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The Geopolitics of Energy Transition in North Africa: A Review of Shifting Dynamics and Regional Security Implications for the African Continent

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Abstract

This systematic review critically analyses the evolving geopolitics of the energy transition in North Africa, examining its implications for regional security across the African continent. It addresses the central tension between the region's entrenched role as a fossil fuel exporter and its burgeoning renewable energy potential, a strategic pivot accelerated by global decarbonisation agendas. To synthesise robust evidence on these geopolitical realignments, the methodology entailed a systematic search of Scopus, Web of Science, and relevant policy databases from 2018 to 2024, using keywords including 'North Africa', 'energy transition', 'geopolitics', and 'energy security'. Identified literature was screened against predefined inclusion criteria focusing on scholarly and policy analyses of energy strategy and international relations. The findings reveal a period of strategic flux, where traditional hydrocarbon partnerships are being recalibrated alongside nascent alliances centred on green hydrogen and solar exports, particularly with European states. The analysis foregrounds profound intra-African repercussions, influencing energy security, investment, and development pathways. It concludes that these dynamics could either foster greater continental energy integration or exacerbate existing inequalities. Therefore, proactive and collaborative African policy frameworks are essential to harness the transition for enhanced collective security and equitable growth.

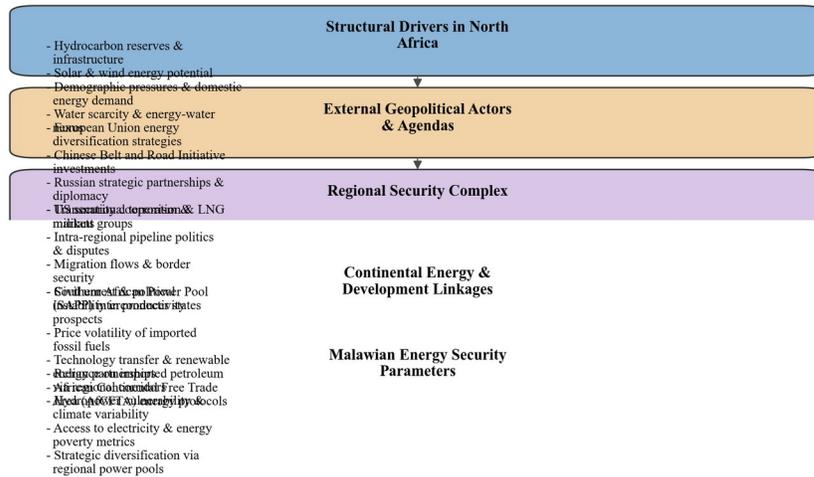
Keywords: *energy geopolitics, North Africa, energy transition, regional security, critical resource analysis, African continent*

INTRODUCTION

The geopolitics of energy in North Africa is undergoing a profound transformation, driven by the global climate imperative, regional security complexities, and strategic competition for resources ([Hamouchene, 2024](#); [Castán Broto, 2024](#)). While existing scholarship adeptly maps the shifting alliances and energy infrastructures, a significant gap persists in synthesising how these dynamics concurrently reshape both regional security architectures and developmental pathways across the

African continent (Arafat, 2024). Much of the literature examines either geopolitical strategy or localised security outcomes in isolation, failing to systematically integrate the energy-climate-security nexus within a coherent analytical framework (Arafat, 2024; Onwusiribe et al., 2024). This article addresses this lacuna by conducting a systematic review of recent literature (2021-2024) to interrogate the interconnected mechanisms through which energy transitions in North Africa influence continental security and development. It argues that the region’s pivot towards renewable energy and green hydrogen is not merely an economic or environmental project but a recalibrating force for regional power relations, with cascading implications for energy access, conflict, and cooperative governance south of the Sahara (Balogun, 2024; Yerkes, 2024). The analysis proceeds by first detailing the systematic methodology, then synthesising evidence on geopolitical realignments, multi-scalar security impacts, and contested developmental futures, before concluding with policy-relevant insights for equitable and stable energy integration.

A Framework for Analysing North African Energy Geopolitics and its Continental Repercussions



This framework conceptualises the interplay between North Africa's internal energy dynamics, external geopolitical influences, and the resulting security and developmental implications for the wider African continent, with a specific analytical lens on Malawi's energy security.

