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Original Research Article

Energizing the Inter-regional Cooperation and Energy Governance: An Exploration of the Africa-EU Energy Partnership

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ABSTRACT

The evolution of global energy governance is driven by a significant shift in energy technology, moving from carbon-intensive sources to cleaner alternatives. This transition is more than just technological; it encompasses the emergence of various inter-regional, regional, and sub-regional groupings aimed at enhancing governance capabilities across nations. This research focuses on the inter-regional partnership between Africa and the European Union, established to support collaborative energy decision-making. Employing thematic analysis, the study explores existing literature and reports on the Africa-EU partnership to assess its impact on the future of the African energy sector. By adopting a neoliberal perspective, the research argues that the limited state capacity in energy governance in Africa may require such partnerships to foster energy sector development. The study concludes that, given Africa's substantial renewable energy potential, particularly in solar irradiation, and the significant energy access challenges in the Sub-Saharan region, external support through technological and financial aid could catalyze the effective utilization of this potential.

KEYWORDS

Inter-regional cooperation, Energy partnership, Global energy governance, Renewable energy, Energy transition,Rregionalism, Global governance.

INTRODUCTION

Over the decades, the emerging significance of renewable energy has become observable with the global energy transition. The shift in the global energy system surpasses technological change which is evident in the adoption of renewable energy technologies and its influence on energy governance and social structure [1]. However, the adoption of new energy technologies to reduce carbon emissions and mitigate climate change effects has attracted multi-level energy governance and regional partnerships. To attenuate the effect of fossil fuels, the engagement of regional organizations (ROs) has become the mechanism to embrace the governance of clean energy with the potential to promote the adoption of new energy technologies and policy change. In this context, the Africa-Eu Energy Partnership (AEEP) [2] was launched as an inter-regional energy initiative to support energy governance capacity development across Africa. To achieve the goal of universal access to affordable, sustainable, and modern energy [3] in Africa and most importantly Sub-Saharan Africa, an energy partnership between the EU and the head of states in the African Union (AU) was adopted to enhance a

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collaborative decision making and developing a data-driven energy policy framework. Inter-regional energy partnership between Africa and the EU is said to provide fora for political dialogue and prepare an agenda for a shared concern on energy. This has influenced the avalanche of academic research in regional dialogue and integration.

Historically, the emergence of regional and sub-regional grouping has been considered the aftermath of the Cold War [4]. Consequently, the proliferation of ROs is precipitated by the quest to protect common socio-economic and political interests and solve global challenges within regional integration. The increase in this reality has metamorphosed into various conceptions such as interregionalism, transregionalism, old and new regionalism, and pure and hybrid interregionalism [5]. Equally, the web of interactions between regional and state actors has been strengthened by the phenomenon of globalization through complex state interdependence. However, the European Union's foreign policy remains the central institutionalized model for interregionalism. Even earlier before the formation of the European Union, there were noticeable interregional architectures used by the European Community (EC) as an instrument of external relations [6].

The institutionalization of Africa-EU relations with interregional dialogue is preceded by fragmented political and economic relationships. The duo regions have dwelled in decades of trade relations prior to the Joint Africa-EU Strategy (JAES) [7]. Therefore, the Africa-EU commitment to sustainable development has rejuvenated and emerged into interregional partnerships to enhance collaborative efforts in achieving socio-economic transformation in Africa and the EU. Significantly, the promotion of renewable energy, among other drivers of sustainable development in the Africa-EU partnership, is explained in the context of its potential to solve rising energy demand and the environmental effects of fossil fuels [8]. However, the deplorable state of energy production and lack of access to clean energy remain significant challenges confronting many African states. Moreover, Interregional cooperation has become a subtle mechanism to remedy the lingering challenges of socioeconomic progress among nation-states. However, the role of global governance cannot be overemphasized since the end of the Second World War. The structural complexity and proximity of global institutions have strengthened the new wave of regional collaborations in tackling common predicaments that have overwhelmed nation-state capacity over decades. The degree of governance deficit in Africa elicits regional and institutional support. Therefore, Africa is at the heart of global politics as a strategic partner across the governance spectrum. This research seeks to interrogate the joint Africa-EU strategy (JAES) with empirical consideration of the Africa-EU Energy Partnership (AEEP).

