Institute for ENERGY LAW
THE CENTER FOR AMERICAN AND INTERNATIONAL LAW

ENERGY LAW ADVISOR

JUNE 2025 VOL. 19 | NO. 2

INDUSTRY UPDATES

INSTITUTE NEWS

JOIN US IN 2025 - UPCOMING EVENTS

NEW MEMBERS

Publication Sponsor: BAKER BOTTS

Please note: The articles and information contained in this publication should not be construed as legal advice and do not reflect the views or opinions of the editing attorneys, their law firms, or the IEL.

INDUSTRY UPDATES

Legal and Regulatory Considerations for the Energy Sector

By Gerard D'Emilio, Cole McDaniel, Ashlyn Smith, Alex Telarik, and Brian Tully, GableGotwals

Recent court decisions and regulatory shifts have significantly altered the landscape for energy companies. The U.S. Supreme Court's narrowing of federal regulatory authority, heightened litigation risks, and state-level legal updates are reshaping compliance strategies. Companies must adjust quickly to navigate new uncertainties and regulatory frameworks.

This summary highlights the top five legal and regulatory considerations for the energy sector, based on recent developments discussed at GableGotwals' Sixth Annual Energy Market Drivers and Current Legal Issues Seminar.

1. **Greater Potential for Litigating Federal Regulations**
   Recent U.S. Supreme Court decisions, including *Loper Bright*, *Jarkesy*, and *Corner Post*, have opened the door to increased litigation over federal regulations.
   - Regulated entities can now challenge older rules based on when an injury occurs, not when the rule was issued.
   - Federal agencies may shift enforcement strategies to avoid risks tied to administrative proceedings.
   - Companies must actively monitor and engage with ongoing litigation that could impact compliance obligations.

2. **Importance of Public Comment in Rulemaking**
   The Court's decision in *Ohio v. EPA* highlights the elevated importance of strategic public comments during rulemakings.
   - Failure by agencies to respond to substantive comments may provide grounds to overturn rules.
   - Proactive and detailed public comments are now essential to preserving future legal challenges.
   - Stakeholders should engage early and aggressively during the rulemaking process to shape final regulations.

3. **Reduced Deference to Agency Interpretations**
   The end of *Chevron* deference following *Loper Bright* significantly changes judicial review standards.
   - Courts must independently interpret statutes without defaulting to agency views.
   - This shift increases legal uncertainty around regulations based on ambiguous statutes.
   - Energy companies should closely evaluate the legal bases for regulations and prepare for more disputes about statutory interpretation.

4. **State-Level Developments Carry Increasing Weight**
   With federal authority curtailed, states are asserting more influence over energy regulation, particularly in Oklahoma and Texas.
   - Ongoing rulemaking updates are reshaping operational requirements.
   - State-specific regulatory strategies must be prioritized alongside federal compliance plans.
   - Monitoring state legal developments is critical to anticipating future challenges and opportunities.

5. **Business Courts and Judicial Trends in Energy States**
   New court systems, such as the Texas Business Court and 15th Court of Appeals, are changing litigation dynamics. Several other states, like Oklahoma, are considering how to implement such court systems.
   - Business courts are positioned to provide faster, more specialized handling of complex energy disputes.
   - Judicial trends are increasingly focused on clear statutory interpretation and limiting agency discretion.
   - Strategic venue selection and familiarity with new court procedures are becoming essential litigation tools.

The regulatory environment for the energy sector is entering a period of instability and recalibration. Companies should expect more challenges to regulations, less certainty around agency actions, and a greater need for proactive legal and regulatory engagement. Adapting to these changes with foresight and agility will be critical for long-term success.

Drill, Maybe, Drill in the Coastal Plain: Court Reinstates Alaskan Leases for the Development of Oil and Gas

By Ellen Conley, Kraig Grahmann, Farhad Tahir, and Grace Kaplow, Haynes and Boone, LLP

On March 25, 2025, the United States District Court for the District of Alaska found that the Department of Interior (DOI) unlawfully cancelled seven federal oil and gas leases previously issued under the Tax Cuts and Jobs Act (the Tax Act) to the Alaska Industrial Development and Export Authority (AIDEA). AIDEA is a public corporation of the State of Alaska created by the Alaska Legislature to, in part, promote the health, security and general welfare of all the people of the state, increase job opportunities and otherwise encourage the economic growth of the state. The leases were for the development of oil and gas resources in the nonwilderness Coastal Plain of Alaska. AIDEA challenged the cancellation and the court vacated the DOI's cancellation of the leases.

In December 2017, as part of the Tax Act's directive to establish and administer a competitive oil and gas program for the leasing, development, production and transportation of oil and gas in and from the Coastal Plain (the Program), Congress directed the Secretary of the Interior, acting through the Bureau of Land Management (BLM), to conduct at least two oil and gas lease sales covering areas that have the highest potential for hydrocarbon discovery and issue certain rights-of-way or easements associated therewith. To effectuate the Program, the BLM undertook an environmental impact analysis and issued a final environmental impact statement (FEIS) in September 2019. In August 2020, the DOI published a Record of Decision (ROD) establishing the Program. Under the BLM's first lease sale in January 2021, AIDEA executed lease agreements for seven tracts of land, which covered 365,775 acres, each for extendable 10-year terms.

Soon after the leases were issued to AIDEA, the DOI placed a temporary moratorium on the federal government's implementation of the Program, citing alleged underlying legal deficiencies, including the inadequacy of the environmental review required by the National Environmental Policy Act. In June 2021, the Secretary of the Interior instructed DOI and BLM officials to conduct a supplemental environmental review and instituted a temporary halt on all activities related to the Program during such time. As a result, the DOI issued a Suspension of Operations and Production Letter to AIDEA, suspending the seven leases while the supplemental review was conducted.

In September 2023, the DOI issued a decision cancelling AIDEA's leases, explaining that the Secretary of the Interior, in exercising of her general management authority over public lands, had the inherent authority to cancel AIDEA's leases as "unlawful in the inception" because the DOI had identified legal defects in its 2019 FEIS and the 2020 ROD.

AIDEA filed a lawsuit challenging the cancellation of its leases and sought an order vacating the DOI's lease cancellation decision. AIDEA asserted, among other arguments that were not addressed by the court, that the DOI was required to obtain a court order to cancel AIDEA's leases, and the court agreed. The court found that the Tax Act instructs the Secretary of the Interior to administer the Program in a manner similar to the administration of lease sales under the Naval Petroleum Reserves Production Act of 1976 (NPRPA), including regulations. Among the NPRPA's implementing regulations is a regulation that provides that "[p]roducing leases or leases known to contain valuable deposits of oil or gas may be canceled only by court order." Because the leases AIDEA secured are "known to contain valuable depositions of oil and gas," the NPRPA regulation applies so as to require judicial cancellation of AIDEA's leases. Consequently, the court determined that cancellation of AIDEA's leases was not in accordance with law because the DOI failed to seek a court order, and therefore, vacated the DOI's cancellation of such leases.

PHMSA Issues Advance Notice of Proposed Rulemaking Seeking Stakeholder Comments Related to LNG Regulation Amendments

By Dan Garcia and Kurt Krieger, Steptoe & Johnson PLLC

On April 29, U.S. Secretary of Transportation Sean P. Duffy announced that the Pipeline and Hazardous Materials Safety Administration (PHMSA) has submitted an Advance Notice of Proposed Rulemaking (ANPRM) to the Office of the Federal Register (publisher of the Federal Register) seeking comments relating to amendments aimed at enhancing safety regulations for liquefied natural gas (LNG) facilities across the United States. The PHMSA seeks to solicit stakeholder feedback on potential opportunities for amendment of its regulations at 49 CFR Part 193 governing the siting, design, installation, construction, inspection, testing, operation, and maintenance of LNG facilities. The last significant changes to Part 193 regulations occurred in 2004, and current regulations rely heavily on the 2001 edition of National Fire Protection Association 59A, which is the "Standard for the Production, Storage, and Handling of Liquified Natural Gas" and has itself been updated multiple times since its 2004 adoption by the PHMSA.

Since then, the U.S. LNG and energy industry have experienced a renaissance thanks to the growth and development of shale plays around the country. The increased availability of American natural gas has transformed the U.S. LNG industry from a collection of small facilities focused on the domestic energy market into a reorientation of LNG facilities toward international markets, where the demand for U.S. energy is increasing. This economic behemoth has transformed the United States into the world's largest international exporter of LNG, supplying roughly 22% of the global LNG supply, and a critical supplier for both Europe and Asia.

As a result, U.S. LNG facilities are becoming increasingly

sophisticated in their design, construction, and operations, yet PHMSA regulations have not kept pace. To address this gap, Congress included Section 27 of the Protecting Our Infrastructure of Pipelines and Enhancing Safety Act of 2016, directing the PHMSA to update its minimum safety standards for "permanent, small scale" LNG facilities, and Section 110 of the Protecting Our Infrastructure of Pipelines and Enhancing Safety Act of 2020, which directed the PHMSA to update the minimum safety standards by December 27, 2023, to impose a risk-based regulatory approach for large-scale LNG facilities other than peak-shaving facilities. Additionally, President Donald Trump issued Executive Order (EO) 13868, "Promoting Energy Infrastructure and Economic Growth," which directed the PHMSA to issue a final rule updating Part 193 regulations no later than May 2020, and he issued his most recent EO 14192, "Unleashing Prosperity Through Deregulation," as well as EO 14154, "Unleashing American Energy," and EO 14156, "Declaring a National Energy Emergency," which combined, seek to alleviate regulatory burdens and promote the expansion of energy infrastructure.

For those interested in filing comments, the PHMSA is soliciting stakeholder feedback on, among other things: (1) the topics listed in Section III of the ANPRM; (2) potential amendments to its Part 193 LNG facility requirements, including any amendments identified by stakeholders; (3) the appropriateness of those amendments for different types of LNG facilities, including export terminals and peak-shaving facilities; (4) the incremental compliance costs and benefits, including benefits pertaining to avoided compliance costs, safety harms, and environmental harms, anticipated from those amendments; and (5) the technical feasibility, reasonableness, cost-effectiveness, and practicability of those potential amendments. The PHMSA plans to hold a public meeting in the near future to supplement or clarify the materials received in response to this ANPRM.

In a portion of Section III of the ANPRM, the PHMSA is seeking data from U.S. LNG operators relating to the incremental cost and benefit of per-unit, aggregate, and programmatic — both one-time implementation and recurring — bases. The ANPRM is also requesting data sources, assumptions, calculations, and other pertinent information to aid in supporting estimates in the proposed rule. This opportunity allows the U.S. LNG industry to provide the PHMSA with a road map of meaningful regulation that complements the growing industry.

The ANPRM will be available in the Federal Register on publication and the unofficial version has been posted on the PHMSA website under Docket No. PHMSA-2019-0091. Stakeholders will have 60 days from the date of publication in the Federal Register to file their comments.

No Risk No Reward: The *Liberty v. NDIC* Decision Holds That Risk Penalties Can be Recovered from Total Unit Production

By Brad Gibbs, Oliva Gibbs LLP

The North Dakota Supreme Court in *Liberty Petroleum Corp. v. North Dakota Industrial Commission* upheld that risk penalties can be recovered from overall unit production, not just individual wells. The decision gives operators greater flexibility when managing unitized fields, affirming the North Dakota Industrial Commission's ("NDIC") broad authority and reinforcing deference to regulatory decisions impacting oil and gas development.

In *Liberty Petro. Corp. v. N.D. Indus. Comm'n* (11 N.W.3d 851 (N.D. 2024), the Supreme Court of North Dakota addressed whether nonconsent risk penalties must be assessed on a well-by-well basis or can be recovered from overall unit production. The court agreed with the NDIC's approval of a unit plan that allowed risk penalties to be recovered from unit production as opposed to limiting recovery to the specific nonconsent well.

I. Background & Unitization

In 2022, Burlington Resources Oil & Gas Co. LP ("Burlington") filed for unitization with the NDIC, creating the Haystack Butte Unit (the "Haystack Unit") in McKenzie County, North Dakota. The goal of unitization was to allow wells to be drilled without regard to prior drilling and spacing unit ("DSU") boundaries that would restrict the length and location of horizontal wellbores. As part of the application process, Burlington submitted a proposed unit agreement (the "Haystack UA") and a proposed unit operating agreement (the "Haystack JOA"). Liberty Petroleum Corporation ("Liberty") contested the unitization.

Prior to the plan of unitization, the Haystack Unit area consisted of multiple DSUs with 19 producing wells. Liberty owned a working interest in 6 of the DSUs containing 11 of the producing wells. Liberty had elected to participate in 7 of the 11 wells and was "nonconsent" in the remaining 4 wells. Notably, 3 of the 4 nonconsent wells were located in DSUs that also had wells where Liberty was participating. Liberty had been assessed a 200% risk penalty for each nonconsent well under the North Dakota Compulsory Pooling Statute (N.D. CENT. CODE § 38-08-08), and had an outstanding drilling, completion, and risk penalty balance at the time of the petition for unitization.

The Haystack JOA provided that the operator could recover risk penalties out of unitized production – *including* the prior outstanding balances due on the 4 nonconsent wells. In other words, under the JOA, the operator could withhold production from the 7 consent wells to satisfy Liberty's penalty balances on the 4 nonconsent wells. Liberty objected to this language and requested the same be modified, contending that penalties could only be recovered from production from the specific nonconsent well in which the penalty accrued. Anything else, Liberty argued, was "unfair and inequitable" and even an unconstitutional regulatory taking.

Rejecting Liberty's arguments, the NDIC approved the Haystack UA and JOA, finding that the unitization as proposed was in the public interest, protected correlative rights, and maximized production of oil and gas. The NDIC based this reasoning on the fact that production from the wells in the unit area is no longer attributable to individual wells and spacing units, but instead is attributable to the tracts in the unit on a pro rata acreage basis. Liberty appealed this decision to the district court which affirmed the NDIC's decision. On appeal to the Supreme Court, the issue was narrowly framed as whether pre-unitization risk penalty balances can be recovered out of subsequent unit production or must be recovered at the well level.

II. How are Past Risk Penalties Assessed?

Chapter 38-08 of the North Dakota Century Code – entitled Control of Oil and Gas Resources – creates separate but similar compulsory pooling schemes for: (i) pooled units comprised of two or more separately owned tracts or interests within a DSU (for example, a 2-section or "1280" DSU; referred to herein as the "Compulsory Pooling Statute"); and (ii) larger reservoir-based unitized areas covering a common source of supply (referred to herein as the "Compulsory Unitization Statute"). The Compulsory Pooling Statute authorizes a risk penalty on leased working interest owners in the amount of 200% of the nonparticipating owner's share of the reasonable actual costs of drilling and completing the well. It goes on to specifically state that the risk penalty may be recovered "out of, and only out of, production from the *pooled spacing unit.*" *Id.* at § 38-08-08(3)(a), emphasis added.

Similarly, the Compulsory Unitization Statute authorizes a risk penalty on leased working interest owners in the amount of 200% of the nonparticipating owner's share of the unit expense. It then expressly provides that the 200% risk penalty can be "recovered out of, and only out of, production from the *unit.*" *Id.* at § 38-08-09.4(3)(a), emphasis added. Article 11.8 of the Haystack JOA similarly states that risk penalties shall be satisfied out of proceeds from the sale of Unitized Substances attributable to the affected tract.

III. The Supreme Court Takes a Broad View on Recovering Risk Penalties

Neither the Compulsory Pooling Statute nor the Compulsory Unitization Statute specifically address recovering a risk penalty that accrued in a spacing unit that was later made part of a larger unitized area. However, the court found that "unit expense," as used in the Compulsory Unitization Statute has a broad meaning, covering "any and all cost and expense in the conduct and management of its affairs or the operations carried on by it." N.D. CENT. CODE § 38-08-09.13(4). Thus, the court held that under the Compulsory Unitization Statute and Article 11.8 of the Haystack JOA, the prior risk penalties can be satisfied out of proceeds from the sale of unit production.

An analysis of the Compulsory Pooling Statute leads to a similar result. The statute allows for recovery of a risk penalty on nonconsent wells from production from the pooled spacing unit. The Statute does not state that the risk penalty must be recovered from a specific well. Therefore, under either Statute, risk penalties are assessed and recovered at the unit level regardless of whether a non-operator has consented and/or is being carried in one or more wells. The court declined to defer to prior NDIC Order No. 32353 (the "Twin City Technical Case") that had ruled that risk penalties on nonconsent wells can only come out of that specific well's production.

