

# Introduction

How can a nation rich in oil still grasp for energy?

That question haunted me as we drove alongside the waterways of Lagos, Nigeria. The sunset painted the water in stunning, burnished layers of gold and copper. For a fleeting second, the scene was a masterpiece.

Then, the wind shifted.

The illusion shattered as the scent of diesel fumes, stagnant water, and decaying waste flooded the car. The golden water was revealed to be a fetid soup, lapping just inches below the rusted tin shacks of a sprawling informal settlement. Inside those fragile walls, families were preparing for the transition from twilight to a paralyzed, suffocating darkness.

This is the face of an energy paradox. Nigeria, one of Africa's largest oil producers [1], suffers a catastrophic failure of infrastructure, refining, and grid management [2], leaving so many to languish without reliable energy. The molecules are extracted and shipped away, while the domestic grid collapses. It is a tragedy of engineering and economics: a nation's inability to harness its own wealth creates a poverty trap for millions [3]. As a result, four in ten Nigerians live below the national poverty line [3]

For years, I viewed places like Lagos as outliers. But as my career progressed through the global energy sector, I realized a terrifying truth.

This isn't just a Nigerian problem. It is a global stalemate.

## **The Global Doom Loop**

We are living through a crisis of contradiction. We possess the resources, capital, and technology to power a thriving world. We have cracked the code on nuclear fission, driven down solar costs, and unlocked hydrocarbons from tight shale. Yet, we are trapped in a cycle of insecurity.

Globally, 775 million people lack access to basic electricity [4]. But even in the developed world, the cracks are showing.

- **USA:** 55% of hazardous liquid pipelines were installed before 1970 [12]. We are effectively running a 21st-century digital economy on mid-20th-century hardware. U.S. electricity customers experienced an average of over seven hours of power interruptions in 2021 [13]. In California, rolling blackouts have become a seasonal expectation, a failure born from prioritizing managed deregulation over the engineering reality of generation capacity [14].
- **Europe:** The European Energy Crisis of 2021-2023 underscored the immense strategic risk of overreliance on a single supplier for natural gas and a lack of investment in diversification and storage [15]. In 2022, Russia alone still accounted for over 24% of the EU's natural gas imports [11].

What is going wrong? Why, in an age of artificial intelligence and quantum computing, we cannot keep the lights on?

The answer is not a lack of technology. **It is a crisis of short-term thinking.**

Energy is the lifeblood of our modern world, central to nearly every major challenge and opportunity we face, from health and education to economic growth [6]. Yet, in our public discourse, fossil fuels are demonized, renewables are dismissed as unreliable, and the urgent need for innovative, integrated solutions is lost in the crossfire [7]. This polarized thinking infects the capital markets and the policy landscape creating a "Doom Loop" of underinvestment[5].

## **The Three Pillars of Systemic Rot**

There is a hidden revolution brewing in the energy world, a move toward energy dominance. But to unlock it, we must first diagnose the "Systemic Rot" holding the door shut.

1. **The Rot of Narratives (The Polarization Trap):** In our public discourse, we have turned physics into politics. Fossil fuels are demonized, while renewables are dismissed as unreliable. This polarization prevents the development of **Integrated Systems**. By treating these sources as enemies, we miss the opportunity to use each source's strengths. For example, natural gas as the

rapid-response "battery" for solar intermittency, or carbon capture to decarbonize heavy industries that wind cannot move.

2. **The Rot of Capital (The Investment Freeze):** A short-term focus on quarterly returns has led to chronic underinvestment in the physical world. We have seen a staggering 40% drop in global oil and gas R&D investment over the last decade [5]. The 2010 San Bruno pipeline explosion was the mathematical result of deferred maintenance and fractured oversight [9]. The consequences of this systemic rot are not abstract, they can be fatal.
3. **The Rot of Talent (The Brain Drain):** Perhaps the most dangerous threat is the loss of human capital. Cyclical layoffs have destroyed institutional knowledge, telling a generation of engineers: "*You are not safe here.*" This cyclical destruction of institutional knowledge alienates the next generation of engineers and scientists. Even with some recovery, fossil fuel jobs remain 1.3 million below pre-pandemic levels [10]. Worse, only 38% of Gen Z finds the industry appealing [8], signaling a shrinking talent pipeline.

## **The Maverick Mindset**

To break free from this cycle of reactive crisis management, we need more than incremental adjustments; **we require a fundamental shift in perspective.** This demands a new mental model, one that not only embraces uncertainty and challenges assumptions but actively champions cutting-edge technologies and bold innovations paving the way for a radically different energy landscape.

Crucial to this innovation-focused perspective is understanding the deep interdependence of our energy sources. **Maverick Leaders see what conventional thinking misses:** the skills, infrastructure, and capital within established sectors are often vital catalysts for deploying new energy technologies.