The potential of Africa in renewable energy transition transcends the fulfillment of global demand for decarbonization. Indeed, it is requisite for economic viability and sustainable development. However, the inability to transform the geographical advantage of high solar irradiation and other renewable energy resources exacerbates poor energy supply. Africa constitutes 16% of the world's population and consumes 3% of world energy production [9]. Significantly, more than 600 million African population have no access to electricity. Evidence from Cole shows that the economic effect of power outages in Sub-Saharan Africa is equivalent to 2.1 of the GDP [10]. The over-reliance on fossil fuels contributes enormously to climate change. Despite the insignificant proportion of energy consumption in Africa, the inability to ensure energy security remains intriguing. Moreover, sustainable energy is a crucial driver and enabler of economic development. Therefore, it is germane to understand the potential of external support in revitalizing Africa's energy sector. There is a huge variability in the deposition of renewable energy resources across countries which is mostly underscore by geographical, climatic, policy and economic factors. As a result, joint strategy on renewable energy sources embraces significant technological advantage and cost efficiency. The development of renewable energy system grid on continental and regional basis attracts lesser cost than national grid. The choice of the object of investigation in this study is based on the widest and deepest of the EU foreign policy agenda and its engagement in Africa.

This paper adopts a neo-liberal perspective to argue that the Africa-EU energy partnership is crucial to scale up the energy transition in Africa because interregional cooperation would increase internal capacity for energy governance through technical and financial support. The EU intervention in Africa's energy governance would essentially aid inclusive participation in the multilateral agenda on carbon reduction. According to the assumption of neo-liberal institutionalists, states are confronted with an increasing global complexity that thwarts individual state capacity in undertaking essential tasks, which has necessitated the interrelationship between regional institutions [11]. Hence, the imperative of regional alliance and partnership has been entrenched as a dominant approach in coordinating the global governance agenda. Against this backdrop, interregional engagement between the African Union (AU) and the EU is crucial to strengthen political dialogue to address global predicaments such as climate change and carbon emissions. The dichotomy between the EU and Africa's technological sophistication in energy generation requires a mutually beneficial partnership between the two parties [12]. Therefore, the formation of the Africa-EU energy partnership (AEEP) in 2007 concretized the interest of both regions in supporting their relative strength and weaknesses in energy fields.

Several studies have examined interregionalism as an emerging force [13]while somewhat research has been conducted on the Joint Africa-EU strategy. Specifically, scholars have assessed the commitment of the EU to the principle of equality to ensure a symmetric power relation in the implementation of Joint Africa-EU Strategic Support (JAES) which is spread across eight thematic areas [14]. In contrast, the partnership has been criticized for unfair relationships and power dominance from the EU [15]. Considering the enormous scope of JAES, different partnership areas have begun to arouse scholars' interest. To begin with, the Africa- EU peace and security partnership plays a significant role in restoring peace in volatile zones in Africa and strengthening African security governance [16]. On the other hand, the appraisal of EU support for democratic governance and human rights in Africa has fascinated a group of experts to decipher the dynamics of human rights infringement ranging from xenophobic attacks, racism, racial discrimination, and other social intolerance [17]. However, marginal attention has been given to the Africa-EU energy partnership as one of the scopes of JAES. Against this backdrop, this research seeks to interrogate how collaborative efforts and mutual support between the EU and African regions will reposition the future of the energy system in Africa.

This research adopts a critical thematic analysis framework to achieve the research aim under consideration. Considering the African low technological capability in driving energy transition, this could be counterbalanced through access to the same capabilities in intra-regional cooperation. Hence, the assessment of the EU strategic intervention in energy transition in Africa is based on the resulting impact of the institutional capacity on the proposed objectives. This study analyses the political dialogue and policy discussion of the AU and the EU, which drives the implementation of renewable energy and regional cooperation. To locate the AEEP's impact on energy governance capacity, this research adopts an analytical framework including: (1) Capacity building; (2) Private and public sector cooperation, and (3) Technical and financial support [18].