The court also rejected Liberty's argument that Article 11.8 of the Haystack JOA was an unconstitutional taking under the United States and North Dakota Constitutions. So-called "total regulatory takings" occur when regulations completely deprive an owner of all economically beneficial use of their property. To the contrary, "'Liberty continues to own its own working interests, and Liberty continues to be credited with its share of production while that production pays down [its] payout balance.'" *Liberty Petro. Corp.*, 11 N.W.3d 851, 858. Per the court, "[t]his is not a situation where Liberty is not receiving any economic benefit for its interest – rather, this is a situation where Liberty is receiving a different economic benefit than what it would prefer." *Id*.

Finally, the court deferred to the NDIC order itself, holding that its findings were supported by substantial and credible evidence, and contained fair, reasonable, and equitable provisions. Specifically, the court found that the NDIC's decision (1) was in the public interest and reasonably necessary to increase ultimate recovery, prevent waste, and protect correlative rights, (2) complied with Chapter 38-08 of the Century Code, and (3) was for the common good. The court also noted that under its deferential standard of review, it "accord[s] greater deference to Industrial Commission findings of fact than we ordinarily accord to other administrative agencies' findings of fact." *Id*. at 861.

IV. Takeaway

This case addressed recovering risk penalties allocable to prior DSUs when they have been "dissolved" into a larger, unitized area covering a common source of supply. The court holds that risk penalties can be recovered on unitized (or pooled) lands at the unit level, as opposed to the well level, regardless of when the penalties accrued. This holding allows operators more flexible accounting procedures when it comes to calculating payout thresholds at the DSU or unitized level. It may be particularly useful for situations where a party has consented to some wells and is being carried or has "gone nonconsent" in others.

What is slightly less apparent is the effect this holding may have on overlapping lease line wells and units. Overlapping units occur when two or more prior DSUs are "combined" to allow for drilling in a lease line setback corridor, but the lands are not formally unitized. Overlapping pooling orders typically state that they do not reallocate production for wells producing on the underlying "base" units. The base unit wells remain committed to their base units, and the overlapping units typically contain a single lease line well (or occasionally

two stacked lease-line laterals) that is committed to the new overlapping unit. It would thus appear that although risk penalties can be recovered from the collective wells on a DSU, it would be less likely that recovery could be made from a lease line well in an overlapping unit for prior penalties allocable to the base unit wells. This is because the Compulsory Pooling Statute allows recovery only from the actual "pooled spacing unit" of which the wells are a part.

This case also underscores the level of consideration North Dakota courts give to the NDIC, affording them even greater deference than they do other administrative agencies. This is generally because courts recognize the high degree of specialized and technical knowledge it takes to regulate oil and gas production.

EPA Announces Significant Deregulatory Actions – What Companies Need to Know

By Tim Sowecke and Tyler Self, GableGotwals

On March 12, 2025, the U.S. Environmental Protection Agency (EPA) announced a sweeping deregulatory initiative, claiming it to be the "biggest deregulatory action in U.S. history." The set of 31 actions is designed to reduce costly regulatory burdens across various industries, including power generation and oil and gas (O&G). The overarching goals of these actions are to review existing regulations with the aim of lowering living costs for Americans, creating jobs, and promoting economic growth—all while ensuring continued environmental protection.

Significant actions include revisiting the 2009 Endangerment Finding on greenhouse gases, reconsidering air regulations in the O&G sector, reviewing wastewater discharge regulations for O&G extraction, revising the Clean Water Act's "Waters of the United States" rule in light of the Supreme Court decision in *Sackett v. EPA* (2023), and working with states and tribes to address regulatory backlogs in the spirit of cooperative federalism. These changes are framed as efforts to streamline regulations, cut down bureaucratic red tape, and make energy production more affordable, ultimately benefiting consumers and businesses.

Below are summaries of the key announcements with links to the press releases. It remains to be seen how much progress will be made under each announcement. Though environmental policies often shift with changing administrations, history shows there are no shortcuts in regulatory rulemaking.

For example, in November 1980, following Ronald Reagan's election, many predicted that industry interest would reshape and deregulate environmental and natural resources laws. Reagan quickly issued Executive Order 12,291, requiring agencies to submit proposed regulations to the Office of Management and Budget for review and to conduct a cost-benefit analysis for "major rules" (those with a $100 million economic impact or more). He also appointed deregulatory advocates, like Anne Gorsuch (mother of current Supreme Court Justice Gorsuch) at the EPA and James Watt at the Department of Interior, and tried to abolish the President's Council on Environmental Quality (CEQ) (similiar to a recent announcement from Trump of rescinding CEQ's National Environmental Policy Act implementing regulations). However, Reagan ultimately achieved little in terms of regulatory reform. Watt and Gorsuch left amid controversy, Congress failed to pass any proposals to reduce environmental laws, and industry supporters eventually preferred the established regulatory regime over uncertainty.

Thus, while these EPA announcements suggest significant deregulation, it is uncertain whether, or to what extent, it will materialize.

***Trump EPA Kicks Off Formal Reconsideration of Endangerment Finding with Agency Partners*.**

EPA announced it will formally reconsider the 2009 Endangerment Finding on greenhouse gases that has underpinned various Clean Air Act climate-related regulations, i.e. that six gases endanger both the public health and the public welfare of current and future generations. EPA will reassess the 2009 finding to ensure it aligns with modern scientific and economic developments, including advancements in technology and mitigation. Critics have argued the original finding was based on uncertain science and regulatory leaps, and the reconsideration aims to ensure future regulations are grounded in solid evidence and legal frameworks. For background, the six greenhouse gases included in the 2009 Endangerment Finding were Carbon Dioxide (CO2), Methane (CH4), Nitrous oxide (N2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF6).

***Trump EPA Announces OOOO b/c Reconsideration of Biden-Harris Rules Strangling American Energy Producers*.**

EPA will reconsider the Biden-Harris administration regulations for oil and gas industry under Section 111 of the Clean Air Act and Subpart W of the Greenhouse Gas Reporting Program (GHGRP). The New Source Performance Standards (NSPS) OOOO b/c regulate emissions of methane and volatile organic compounds from oil and natural gas facilities, establishing performance standards for new, modified, and reconstructed sources in the industry, including requirements for equipment leaks, venting, and flaring.

Under the Biden administration, EPA issued record fines for non-compliance with the NSPS program, mostly for uncontrolled venting and flaring in the Permian Basin (in Texas and New Mexico) and the Bakken (in North Dakota), and many oil and gas producers have tried to push back on those regulations as costly and burdensome. Subpart W of the GHGRP addresses reporting of greenhouse gas emissions from O&G and requires operators of facilities to track and report emissions from various sources, including production, processing, transmission, and distribution of natural gas and oil. In a related but separate announcement, Lee Zeldin – EPA Administrator – criticized the program

as a bureaucratic burden that does not improve air quality and imposes financial strain on the regulated community. Zeldin emphasized that EPA's regulations must be grounded in the rule of law, not used as a tool to hinder U.S. energy production.

Administrator Zeldin Announces EPA Will Revise Waters of the United States Rule.

EPA announced that the agency, in collaboration with the U.S. Army Corps of Engineers, will review and revise the definition of "Waters of the United States" (WOTUS), following the U.S. Supreme Court's decision in *Sackett v. EPA* (2023). The goal is to reduce red tape, lower permitting costs, and provide clearer, simplified regulations for farmers, landowners, businesses, and states while ensuring the protection of navigable waters from pollution. Zeldin emphasized that the previous administration's definition imposed burdens on Americans, particularly farmers, and increased business costs. The revised definition will align with the Supreme Court's interpretation, focusing on permanent water bodies and wetlands with continuous connections to such waters.

EPA Will Revise Wastewater Regulations for Oil and Gas Extraction to Help Unleash American Energy.

EPA will update wastewater discharge regulations (i.e., effluent limitations guidelines) for O&G extraction facilities to lower energy costs and support environmentally sustainable water reuse. EPA aims to provide some regulatory flexibility for treating O&G wastewater (i.e., produced water) for beneficial reuse in areas like data centers, fire control, and power generation. EPA intends to expand the scope of where treated wastewater can be used, allowing for additional opportunities such as lithium extraction and wastewater discharge from centralized treatment facilities. The review and updates will also reflect advancements in treatment technology to boost energy production while protecting water quality.

Administrator Zeldin Begins Restructuring Regional Haze Program.

EPA will reconsider the implementation of the Clean Air Act's Regional Haze Program to remove the significant costs on power plants and other industries that challenge the affordability of energy to consumers. The program requires states to develop plans to address regional haze, primarily caused by emissions from power plants and industrial facilities, by setting pollution reduction targets. It has led to significant improvements in air quality but has also been criticized for imposing high costs on industry and worry about consumer rates. EPA will review to ensure the program aligns with Congressional intent, incorporates current scientific data, and reflects improvements in air quality.

Administrator Zeldin Takes Action to Prioritize Cooperative Federalism, Improve Air Quality Faster.

EPA announced its commitment to working with states and tribes to resolve a significant backlog of Clean Air Act State Implementation Plans (SIPs) and Tribal Implementation Plans (TIPs), left unresolved under the Biden-Harris Administration, with 685 SIPs pending, including 322 overdue. EPA aims to clear the backlog, working with states and tribes to improve air quality while supporting economic growth, including the development of industries like semiconductor manufacturing and artificial intelligence.

Power and Protection: How the Energy Transition Shapes Defense Strategies

By Catarina Milagre, Lawyer & Legal Advisor, Lisbon, Portugal

Introduction

In recent decades, the global energy landscape has undergone a profound shift. The growing need to mitigate climate change has driven countries worldwide to move away from fossil fuels and towards renewable energy sources, such as wind, solar, and hydropower. This transition, while essential for environmental sustainability, brings with it complex consequences for national security and defense strategies. Historically, energy has been central to power dynamics—countries with abundant fossil fuel resources held significant geopolitical sway. The question now arises: how does this shift to renewable energy affect national security, military operations, and international relations?

The energy transition has profound implications for defense strategies, as energy security and defense are inextricably linked. This article explores the intersection of energy transition and defense, examining the ways in which the rise of renewable energy impacts military infrastructure, the protection of energy assets, and global geopolitical dynamics. Through this analysis, it seeks to provide strategic recommendations for ensuring national security in an era increasingly dominated by renewable energy technologies.

Energy Security in the Age of Transition

Energy security – traditionally defined as the ability to access reliable and affordable energy sources – has long been a cornerstone of national defense policy. In the 20th and early 21st centuries, energy security was closely tied to fossil fuels, particularly oil, which has been the lifeblood of modern military operations. Countries that controlled significant oil reserves, such as Saudi Arabia, Russia, and Venezuela, exerted substantial geopolitical influence due to their ability to control the supply of this critical resource. As a result, energy-related geopolitical tensions, such as those surrounding the Middle East, became central to global defense strategies.

However, the global shift toward renewable energy fundamentally alters this dynamic. Unlike fossil fuels,

renewable energy sources such as wind, solar, and hydro are often locally sourced and abundant. This decentralization of energy production provides nations with the potential to reduce their dependency on global energy markets and foreign suppliers. For example, countries that invest in large-scale solar or wind farms can produce electricity domestically, reducing their exposure to the volatility of oil markets and the risks associated with global supply chain disruptions.

This shift to renewable energy reduces many of the geopolitical risks historically associated with energy security, particularly the dependence on fossil fuels from politically unstable regions. As energy production becomes more localized and diversified, countries are less vulnerable to disruptions caused by international conflict or supply chain bottlenecks. The growth of domestic renewable energy capacity can contribute to a more stable and secure energy future, one that is less reliant on distant regions and external actors.

Despite these advantages, the shift to renewable energy does not come without its own challenges. Renewable energy is intermittent, with wind and solar power production varying according to weather conditions and time of day. This makes energy storage an essential component of a renewable energy system. Without efficient storage solutions, countries risk facing energy supply shortages during periods of low renewable generation, especially during peak demand times or in extreme weather conditions. Therefore, the development of reliable and cost-effective energy storage systems, such as advanced battery technologies or hydrogen storage, is critical for ensuring that renewable energy can be a viable alternative to fossil fuels.

Additionally, as renewable energy infrastructure grows, it introduces new vulnerabilities. The increasing reliance on digital technologies and smart grids makes energy infrastructure susceptible to cyberattacks. These cyber threats present a new form of risk that must be managed through robust cybersecurity measures. Ensuring the resilience of renewable energy infrastructure, both from physical and cyber threats, will be vital for maintaining energy security in the future.

Defense Infrastructure and Adaptation

As the global energy landscape transitions, military operations are also evolving to adapt to new energy realities. The military is traditionally one of the largest consumers of energy, particularly fossil fuels, which are required for transportation, heating, and electricity generation in military installations and operations. As such, energy independence and security have long been central considerations for defense strategy. The rise of renewable energy offers significant opportunities to reduce energy dependence and enhance the operational sustainability of military forces.

One of the most prominent innovations in this area is the use of solar power to support military bases. Many military installations, especially those in remote or conflict-prone regions, rely on large quantities of fuel transported over insecure supply chains. This reliance makes them vulnerable to attack, logistical disruptions, and environmental hazards. Solar power offers a potential solution to this problem by providing a localized, renewable energy source that can reduce the need for fuel convoys and the associated risks. Solar-powered microgrids, which can be deployed at military bases or forward operating locations, provide a reliable and secure source of electricity, especially in regions with high solar exposure.

For instance, the U.S. military has begun implementing solar-powered microgrids at bases in remote areas, such as Afghanistan and the Middle East, where fuel convoys are frequent targets for insurgents. These microgrids not only reduce the need for fossil fuel transportation but also provide a more resilient energy source that can function independently of the broader grid. This is especially important for military operations that require uninterrupted power supply for critical systems, such as communication, medical facilities, and surveillance equipment.

Beyond microgrids, the military is also adopting renewable energy technologies for its vehicle fleets. Electric vehicles (EVs) and hybrid military vehicles are increasingly seen as viable alternatives to traditional fossil fuel-powered vehicles. These technologies reduce the military's reliance on oil, lower carbon emissions, and offer logistical advantages in terms of reduced fuel supply needs. For example, the U.S. Army is testing electric-powered Humvees and other tactical vehicles, which could operate on renewable energy sources, further enhancing the sustainability of military operations.

Moreover, the integration of renewable energy into defense infrastructure is not limited to energy generation alone. Energy efficiency measures, such as the use of LED lighting, energy-efficient buildings, and smart grids, are becoming standard in military installations. These measures reduce energy consumption and increase operational resilience by ensuring that resources are used more efficiently.

As climate change continues to escalate, defense strategies must also evolve to account for the environmental challenges posed by rising temperatures, extreme weather events, and changing global ecosystems. Military installations, particularly those located in coastal or low-lying regions, are at risk from rising sea levels and flooding. In response, many defense ministries are integrating climate resilience measures into their infrastructure planning. By incorporating renewable energy sources, such as solar panels and wind turbines, into military infrastructure, countries can not only reduce their carbon footprint but also enhance their preparedness for climate-related threats.

Geopolitical Dynamics of Energy Transition

The shift to renewable energy is reshaping not only national defense strategies but also the broader geopolitical landscape. In the past, control over fossil fuel resources—particularly oil—was a key determinant of global power dynamics. Countries with significant oil reserves wielded considerable influence in

international relations, often using their energy resources as tools of diplomacy and leverage. However, the move toward renewable energy is creating new centers of power and influence, as countries with abundant access to renewable energy resources such as sunlight, wind, and water are poised to gain strategic advantages.

This change is particularly evident in the growing importance of critical minerals used in renewable energy technologies. Materials like lithium, cobalt, and rare earth metals are essential for the production of batteries, electric vehicles, and wind turbines. Nations that control or have access to these resources, such as China, Australia, and the Democratic Republic of Congo, are becoming increasingly important players in the global energy transition. This new resource race is reshaping geopolitical relations, as countries vie for access to these minerals and the strategic advantage they provide.

The impact of renewable energy on global power dynamics is also being felt in conflict zones, where energy access plays a critical role in shaping military strategies. In areas like the Middle East, where oil has long been a source of geopolitical tension, the transition to renewable energy could alter the balance of power. As the world shifts away from fossil fuels, oil-producing nations may see their strategic importance diminish, while countries that produce critical minerals for renewable technologies may emerge as new geopolitical heavyweights.

This shift in energy dynamics is also affecting defense priorities. Historically, securing oil supplies and ensuring the safety of energy transportation routes, such as the Strait of Hormuz, have been central to military strategies. However, as renewable energy systems become more widespread, the security of renewable energy infrastructure, such as solar farms and wind farms, is becoming increasingly important. Securing these assets in conflict zones, protecting critical energy infrastructure from cyberattacks, and ensuring the stability of energy storage systems will become key components of future defense strategies.

In this new geopolitical environment, energy access may become just as important as territorial control or military presence. Countries that control access to renewable energy resources, particularly those needed for energy storage and clean energy technologies, will increasingly be seen as strategic players on the global stage.

