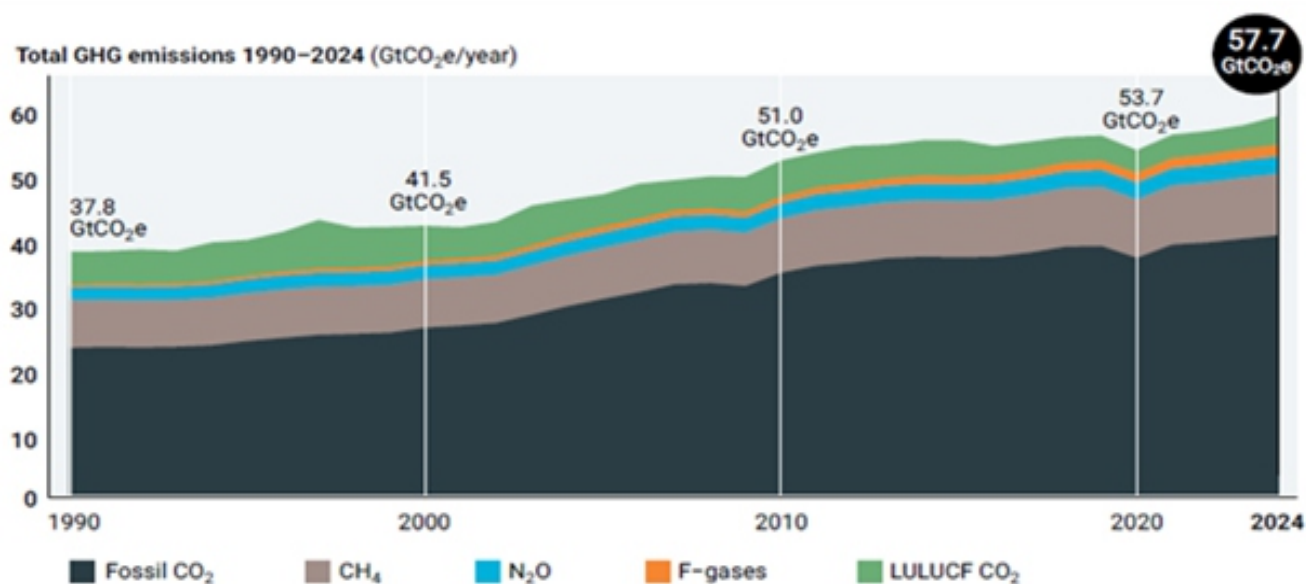
While absolute emissions targets are commendable, they do not take into account the specific challenges various industries and sectors might face in meeting those targets. Factors such as the complexities inherent in global supply chains, or the cost required for certain industries to decarbonize. Some of these factors can often make absolute emissions targets unfeasible.

Intensity emissions targets instead measure an organization's reduction in greenhouse gas emissions in relation to these challenges. They allow businesses to create reduction goals while also sustaining growth. These targets can then evolve with a company if it, for instance, undergoes a merger, is acquired, or has a disruption in its supply chain or processes.

While all of this is beneficial to the company, unfortunately intensity emissions targets do not ensure enough of a reduction in CO<sub>2</sub> emissions. They could even allow for companies to emit more if they expand.

## Current state of net zero emissions and decarbonization

Current national climate plans for 195 Parties to the Paris Agreement taken together would decrease global greenhouse gas emissions by about 12 per cent by 2035, compared to 2019 levels. To keep global warming to no more than 1.5°C – as called for in the Paris Agreement – emissions need to be reduced by 55 per cent by 2035 and reach net zero by 2050. Getting to net zero requires all governments – first and foremost the biggest emitters – to significantly strengthen their Nationally Determined Contributions (NDCs) and take bold, immediate steps towards reducing emissions now.



**Figure 4: Total net anthropogenic GHG emissions, 1990–2024.**  
**UNEP Emissions Gap Report 2025**





Ten years on from the Paris Agreement no major country and only a handful of smaller nations are on track to meet their 2030 emissions targets.