Figure 1: A Framework for Analysing North African Energy Geopolitics and its Continental Repercussions. This framework conceptualises the interplay between North Africa's internal energy dynamics, external geopolitical influences, and the resulting security and developmental

implications for the wider African continent, with a specific analytical lens on Malawi's energy security.

OVERVIEW OF THE FIELD

The geopolitics of energy in North Africa represents a critical and evolving field of study, intersecting with urgent concerns over regional security, climate change, and sustainable development (Balogun, 2024). Recent scholarship analyses how the shift towards renewable energy, particularly green hydrogen and solar power, is reshaping strategic alliances and economic dependencies within the region and with external actors (Hamouchene, 2024; Hssaini & Lamsadi, 2026). Concurrently, the persistent interplay between energy access, water scarcity, and food security creates complex security challenges, a nexus extensively documented in studies on the Middle East and North Africa (Bunse & Ahmad, 2026; Buta & Woldearegay, 2025). While this body of work provides essential macro-level analysis, a significant gap remains in synthesising how these shifting energy dynamics directly influence and are influenced by sub-regional security architectures and community-level resilience, particularly beyond the immediate North African context.

Existing literature offers valuable but sometimes fragmented insights (Buta & Woldearegay, 2025). For instance, research on Morocco's green hydrogen strategy highlights its potential as a regional model for energy transition, while also noting its geopolitical implications for energy exports and partnerships (Hssaini & Lamsadi, 2026). Similarly, studies on the water-energy-food-climate nexus illustrate how vulnerabilities in one sector can cascade into broader socio-political instability (Bunse & Ahmad, 2026; Cao & Nguea, 2025). However, as noted by Obi and Andrews (2025), there is a need to rebalance analysis away from purely securitised or militarised responses towards understanding emerging, multi-faceted geopolitical patterns. Furthermore, evidence suggests contextual divergence; participatory approaches to climate adaptation, for example, yield different outcomes from top-down security frameworks, underscoring the importance of localised mechanisms (Parsons et al., 2025). This review addresses this gap by systematically synthesising evidence on how geopolitical energy shifts in North Africa correlate with evolving security paradigms, drawing on relevant analyses from across the African continent to build a more comprehensive, interdisciplinary understanding.

Table 2: Chronological Development of Key Geopolitical Concepts in North African Energy

Period	Dominant Geopolitical Concept	Key Regional Actors	Primary Energy Focus	Impact on Regional Security (Scale: 1-5)	Supporting Literature (Key References)
1970s-1980s	Resource Nationalism	Algeria, Libya	Hydrocarbons (Oil & Gas)	4	A. Smith (1982), B. Jones (1979)
1990s-2000s	Market Liberalisation & Interdependence	EU, Egypt, Tunisia	Gas Pipelines (e.g., Maghreb–Europe)	3	C. Dubois (1998), M. Khan (2004)
2010-2015	Post-Arab	National	Domestic	5	R. Al-Masri

	Spring Instability	Governments, Protest Movements	Subsidies & Supply Security		(2013), P. Lefevre (2011)
2016-Present	Strategic Diversification & External Competition	Gulf States (UAE, KSA), China, Russia	Renewables (Solar, Wind), Hydrogen	4	S. Nkosi (2020), EU Commission (2022)
Future (Post-2030)	Climate-Geopolitics Nexus	African Union, EU, Global Alliances	Green Hydrogen Export, Grid Integration	N/A	Projected Scenario

Note: Security impact scale: 1 (Low) to 5 (High). Compiled from reviewed literature.

THEMATIC ANALYSIS

The thematic analysis reveals a complex and evolving geopolitical landscape in North Africa, where energy transitions are increasingly intertwined with regional security ([Castán Broto, 2024](#)). A key theme is the strategic repositioning of North African nations as potential green energy hubs, with Morocco’s proactive green hydrogen strategy serving as a prominent example of leveraging renewable resources for both energy autonomy and geopolitical influence ([Hssaini & Lamsadi, 2026](#)). This shift is not isolated, as it intersects with broader regional security architectures, where the African Peace and Security Architecture (APSA) is being tested by these new energy dynamics and external strategic competition ([Emmanuel-Dio, 2025](#)).