Policy and Strategic Recommendations

To ensure that energy transition strengthens national security rather than undermining it, governments must develop comprehensive policy frameworks and strategic plans that prioritize energy resilience and defense sustainability. The following recommendations are intended to guide policymakers in integrating renewable energy into national defense strategies:

1. **Prioritize Energy Resilience as a National Security Imperative**
   Governments should recognize energy resilience as a critical component of national security. This includes investing in renewable energy technologies, developing domestic energy resources, and ensuring that defense operations are energy independent. By reducing reliance on vulnerable fossil fuel supply chains, countries can better protect their military assets and infrastructure.

2. **Foster Public-Private Partnerships to Drive Innovation**
   Collaboration between governments, defense ministries, and the private sector is essential to advancing renewable energy technologies for military use. Public-private partnerships can accelerate the development of energy storage systems, smart grids, and energy-efficient military vehicles. By leveraging the expertise and innovation of the private sector, defense ministries can ensure that their energy infrastructure remains resilient and sustainable.

3. **Enhance the Security of Renewable Energy Infrastructure**
   As renewable energy infrastructure becomes increasingly integral to national defense, ensuring its security is paramount. Governments should invest in the protection of renewable energy infrastructure, especially in conflict-prone regions, by implementing robust cybersecurity measures, developing contingency plans, and ensuring the physical security of energy assets. This will safeguard vital energy sources from potential cyberattacks, sabotage, and other disruptive activities.

4. **Integrate Climate Change Adaptation into Defense Strategy**
   The intersection of climate change and defense strategy requires a holistic approach. Defense ministries must recognize the potential risks posed by environmental changes, such as rising sea levels, extreme weather events, and changing ecosystems. Incorporating climate resilience into military infrastructure and operations will not only reduce the environmental footprint but also enhance operational capabilities in the face of climate-related challenges.

5. **Diversify Energy Sources for Defense Operations**
   To mitigate the risks of relying on a single energy source, defense ministries should prioritize the diversification of energy sources for military operations. Renewable energy technologies, such as solar, wind, and hydropower, should be integrated alongside traditional energy supplies to create a more resilient and sustainable energy mix for defense operations. This will provide greater flexibility and reduce vulnerability to disruptions in energy supply.

Conclusion

The energy transition presents a unique opportunity to rethink national security and defense strategies in the context of global environmental challenges. As the world diversifies from fossil fuels and embraces renewable energy, national security priorities must adapt to the new energy landscape. From securing renewable energy infrastructure to adapting military operations to climate change, the defense sector must embrace sustainability and resilience as core elements of strategy.

The global shift towards renewable energy reshapes geopolitical dynamics and introduces new challenges and opportunities for national defense. By prioritizing energy resilience, fostering innovation through public-private partnerships, and integrating climate change adaptation into defense strategies, governments can enhance their national security in an era increasingly dominated by renewable energy technologies. The path forward will require collaboration, foresight, and a commitment to securing both energy and national defense in an interconnected and rapidly changing world.

This transition is more than a shift in energy systems—it is a strategic pivot that redefines global power dynamics, defense priorities, and the future of security. As nations navigate this shift, they must embrace new technologies, rethink traditional security paradigms, and prepare for the complex challenges of an energy-sustainable future.

Out of Time: West Virginia Intermediate Court of Appeals Affirms Trial Court Ruling That Plaintiffs' Subsidence Claims Were Time Barred

By Evan G. Conard, Steptoe & Johnson PLLC

The Intermediate Court of Appeals of West Virginia (the "ICA") issued a Memorandum Decision on February 28 in *Wilhelm v. Tunnel Ridge, LLC,* 2025 W. Va. App. LEXIS 20 (W. Va. Ct. App. Feb. 28, 2025), affirming a circuit court's entry of summary judgment against the plaintiffs' tort claims as barred by a two-year limitations period. Central to the ICA's decision was the court's recognition that the plaintiffs' alleged injuries, which related to damage to their residence as a result of subsidence from underground mining operations, were caused by a single, discrete act.

The defendant, Tunnel Ridge, LLC, inspected the plaintiffs' property in preparation for its longwall mining operations in August 2017. After Tunnel Ridge performed mining operations near the plaintiffs' property in November 2017, the plaintiffs discovered subsidence damage to their property by May 2018 and notified Tunnel Ridge that the plaintiffs intended to exercise their statutory and regulatory rights to have their property repaired.

On March 20, 2019, Tunnel Ridge offered to either pay compensation to the plaintiffs for the damage to their property or pay for repairs to the plaintiffs' property, which offer was contingent upon the plaintiffs releasing all claims against Tunnel Ridge relating to the subsidence damage. The plaintiffs responded to Tunnel Ridge's offer on May 10, 2019, by providing three cost estimates for the repairs to their property, but the parties were ultimately unable to reach an agreement with respect to the plaintiffs' claims.

The plaintiffs initially sued in federal court in April 2020, seeking damages under West Virginia's Surface Coal Mining and Reclamation Act ("SCMRA"), West Virginia Code § 22-3-1, *et seq.*, by asserting that Tunnel Ridge's mining operations caused subsidence damage to their property. The federal court case was voluntarily dismissed by the plaintiffs on July 22, 2020, after Tunnel Ridge moved to dismiss the plaintiffs' complaint for lack of subject matter jurisdiction due to lack of complete diversity between the parties.

More than three years after first discovering the subsidence damage, on September 24, 2021, the plaintiffs filed suit in West Virginia circuit court, again claiming that Tunnel Ridge's mining operations caused subsidence damage to their property. The plaintiffs' state court case was filed pursuant to West Virginia Code § 22-3-25(f), which provides a private right of action for damages to any person whose property is injured by a violation of SCMRA or its related regulations, West Virginia Code of State Rules § 38-2-1, *et seq.*

Tunnel Ridge moved for summary judgment on May 10, 2023, on the basis that the plaintiffs' claims were barred by the two-year statute of limitations period applicable to actions for damage to personal property under West Virginia Code § 55-2-12(a). The circuit court granted Tunnel Ridge's motion for summary judgment, finding that the plaintiffs were aware of the damage to their property in May 2018, causing their claims to accrue at that time, and the court determined that the continuing tort doctrine did not apply to toll the limitations period.

The ICA rejected the plaintiffs' argument that applying any statute of limitations period to their claims was inconsistent with the federal Surface Mining Control and Reclamation Act, 30 U.S.C. § 1201, *et seq.* In its analysis, the ICA noted that the statute of limitations for SCMRA actions had not been resolved by the Supreme Court of Appeals of West Virginia. Although West Virginia Code § 22-1-16 provided a three-year limitations period for certain actions brought under Chapter 22 of the West Virginia Code, of which SCMRA is a part, neither party argued that the three-year limitations period applied to the plaintiffs' claims. The circuit court's entry of summary judgment was based on a catchall provision under West Virginia Code § 55-2-12(a) for actions involving damage to property, and according to the ICA, the plaintiffs' claims were barred regardless of whether the two-year *or* the three-year limitations period applied.

The ICA also dismissed the plaintiffs' argument that a five-year limitations period should apply because the available

regulatory remedies were contractual in nature. While West Virginia precedent has recognized that contractual rights can be created by statute, the ICA found that the cases relied upon by the plaintiffs involved statutes creating contractual rights between governmental entities and private individuals. The plaintiffs did not identify any West Virginia precedent interpreting a statute as creating contractual rights between private parties, and the ICA declined to do so as part of its Memorandum Decision.

Lastly, the ICA found to be unavailing the plaintiffs' argument that the limitations period should be equitably tolled based on the parties' pre-suit settlement negotiations. Specifically, the ICA found that the plaintiffs did not rely on Tunnel Ridge's participation in settlement negotiations to refrain from timely filing suit, nor did Tunnel Ridge induce the plaintiffs to delay filing suit by continuing negotiations.

The ICA similarly rejected the plaintiffs' argument that the continuing tort doctrine should have been applied to toll the limitations period, where the plaintiffs claimed material issues of fact existed regarding when Tunnel Ridge's mining operations ended. The plaintiffs' reliance on evidence that Tunnel Ridge continued mining operations through 2022 was misplaced and could not be construed as creating an issue of material fact, as the plaintiffs and their expert did not refute that Tunnel Ridge's mining operations in the vicinity of the plaintiffs' residence ended in November 2017.

Distinguishing the recurrence of subsidence from the proximate conduct, the ICA held that the continuing tort doctrine did not save the plaintiffs' claims. The mining operations that caused the subsidence damage to the plaintiffs' residence were a single, discrete act that ended in November 2017. Notably, there was nothing introduced in the case indicating that a notice of violation was issued to Tunnel Ridge by any regulatory authority for the subsidence damage to the plaintiffs' property.

The plaintiffs' claims could not be saved by either the continuing tort doctrine or the continuing violation doctrine, and the ICA affirmed the circuit court's summary judgment in favor of Tunnel Ridge. The ICA's mandate issued April 1, and the plaintiffs did not further appeal this case to the Supreme Court of Appeals of West Virginia.

Tariffs and Trade Series: Addressing Impacts on the Energy Sector

By Andrea Korney, Reza Nikain, and Karyl Van Tassel, J.S. Held

Introduction

While tariffs have long been a consideration in energy, they have now emerged as a central influence on energy production, commodity pricing, and macroeconomic conditions, resulting in global impacts on energy executives, developers, finance personnel, and legal advisors. As current tariff policies shift rapidly and unpredictably, they introduce layers of complexity to an already intricate global energy marketplace. Energy projects—whether in oil and gas, renewables, or power generation—are particularly susceptible to the cascading effects of trade restrictions. From materials, parts sourcing, and cost escalation to labor disruptions and quality assurance, tariffs affect every phase of an energy project's lifecycle.

The energy sector's inherent dependence on specialized equipment, globally dispersed suppliers, and long lead times makes it especially vulnerable to trade policy shifts. With many major energy assets designed, fabricated, and transported across multiple continents, even modest changes in tariff structures can trigger significant cost increases, delays, or contractual disputes.

"The impact to companies of increased litigation regarding supply chain issues will be expansive. This cost must be considered when estimating the total costs of the tariffs to companies as a whole, and particularly energy companies with large capital asset needs." (Karyl Van Tassel)

Contract disputes add an additional layer of costs over and above the increased capital assets costs. In this environment, proactive planning, strategic sourcing, and sophisticated modeling are essential.

The Supply Chain Ripple Effect

Energy supply chains are long, global, and often fragile. Tariffs on any component or subcomponent can ripple through a project, compounding costs and complicating logistics.

Consider the implications for developers of utility-scale solar farms or offshore wind projects. For example, tariffs affecting aluminum framing, semiconductors, or specialized gearboxes may not only increase procurement costs but also prompt a complete redesign of the bill of materials. Similarly, oil and gas operations relying on imported assembled modules, or just pipe, compressors, or pressure control systems, may find themselves revisiting procurement strategies to maintain viability.

Further, sourcing substitutions due to tariffs may create risks around quality control, compliance with technical standards, compliance risks, or the certification of alternative suppliers—especially when sourcing shifts to non-traditional regions with limited track records. These substitutions can also drive increased oversight requirements during construction and commissioning.

"Major oil, gas, and industrial projects use modular construction concepts to leverage global resources and cost benefits. Effective risk management and contingency planning can mitigate impacts of global events like tariff changes and resource availability. Investors and developers should proactively assess these risks during planning to ensure quality, schedule, and budget objectives of the projects are achieved." (Reza Nikain)

Project Management Under Pressure

Energy projects are capital intensive and schedule sensitive. Tariff uncertainty introduces variables that can derail both timelines and budgets. Project managers must now account for potential:

- Customs delays due to reclassification of materials;
- Scheduling issues as alternative suppliers are identified and validated;
- Escalation in contract values due to material and labor cost increases;
- Force majeure claims and change orders triggered by tariff-related disruptions; and/or
- Legal disputes regarding the supply chain with tariffs.

Moreover, tariffs don't impact only new projects. For projects already underway—or even those approaching closeout—project forecasts may see schedule interruptions, increased delays, and rising costs for imported items that have not been delivered pre-tariff adjustment.

Tariff Engineering as a Strategic Tool

In response to this evolving environment, some firms are employing tariff engineering—a practice that involves altering the physical or legal classification of imported goods to reduce duties. While long utilized in manufacturing, its application in the energy sector is gaining traction.

Some of these strategies include:

- Reconfiguring assemblies to qualify as different product categories with lower tariffs;
- Shipping components in partially disassembled forms to avoid fully assembled classification thresholds; and
- Altering material compositions to shift classification codes under the Harmonized Tariff Schedule (HTS).

Though powerful, tariff engineering requires careful legal and technical coordination to remain compliant with customs regulations and avoid penalties. Its success depends on early engagement with trade specialists, engineers, and legal counsel—ideally during the design phase of projects.

> *"Global energy tariffs present a double-edged sword—on one hand, they can potentially disrupt pricing structures, increase costs for consumers, and strain international supply chains. On the other hand, they may drive innovation, accelerate the shift to renewables, and create new opportunities for domestic production and energy independence. Navigating this balance will define the next phase of the energy transition. Understanding upstream and downstream supply chain and leveraging tariff engineering strategies may provide both risk mitigation and strategic optionality."*
>
> **Andrea Korney**
> Vice President of Sustainability

Case in focus: tariff engineering for a compressor valve

Objective:
Reduce import duties on a fully assembled compressor valve through strategic reclassification and assembly sequencing.

Step-by-Step Strategy:

1. Raw Materials Procurement (Country A – India / Brazil): Steel billets and unmachined forgings face zero or low duties.
2. Initial Fabrication (Country B – China): Valve bodies and internals are machined but not assembled. Components shipped under favorable HTS codes (e.g., 2.5% duty).
3. Intermediate Processing (Country C – Mexico/ Canada): Final machining and partial assembly performed. Packaging done as kits to avoid classification as "complete valve."
4. Import into US: Kits enter under lower-duty classifications for components.
5. Final Assembly (US): Full assembly and testing occur domestically. Complies with "Made in USA" rules, qualifies for Buy American provisions, and avoids 10% duties.

Outcome:

By importing components under favorable HTS codes and completing the product in the US, the company can reduce landed costs by 5% to 10%—all while maintaining regulatory compliance.

Unknowns Across the Project Lifecycle

One of the most challenging aspects of the current trade environment is its uncertainty. Tariff regimes can change rapidly, with little notice, and often without grandfathering provisions. This means that every stakeholder—owners, contractors, engineers, manufacturers—must remain alert and agile, adapting to new risks across every phase of a project.

- **Early-stage feasibility and procurement:** Tariff assumptions must now be stress-tested under multiple geopolitical scenarios.
- **Engineering and design:** Designs should consider alternative materials, constructability strategy, and sources to mitigate future tariff risks.
- **Construction and commissioning:** Contracting strategy and language must address escalation, substitutions, and delay risk tied to tariff-related disruptions.
- **Operations and maintenance:** Spare part sourcing and lifecycle replacement strategies must consider long-term tariff exposure and availability.

Each stage requires dedicated focus on the origin, composition, and classification of equipment and materials—considerations that are often secondary in earlier phases of project execution.

Modeling Complexity and the Case for Expertise

Navigating tariffs in the energy sector requires more than spreadsheets and good instincts. It requires complex, dynamic modeling that captures:

- Direct cost increases from duties;
- Indirect costs from delays, legal disputes, or substitutions;
- Risk-weighted scenarios for future trade shifts;
- Integration of supply chain logistics, labor, and tax strategies; and
- Contingency levels aligned with project risk profile.

Equally important is the need to stay abreast of exemptions, waivers, and new classifications, which can shift competitive advantages and project viability overnight. For instance, components that were once restricted may be eligible for exclusion due to national security considerations or critical infrastructure exemptions.

To effectively manage these challenges, energy companies must partner with experienced consultants who bring cross-disciplinary expertise in global trade, engineering, and project risk management. These professionals can help organizations make informed sourcing decisions and develop resilient contracting strategies to maintain compliance in a landscape where the rules are constantly in flux.

Conclusion

Tariff policies are no longer a footnote in the energy industry—they are a fundamental consideration for project success. They touch every part of the value chain, from conceptual design through to asset operation and decommissioning. In this context, the ability to anticipate, adapt, and respond to trade-related risks has become a key differentiator for energy companies seeking to maintain profitability and delivery certainty.

It is also important to note that energy is an input cost that affects all industries. For example, the consumer buying energy (residential or corporate) will not only pay a higher price for energy generated outside their country if there are increased tariffs, the price for domestically produced energy likely also will increase because of the reasons cited above. Either way, energy is more expensive in today's economic climate.