To answer the research question, the essay has been organized in the following way: the research starts with an introductory section that presents an overview of the problem and the potential of inter-regional cooperation in solving the energy governance crisis. The second section begins by laying out the theoretical dimensions of the study and exploration of the theoretical underpinning of regional and inter-regional cooperation. Given the lack of theoretical homogeneity in explaining the interregional phenomenon, the neo-liberal perspective is considered to measure the phenomenon of interregional cooperation. The third section presents the research findings. Finally, the research ends with a discussion of the findings and conclusion.

A THEORETICAL PERSPECTIVE ON JOINT ENERGY STRATEGIES

The emergence of regionalism, neo-regionalism, and interregionalism has attracted several theoretical lenses ranging from the conventional theories of international relations, realism, and liberalism to new theoretical development. The following section presents a conceptual framework explaining regionalism and neo-regionalism to trace the emergence of interregionalism and regional cooperation. Nevertheless, interregionalism cannot be completely disentangled from the broad field of international relations. Hence, the theoretical analysis adopts interregionalism and neo-liberal perspectives to understand the dynamics of the Africa-EU relations.

The theoretical departure from old regionalism to new regionalism

Widely varying definitions of regionalism have emerged since the application varies among researchers. Despite the homogeneous belief in the significance of regionalism and regional integration in contemporary international politics, scholars' variation in the paradigm adopted shows epistemological differences. In other words, scholars conceive regionalism differently based on contextual variation across disciplines [19]. A precise definition of regionalism has proved elusive. According to a definition provided by Börzel and Rissel-Kappen, regionalism is ‘ a state-led process of building and sustaining formal regional institutions and organizations among at least three states’[20]. Regionalism, in this view, is a constellation of nation-states' efforts based on shared values and identity. Similarly, Fawcett sees regionalism as the policies and practices of an organization whose membership is restricted to states within the same geographical region [21]. Despite the purposive harmonization of states to form a formidable regional institution, the state interactions and membership vary on social, political, and security concerns [22]. Advancing this argument, Baylis explains that different regional arrangements between states are usually in the form of cooperation and integration. Therefore, the focus of this research is on the former. Theoretically, regionalism remains contested for its ‘unavoidable empirical ambiguity’ and diverse analytical perspectives [23].

The conceptual bifurcation of regionalism has attributed enormous attention to its root word- ‘region' as a valuable beginning to circumvent the ontological problem faced in defining regionalism [24]. In other words, several definitions of regionalism hinge on the demographic proximity of states whose interaction is determined by the shared geographical location [25]. However, the fundamental challenge remains the agreement among scholars on what constitutes a region. For example, Cantori and Spiegel highlight features of a region including geographical proximity, shared socio-cultural and ethnic identity, and inter-state interaction [26]. Consequently, a considerable amount of literature predicated the conceptual analysis of regionalism on social cohesiveness; common heritage, ethnicity, socio-linguistic bond, religious belief, political cohesiveness; ideological resonance, regime type, and institutional similarities [27]. The geographical proximity is insufficient to define the ‘regioness’ of an organization, instead the purpose of socio-economic and political interaction [28]. Therefore, adopting a definition that encompasses this conceptual divergence is essential. Although opinion differences still exist, there appears to be some agreement that regionalism, irrespective of the phases, whether early, old, or new, refers to an organized move to protect states and regional preferences.

The review of old regional organizations and the formation of new ones after the Cold War significantly influenced the wave of neo-regionalism debate. These modifications were done to accommodate new actors and organizations and broaden the scope of regional institutions. However, the history of old regionalism is inseparable from the new regionalism because of institutional overlapping. Several regional organizations were established during the old regionalism epoch (the 1950s-1970s) but these were re-instituted during neo-regionalism

around the 1980s- 1990s to broaden the scope of membership and feature new political realities [20]. Therefore, new regionalism is a post-Cold War phenomenon.