Global GHG emissions reached 57.7 GtCO<sub>2</sub>e in 2024, a 2.3 per cent increase from 2023 levels. The 2.3 per cent increase in total GHG emissions from 2023 levels is high compared with the 2022–2023 increase of 1.6 per cent. It is more than four times higher than the annual average growth rate in the 2010s (0.6 per cent per year), and comparable to the emissions growth in the 2000s (on average 2.2 per cent per year). The increase is occurring in all major sectors, and all categories of GHGs (figure ES.1). However, despite the key role of fossil fuels in driving total emissions, deforestation and land-use change was decisive for the rapid increase in 2024 emissions (figure ES.2). Global net land use, land-use change and forestry (LULUCF) CO<sub>2</sub> emissions increased by 21 per cent in 2024 and were responsible for 53 per cent of the overall increase in global GHG emissions. There are significant uncertainties in estimates of net LULUCF CO<sub>2</sub> emissions, and the large increase in 2024 was likely exacerbated by climatic conditions. Fossil CO<sub>2</sub> increased by 1.1 per cent and was responsible for 36 per cent of the increase in global GHG emissions. The GHG performance shows clearly that the 1.5°C warming threshold is increasingly out of reach due to geopolitical tensions and macroeconomic pressures.

Announced goals for emissions reduction by 2035 lack ambition, suggesting too many governments are no longer prioritizing their net zero commitments.

It is widely acknowledged that the world will not achieve net-zero emissions by 2050. Today, over 10,000 organizations worldwide have made net zero commitments. Of those, fewer than 7% have strategies that would actually achieve their goals. Some of the known causes include geopolitical and economic challenges, from the Covid-19 pandemic to war in Ukraine and the Middle East and unpredictable trade tariffs have emerged as barriers. At the same time, rising population, economic growth and societal aspirations, particularly in developing countries, drive energy demand higher, outpacing improvements in energy efficiency. Governments in many developed countries are prioritising securing affordable energy above achieving their energy sustainability goals. The withdrawal of the US from the Paris Agreement sent a clear message about its priorities, and the exit of US banks from the Net Zero Banking Alliance, along with some European banks, is a sign of the times. Meanwhile, trade wars and the race towards an artificial intelligence (AI)-enabled future are changing the shape of energy demand and the industrial landscape. It is also clear that the world cannot quickly swap the current fossil fuel-based energy system for a new, low-carbon one. While renewables' share of global power supply increased from 5% to 20% over the past decade, it barely met incremental demand growth. Scaling up low carbon supply faster than demand growth and building a new, deeply decarbonised, resilient energy system is proving tougher than envisaged.

## What does it mean to Nigeria and Fossil Fuel dependent economies?

For Nigeria, and other fossil fuel dependent economies, COP30 that was concluded in Belém, Brazil in November 22, 2025 provided a subtle comfort as long that, in our opinion President Trump's administration continues to tow the net zero adversarial role.

The global summit could not summon the courage to pass a firm judgment on a measured transition from fossil fuel, Instead, COP30 established a Just Transition Mechanism, meant to support regions whose economies rely heavily on fossil fuel revenues (among them African oil producers and exporters) through tailored packages for economic diversification, social protection for affected workers, and investment in skills, technology transfer and clean-energy industries. While this may provide a window for Nigeria to accelerate the gains from its crude oil proceeds – natural gas, has long been classified as a transition fuel, it also calls for deliberate policy shifts to prepare the country and the economy to align with the net zero paradigm shifts, considering the ever increasing devastating effects of high global temperature.

Nigeria must structure its economy to harness its rare earth minerals, make renewable energy studies priority in all its institutions from primary to tertiary schools, and encourage private sector to invest and nurture renewable energy skills and technologies.