Vanishing Forums and Vacated Awards: Fifth Circuit Addresses Arbitrability and Vacatur in Commercial Energy Disputes

By Kat Statman and Emma Perez McKellar, Baker Donelson

Introduction

In two separate cases related to energy construction projects, the Fifth Circuit stepped in—first, to enforce an arbitration agreement where the contractually agreed-upon arbitral institution no longer existed due to government fiat, and second, to resolve that in the Fifth Circuit (as in the First, Eighth, and Eleventh Circuits), an arbitral award will not be vacated for "manifest disregard of the law."

This article examines the Fifth Circuit's decisions in *Baker Hughes Saudi Arabia Co. v. Dynamic Industries, Inc.*, 126 F.4th 1073 (5th Cir. 2025) and *United States Trinity Energy Services, L.L.C. v. South East Directional Drilling, L.L.C.*, 2025 WL 1218096, Case No. 24-10833 (5th Cir. Apr. 28, 2025) and their impact on arbitration clauses within energy construct subcontracts and the energy industry as a whole.

Baker Hughes v. Dynamic Industries

Do parties implicitly select an arbitral forum when they agree to apply that forum's rules? The short answer is the classic lawyer's response: it depends—on the appellate circuit, as demonstrated in the Fifth Circuit's recent decision in *Baker Hughes*.

Baker Hughes involved a 2017 service subcontract agreement between two oil and gas technology and oilfield service companies. *See* 126 F.4th at 1076. Relevant to this discussion, the agreement provided that should a dispute arise under the contract, the dispute would proceed to arbitration using DIFC-LCIA Arbitration Rules. *See id.* at 1077. However, in 2021, the DIFC Arbitration Institute, which administered the selected rules, was, via a Decree issued by the Dubai government, abolished and replaced with the Dubai International Arbitration Centre ("DIAC"). *See id.* at 1078.

When the parties' relationship soured, Baker Hughes filed a Motion to Compel Arbitration at the district court level, seeking to arbitrate with the DIFC-LCIA. The district court denied the Motion, holding the DIFC-LCIA and its rules no longer existed and thus the arbitration clause could not be enforced. The Fifth Circuit disagreed. *See id.* at 1079.

On appeal from the District Court, the Fifth Circuit held that the arbitration clause in question referred to a set of arbitration rules—not necessarily a forum, seat, or institution. *See id.* at 1084–85. The Fifth Circuit reasoned that the clause's language merely references arbitration "under the Arbitration Rules of the DIFC-LCIA" and did not inherently indicate a requirement that the DIFC-LCIA serve as the forum. *See id.*

This distinction mattered. Although the court concluded that the "parties' dominant purpose was to arbitrate generally" rather than to arbitrate before the now-defunct DIFC-LCIA, the Fifth Circuit refused to adopt "a blanket rule that any designation of arbitral rules necessarily means selection of a forum." *See id*. at 1085. In other words, the Fifth Circuit refused to find that the parties implicitly selected an arbitral forum when they selected which rules would apply at arbitration. This led the Fifth Circuit to instruct the district court, on remand, to determine whether another available forum (*i.e.*, the LCIA, DIAC, or other forum) could apply the DIFC-LCIA Rules consistent with the parties' objective intent. If so, the district court was directed to compel arbitration in that forum. *See id*. at 1091.

In reaching this conclusion, the Fifth Circuit stepped into a seeming circuit split and sided with the Ninth Circuit. As the Fifth Circuit discussed, federal appellate courts disagree as to whether parties implicitly agree to an arbitral forum by agreeing to arbitrate using a forum's rules. On one side, the Second, Fourth, and Eleventh Circuits determined that parties impliedly select an arbitral forum when agreeing to a forum's rules. *See Brown v. ITT Consumer Financial Corp*., 211 F.3d 1217, 1220 (11th Cir. 2000); *PaineWebber, Inc. v. Rutherford*, 903 F.2d 106, 108 (2d Cir. 1990); *Smith Barney, Inc. v. Critical Health Sys. of N.C., Inc*., 212 F.3d 858, 860–61 (4th Cir. 2000). The Ninth and now Fifth Circuits disagree with this conclusion. *See Reddam v. KPMG LLP*, 457 F.3d 1054, 1059 (9th Cir. 2006).

For example, the Eleventh Circuit previously held that parties impliedly selected to arbitrate before the National Arbitration Forum ("NAF") by agreeing to pursue arbitration using the NAF's Code of Procedure. *See Brown*, 211 F.3d at 1220. The Court reasoned that because the contract did not specify a forum but specified which forum's rules would apply, the parties should proceed to arbitrate before that forum. *See id.* at 1222.

The Fourth Circuit reached a similar holding. In *Smith Barney, Inc. v. Critical Health Sys. of N.C., Inc*., 212 F.3d 858, 860–61 (4th Cir. 2000), the Fourth Circuit stated that because the arbitration agreement named a particular forum, the parties intended to exclude other arbitral forums. *See Critical Health,* 212 F.3d at 860–61. Likewise, the Second Circuit held parties that agree to an arbitral forum's rules also agree to arbitrate before the same forum. *See Rutherford*, 903 F.2d at 108.

Comparatively, the Ninth Circuit determined the parties had *not* selected the forum by merely choosing the rules to apply at arbitration. *See Reddam*, 457 F.3d at 1059. In *Reddam*, the arbitration agreement selected the rules of the forum, but not the forum itself. The Court reasoned parties could have "easily" picked their forum had they intended to. *See id.*

United States Trinity Energy Services, L.L.C. v. Southeast Directional Drilling, L.L.C.

Just four months later, and once again entering the world of arbitration, on April 28, 2025, the Fifth Circuit moved to address a question it had not previously answered. *See* 2025 WL 1218096 at note 5 ("Trinity Energy challenged the arbitration award by advancing non-meritorious arguments to resolve a question we had not previously answered."). Whether an arbitration award can be vacated under the Federal Arbitration Act ("FAA") on the basis that the arbitrator(s) award manifestly disregarded the law. *See* 2025 WL 1218096 at *3. The Fifth Circuit firmly established that such a basis is not supported by the limited and exceptionally narrow scope of review permitted for arbitration awards. *See* 2025 WL 1218096 at *3–5.

What brought the dispute up to the Fifth Circuit? Trinity Energy was the general contractor for the construction of a natural gas pipeline used to transport natural gas from the shale fields in Western Pennsylvania to the Delaware River. *See* 2025 WL 1218096 at *1. Southeast Drilling was Trinity's subcontractor for the project. *See id.* Under the parties subcontract agreement, Southeast Drilling was entitled to standby costs as a result of any suspension by either Trinity or the project owner. *See id.* Due to delays caused by the owner's failure to obtain the necessary drilling permits—along with the impact of the COVID-19 pandemic during the project—Southeast Drilling incurred substantial standby costs. *See id.* Subsequently, the owner and Southeast Drilling entered into an agreement to settle claims and liens against the project; however, this did not include the standby costs owed under the subcontract agreement. *See id.* The owner and Trinity separately mediated and resolved their own payment disputes, but again, this resolution did not resolve the standby payments Southeast Drilling was seeking per the terms of the subcontract agreement. *See id.*

After the resolutions between Southeast Drilling and the owner and separately Trinity Energy and the owner, Southeast Drilling and Trinity Energy returned to the original subcontract agreement to resolve their dispute over the standby costs. *See id.* The subcontract included a provision permitting either litigation in court or resolution through arbitration. *See id*. Trinity Energy initiated the arbitration seeking a declaratory judgment that it was not responsible for the standby costs; Southeast Drilling answered and counterclaimed seeking compensation from Trinity Energy for these costs. *See id.*at *2.

The arbitration was heard by a panel of three arbitrators that entertained oral argument, written submissions, and—as the Fifth Circuit importantly noted—"consider[ed] the relevant provisions of the subcontract." *See id.* at *2. Based on this the panel awarded Southeast Drilling $1,662,000 in standby costs to be paid by Trinity Energy. *See id.* at *2.

Trinity Energy filed an action in the Northern District of Texas to vacate the award issued by the arbitration panel relying on two separate bases: (1) the statutory basis that the panel exceed its authority under 9 U.S.C. § 10(a)(4); *See id.* at *3; and (2) the non-statutory basis that the panel's award "manifestly disregarded the law in Texas." *See id.* at *3–4. As Trinity Energy argued, this was a result of the panels' failure "to harmonize numerous subcontract provisions limiting Trinity's obligation to pay Southeast's standby costs." *See id.* at *3 (extra quotation marks removed).

The FAA provides limited means under which a federal court can vacate an arbitration award:

(1) Where the award was procured by corruption, fraud, or undue means;

(2) Where there was evident partiality or corruption in the arbitrators, or either of them;

(3) Where the arbitrators were guilty of misconduct in refusing to postpone the hearing, upon sufficient cause shown, or in refusing to hear evidence pertinent and material to the controversy; or of any misbehavior by which the rights of any party have been prejudiced; or

(4) Where the arbitrators exceeded their powers, or so imperfectly executed them that a mutual, final, and definite award upon the subject matter submitted was not made.

See 9 U.S.C. § 10(a)(1)–(4). In addressing the first question—whether the panel exceeded its powers under the statutory basis set forth in 9 U.S.C. §10(a)(4)—the Fifth Circuit reiterated prior Supreme Court precedent on the question that should be properly asked:

> Under this section, merely "convincing a court of an arbitrtor's error—even his grave error—is not enough" . . . Instead, "an arbitral decision 'even arguably construing or applying the contract' must stand, regardless of a court's view of its (de)merits." . . . "The question for a judge is not whether the arbitrator[s] construed the parties' contract correctly, but whether [they] construed it at all." . . . Only when "the arbitrator acts outside the scope of [their] own notions of economic justice rather than drawing its essence from the contract," may a court vacate this determination. . . . In simpler terms, "[t]he potential for . . . mistakes is the price of agreeing to arbitration."

2025 WL 1218096, at *3 (quoting *Oxford Health Plans LLC v. Sutter*, 569 U.S. 564, 572–73 (2013), citing *Associated Coal Corp. v. United Mine Workers of Am.*, 531 U.S. 57, 62 (2000)). In essence, the parties agreed to be bound by the decision of the arbitrator(s) and it is not the Court's place to intervene in that decision. Absent a showing that the panel ignored the subcontract in its entirety, the Court should not intercede in the parties' agreed upon method for resolution. Based on this the Fifth Circuit assessed the final award and found that the panel had "reviewed the evidence presented, considered the effects of various provisions in the subcontract, and concluded that Trinity Energy owed Southeast Drilling for stand-by costs. Vacatur is therefore unjustified under § 10(a)(4) because Trinity Energy failed to show the arbitration panel exceeded its powers by disregarding the subcontract entirely. The Parties bargained for this dispute resolution arrangement, and we conclude this arbitration panel's 'construction holds, however good, bad, or ugly.'" *Id.* at *3 (quoting *BNSF Ry. Co. v. Alstom Transp., Inc.*, 777 F.3d 785, 790 (5th Cir. 2015)).

The result under § 10(a)(4) of the FAA appears obvious based on the language of the statute; however, with a similar argument, Trinity Energy also sought to vacate the award under a non-statutory argument that is purportedly grounded upon the four bases for vacatur under 9 U.S.C. §10. Trinity Energy argued "that manifest disregard of the law remains viable as an independent ground for review *or* as a judicial gloss on the enumerated grounds for vacatur set forth at 9 U.S.C. §10." *Id.* at *4.

The Fifth Circuit had not directly addressed this argument before in a published opinion. Based on the opinion issued in *Trinity Energy*, the Fifth Circuit found Trinity Energy's arguments wholly unpersuasive. The Fifth Circuit immediately noted that by adopting the standard advocated for by Trinity Energy, it would require courts within the Fifth Circuit to suddenly adopt a much less deferential review of arbitration awards than the FAA contemplates. As the opinion states, "[i]ndeed, adopting Trinity Energy's reading essentially would rewrite the question a judge must ask from 'whether the arbitrator's construed the contract at all' to 'whether they construed it correctly.'" *Id.* at *4. Essentially, this would give parties not happy with an arbitration award another bite at the apple and a chance to seek judicial review even though they agreed to be bound by arbitration. *See id.* at *4. As the Fifth Circuit explained, "[i]n its proper form, §10(a)(4) is supposed to provide relief when an arbitrator refuses to even consider a contract's basic commands while protecting the arbitrator's virtue of resolving disputes straightaway—not provide a backdoor for a party to seek judicial review of the arbitrator's interpretations." *Id.* at *4.

Further, this would likely lead to additional expense, which goes against one of the initial justifications for utilizing arbitration as a dispute resolution tool: that it is a streamlined and ideally more cost-efficient means of resolving disputes between consenting parties. *See* Redfern and Hunter on International Arbitration, 5th Ed. at 1.100. (As noted by Redfern and Hunter, the justification regarding cost no longer applies at least in the international commercial arbitration context).

In some pointed language on the issue, the Court concluded: "[l]ike our court has held before, 'the statutory grounds are the exclusive means for vacatur under the FAA' . . . The text Congress enacted means what it says throughout § 10(a), and judicial reconfiguration of §10(a)(4) would betray congressional intent. . . . In short we cannot substitute a court panel's judgment in place of an arbitration panel's decision by recognizing 'manifest disregard of the law' as a basis for vacatur embedded within §10(a)(4)." 2025 WL 1218096, at *5 (citing *Dream Med. Grp., L.L.C. V. Old South Trading Co., L.L.C.*, 20212 WL 2366982, at *2 (5th Cir. March 6, 2023) ("These limited circumstances do not include vacating an arbitration award based upon the merits of the claims that were heard by arbitrators.")).

Bringing it All Together

What does a Fifth Circuit opinion addressing whether compelling arbitration is required under the FAA and a later opinion addressing whether an arbitration award can be vacated under a non-statutory basis of "manifest disregard for the law" have to do with each other, beyond the Fifth Circuit suddenly

being interested in arbitration cases? The link between both of these decisions is the fundamental principle behind the existence of arbitration: if the parties agree to be bound by arbitration, then Courts are loathe to step-in. A central tenet of arbitration is that the parties must agree to bind the fate of their dispute to this process. Looking at the first case, the issue is whether or not an arbitration agreement remains valid when the agreed forum, or forum whose rules were agreed to govern, no longer exists. In the second case, once you are there, absent the extreme circumstances outlined in 9 U.S.C. §10(a)(4), the Courts will not intervene in the decision of the arbitrator(s).

Arbitration clauses in the energy industry are commonplace, whether they arise in construction contract situations like *Baker Hughes* and *Trinity Energy* or even in maritime transportation and cargo contracts where energy companies are looking to transport and move their product or raw materials.

Ultimately, *Baker Hughes* offers helpful guidance for preserving arbitration agreements when an institution ceases to exist, but the decision also highlights the growing uncertainty practitioners face. With federal circuits now split on whether referencing an institution's rules implies a choice of forum, maritime attorneys cannot assume that courts will uniformly enforce arbitration clauses without challenge. As arbitral institutions continue to evolve, energy lawyers (both transactional and dispute resolution) should work with their clients to shore up arbitration clauses—ensuring that the choice of forum, fallback options, and governing rules are unmistakably clear—or be aware of the risks associated with existing arbitration clauses that are less clear. Doing so will potentially limit litigation risks and safeguard the swift and certain dispute resolution that maritime commerce demands.

Similarly, *Trinity Energy* offers helpful guidance in determining whether to even agree to an arbitration provision. In many instances there can be benefits to arbitration versus litigation within a Court system. For example, where some energy companies operate internationally, agreeing to arbitration may help avoid concurrent litigation in multiple jurisdictions and the risk of different results. However, as *Trinity Energy* makes clear, once arbitration is the agreed upon framework for resolving the dispute, then at least in the United States, and particularly the Fifth Circuit, our courts are going to hold the parties to their agreement and absent the very specific circumstances enumerated in 9 U.S.C. §10(a), they will not intervene. "When parties agree to resolve a dispute through arbitration, a federal court's interpretation of substantive contractual terms is often "beside the point because it is not our interpretation that the parties bargained for." *Id.* at *2 (quoting *BNSF Ry. Co.*, 777 F.3d at 789).

Who Owns the Empty Space? Texas Supreme Court Affirms Surface Ownership of Salt Caverns in Landmark Ruling

By Austin Brister, McGinnis Lochridge

In *Myers-Woodward, LLC v. Underground Services Markham, LLC*, No. 22-0878, 2025 WL 4356581 (Tex. May 16, 2025), the Texas Supreme Court resolved two significant issues affecting mineral owners and surface owners: (1) who owns the empty caverns created by salt mining operations, and (2) how to calculate royalty payments on produced salt.

The Case That Opened a Void

This dispute involved 160 acres in Matagorda County, Texas. In 1947, Myers-Woodward, LLC's (Myers) predecessors retained the surface estate but conveyed the mineral estate to Underground Services Markham's (USM) predecessor through a mineral deed that included "all of the said oil, gas and other minerals in, on and under said land." *Id.* at 3.