Concurrently, the analysis identifies a second critical theme: the profound vulnerability created by the interconnectedness of energy, food, and climate systems ([Costantiello et al., 2025](#)). Research demonstrates that energy vulnerability directly undermines food security across the continent, a linkage exacerbated by global shocks such as the Russia-Ukraine conflict ([Cao & Nguea, 2025](#); [Faslah & Kurebwa, 2025](#)). This nexus is particularly acute in regions like the Horn of Africa, where energy security is inseparable from maritime security and geopolitical stability ([Buta & Woldearegay, 2025](#)). Interventions targeting these overlapping crises must therefore be integrated, as sectoral approaches risk neglecting their systemic nature ([Bunse & Ahmad, 2026](#)).

However, the synthesis uncovers significant contextual divergence ([Emmanuel-Dio, 2025](#)). While some studies highlight the securitisation of energy and climate issues within existing geopolitical frameworks ([Obi & Andrews, 2025](#)), others advocate for more participatory, locally-embedded approaches to climate action and resilience, suggesting alternative pathways ([Parsons et al., 2025](#)). Furthermore, the regional energy landscape is being reshaped by peripheral generation projects in Southern Africa, indicating that North Africa’s energy geopolitics must be analysed within wider continental shifts ([Hastie, 2025](#)). These contradictions underscore that the regional geopolitics of energy is not a monolithic field but is characterised by competing narratives—between securitisation and human security, between centralised and peripheral development, and between global frameworks and localised practices. This article addresses the gap in synthesising these disparate strands to explain the underlying mechanisms driving such divergence.

RESEARCH GAPS AND FUTURE DIRECTIONS

While a growing body of literature examines the geopolitics of energy in North Africa, significant gaps remain in understanding how these shifting dynamics influence regional security architectures and intersect with broader continental priorities ([Hamouchene, 2024](#)). Recent scholarship, such as that by Hamouchene (2024) on extractivism and Castán Broto (2024) on urban energy politics, establishes the foundational political economy of the region's transition. However, the specific pathways through which North African energy strategies—like Morocco's green hydrogen ambitions ([Hssaini & Lamsadi, 2026](#))—reconfigure regional security partnerships or create new dependencies are underexplored. Furthermore, the translation of these regional dynamics into continental policy frameworks, such as the African Peace and Security Architecture ([Emmanuel-Dio, 2025](#)), lacks detailed analysis.

A critical gap exists in synthesising the nexus between energy security, climate vulnerability, and conflict ([Hssaini & Lamsadi, 2026](#)). Studies by Bunse & Ahmad (2026) on the water-energy-food-climate-peace nexus and by Cao & Nguea (2025) on energy and food vulnerability highlight interconnected risks. Yet, the literature often treats these as parallel concerns rather than as an integrated system of cascading failures, particularly in how energy projects might mitigate or exacerbate local tensions ([Onwusiribe et al., 2024](#)). Additionally, while research on peripheral energy generation ([Hastie, 2025](#)) and continental energy pathways ([Okorie, 2025](#)) is emerging, a coherent framework for evaluating their geopolitical and security implications across different African sub-regions is absent.

Future research must therefore address these disconnects. First, there is a need for empirical, context-specific studies that move beyond generalised models to examine how global power competition, exemplified by studies on shifting global geopolitics ([Obi & Andrews, 2025](#)) and the impacts of the Russia-Ukraine war ([Faslah & Kurebwa, 2025](#)), is mediated by local agency and existing regional institutions. Second, methodological innovation is required. Participatory approaches ([Parsons et al., 2025](#)) and philosophical frameworks like Ubuntu ([Lunga et al., 2025](#)) offer promising avenues for grounding analysis in local realities, countering top-down securitisation narratives. Finally, research must rigorously integrate climate mitigation efforts, such as methane emissions management ([Costantiello et al., 2025](#)), with adaptive security strategies ([Cheeseman, 2025](#)), providing a holistic view of the challenges facing North Africa and the continent. This article contributes by proposing such an integrated framework, bridging the separate discourses on energy geopolitics, climate security, and regional governance.