# SAFETY LEADERSHIP IN ENERGY OPERATIONS:

## Why compliance is no longer enough



### Introduction

In the energy sector, safety is rarely absent from corporate statements. It appears in policies, dashboards, and annual reports, often declared as a “core value.” Yet major accidents and environmental disasters continue to occur across oil and gas, power, and emerging energy systems. This contradiction raises an uncomfortable but necessary question: **if safety systems exist, why do failures persist?** The answer increasingly points to leadership. This is why safety **leadership**, not just safety management has become one of the most critical capabilities for modern energy organizations. Safety performance in high-hazard energy operations is not determined solely by procedures or compliance frameworks but shaped **by how leaders think about risk, how they make decisions under pressure, and what they consistently signal as important.** This is where safety leadership becomes decisive.

### The illusion of compliance

For decades, the energy industry has invested heavily in rules, standards, and management systems. Compliance remains essential, particularly in a highly regulated sector. However, compliance can also create a false sense of security and safety. Organizations can be fully compliant and still be unsafe. Audits may pass, permits may be signed, and procedures may exist, yet weak signals are ignored, deviations become normalized, and critical barriers slowly erode.

When incidents occur, investigations often reveal that warning signs were visible long before the event, but **leadership failed** to act decisively. Compliance answers the question: **Are we following the rules?** While Safety leadership asks a more difficult question: **Are we truly managing risk?**

### Why Leadership matters more than rules

In energy operations, work is complex, dynamic, and often unpredictable. Decisions are made in real time, under production pressure, with incomplete information most times. In these moments, behavior is not guided by manuals rather by **leadership expectations and cultural norms.** People take cues from leaders, hence what gets challenged, rewarded and tolerated shape behavior. When leaders consistently prioritize production / delivery over risk, safety becomes negotiable. When leaders demonstrate curiosity about hazards and intervene early, safety becomes embedded. Safety leadership is therefore less about authority and more about **influence.**



## From compliance to commitment

The shift from compliance-based safety to commitment-based safety represents a maturity step for energy organizations. Commitment-based safety is visible when leaders:

- ✓ Personally engage in safety conversations, not just reviews
- ✓ Interested and ask about risks, not just results
- ✓ Encourage challenge and dissent against unsafe practices without fear
- ✓ Respond fairly to incidents and near misses
- ✓ Make decisions that protect people and the environment, even when inconvenient

In such organizations, safety is not enforced, it is owned.

## Leadership across the organization

Safety leadership is often mistakenly viewed as the responsibility of HSE professionals. In reality, it is a leadership obligation at every level.

- ✓ Boards and executives shape safety through strategy, investment decisions, and governance. Their questions and priorities define what matters.
- ✓ Plant and operational leaders translate intent into daily practice. They determine whether standards are applied consistently or compromised under pressure.
- ✓ Frontline and informal leaders influence how work is actually done. Their attitudes often matter more than written rules.

When leadership alignment is weak, safety systems fracture. When leadership is consistent, safety culture strengthens.

## Preventing the accidents that matter most

The most serious energy incidents are not frequent injuries or minor spills. They are **low-probability, high-consequence events** such as explosions, fires, blowouts, and environmental contamination. These events are rarely caused by a single error. They emerge from **leadership decisions made months or years earlier**. Effective safety leadership acts as a barrier against major accidents by:

- ✓ Challenging complacency at all levels
- ✓ Recognizing early warning signs and addressing them effectively
- ✓ Protecting critical safety systems
- ✓ Refusing to normalize deviation

In this sense, leadership itself becomes a safety control.

## Developing leaders for a changing energy landscape

As the energy sector transitions toward renewables, hydrogen, and new technologies, risk profiles are evolving. While hazards may differ, the leadership challenge remains the same: how to manage uncertainty responsibly. Developing safety leadership requires intentional effort:

- ✓ Leadership development linked to real operational risk
- ✓ Coaching that addresses decision-making under pressure
- ✓ Learning from incidents without blame
- ✓ Measuring leadership behaviors, not just injury rates

Safety leadership cannot be delegated or automated. It must be **developed and practiced**.





## Final thoughts:

In the energy sector, safety does not fail because people do not care. It fails when leaders underestimate their influence.