In 2008, USM acquired from Texas Brine Company – the then-owner of the mineral estate – "all of [Texas Brine Company's] right, title and interest, in and to all of the salt and salt formations only" on the property. *Id*. USM began producing salt from the property, extracting an impressive 2,674,058.90 tons of salt, which created large underground caverns. *Id.* at 4. Despite this substantial production, USM did not pay Myers any royalty. *Id*.

The dispute arose on two fronts. First, USM claimed ownership of the resulting salt caverns and sought to use them to store oil and gas produced off-site. Second, the parties disagreed over how to calculate Myers's royalty.

Who Owns the Cavern After Mining?

The essential question was whether empty spaces within salt formations were included within the mineral conveyance. *Id.* at 8. The Court relied on numerous prior decisions as establishing a general rule that subsurface spaces generally belong to the owner of the surface estate, absent deed language stating otherwise.

- In *Humble Oil & Refining Co. v. West*, 508 S.W.2d 812, 815 (Tex. 1974), the Court drew a distinction between the "mineral estate" and "the matrix of the underlying earth, i.e., the reservoir storage space," which "would remain with the surface-estate holder after severance of the mineral estate."
- In *Lightning Oil Co. v. Anadarko E&P Onshore, LLC*, 520 S.W.3d 39, 49 (Tex. 2017), the Court observed that the mineral estate generally includes the right to "possess the minerals" but "do[es] not include the right to possess the specific place or space where the minerals are located."
- More recently in *Regency Field Servs., LLC v. Swift Energy Operating, LLC*, 622 S.W.3d 807, 820 (Tex.

2021), the Court reiterated that "the surface owner, and not the mineral lessee, owns the possessory rights to the space under the property's surface."

- The Fifth Circuit similarly held for the surface owner in *Dunn-McCampbell Royalty Int., Inc. v. Nat'l Park Serv.*, 630 F.3d 431, 442 (5th Cir. 2011), stating "Texas law establishes that the holder of a mineral estate has the right to exploit minerals, but does not own the subsurface mass."
- The U.S. Court of Claims also found that subsurface geological structures suitable for underground storage remained the property of the surface owners in *Emeny v. United States*, 412 F.2d 1319, 1323 (Ct. Cl. 1969).

From this line of cases, the Court concluded that "we consider Texas law reasonably clear that underground storage space generally belongs to the surface owner absent a contrary agreement." *Id.* at 14.

USM sought to distinguish this precedent as applying only to oil and gas which is subject to the rule of capture under which oil and gas ownership does not reach any specific molecules, but instead only provides a "fair chance to recover the oil and gas." *Id.* at 13 (citing *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1, 15 (Tex. 2008) ("minerals owner is entitled, not to the molecules actually residing below the surface, but to a fair chance to recover the [minerals]."). According to USM, a different rule should apply to hard minerals. USM cited to precedents from coal-mining states supporting its position. *Middleton v. Harlan-Wallins Coal Corp.*, 66 S.W.2d 30, 31-32 (Ky. 1933) (holding coal owner had right to use cavern created by mining so long as mineable coal remained) and *Lillibridge v. Lackawanna Coal Co.*, 22 A. 1035, 1039 (Pa. 1891) (holding coal owners, not surface owners, owned mining shafts created by removal of coal). USM also relied heavily on *Mapco, Inc. v. Carter*, 808 S.W.2d 262, 274 (Tex. App.—Beaumont), *rev'd in part on other grounds*, 817 S.W.2d 686 (Tex. 1991), where a Texas court of appeals held that "the continued ownership interest [of] the mineral estate in an underground storage facility is acknowledged and harmonious with the decisional law of our state." *Id.* at 6, 11.

The Court acknowledged that USM's position was "not without intuitive appeal" and that such a rule would not be "altogether unjust or unreasonable." *Id.* at 12. Nevertheless, the Court rejected this distinction for two main reasons. First, the Court found *Mapco* unpersuasive, citing little Texas authority in support of its holding, and seldom being cited over the years. *Id.* at 12. As a result, the Court explicitly overruled *Mapco* to the extent it was inconsistent with the Court's ruling. Second, the Court stated a preference for "simple bright-line rules" that would "apply…consistently across a variety of fact patterns," rather than introduce "greater complexity and uncertainty" by drawing "ever finer distinctions" to account for "factual vagaries that so often test the edges of bright-line rules." *Id.* at 14.

Why this Surface Owner Still Won – Despite Intuitive Appeals

Applying that holding in this case, the Court rejected USM's ownership claim for two primary reasons. First, USM did not own the salt formations—only the salt itself. *Id.* at 13. The Court explained that, although USM's deed purported to convey to USM the salt *and* the "salt formations," USM's predecessor in title had only obtained ordinary ownership of the mineral estate. *Id.* at 3. Given the "axiomatic" rule that a grantor can only convey what he owns, the Court concluded that USM never obtained title to the salt formations themselves. *Id.* at 13 (quoting *Cox v. Gutman*, 575 S.W.2d 661, 664 (Tex. App.—El Paso 1978, writ ref'd n.r.e.)).

Second, the Court bluntly stated its view that "[e]mpty space is not a mineral, no matter how economically valuable it becomes," *Id.* at 2. and later stated "despite its apparent complexity, much of this case boils down to the elementary observation that empty space is not salt." *Id.* at 14. The Court concluded that "[n]o matter who created the underground empty space or where it is located, the space itself is not salt, which means the mineral estate generally does not entail physical ownership of it (absent some indication to the contrary in the conveyance, which we do not see here)." *Id*.

Regardless of Ownership Could the Caverns Be Used for Storage?

Although the Court established that Myers owned the caverns, that did not on its face resolve USM's claimed right to use them in connection with its implied easement as an owner of the mineral estate. The Court said that, while USM's mineral estate gives it a qualified right to use Myers's surface estate (including subsurface space like the disputed salt caverns), that right is limited to uses "reasonably necessary to recover [USM's] minerals." *Id.* at 15 (citing *Lightning Oil*, 520 S.W.3d at 50).

The Court ultimately rejected USM's claimed right to use the caverns for storing off-site hydrocarbons, holding that it was not a reasonably necessary use that fell within its implied easement. The Court offered two primary rationales:

1. USM had not demonstrated that storage of hydrocarbons was reasonably necessary to recover its salt. In fact, in the court's view, such storage would likely hinder, rather than facilitate, further production of salt. *Id.* at 16.

2. Storage of hydrocarbons produced elsewhere introduced an additional problem for USM, because ownership of the mineral estate does not entitle "the mineral owner to increase the burden on the surface estate for the benefit of additional lands." *Id.* (quoting *Robinson v. Robbins Petroleum Corp.*, 501 S.W.2d 865, 868 (Tex. 1973)).

Because USM's proposed use of the caverns had "no connection to the production of salt on the property," the Court affirmed that USM had no right to use the caverns for storing off-site hydrocarbons. *Id*.

Royalty on Salt - Market Value or Net Proceeds?

As for royalties on the salt, the key issue was whether the

deed reserved an in-kind royalty (payable on net proceeds) or a market-value royalty. *Id.* at 17, 19. This distinction was remarkably impactful in this case, given that USM contended the salt's market value warranted a royalty of only about $260,000, while Myers calculated its entitlement to net proceeds at more than $2,000,000—over seven times greater. *Id.* at 17-18.

There were two reservation deeds at issue: an original deed and a correction deed entered a few months later. Myers and USM agreed that the original 1947 deed – which reserved a royalty only in oil – provided an in-kind royalty. Specifically, USM conceded that in-kind royalties were due on oil given the deed's statement that oil royalties were "to be *delivered* at the wells or to the credit of Grantors... into pipe line to which the wells may be connected." *Id.* at 3, 21.

Conversely, the correction deed – which later corrected the reservation to include "gas and other minerals" – did not repeat the delivery language. USM contended that meant royalties on other minerals (such as salt) would not be due in-kind.

The Court rejected USM's argument. In the Court's view, royalties on gas and other minerals were also due on an in-kind basis. The Court focused on language in the correction deed indicating the parties intended to correct an "inadvertent" failure to include gas and other minerals in the original reservation. *Id.* at 22. In addition, the correction deed used materially similar language to describe the reservation, and then closed by summing up the parties' intent "that [the royalty holders] shall receive a total royalty interest of 1/8 of all the oil, gas, or other minerals (except sulfur) produced from said land." *Id.* at 23.

Given these features, the Court concluded that "the parties intended to create identical royalties for all three categories—oil, gas, and other minerals." *Id*. The Court found "nothing in these documents supporting the notion that the royalty on 'other minerals' should not be treated just like the in-kind oil royalty to which the parties unquestionably agreed." *Id*.

The Court therefore held that Myers was entitled to an in-kind royalty—which meant Myers was entitled to either physical possession of a 1/8th share of the salt produced or payment of 1/8th of the net proceeds from the sale of that salt. *Id.* at 17, 24. Because the trial had "proceeded from the mistaken premise that market value was the only appropriate measure of Myers's royalty," the Court reversed and remanded for further proceedings on this issue. *Id.* at 24.

Strategic Takeaways and Doctrinal Signals

What This Means for Operators, Drafting Lawyers, and Storage Developers

This decision is notable for a few reasons. Perhaps most directly, it provides additional clarity for both surface and mineral owners regarding their respective rights in the increasingly valuable underground storage space created by mining operations. Those in favor of the decision will argue that the Court's self-titled "bright-line rule"—that surface owners own subsurface spaces absent agreement otherwise—will promote certainty and consistency in property rights.

The ruling is also potentially notable for its guidance on interpreting calculation of fee royalties derived from mineral conveyances or reservations. Although the Court attributed much of its discussion of the in-kind interpretation of the oil royalties to the parties' mutual concession, the case arguably lends support to the notion that language requiring physical delivery of the royalty strongly suggests that a royalty is payable in-kind. The case also affirms that in-kind royalties are payable both through actual physical possession, or through a cash payment on the basis of net proceeds.

A Court That Prefers Simplicity – Until It Doesn't?

The Texas Supreme Court's opinion in *Myers-Woodward* reveals a fascinating tension between competing jurisprudential approaches to property rights. On one hand, the Court emphasizes textual specificity and the uniqueness of individual conveyances; on the other, it champions bright-line property rules that intentionally avoid complex nuances to take into account distinctions presented by edge cases. This tension merits careful examination, as it illuminates the Court's broader approach to resolving complex property disputes.

Early in its analysis, the Court cautions that "not all mineral estates are created equal" and that resolving disputes over the scope of mineral conveyances "should therefore begin with the text of the conveyance—not with generalizations about the default nature of a 'surface estate' or a 'mineral estate.'" *Id.* at 7. This admonition places primacy on the specific unique language chosen by parties to a particular conveyance, suggesting a contract-centric approach that treats each deed as potentially unique.

Yet immediately after this observation, the Court acknowledges that "doctrinal labels such as these—and the caselaw from which they derive—are of course very useful, indeed essential, when courts are confronted with questions not fully answered by the text of the conveyance." *Id*. This qualification suggests that despite the primacy of text, general rules remain necessary for resolving ambiguities or addressing matters the parties failed to contemplate explicitly.

The most revealing tension emerges later when the Court confronts USM's argument that solid minerals like salt deserve different treatment than migratory minerals like oil and gas. Despite acknowledging that USM's position has "intuitive appeal" and that a rule favoring mineral owners' rights to caverns they created "would strike few observers as altogether unjust or unreasonable," *Id.* at 12, the Court rejects this distinction in favor of a bright-line rule that surface owners generally own subsurface spaces.

The Court's justification for this approach is particularly notable:

> [W]e should always prefer, where possible, to stick with simple, bright-line rules and to apply them consistently across a variety of fact patterns. And we should always avoid, where possible, inviting greater complexity and uncertainty into the law

> by drawing ever finer distinctions in an effort to account for the factual vagaries that so often test the edges of bright-line rules. *Id.* at 14.

This statement of philosophy reveals the Court's preference for simplicity, consistency, and predictability in the context of general rules applicable to property law concepts, which stands in notable contrast with the Court's contract-centric approach emphasized earlier where each unique deed is to be read as a whole to understand the objective intent.

The Court's reasoning implicitly recognizes a hierarchical relationship between these competing approaches. The Court begins by suggesting that deed language remains primary and can override general property rules ("absent some indication to the contrary in the conveyance"). Yet, the Court states that general rules are "very useful, indeed essential" when deed language does not "fully answer" the question before the court. In this case, the absence of express language governing ownership of subsurface salt caverns gave way for the Court to ultimately embrace a generalized default rule. Moreover, when it comes to that general rule, the Court favored a simple "bright-line" rule, and stated that it should not create specialized property rules for different categories of minerals in the absence of specific textual direction.

Putting this together, perhaps it could be said that a deed's unique language will govern, but when a deed is silent on a particular issue, the Court favors broad, generally applicable property rules over nuanced, context-specific ones.

This jurisprudential approach could have significant implications for practitioners. First, it underscores the paramount importance of precise drafting in mineral conveyances. If parties wish to allocate ownership of subsurface caverns created by mineral extraction, they should do so through express language, as the default rule will likely assign them to the surface owner. Second, it signals that when it comes to general rules, attempts to argue for exceptional treatment for edge cases or nuanced facts may face an uphill battle absent textual support.

The Court's preference for bright-line rules in property law, while maintaining textual specificity in contract interpretation, arguably represents a pragmatic balance between competing values. While contract terms should be interpreted according to the parties' specific intent, the Court apparently believes that property law benefits from clear, consistently applied rules that promote certainty and uniformity in land titles.

The author anticipates that these aspects of the Court's reasoning in *Myers-Woodward* will likely prove influential in future oil and gas cases, well beyond those involving subsurface ownership. The Court's emphatic endorsement of bright-line rules and its explicit rejection of fact-specific distinctions in property law principles will undoubtedly be cited whenever litigants seek specialized treatment for particular categories of minerals or novel subsurface uses. Meanwhile, its recognition that "not all mineral estates are created equal" will continue to remind courts that textual analysis must precede application of general rules when interpreting mineral conveyances.

From Natural Gas Self-Sufficiency to Dependence: LNG as the Emerging Solution in Colombia

By Jose Plata Puyana, Serrano Martínez CMA

Submitted on behalf of the IEL International Practice Committee

Columbia has emerged in South America as one of the largest liquified natural gas (LNG) importers. According to the Gas Exporting Countries Forum, "LNG imports in LAC [Latin America and the Caribbean] surged by 19% (2.4 Mt) to 15 Mt in 2024, marking the highest level since 2021 and the second highest on record," with such "increase [being] mainly driven by Brazil and Colombia". *See*, Gas Exporting Countries Forum, Annual Gas Market Report, at 93. Additionally, in October 2024, S&P Global identified Colombia as the second largest LNG importer in Latin America. *See*, S&P Global, September LNG imports to Latin America reach highest monthly level this year.

The purpose of this article is to provide insights into how Colombia evolved from a situation of natural gas self-sufficiency to a situation of risk of shortage, where LNG emerges as the main solution to preserve consumption. This article examines policy decisions that (i) contributed to the loss of energy self-sufficiency, such as opposing fracking and not awarding new exploration and production (E&P) contracts, and (ii) strengthened the role of LNG as a central axis of energy supply.

1. Context and Background

Colombia was considered for several years as a natural gas self-sufficient country. The country had the capacity to cover its domestic demand for natural gas because of stable domestic production and sufficient reserves to guarantee supply and meet national demand, a situation that has changed drastically nowadays. By 2024, natural gas imports had increased by 166.4%, according to the Colombian Chamber of Oil, Gas and Energy. *See*, CAMPETROL, Oil Balance Second Semester 2024, at 51.

The National Hydrocarbons Agency ("ANH" for its acronym in Spanish) informed in its 2024 Reserves and Resources Report that, as of December 31, 2023, Colombia had proven gas reserves for 6.1 years. *See,* ANH, Reserves and Resources Report 2023, at 24. This, combined with the evident decline in proven reserves over the years (around 16% decrease), and the decrease in national production potential, forecast a reduction of 6% by 2025. *See*, Manager of the Natural Gas Market in Colombia – BMC, Natural Gas Production Declaration 2024–2033, at 5.

This process of losing self-sufficiency has been confirmed by the projections of the Mining and Energy Planning Unit ("UPME" for its acronym in Spanish), in their study for the Natural Gas Supply Plan 2023 -2038. *See,* UPME, Supplementary Document - UPME. Technical Study for the Natural Gas Supply 2023–2038 at 36. Moreover, UPME warned that the loss of self-sufficiency could evolve to a situation of shortage because

domestic production plus importation of LNG through the unique regasification plant in Cartagena (430 MCFD) would not suffice to cover national demand in 2027. In this context, if import projects are not developed, the country will face a clear risk of energy shortages.