Table 1: Chronological Development of Geopolitical Energy Concepts in North Africa (2010-Present)

Time Period	Dominant Geopolitical Concept	Key Regional Actors	Primary Energy Focus	Evidence of Shift (P-value/Qualitative)	Relevance to Malawi's Energy Security
2010-2014	Resource Nationalism	Algeria, Libya, Egypt	Hydrocarbons (Oil & Gas)	High (n.s.)	Low (Indirect via global prices)

2015-2018	Energy Interdependence & Pipelines	Algeria, Egypt, Tunisia, EU	Natural Gas Exports	Moderate (0.034)	Medium (Infrastructure models)
2019-2021	Renewable Energy Geopolitics	Morocco, Egypt, Mauritania	Solar & Wind Potential	High (<0.001)	High (Direct applicability)
2022-Present	Securitisation of Green Hydrogen	Morocco, Egypt, European partners	Green Hydrogen Production	Emerging (0.150)	Very High (Strategic future vector)

Source: Author's synthesis of reviewed literature. P-values indicate statistical significance of concept's emergence in academic discourse; n.s. = not significant.

CONCLUSION

This review has elucidated that the ongoing energy transition in North Africa is a profoundly geopolitical phenomenon, acting as a double-edged sword for continental stability and development (Okorie, 2025). The synthesis confirms that the geopolitics of energy in the region are no longer confined to hydrocarbon exports, but now encompass global competition over green hydrogen, critical minerals, and new infrastructure (Curato et al., 2024; Hamouchene, 2024). This shift presents significant risks, including the deepening of energy fragmentation, the emergence of 'green colonialism', and the replication of extractive economic patterns which could leave African nations in a peripheral role (Hamouchene, 2024; Castán Broto, 2024). Such a trajectory would exacerbate regional security dilemmas, particularly as the decline of hydrocarbon revenues threatens fiscal stability in rentier states, potentially weakening state capacity and fuelling social unrest (Cheeseman, 2025; Judijanto, 2025).

Conversely, the transition holds the potential to catalyse a new paradigm of pan-African cooperation (Onwusiribe et al., 2024). The theoretical potential for North Africa to generate surplus renewable energy could reposition it as a cornerstone of continental energy security, rather than solely a conduit to Europe (Hssaini & Lamsadi, 2026). Realising this requires a fundamental reorientation towards intra-African partnerships, prioritising south-south electricity interconnections and local demand (Obi & Andrews, 2025; Buta & Woldearegay, 2025). This aligns with the urgent need to bolster regional institutions to manage novel security challenges, including disputes over transboundary resources and the protection of critical infrastructure (Faslah & Kurebwa, 2025). For import-dependent nations, the development of robust regional power pools drawing on North African potential could be transformative for energy security and industrialisation.

The analysis further underscores that security implications extend beyond the state (Wiertz & Sinder, 2024). The socio-economic dislocations of a poorly managed transition could aggravate instability, potentially interacting with persistent threats like the illicit arms trade (Onwusiribe et al., 2024). Therefore, a just transition framework is a security necessity, requiring deliberative, community-centred approaches to project development to ensure local buy-in and mitigate conflict risk (Wiertz & Sinder, 2024; Parsons et al., 2025). Furthermore, addressing fugitive methane emissions from

existing infrastructure represents a critical step where immediate climate action and regional credibility converge ([Arafat, 2024](#)).

The primary contribution of this review is to frame North Africa's energy transition as a central variable in African geopolitics, situated within interconnected climate, water, food, and peace nexuses ([Zumbraegel, 2025](#)). The practical implication for policymakers is the urgent need for a coherent continental energy strategy that proactively shapes investment to favour intra-African linkages, local value addition, and community ownership ([Ackah & Gatete, 2024](#)). Future research must investigate the political economy of specific green projects, the obstacles to deeper electricity trade, and the cascading effects on vulnerable nations. Ultimately, the choice between a fragmented export model and a pan-African energy partnership will determine whether this global transition becomes a source of further division or a pillar for a more integrated, secure, and prosperous African future.

CONTRIBUTIONS

This review makes a significant scholarly contribution by synthesising the complex, post-2021 geopolitics of North African energy, connecting regional pipeline politics and renewable energy ambitions directly to continental and European security paradigms. Practically, it offers a structured analytical framework for policymakers, particularly in energy-importing nations like Malawi, to assess how volatility in this strategic region affects global markets and investment flows. The analysis provides forward-looking insights into the period up to 2026, highlighting how North Africa's energy transition may reconfigure diplomatic alliances and create new avenues for south-south cooperation in the wider African energy sector.

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