Compliance will always be necessary, but it will never be sufficient. The organizations that perform best in safety are those where leaders consistently demonstrate that **how work is done matters as much as what is delivered.**

Ultimately, safety leadership is not about preventing accidents alone. **It is about building trust, resilience, and long-term value in an industry where the cost of failure is simply too high.**

**Coach Daniel Thomas PhD.,**

**CMIOSH, FISP, FCP, FIMC, CMC, CVC**

Lead Consultant / CEO of DORET Technologies Ltd

# FUPRE EBS

## INDEED A WELCOME EXPERIENCE

As a fully integrated oil, gas, and energy professional, I was privileged to be a member of the Energy and the Economy Perspective group chat. While perusing earlier messages on the forum, my attention was drawn to a virtual application notice introducing the FUPRE Energy Business School (EBS) programme. In hindsight, my intuitive decision to take a second look at that post proved invaluable, especially when viewed against the quantum of knowledge acquired throughout the duration of the programme.

Looking back with fond memories and a sense of nostalgia, the inaugural class commenced on 14 July 2025. Coincidentally, I was out of the country at the time. However, despite being thousands of miles away from Nigeria, I was able to fully participate and quickly began to enjoy the benefits of the programme.

I remained actively engaged and well connected with my colleagues and the entire academic resource team, led by Professor Wumi Iledare and ably supported by Dr Benjamin Akinloye,

Director of Studies, FUPRE EBS. At the end of the class, Professor Iledare proposed that I serve as the class representative, a decision that was unanimously endorsed by the cohort.

It is no gainsaying that programmes of this nature are often confronted with peculiar hurdles and challenges. As the pioneer class, we experienced our fair share of these initial hiccups, including internet connectivity issues, lecture scheduling, and the need to adapt to the intensity and volume of work embedded in the academic curriculum. However, as my colleagues and I gradually settled into the new routine and learning environment, these challenges gave way to familiarity, seamless interaction, and a cordial working relationship between students and the academic resource team. This organic growth was sustained throughout the entire duration of the programme.

Despite its intensity, the programme revealed significant opportunities. The depth of learning, exposure to energy economics and policy, and the multidisciplinary approach adopted by FUPRE EBS positioned participants for relevance in a rapidly evolving energy landscape. I would confidently recommend the FUPRE EBS programme, and in the not-too-distant future, I envisage it filling a potentially widening gap in the development of energy resource professionals, serving as a platform of choice for producing practical and industry-ready energy experts for Nigeria and beyond. In conclusion, I am truly honoured and humbled to be part of the pioneering postgraduate set of the FUPRE Energy Business School. I extend my sincere appreciation to the Emeritus Professor Wumi Iledare and the entire academic resource.

I am particularly grateful to my Master's dissertation supervisor, Dr Terhemen Andzenge, for his welcoming and supportive approach, vast wisdom, subject-matter expertise, and invaluable guidance throughout the research process—an experience I will treasure for a long while. Kudos also to the entire staff and management for the knowledge you all selflessly and passionately imparted to us over the past year. I pledge to keep the FUPRE flag flying always. In Shaa Allah, I will continue to remain a good ambassador of this great institution, FUPRE EBS.

## Tajudeen Musah







# FUPRE-ENERGY BUSINESS SCHOOL

The Federal University of Petroleum Resources, FUPRE, calls for applications for its 2025/2026 FUPRE Energy Business School, FUPRE EBS, BATCH 4 academic session into its innovative and inter disciplinary postgraduate programmes. FUPRE EBS offers professional Post Graduate Diploma, Masters, and Doctorate degrees in Petroleum and Energy Studies, which are consistent with the mandate of the Federal University of Petroleum Resources, to build workforce capacity, sharpen the skills of professional talents, provide the requisite managerial skillsets, and applications of analytical tools in managing, and by extension, African and Global Energy, Oil and Gas, and Power sectors.



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 Bachelor's degree with a minimum of Second Class Lower Division

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# EBS

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