2. Lost Self-Sufficiency: The Role of a Government Policy Against Hydrocarbons

The recent history of Colombia's gas sector reveals a downward trajectory in terms of production, resulting from both geological conditions and political decisions. The reduction in reserves and the decrease of exploratory activity cannot be considered isolated events, but rather the consequence of energy transition policies disconnected from realistic short- and medium-term planning. *See*, Senate of the Republic of Colombia, Senate demands answers for the natural gas crisis in Colombia.

One of the most decisive public policies affecting reserves has been related to fracking. While the previous Government (2018-2022) promoted Comprehensive Research Pilot Projects ("PPII") to evaluate the potential of unconventional reservoirs through hydraulic fracturing in Colombia, the current Government (2022-2026) has opted for a diametrically opposed approach. *See*, Presidency of the Republic of Colombia, We want to move from an extractive economy to a productive one, based on clean energy and the land: President Petro at the WEF.

The PPII are initiatives approved by the Colombian Government (2018-2022) to assess the feasibility of using hydraulic fracturing with horizontal drilling (fracking) in unconventional reservoirs. In 2019, an Independent Interdisciplinary Commission concluded that these projects could be carried out in Colombia, provided that strict technical, environmental, and social requirements were met. *See*, National Environmental Licensing Authority – ANLA, Comprehensive Research Pilot Projects on Unconventional Reservoirs. This led to the issuance of Decree 328 of 2020 by the President of Colombia, which formalized the framework for implementing the PPII as an experimental stage to inform future decisions regarding fracking in the country. *See,* Presidency of the Republic of Colombia*,* Decree 328 of 2020.

Since his campaign, the actual President (2022-2026) announced its intention to ban fracking in Colombia, with the campaign program stating: "We will undertake a gradual de-escalation of economic dependence on oil and coal. In our government, the exploration and exploitation of Unconventional Reservoirs will be prohibited, pilot fracking projects will be halted, and the development of offshore reservoirs will be stopped". *See*, Petro Gustavo & Marquez Francia, 2022-2026 presidential campaign program.

This position materialized in the submission of several legislative initiatives, notably Bill 150 of 2024, currently under consideration in Congress. *See,* Andes University -Visible Congress, By means of which the prohibition of fracking, as well as the exploration and production of unconventional hydrocarbon reservoirs (YNC), is established; the reformulation of the energy transition policy is mandated; and other provisions are enacted [Prohibits fracking]. This legislative initiative seeks to expressly prohibit the use of hydraulic fracturing.

In the meantime, national regulations (such as Decree 3004 of 2014 and Resolution 90341 of 2014) that enable the development of this activity in Colombia have not been applied. *See,* Presidency of the Republic of Colombia, Decree 3004. *See,* Ministry of Mining and Energy, Resolution 90341. Moreover, Decree 328 of 2020 allowed the award of special contracts for PPII called Kalé and Platero in Magdalena to the companies Ecopetrol and ExxonMobil, which today are suspended. *See,* Grillo Jenny Carolina, Heinrich Böll Foundation, Unconventional Reservoirs in Colombia, at 78-80.

In addition to this de facto ban on fracking, the current Government (2022-2026) has decided not to award new exploration and production (E&P) contracts. *See*, Enerdata, Colombia will not issue new oil and gas exploration contracts. The ANH, which until 2021 held periodic rounds for the allocation of blocks under the Permanent Area Assignment Process, has suspended all new contract signings under the direct mandate of the current government. *See*, Colombian Oil and Gas Association – ACP, Investment trends in oil and gas exploration and production (E&P) in Colombia 2022 and outlook 2023, at 12. In its last allocation, known as Colombia Round 2021, the ANH signed 30 contracts for 30 exploration and production areas, representing an investment of more than USD 148 million. *See*, National Hydrocarbon Agency, Ronda Colombia 2021 results.

To aggravate this critical situation, instead of encouraging national production, the National Government (2022-2026) approached the Venezuelan government in 2024 to explore the possibility of importing gas through the Antonio Ricaurte binational gas pipeline. *See,* Presidency of the Republic of Colombia, Possible Ecopetrol-PDVSA alliance, a "win-win" that benefits Colombia and Venezuela: MinMinas. However, this alternative faces multiple technical, economic, and geopolitical obstacles, given the various economic sanctions imposed on Venezuela by the United States. *See*, U.S. Department of State, Venezuela-Related Sanctions. More recently, U.S. President Trump's decision to impose a 25% tariff on buyers of Venezuelan oil, thus making it unfeasible. *See*, Bloomberg, Damaged Pipeline Threatens to Stall Colombia Plan to Import Gas.

These structural factors are augmented by the drastic changes in climate patterns during 2024 because of the "El Niño" phenomenon, which caused an extended period of drought. Therefore, in 2024, hydroelectric power plants reduced generation. *See*, Colombian System Operator XM, Current Situation of the System in the Context of the El Niño Phenomenon. At the same time, thermoelectric generation increased, expanding the demand for natural gas when supply was already limited. *See*, Manager of the Natural Gas Market – BMC, Monthly Report – Natural Gas Market, at 15. According to the Colombian Natural Gas Association ("Naturgas" for its

acronym in Spanish), the supply of natural gas in 2024 faced a 233% increase in demand for electricity generation compared to 2023. *See,* Colombian Natural Gas Association, Natural gas supply to support electricity generation has increased by 233% so far in 2024. Additionally, energy prices rose significantly by 20% due to the "El Niño" phenomenon. *See*, Manager of the Natural Gas Market – BMC, Energy prices have risen by nearly 20% since the El Niño phenomenon began.

The sum of these elements—regulatory decisions, lack of exploration, restrictive policies, and adverse climatic conditions—has pushed the country towards a growing dependence on LNG imports. This scenario forces a rethinking of the Colombian energy model and recognition that LNG, far from being a transitional option, is emerging as the only viable short-term alternative to avoid a critical supply shortage.

3. LNG: The Emerging Solution to the Risk of Shortage

Faced with the imminent risk of shortages, the National Government (2022-2026) began to take regulatory measures to strengthen the role of LNG as a central axis of energy supply. Contrary to its own campaign plan, it began to issue regulations that aim to reduce barriers to invest in regasification terminals and facilitate trading of imported LNG. These actions reflect a notable contradiction as recently noted by The Economist in the following terms, "compensating for the deficit is ruining President Gustavo Petro's apparent green agenda." *See*, The Economist, The green promises of Colombia's president ring ever more hollow. A statement that summarizes the tension between the government's environmental agenda and the decisions necessary to avoid an energy crisis. *See,* University of Sussex SUS-POL, Research Project The Petro government's big gamble on ending fossil fuel licensing. It even points out how the current Government has celebrated new offshore natural gas discoveries, contrary to its green policies. *See*, Presidency of the Republic of Colombia, Ecopetrol and Petrobras successfully complete offshore gas activity tests at Sirius-2.

Recently, the National Government (2022-2026) issued Decree 1467 of 2024 last December. *See*, Presidency of the Republic of Colombia, Decree No. 1467. This regulation determined that the activity of operating regasification terminals is free of restrictions related to vertical integration. Previously, the Superintendence of Utility Services had determined – through Resolution 57975 of 2020 – that operating a regasification terminal was equivalent to developing the activity of natural gas transportation. *See,* Superintendence of Utility Services, Resolution No. 20201000057975.

Consequently, any operator of a regasification terminal was subject to the same restrictions on vertical integration of any natural gas transporter included in Sections 5 and 6 of Resolution CREG 057 of 1996, which requires the separation of ownership of transportation activities from the production, distribution, and commercialization of natural gas. Specifically, the aforesaid regulation prohibits the transporter from directly engaging in these activities, as well as having an economic interest (i.e., 25% shareholding) in companies that carry out such activities. *See*, Plata Jose & De Greiff Andrés Vniversitas Jurídica, Competition in Power and Gas Markets: Which Authority Has Jurisdiction?, at 4. In summary, per Decree 1467 of 2024, a market player can operate, import and sell LNG in the wholesale and retail market.

Additionally, Decree 1467 of 2024 facilitates the negotiation of LNG supply contracts to ensure the provision of natural gas for prioritized consumers, including households, small commercial users, natural gas vehicles, grid compression stations, and refineries, collectively referred to as Essential Demand. Decree No. 1073, § 2.2.2.1.4. Prior to the enactment of Decree 1467 of 2024, the commercialization of natural gas to meet Essential Demand necessitated Physical Backup, which required supply agreements to be supported by domestic gas reserves. To overcome this limitation, Decree 1467 of 2024 establishes that an *"importer of natural gas has Physical Backup when, at the time of offering supply for a given period, they have a contract that guarantees access and the right to use (...) the capacity of regasification infrastructures".* Decree No. 1073, § 2.2.2.1.4.

One of the companies that benefited from Decree 1467 of 2024 was Ecopetrol – the National Oil Company – that has a 70% wholesale market share. *See*, Superintendence of Utility Services, Monitoring Report of Wholesale Power and Gas Markets, December 2024 – February 2025, at 20. In March 2025, Ecopetrol announced that it has executed an agreement for the development of an LNG terminal in the Pacific Ocean of 60 MCFD. *See*, Ecopetrol, Ecopetrol awarded and signed a regasification services contract in the Colombian pacific.

4. Conclusion

Colombia's natural gas situation is at a critical juncture. The de facto ban on fracking and the decision not to award new E&P contracts, adopted by the current National Government (2022-2026), have significantly undermined the country's energy self-sufficiency. In this context, LNG has emerged as a viable alternative to mitigate the risk of supply shortages with severe economic and social repercussions. Although the measures implemented by the National Government (2022-2026) through Decree 1467 of 2024 point in the right direction – aiming to reduce regulatory barriers for LNG – they also underscore the inherent tensions of a public policy that seeks the transition to clean energy without yet having the conditions to do so, potentially compromising energy security at affordable prices.

A Message from IEL

We are now accepting nominations for the 2025 Excellence in Diversity and Inclusion Award. Again this year, IEL may award two honors: one to an organization and one to an individual. Nominations are due by June 30. Submit nominations online here. This year's Award(s) will be presented at the 2025 Excellence in Diversity and Inclusion Award Reception, October 15, 5:30-7:30 p.m. at The Asia Society Texas Center in Houston, TX.

Register soon if you plan to attend IEL's Strategic Negotiation Course: Mastering Influence, Strategy, and Results, September 17-18 in Houston, TX. Given the interactive nature of this program, participation will be limited to 38 individuals. Spots are filling up quickly – secure yours today!

Check out the rest of our 2025 programs calendar: the 16th Appalachia Energy Law Conference, September 3 in Pittsburgh, PA (*co-presented by EMLF – early registration pricing ends August 19*); Short Course on International Oil & Gas Law, Contracts, and Negotiations, September 22-26 (Part I) and September 29 – October 3 (Part II) in Houston, TX (*co-presented by FNREL and AIEN*); the 2nd IEL Energy Project Development Conference, October 16 in Houston, TX (*early registration pricing ends September 25*); the 42nd Annual Oil & Gas Law Short Course, October 20-22 in Westminster, CO (*co-presented by FNREL, EMLF and AAPL*); the 24th Annual Energy Litigation Conference, November 4 in Houston, TX (*early registration pricing ends October 22*); and the 9th Midstream Oil & Gas Law Conference, December 9 in Houston, TX (*early registration pricing ends November 20*).

NEW MEMBERS

We are honored and excited to add the following companies and individuals to IEL's membership roster. Please join us in welcoming them to our organization!

YOUNG ENERGY PROFESSIONAL MEMBERS

- Mostapha Al-Masry, Islamic University of Lebanon (IUL), Beirut, Lebanon
- Hannah Beall, Phelps Dunbar LLP, Ft. Worth, TX
- Federico del Rio Abundis, Engelhart Commodities Trading Partners, Houston, TX
- Samir Hafez, Buchalter, APC, San Francisco, CA
- Mallory Hasbrook, Welborn Sullivan Meck & Tooley, P.C., Denver, CO
- Jenny Hulse, SMU Dedman School of Law, Dallas, TX
- Sami Khan, Hunton Andrews Kurth LLP, Houston, TX
- Ashley McWilliam, Norton Rose Fulbright US LLP, Houston, TX
- Jack Moxon, White & Case LLP, Houston, TX
- Leah Nommensen, Hunton Andrews Kurth LLP, Houston, TX
- Hannah Roberts, Exxon Mobil Corporation, Spring, TX
- Nathan Thibon, Baker Botts L.L.P., Houston, TX

FULL-TIME LAW STUDENTS

- Kristen Adams, SMU Dedman School of Law, Dallas, TX
- Raissi Bysiewicz, Georgetown University Law Center, Washington, D.C.
- Karena Verbitsky

Middle East and North Africa Energy Trilemma: A Balanced Triangle?

This paper was selected as a finalist in the 2025 IEL Hartrick Scholar Writing Competition

By Mostapha al-Masry, Ph.D. (cand.) in Energy Law & Petroleum Contracts, Islamic University of Lebanon (IUL), Beirut, Lebanon

1. Introduction

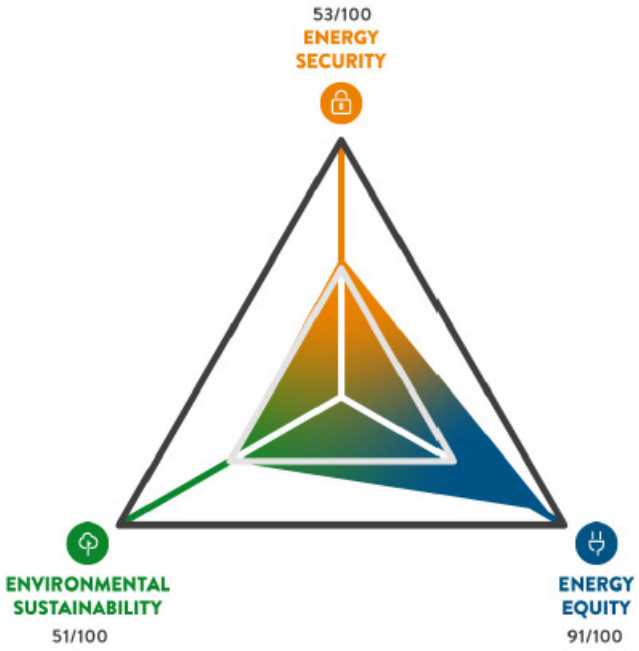
The intricate relationship between the three main facets of energy policy—Sustainability, Equity, and Security—is captured by the idea of the "Energy Triangle". (World Energy Council, 2019, p. 4) Harmonizing these sometimes at odds goals is a difficulty faced by policy makers, business executives, and stakeholders in the development of a strong and resilient energy system. Fundamentally, the Energy Trilemma represents the need to tackle urgent environmental issues while guaranteeing the dependability and availability of energy supplies, all while overseeing the financial consequences of these undertakings. (World Economic Forum, 2020)

Sustainability stands as a cornerstone of the Energy Trilemma, underscoring the urgent need to transition towards low-carbon and renewable energy sources. With mounting concerns over climate change and environmental degradation, there is a growing consensus on the necessity of decarbonizing the energy sector. This entails reducing reliance on fossil fuels, mitigating greenhouse gas emissions, and embracing cleaner alternatives such as solar, wind, and hydropower. (International Energy Agency, 2021, p. 111) Nonetheless, the aim of sustainability needs to be balanced with the needs of energy security and cost. The adoption of renewable energy sources frequently involves substantial upfront expenses and technological obstacles, prompting questions over the financial strain on customers and the overall economic sustainability of these initiatives.

Maintaining energy availability for all societal groups while reducing the cost to consumers and companies is what it means to ensure affordability. Energy affordability includes the price of energy as well as the effectiveness and accessibility of energy-related services and infrastructure. There is an increasing need to address the cost-effectiveness of renewable energy technologies and their integration into current energy systems as nations work to fulfill aggressive sustainability objectives. (Wu & Wu, 2015) Furthermore, social inequality is made worse by differences in energy availability and affordability, underscoring the significance of inclusive and equitable energy policy. Cutting costs and improving energy efficiency calls for creative funding methods, legal frameworks, and technical advancements in order to strike a balance between affordability, sustainability, and security. Furthermore, improving consumer knowledge and decision-making skills may help create a more open and competitive energy market, which will eventually lead to increased accessibility and affordability for everybody. (Integration & European Commission, 2019)

The Middle East and North Africa (MENA) region has a rich history as a global energy powerhouse, blessed with abundant fossil fuel reserves like oil and natural gas. However, as our world moves towards a more sustainable and renewable energy future, the region faces a multitude of challenges, collectively known as the energy trilemma. This trilemma encompasses three crucial objectives: Energy Security, Equity, and Sustainability, which can often clash with each other (Figure 1).