Consider Hydrogen. In the polarized view, Hydrogen as a fuel forces a false choice: the "clean" future versus the "dirty" past. But a Maverick looks at the data. Over 95% of hydrogen produced today comes from natural gas. Is this a problem? No, it is a supply chain. By integrating Carbon Capture (CCUS), we can produce "Blue Hydrogen" now, decarbonizing heavy industries like steel immediately, while building the infrastructure Green Hydrogen will eventually use [16]. The gas industry isn't the enemy; it is the incubator.

To secure our future, we must challenge conventional narratives and embrace the complex reality of our energy systems. By leveraging the strengths of *every* available resource, we create a balanced approach that is not just efficient, but accessible and affordable. Ultimately, this approach redefines our goal: **we are not only seeking sustainability, but achieving energy dominance.**

This is the essence of the Maverick Mindset.

The Maverick Mindset is the ability to deliver paradigm shifts by breaking free from conventional narratives, questioning assumptions, and anticipating challenges. Mavericks forge new paths through perseverance, hard work, and collaboration, fostering partnerships to achieve ambitious goals and bring the impossible into a new beaming reality.

This mindset isn't just a theory, it's a driving force behind real-world change.

I first witnessed its core elements in an impoverished area of the highlands of Guatemala, where my parents defeated the stark realities of poverty through hard work, resourcefulness, and unwavering perseverance. In that challenging environment, these were not abstract, theoretical concepts; they were essential strategies for survival. That compass propelled me from humble beginnings to a multifaceted career in the energy industry.

I've managed complex energy assets across the globe, from the plains of Oklahoma to the oil fields of Texas, and offshore in West Africa and Canada. I've seen bold ideas transform communities, bring economic prosperity through job creation, infrastructure development, and geopolitical influence. My career in engineering, technology, and innovation has been a front-row seat to the collision of bold innovation and the devastating consequences of short-term, siloed thinking. This contrast has fueled my conviction to seek groundbreaking solutions propelled by visionary leadership.

Driven by a desire to bridge divisive narratives in the energy landscape, I embarked on an exploration of groundbreaking technologies across the energy ecosystem. What I found out was encouraging: Our energy sources aren't as polarized as we're led to believe.

## The Blueprint for Energy Dominance

This book delves into the emerging energy future, focusing on how collaboration and innovation are paving the way for a more sustainable and abundant world. It draws upon insights gathered through **in-depth interviews with experts**, observations from **on-site visits** to key projects, and analysis of **cross-industry collaborations** spanning sectors from **oil and gas** and **biofuels** to **hydrogen** and **environmental technologies**. Within these pages, you'll encounter the stories of individuals and organizations applying Maverick thinking to overcome challenges and introduce groundbreaking solutions.

We explore critical questions at the forefront of securing an abundant energy future:

- **Liquid Assets:** For decades, the industry has treated "produced water" from oil wells as waste. Mavericks are flipping the script. That brine is often rich in Lithium and other critical minerals. We will explore the technologies turning this "waste" into the white gold of the EV revolution, transforming oil fields into mining assets.
- **Unleashing Earth's Furnace:** Geothermal energy has historically been limited to volcanic hotspots. Now, technology developed for the shale revolution, horizontal drilling and fracturing, is being adapted to crack open hot dry rock anywhere in the world. The same tech that gave us the oil boom might just give us the next big breakthrough in energy.
- **The Reality of Emissions Management:** We will strip away the "Net Zero" marketing label to look at hard engineering. What does effective deployment of emissions reduction technologies look like across the interconnected energy ecosystem?
- **Funding the Future:** We will examine how Venture Capital and government grants are converging to fund "First of a Kind" (FOAK) engineering projects that are too risky for banks but too capital-intensive for software VCs.
- **The Power of Difference:** We will explore why energy dominance needs a cognitively diverse workforce, and how leaders can successfully foster the talent needed for innovation, even amidst uncertainty.

## A Call to the Builders

Through these examples and more, you'll learn how to cultivate your own Maverick Mindset, a mental model empowering you to challenge assumptions, embrace uncertainty, and drive meaningful change in the energy landscape.

Forged at the intersection of business, leadership, and technology, this book is a call to action for everyone invested in the future of energy. Whether you're an engineer seeking innovative solutions, an entrepreneur with a vision for a cleaner world, or a policymaker shaping our energy landscape, this book offers fact-based insights and inspiration for new perspectives.

**Inside, you'll discover the Maverick's playbook:** a guide to combining cutting-edge innovations, interconnected energy systems, and the critical leadership traits required to build a more abundant energy future. This isn't just a book; it's an invitation to join a vibrant community of changemakers, from the agile startups already disrupting the industry to the visionary leaders steering Fortune 100 companies in new directions.

This is our moment to navigate the complex energy landscape, not with fear, but with facts, courage, and a relentless drive for solutions.

Let's be the leaders who stir the current, shifting the narrative from energy polarization to profound energy innovation. Together, applying the Maverick Mindset, we will break the cycles of short-term thinking and harvest the full benefits of a diverse, resilient energy ecosystem.

Let's build the future we know is possible. A future where energy is a unifying force, propelling our economies, unlocking human potential, and creating a thriving world for generations to come.

The energy future is not set. It will be built by Mavericks.

Join us