Similarly, the new regionalism is a product of a global transformation project conducted under the auspices of the United Nations University and World Institute for Development Economic Research, conducted to interrogate the significance of the region in the new world order [29]. In other words, the transition of global order from bipolar to multipolar shortly after the Cold War warranted the change in the region and state-based organizations to conform with the new emerging world order. Hence, new regionalism embraces formal and informal interaction among states and non-state actors, usually civil societies, and private companies. However, despite the burgeoning interest in new regionalism research, scholars have applied descriptive and historical approaches in advancing the discussion on new regionalism. Therefore, conceptual and theoretical exploration remains limited.

The new trend of regionalism embodies regional cooperation, given the decline in the capacity of integration theories to explain the emergence of new global realities. Regardless of the nature of the engagement, the regional organization that emerged after the Second World War moved beyond the regional boundary and organized above the state [30]. The engagement of non-state actors intensified regional and interregional cooperation as the new mode of global interaction. Regional cooperation has become an essential driver in promoting regionalism, especially cooperation that extends beyond economic collaboration.

The new regionalism is, to some extent, distinct from the old regionalism. The first point of distinction is the scope of membership. The first wave of the regional grouping, which spanned between the 1950s to 1960s was characterized by homogeneous regional institutions. At the same time, the new regionalism is epitomized by socio-economic, cultural, and political diversification, which pervade the structural arrangement of the new regional organization. Secondly, the new regional organization embraces multilateralism and trade liberalization, making the new institutions open to regional cooperation [31]. However, the degree of institutionalization varies because of the avoidance of old institutional structures and the search for a new mode of organization.

Theoretical underpinning of interregionalism and regional cooperation

Like the previous conceptual analysis, interregionalism is also deficient in a universally accepted definition because it lacks a homogeneous appearance. This variation has limited theoretical postulation on interregionalism. Therefore, the theoretical research on interregionalism is unequivocally thin. The fundamental question is the intersection between regionalism and interregionalism. To begin with, regionalism emanates from the cooperation between two or more regional entities represented by the government or administrative unit. The emergence of interregionalism has been popularized by the European Union's foreign policy, which extends to different regions. The application of interregionalism to a wide range of interregional cooperation has shown heterogeneity in the conceptualization. Thus, interregionalism is a multifaceted phenomenon.

To add more nuance to the theoretical discussion of interregional cooperation and its application to the Africa-EU partnership, this section explores the dynamics of interregionalism. The external relation of interregional organizations shows a multiplicity of relations than their internal functionality. The major types of interregionalism are pure-regionalism, hybrid or quasi interregionalism and transregionalism. Pure regionalism is the cooperation between two institutionalized regional organizations. For instance, the relationship between the EU and ASEAN exemplifies group-to-group relations or pure regionalism [32]. Hybrid or quasi-regionalism is a relationship between a well-established regional organization and a country from another region. In other words, hybrid or quasi interregionalsim is an engagement between a region and a state. The third form of interregionalism, transregionalism, shows overlapping in the relationship between regions. Therefore, the typological ambiguities in interregionalism show the dynamics of the EU's external relations with state and non-state entities.

Interregional cooperation has undeniably put the EU forward as an active actor in international politics. The rationale for the EU's engagement in interregional cooperation includes the interest in stimulating regional development, global relevance, and capacity building [33]. The unequal power relation in the EU inter-regional relation has become an object of contestation among scholars. For an effective relation to exist between two regions, there must be parity in the level of 'actorship' [34]. Otherwise, the relation becomes superordinate-subordinate relations.

In the case of Africa-EU relations, the fragmented relations between the EU and some African states that preceded JAES, such as the Lome and Cotonou agreements [35] could be classified as a quasi or hybrid interregionalism in which the partners had unequal institutional capacities. The early cooperation between Africa and the EU was based on a donor-recipient approach. This cooperation was organized on a country level which denied region counterpart relation. The EU's policy was then centred on helping Africa integrate African states to build institutional capacity. However, the formation of JAES has transformed Africa-EU relations to a pure interregionalism through the established strategic partnership between AU and the EU. Therefore, one of the theoretical contributions of this paper is to classify Africa-EU interregional cooperation as pure interregionalism, given the typology of Hänngi on interregionalism. The only Africa-EU relation that has been classified as a region-to-region relation (pure interregionalism) is the relations between the EU and Southern African Development Communities (SADC) [32]. Nevertheless, the emergence of strategic relations between the AU and EU remains a monumental contribution to the discussion of interregionalism.