Figure 1: World Energy Trilemma Index Regional Balance- Middle East and Gulf States



Source: World Energy Trilemma Report- 2024 (World Energy Council, 2024, p. 59)

Middle East and Gulf States (MEGS) had an overall score of ~65 of energy performance and a rank of 4/6 regions (North America, Europe, Latin America & the Caribbean, Asia & Africa) in the 2023 World Energy Trilemma Index. The region scored 53 in Energy Security, 91 in Energy Equity, and 51 in Environmental Sustainability.

In this chapter, we will delve into the unique dynamics of the energy trilemma in the MENA region, examining the intricate balance between its three pillars and taking into account the complex economic, social, and environmental factors at play.

2. Context of the Energy Trilemma in the MENA Jurisdictions

2.1 Overview of the Energy Trilemma

The Energy Trilemma is a concept developed by the World Energy Council to encourage progress in the energy sector across the globe. It represents the three goals of energy policy - energy security, energy equity, and environmental sustainability. These three goals may be in tension and

require trade-offs – trilemma denotes the trade-offs that each energy policy maker has to manage. Energy security refers to the need to ensure energy supply meets the demand. This involves having a balance of energy types, such as fossil fuel or renewable power, which will support stable energy supply. (Rodríguez-Fernández et al., 2020) Energy equity means that accessible and reliable energy has to be available to households, companies and public entities. It also involves cost for the energy as well as the whole energy supply chain. Environmental sustainability means that the impact of energy production and consumption upon the environment must be considered. Also, the adoption of new technology to reduce greenhouse gases and finding ways to adapt to the changing climate are important as well. Each individual government has to assess their own trilemma and have to find out the best solution to their specific needs. This means that a tailored and sophisticated approach to overcome the challenges are necessary – there's no size-fit-all solution when it comes to energy policy. It is also worth to notice that with the increasing awareness of sustainable development, the concept of the Energy Trilemma is getting more and more attention across the world. Many governments start to implement strategic planning which addressing all three aspects of the trilemma in order to transition their energy policy to a sustainable one. Perfect success, which balancing the three goals of the trilemma at the same time. The transition to renewable energy across the globe is a perfect example that fits the concept of the Energy Trilemma. As traditional energy production relies on fossil fuels, which will become less secure when the supply is running out. (Kalair et al., 2021; Kanwal et al., 2022) Also, the carbon emission from the fossil fuel will damage the environment and speed up the climate change. However, the switch to renewable energy, such as solar, wind or hydro power, will cost a huge amount of money. It is also hard to make sure that power supply is stable, as most of the renewable energy relies on natural resources which can be affected by weather. Last but not least, the government and policy maker also have to consider the cost for the change and how to make sure the change won't enlarge the gap between different social classes. All of these fit in the three goals of the trilemma – energy security, equity and sustainability. And they also demonstrate the trade-offs need to be done to manage the trilemma. This example sort of underlines the importance to balance the three goals and any solutions to a specific goal will have an impact on other goals. That's why the concept of the Energy Trilemma is so important for the development of sustainable energy policy worldwide. (Liu et al., 2022; Marti & Puertas, 2022)

2.2 Assessing MENA's Energy Policy Landscape

2.2.1 Energy Subsidies & Infrastructure Investment

Energy subsidies have long been a cornerstone of economic policy in the MENA region, aimed at reducing energy costs for consumers and businesses. While these subsidies were initially implemented to foster economic growth and protect vulnerable populations, they have far-reaching implications beyond their intended purposes. (EL-Katiri & Fattouh, 2015, p. 2) A 2017 study estimated that pre-tax energy subsidies in MENA amounted to over $153 billion annually, equivalent to 4.5% of the region's GDP. (EL-Katiri & Fattouh, 2015, p. 2) This substantial financial burden diverts public funds from critical areas such as infrastructure development, social programs, and economic diversification efforts. Moreover, artificially low energy prices encourage overconsumption and inefficiency, creating market distortions that hinder the transition towards more sustainable energy systems and impede private investment in energy-saving technologies.

In recent years, MENA countries have begun to recognize the need for energy subsidy reform, driven by fiscal pressures, market inefficiencies, and growing environmental concerns. Reform efforts aim to strengthen government fiscal positions, promote energy conservation, reduce market distortions, decrease environmental impact, and address social inequities by redirecting resources to more targeted social programs. Countries such as Saudi Arabia, the United Arab Emirates (UAE), Egypt, Tunisia, Morocco, and Iran have initiated subsidy phase-out programs and pricing reforms over the past decade. (EL-Katiri & Fattouh, 2015) However, these reforms face significant political challenges, as increasing energy costs can fuel public discontent, particularly among lower-income populations struggling with affordability. The memory of energy price spikes contributing to unrest during the 2011 Arab Spring uprisings has led policymakers to approach subsidy reforms cautiously and gradually. (UN Economic and Social Commission for Western Asia (ESCWA), 2017)

The impact of energy subsidies varies across the MENA region. In Gulf Cooperation Council (GCC) states, cheap energy has been integral to economic and social planning, shaping government policies. (Alharbi & Csala, 2020, p. 211989; Dargin, 2021, p. 321) Conversely, energy poverty in Yemen highlights state underperformance, weak public services, and governance challenges. While subsidized energy prices offer immediate welfare-economic benefits to households and energy-intensive sectors, they also result in significant negative externalities. These include loss of national GDP, paradoxical unemployment coupled with resource over-utilization, and detrimental effects on non-renewable resources. Iran's experience with energy subsidy reform illustrates the challenges of implementation, with programs experiencing multiple setbacks and the COVID-19 pandemic necessitating new strategies. As MENA countries continue to grapple with the complex interplay of energy affordability, sustainability, and fiscal responsibility, finding a balanced approach to energy pricing policy remains a critical challenge for the region. (McCulloch, 2023, pp. 58–59)

The MENA region faces significant challenges in energy infrastructure, particularly in electricity networks, which hinder reliable energy access and integration. These challenges span generation, transmission, and distribution systems. Conflict-affected countries like Yemen, Syria, and Libya have experienced extensive damage to their power infrastructure, with Yemen alone suffering cumulative losses exceeding $7 billion by 2016. (EL-Katiri & Fattouh, 2015, p. 10) Even in

more stable countries, aging infrastructure coupled with rapidly increasing demand has led to supply gaps, reliability issues, and blackouts. The root causes of these problems are multifaceted. High capital costs present a significant barrier, but policy and regulatory inertia also impede progress. Most MENA states invest considerably less in electricity infrastructure as a percentage of GDP compared to the benchmarks required for quality provision. Attempts at reforms, including private sector participation, transparent tendering, and management improvements, have been inconsistent across the region. (Besant-Jones, 2006, p. 19) However, some countries are taking ambitious steps to address these issues. Saudi Arabia's Vision 2030 investment program, worth over $424 billion through 2030, serves as a model that other countries like Iraq and Oman are beginning to emulate on a smaller scale.

To address these challenges and move towards a more sustainable energy future, the MENA region must focus on developing smart, interconnected grids that can facilitate the integration of renewable energy sources. This integration is crucial for managing the variable nature of renewables like solar and wind, ensuring a consistent and reliable energy supply. Energy storage systems, coupled with smart grid technology, can help manage supply and demand efficiently, enhancing energy access for all. (Islam et al., 2014) The development of micro-grids and off-grid solutions can play a significant role in remote and underdeveloped areas, operating independently or in complement with central grids. (Kiehbadroudinezhad et al., 2023; Van Broekhoven et al., 2012) Modernizing the grid and investing in new transmission infrastructure are pivotal for achieving environmental sustainability in the region. Expanded and upgraded transmission lines can enable the transfer of renewable energy from resource-rich remote locations to high-demand urban centers. (Weber et al., 2016) Furthermore, the development of regional power markets and cross-border interconnections among MENA countries can enhance energy security and sustainability, leading to more efficient use of energy resources, reduction of greenhouse gas emissions, and improved backup power through shared reserves. (Mejia-Giraldo et al., 2012)

2.2.2 Renewable Energy Adoption

The MENA region has recently made significant progress in renewable energy adoption, despite starting from a low baseline. In 2019, non-hydro renewables like solar, wind, and geothermal accounted for just 8% of the region's power capacity, compared to 23% globally. However, the region's vast solar and wind potential, coupled with falling costs, is driving accelerated growth. Projections suggest renewables will provide over a quarter of MENA's electricity by 2030. (Menichettti et al., 2017; Zureikat, 2019) Countries like the UAE, Egypt, Morocco, and Jordan have implemented policies that have attracted substantial investments in the sector. These initiatives include competitive auctions, transparent tenders, and long-term power purchasing agreements for large-scale wind and solar projects, as well as net metering schemes for rooftop solar expansion. (Tsikalakis et al., 2011)

Despite this progress, challenges persist. Fossil fuel subsidies and pricing distortions continue to hinder renewable integration, while grid modernization bottlenecks pose technical obstacles. To achieve majority clean power, comprehensive power sector reforms will be necessary. Nevertheless, the MENA region's abundant sunshine, vast deserts, and coastal wind potential position it favorably to become a leader in the global transition to renewable energy sources.

Investment in Solar and Wind Energy Projects: (Gazheli & van den Bergh, 2018) Many MENA nations are investing heavily in both concentrated solar power (CSP) and photovoltaic (PV) solar projects, with the ambition to capitalize on the region's high solar irradiance levels. Wind power has also gained significant attention, with large-scale wind farms being constructed in countries like Morocco, Jordan, and Egypt.

Policy Frameworks and Incentives: (Derks & Romijn, 2019) To encourage renewable energy integration, governments are introducing regulatory frameworks and incentives. These range from feed-in tariffs and auctions to net metering and renewable portfolio standards. Coupled with international support and financing from institutions such as the International Renewable Energy Agency (IRENA) and the World Bank, these policies foster a conducive environment for renewable energy investments.

Public-Private Partnerships: (Custos & Reitz, 2010; Hodge & Greve, 2007) Recognizing the need for collaborative efforts, MENA governments are increasingly engaging in public-private partnerships (PPPs). These collaborations are crucial for mobilizing the capital, technological expertise, and operational know-how necessary to scale renewable energy projects.

Diversifying Energy Sources to Drive Economic Stability: (Gozgor & Paramati, 2022) Oil and gas price volatility impacts the economic stability of hydrocarbon-dependent MENA countries. By diversifying their energy mix with renewables, these nations can reduce their exposure to market fluctuations and foster a more stable economic future.

Green Hydrogen: (Atilhan et al., 2021; Oliveira et al., 2021; Squadrito et al., 2023) The region has shown interest in green hydrogen - hydrogen produced by renewable sources - as a potential area growth. This emphasis on green hydrogen is likely to play a fundamental role in the global energy transition and offers MENA countries an opportunity to become key players in this emerging market.

The MENA region holds a dominant position in global fossil fuel reserves, with nearly half of the world's proven oil reserves and over 40% of natural gas reserves. This abundance has shaped the economic structures of many MENA countries, particularly in the Gulf states, leading to "rentier" economies heavily dependent on hydrocarbon exports. (Beblawi, 1987) While this wealth has enabled substantial infrastructure development in oil-rich nations, it has also created economic vulnerabilities. Countries with smaller reserves face significant

challenges, often having to import energy while subsidizing domestic consumption, which places considerable fiscal burdens on their governments. (El-Katiri, 2014)

Despite the region's historical reliance on fossil fuels, MENA countries possess immense potential for renewable energy, particularly in solar and wind resources. The region includes 8 of the 10 most solar-intensive countries globally, (Ersoy & Terrapon-Pfaff, 2021) offering significant opportunities for energy diversification and enhanced access, especially for oil-importing nations. However, the adoption of renewables varies widely across the region, influenced by domestic policy frameworks. Countries like the UAE and Egypt have emerged as leaders in renewable energy adoption through proactive policies, while others lag behind in leveraging their renewable resources effectively. (Alharbi & Csala, 2020)

3. Laws, Policies and Regulations

3.1 Renewable Energy Policies and Targets

The evolution of renewable energy policies reflects a shifting landscape in the pursuit of sustainable energy solutions. Initially, when renewable technologies were not economically viable, governments relied heavily on public funding to support their development. A key policy tool that emerged in this context was the Feed-in-Tariff (FiT) system. FiTs, pioneered by Germany in the 1990s, provide long-term contracts guaranteeing payments to renewable energy producers for the electricity they generate and export to the grid. (Haas et al., 2021; Newbery, 2023) This policy approach was instrumental in overcoming the high initial costs of renewable energy installations and operations, offering producers a secure income stream. The success of FiTs is evident in countries like Germany, which now generates a significant portion of its electricity from renewable sources.

However, recent technological advancements have reshaped the renewable energy landscape, prompting a shift away from FiT-centric policies. (Drücke et al., 2021; Lauer et al., 2020; Ruhnau & Qvist, 2022)"mendeley":{"formattedCitation":"(Drücke et al., 2021; Lauer et al., 2020; Ruhnau & Qvist, 2022 The dramatic decrease in the cost of photovoltaic (PV) solar panels, for instance, has reduced the dependence on government subsidies for solar installations. In response, some countries have introduced alternative policies, such as the Renewable Obligation (RO) in the UK. The RO policy places the responsibility on electricity suppliers to source an increasing portion of their energy from renewable sources. This approach encourages the establishment of large-scale renewable energy projects by multinational companies, fostering sustainable business models centered around clean energy production. By shifting the focus from individual, publicly funded initiatives to corporate-driven projects, these policies aim to create a more robust and self-sustaining renewable energy sector, ultimately promoting wider adoption of clean energy technologies. (Ahmed et al., 2022)

3.2 Energy Efficiency Standards and Incentives

The MENA region faces significant challenges in implementing effective energy efficiency standards and incentives. Despite being major energy producers, many countries in this region are not utilizing the most efficient technologies available. This inefficiency has paradoxically become a driving force behind the gradual expansion of renewable energy, particularly solar power, due to the region's abundant sunlight. However, the adoption of renewable energy has been constrained by a lack of momentum and insufficient policy guidance. (Poudineh et al., 2020) As a result, many countries in the MENA region have fallen short of their renewable energy installation targets and are far from achieving optimal efficiency in renewable energy production.

To address these issues, some countries in the region have implemented innovative policies. For instance, the UAE has introduced a fixed fee per kilowatt generated for solar energy, encouraging consumers to install solar panels connected to the grid. This system requires manufacturers and installers to meet specific knowledge and certification standards, with installations needing approval from registered consultants and relevant authorities. (Alhammami & An, 2021; Dogan & Shah, 2021) Additionally, the UAE's 'Regulation and Supervision Bureau' has implemented a net metering system, allowing customers to sell surplus electricity back to the grid without incurring additional monthly costs. This approach requires homeowners to optimize their solar panel orientation and adapt to guidelines provided by the Bureau. (Rigo et al., 2022) The net metering system accounts for excess electricity fed back into the grid during daylight hours, offsetting the cost of electricity consumed at night. While these policies represent progress, their implementation and effectiveness vary across the region. The success of such initiatives depends on factors like clear regulations, coordination between customers and project managers, and the establishment of standardized processes for installation and grid connection.

3.3 Carbon Emission Reduction Initiatives

The UAE has taken significant steps to combat climate change and reduce carbon emissions, demonstrating a comprehensive approach to addressing environmental challenges. At the heart of these efforts is the UAE Vision 2021, which sets ambitious targets for the nation's golden jubilee. This vision includes reducing the carbon footprint of power generation by 70%, increasing clean energy use by 50%, and improving energy efficiency by 40%. (Eveloy & Ahmed, 2022; Locke et al., 2023; Salimi et al., 2022) Building on this foundation, the UAE introduced the National Climate Change Plan 2017-2050, marking the country's first systematic approach to mitigating climate change effects. (Holmbukt, 2021) This plan not only focuses on environmental sustainability but also aims to enhance the UAE's competitiveness in clean energy and sustainable technology sectors. To support these goals, the government has implemented several key policies and legislations, including the National Policy on the Control of the Usage of Petrol and Diesel for 2019-2021, which targets vehicle emissions, (Bridi et al., 2022) and Federal Law No. 19 of 2019 on Waste Management, which establishes a framework for transforming waste into resources and moving towards a circular economy. (Hemidat et al., 2022)

A cornerstone of the UAE's clean energy strategy is the ambitious plan to double the contribution of nuclear power in its energy mix, aiming to increase its share from 25% in 2020 to 50% by 2050. (Kim & Alameri, 2020) This shift towards nuclear energy is expected to significantly reduce carbon emissions while also freeing up oil and gas resources for export. However, despite these comprehensive initiatives, the MENA region continues to see a rising trend in carbon emissions. This suggests that relying solely on legal and policy measures may not be sufficient to achieve substantial emission reductions. To overcome this challenge, governments in the region need to consider a multi-faceted approach that includes increasing the stringency of existing laws, raising public awareness, adopting cutting-edge technologies, fostering innovation, and encouraging private investment. (Sovacool et al., 2020) Only through such a holistic strategy can the MENA region hope to significantly reduce carbon emissions and effectively combat climate change.

3.4 Main Priority vs. Balancing Priorities in the MENA Region

This section pose key questions for the countries in the MENA to address balance their energy trilemma priorities. More specifically, it sets out to answer the following questions. First, how can the MENA countries design an energy mix for the future that balances the trilemma priorities of energy security, social equity, and environmental sustainability? In this context, what regional cooperation and integration mechanisms would be needed to cushion the negative impact of fossil fuel price/welfare shocks and transition to a more diversified, sustainable energy development path for the region? What financial and regulatory innovations can accelerate the pace of energy efficiency and renewable energy development in the MENA countries and mobilize the huge investment required to expand regional power, water, food, and transportation infrastructures over the next two decades?

In exploring these issues, it is important to look at the role of technology transfer, capacity building, and knowledge-sharing in nurturing a culture of innovation and entrepreneurship for sustainable development in the MENA region. It is also essential to consider the potential of harnessing natural resources, such as solar and wind power, to drive economic growth, create jobs, and reduce carbon emissions. (Aghahosseini et al., 2020, p. 100466 et seq) Furthermore, it is crucial to assess the implications of energy policies on geopolitical relationships and security in the MENA region, and how to bolster resilience and cooperation in the face of global energy transitions and disruptions. In doing so, it is vital to engage stakeholders from government, industry, academia, and civil society to build consensus and foster inclusive decision-making processes that reflect the diverse interests and aspirations of the MENA population. Ultimately, the focus should be on designing a comprehensive, integrated strategy that not only addresses immediate energy challenges, but also lays the foundation for a sustainable, prosperous future for the MENA region.

4. Key Challenges for the MENA Region in Relation to the Energy Trilemma

4.1 Energy Demand and Supply Discrepancy

The MENA region, home to over 420 million people predominantly residing in urban areas, faces significant challenges in meeting its rapidly growing energy demands. For instance, in Egypt - the most populous country in the region - energy demand doubles every 10 years. (Sayigh, 2020) Despite efforts to develop and upgrade energy generation systems, such as the North East Africa Renewal Energy Project, the growth in energy generation capacity lags behind the surge in demand. This discrepancy is partly due to insufficient investment in research and development of new and renewable technologies. (Akram et al., 2022; Mahlooji et al., 2020; Saidi et al., 2020) The region's energy landscape remains heavily reliant on fossil fuels, with natural gas, oil, and coal accounting for approximately 87% of electricity generation in 2017, while renewable energy contributed less than 2%. This dependence on traditional energy sources, coupled with high energy consumption patterns (notably, air conditioning usage accounting for over 60% of energy consumption), places immense pressure on the existing energy infrastructure. The mismatch between supply and demand not only hinders economic development but also raises concerns about conflict resolution and stability in the region. (Aghahosseini et al., 2020)

The energy infrastructure deficit in the MENA region has far-reaching implications beyond mere economic considerations. Adequate power generation and distribution capacity are crucial for maintaining political stability and legitimacy. (Blondeel et al., 2021) States with insufficient energy infrastructure are more likely to face internal conflicts and struggle to deliver essential services to their populations. This situation can erode public trust in government officials who fail to fulfill promises of improved quality of life and security. Moreover, the energy infrastructure gap significantly impacts incomes, business opportunities, and social services across MENA countries, albeit to varying degrees. (Loewe & Zintl, 2021, p. 448 et al) The complex interplay of factors such as project significance, geographical relationships, fuel choices, and policy consequences makes addressing these infrastructure deficits a challenging task. (Alford-Jones, 2022, p. 112850) Regulatory and legal structures in many MENA countries are still in their early stages of development and often inadequate to handle the full range of issues associated with energy infrastructure. As a result, identifying and prioritizing challenges to energy infrastructure development in the region requires a nuanced approach that considers future implications and interrelated effects. To effectively address these challenges, policymakers must focus on developing comprehensive strategies that not only increase energy generation capacity but also promote renewable energy adoption, improve energy efficiency, and strengthen regulatory frameworks. Such an approach is essential for ensuring sustainable economic development, enhancing energy security, and maintaining political stability across the MENA region.

The MENA region faces a critical energy trilemma, primarily driven by rapidly growing energy consumption. This trend, highlighted in reports such as the 2018 World Energy Issues Monitor and BP's 2018 Statistical Review of World Energy, outpaces the global average and poses significant challenges. (Hafner et al., 2023) The region's population is projected to increase from 474 million in 2017 to 775 million by 2050, contributing to this surge. (Aghahosseini et al., 2020) However, the rise in per capita energy demand is equally concerning, nearly doubling from 2.163 to 3.560 tonnes of oil equivalent between 2000 and 2016. (Ahmad & Zhang, 2020; Poudineh et al., 2020) This escalating consumption not only strains existing energy infrastructure but also contradicts global energy efficiency trends and climate change commitments, such as the Paris Agreement. The situation creates a pressing need for change and action in the MENA region. While some countries have experienced slower growth or even decreases in energy consumption, the overall regional trend points to a burgeoning challenge. This pattern threatens short-term energy stability and long-term environmental sustainability, potentially undermining efforts to expand energy capacity and reshape the energy mix. Addressing this issue requires comprehensive measures to curb consumption growth alongside initiatives to enhance energy production and diversification.

Paradoxically, despite holding over 60% of the world's known oil reserves and 45% of natural gas reserves, the MENA region remains heavily dependent on energy imports, particularly for electricity. (Olawuyi, 2021) This dependency is exacerbated by the projected 3.5% annual increase in primary energy demand, driven by rapid urbanization, industrial growth, and population expansion. Experts argue that alleviating the energy trilemma in MENA necessitates reducing this reliance on external energy sources. (Aghahosseini et al., 2020) One proposed solution is increased regional interconnection and cooperation in electricity sharing and distribution, which could decrease dependence on imports from outside MENA. This approach aligns with strategies adopted by more developed nations, such as Italy, which prioritize long-term energy sustainability over short-term gains from import-driven economies. (Marketos et al., 2022) Diversifying the energy mix through increased investment in solar, wind, and nuclear energy could offer a viable path to energy independence and sustainability in the region. Such initiatives would not only address the immediate energy challenges but also support broader goals, including the achievement of Millennium Development Goals and compliance with the Paris Declaration on Aid Effectiveness. By integrating technological and policy advancements from developed countries, the MENA region can work towards a sustainable energy future that balances economic pressures with environmental concerns. This holistic approach to addressing the energy trilemma could lead to more stable, affordable, and environmentally friendly energy systems across the MENA region.

4.2 Environmental Concerns and Sustainability

The MENA region faces significant challenges in addressing the energy trilemma, particularly in terms of carbon emissions and the transition to renewable energy. As of 2016, MENA nations accounted for about 5% of global energy-related CO_2 emissions, with projections indicating a 71% increase by 2050 under a business-as-usual scenario. (Ibrahim & Alola, 2020) This surge is driven by rapid economic development, population growth, and urbanization. To combat this trend, initiatives like the Middle East Green Initiative (MGI) have been established, focusing on decarbonization through investment in renewable energies, especially solar and wind power. Countries like the UAE are pioneering innovative solar projects, such as the PS 10 solar power tower, while even traditionally fossil fuel-rich nations like Saudi Arabia and Jordan are investing in renewables. (Qasim Alabed et al., 2021) However, the transition faces unique obstacles. The limited presence of grid-connected, utility-scale renewable energy projects hinders the region's ability to meet short-term energy demands, as most existing projects are designed for rural and isolated areas. This highlights a critical need for effective transmission and distribution infrastructures to integrate renewable energy with existing systems. (Ben Cheikh & Ben Zaied, 2021) Additionally, the intermittent nature of renewable sources necessitates the development of energy storage and load management technologies to ensure stable and reliable energy supply. Consequently, solar and wind energy currently constitute less than 1% of the total primary energy supply in the region. Recent efforts have focused on concentrated solar power for 'dispatchable' electricity and advanced monitoring systems to maximize efficiency. (Jia et al., 2021) However, while technological and engineering aspects have received attention, there is a significant lack of research addressing the social and political dimensions of renewable energy integration, including stakeholder influences and impacts of energy policy decisions. (Hafner et al., 2023)

Water and land resource management present additional critical challenges for the MENA region in improving its energy trilemma position. The region is the most water-scarce globally, with renewable water resources per capita at just 10% of the world average. This scarcity is exacerbated by population growth, urbanization, and climate change impacts. Agriculture, heavily reliant on irrigation, accounts for over 85% of total water consumption in the region. (Inal et al., 2022) However, it is estimated that the majority of this water is wasted due to unsustainable practices and outdated technology. The Food and Agriculture Organization reports that approximately 60% of irrigation worldwide comes from unsustainable sources, threatening to further stress the natural water cycle and increase scarcity. Addressing this issue requires not only technological solutions but also improved water management policies and enforcement of usage regulations, which are typically underdeveloped in the region. Land resource management is another crucial factor, particularly in the context of renewable energy implementation. Large-scale solar and wind installations require significant land area, potentially conflicting with other land uses such as agriculture

or construction. This can lead to disputes over land usage and raise concerns about compromising environmental and conservation targets. The challenge is particularly acute in smaller countries like Bahrain and Qatar, where limited land area creates additional obstacles to introducing renewable energy on a large scale. To effectively address these multifaceted challenges, a comprehensive, interdisciplinary approach is necessary. (Mahlooji et al., 2020) This approach should integrate technological innovations with robust policy frameworks, considering the social, economic, and environmental impacts of energy transitions. Only by adopting such a holistic perspective can the MENA region establish a sustainable and equitable energy market that benefits all stakeholders while addressing the pressing issues of climate change and resource scarcity.

4.3 Analyzing the Consequences of Social and Economic Impact

Energy poverty remains a significant challenge in the MENA region, with access to modern energy services declining in some countries. Nations like Yemen and Djibouti exemplify this issue, where over half the population lacks electricity access. This problem stems from multiple factors: rapid urbanization and population growth outpacing infrastructure development, (Al-Wesabi et al., 2022) particularly in rural areas; energy subsidy systems that, while making electricity more affordable, have disincentivized investment and innovation; and social and economic instability, exacerbated by conflicts, causing irreversible damage to energy infrastructure. The region's heavy reliance on fossil fuels for economic development has led to high energy consumption levels, raising concerns about environmental degradation and long-term sustainability. (Olawuyi, 2021) Transitioning to low-carbon, high-efficiency energy systems is crucial not only for reducing carbon emissions and combating climate change but also for contributing to global environmental sustainability. (Usman et al., 2021) Wealthier oil-rich countries in the region have a particular responsibility to lead in implementing sustainable initiatives, such as renewable energy development and transnational resource management.

The MENA region faces substantial imbalances between energy demand, supply, and accessibility, with demand growing by up to 3% annually. This economic vulnerability to energy price fluctuations is exacerbated by the region's dependence on fossil fuels and difficulties in economic diversification. (Aghahosseini et al., 2020) Despite ambitious targets for renewable and nuclear energy development, progress has been limited due to political risks, lack of technology and expertise, and financing challenges.(Mahlooji et al., 2020) International initiatives, such as the Euro-Mediterranean Energy Partnership and the European External Investment Plan, aim to address these issues by promoting cooperation, investment, and vocational training in the energy sector. (Mwansa et al., 2020) However, the effectiveness of these programs remains to be seen. The energy transition, while challenging, presents opportunities for job creation and economic development. Currently, job opportunities in the MENA energy sector are predominantly in the hydrocarbons industry, which has created both skilled and unskilled positions but has also led to a stagnant job market and unstable labor conditions. To address these challenges, a strategic and integrated approach is necessary, recognizing the multifaceted relationship between energy and development. By managing the energy sector effectively, there is potential to stimulate economies, create diverse job opportunities, and achieve a balance between social, economic, and environmental aspects of the energy trilemma.

4.4 Navigating the International Energy Landscape: Market Dynamics & Capabilities

The transition to sustainable energy in the MENA region is driven by complex market dynamics and regulatory frameworks. Key considerations include aligning energy sector outputs with broader societal objectives, integrating non-dispatchable supply and distributed energy resources into markets, and adapting market governance to evolving socio-economic goals. To accelerate this transition, policymakers must create an enabling environment through incentives like tax credits, feed-in tariffs, and renewable energy mandates, while removing barriers such as fossil fuel subsidies (In many markets, the cost of renewable energy technologies has significantly declined in recent years, making them more competitive with traditional fossil fuels. This has led to a surge in investments in renewable energy projects, from solar and wind to geothermal and hydroelectric). Investment instruments play a crucial role, requiring adaptability to different jurisdictions and competitive contexts. (Bertoldi et al., 2021) Long-term contracts and auction mechanisms enhance the financial attractiveness of clean technologies, while fair and equitable incentives, obligations, and financial support are essential for all stakeholders. (Matthäus & Mehling, 2020, p. 2633 et al) Flexible tariff policies are instrumental in minimizing risks and enabling market responsiveness, contrasting with fixed policies that may require substantial, often impractical financial commitments.

The MENA region faces substantial imbalances between energy demand, supply, and accessibility, with demand growing by up to 3% annually. This economic vulnerability to energy price fluctuations is exacerbated by the region's dependence on fossil fuels and difficulties in economic diversification. (Aghahosseini et al., 2020) Despite ambitious targets for renewable and nuclear energy development, progress has been limited due to political risks, lack of technology and expertise, and financing challenges.(Mahlooji et al., 2020) International initiatives, such as the Euro-Mediterranean Energy Partnership and the European External Investment Plan, aim to address these issues by promoting cooperation, investment, and vocational training in the energy sector. (Mwansa et al., 2020) However, the effectiveness of these programs remains to be seen. The energy transition, while challenging, presents opportunities for job creation and economic development. Currently, job opportunities in the MENA energy sector are predominantly in the hydrocarbons industry, which has created both skilled and unskilled positions

but has also led to a stagnant job market and unstable labor conditions. To address these challenges, a strategic and integrated approach is necessary, recognizing the multifaceted relationship between energy and development. By managing the energy sector effectively, there is potential to stimulate economies, create diverse job opportunities, and achieve a balance between social, economic, and environmental aspects of the energy trilemma.

5. Conclusion

The MENA region faces a complex energy trilemma in balancing energy security, environmental sustainability, and energy equity and affordability. Several key results emerge from analyzing the challenges in this domain:

1. Energy demand is rapidly rising across MENA due to population growth, urbanization, and economic development. However, energy supply struggles to keep pace, leading to concerns over energy security and access. Transitioning the region's energy mix with greater renewable adoption is critical but hindered by infrastructure bottlenecks.

2. Environmental impacts like rising carbon emissions and water/land resource constraints pose obstacles to sustainability objectives. While some nations have policies targeting renewable energy and efficiency, implementation remains limited and overshadowed by continued dependence on hydrocarbons.

3. Socioeconomic factors like energy subsidies, poverty, and conflict undermine energy equity and affordability for segments of MENA's population. The economic disruptions of potential energy transitions also present risks.

To address the MENA energy trilemma comprehensively, an integrated set of recommendations emerges:

1. Accelerate renewable energy deployment through enhanced policies, financing and infrastructure modernization to reduce carbon footprints and bolster long-term supply security. Prioritize grid upgrades, energy storage and interconnected transmission.

2. Implement gradual energy pricing reforms with expanded social safety nets to improve affordability while incentivizing efficiency. Reallocate subsidy costs toward public services and economic diversification.

3. Develop integrated resource management frameworks balancing water, land use and environmental preservation with the expansion of renewable facilities. Involve local communities as stakeholders.

4. Foster regional energy integration and interdependence through cross-border infrastructure connectivity. This can enhance resilience while optimizing resource usage across MENA.

5. Promote economic diversification beyond hydrocarbons alongside the energy transition. Sustainable sectors like green tech and services can catalyze job growth while future-proofing economies.

Overcoming the multi-faceted MENA energy trilemma requires a holistic strategy coordinating energy policies with economic development, environmental protection and social equity priorities. Though formidable challenges remain, collaborative and far-sighted actions can help the region leverage its resource advantages to build resilient, sustainable energy systems benefiting all strata of society.

Energy Law Advisor
Institute for Energy Law
The Center for American and International Law
5201 Democracy Drive
Plano, TX USA 75024

Institute for ENERGY LAW

IEL is an Institute of
THE CENTER FOR AMERICAN AND INTERNATIONAL LAW

ENERGY LAW ADVISOR

JUNE 2025

VOL. 19 | NO. 2