Neoliberal perspective on the Africa-EU partnership

The theoretical reflection of neoliberalism on Africa-EU relations explains the essence of international cooperation. The theoretical position of realism on international cooperation contrasts with the neoliberal assumption on the same subject. According to the realist, conflict is inevitable in the anarchical structure of the world, which essentially shapes states' interaction. Therefore, the possibility of cooperation is limited. However, neoliberal theory negates this pessimistic view of attaining international peace and cooperation. Neoliberals maintain that international institutions are significant in attaining international cooperation [11]. The interaction of states through the formation of an institutional framework neutralizes the possibility of conflict through international capacity distribution, which underplays the essence of power acquisition among the states. However, it claims that it is inconsequential to symbolize the world with conflict inevitability.

The neoliberal argument on absolute gain illuminates the nature of the partnership between Africa and the EU. However, somewhat literature has described the Africa-EU relationship as an asymmetric relationship. However, the transformation of the relationship from a donor control mechanism to a cooperation base supports the claim of absolute gain, which governs the current Africa-EU affairs. The argument of relative gain may not be tenable because of its zero-sum game attribution. In other words, what a state loses benefits other parties. Therefore, the absolute gain is suitable for interpreting the inherent benefit of the interregional relation between the AU and the EU. International cooperation is not necessarily predicated on the self-interest of the state or relative gain but on pursuing fundamental values like peace, equality, and justice [12]. The EU is built on the liberal values extended to Africa through regional support and interregional partnership. The commitment of the EU to promoting peace, human rights, and democratic governance has been demonstrated in thematic areas of JAES.

According to neoliberals, the fundamental goals in state interaction are national security and economic cooperation. Nevertheless, neoliberals accentuate more on the economy than support for internal military capabilities [36]. The EU's interest was primarily on how to support Africa in building internal peace and increasing security capabilities, while Africa's interest lies in trade and economic development. Consequently, Africa-EU relations have received internal legitimacy given the economic support embedded in the new cooperation.

However, neoliberals' argument relies heavily on international cooperation without addressing systemic factors that could hamper the possibility of state cooperation. This assertion is supported by the argument that neoliberal institutionalism fails to recognize 'international anarchy' as a stumbling block to international cooperation [37]. Therefore, the main weakness of neoliberalism is further stressed in Axelrod and Keohane's observation that cooperation in international politics may be an uphill task because of the absence of a central authority to enforce the law, and the international institutions are equally fragile. Thus far, the theoretical framework has explained the conceptual variations and scholarship positions on regionalism, neo-regionalism, and interregionalsim and their sequential transition.

THE AFRICA-EU JOINT STRATEGY AND ENERGY PARTNERSHIP

The formation of the Joint Africa-EU Strategy (JAES) was an initiative that sprang from the Lisbon conference in December 2007 with the creation of a legal framework for the recognition of EU external relations [38]. The official declaration of Africa-EU joint action on areas of common concerns does not invalidate the record of interactions between these continents but formally delimitated and institutionalized areas of engagement. To put it differently, the establishment of JAES consolidates the decades of economic and development cooperation between the EU and AU. The framework of interregional support between Africa and the EU is premised on shared concerns ranging from building a robust institutional structure to mitigate the effect of climate change to increasing governance and technological capabilities [39]. Significantly, JAES has become a forum for interregional political dialogue to resolve potential socio-economic and political problems between the EU and AU member states.

JAES is underpinned by eight thematic areas that spread across democratic governance, security, human rights, and sustainable energy with the principle of equality between the two continents. In addition, the formation of the Organization of African Unity in 1963, the Lagos and Abuja treaties in 1975 and 1991 respectively, and the New Partnership for African Development (NEPAD) prepared the adoption of a regional integration strategy in Africa [40]. Therefore, the Africa-EU relationship is a political expansion cum economic integration to solve the challenge of globalization. The Cairo Summit action plan of 2000 placed Africa- EU relations on the path of interregionalism. However, the overarching interests enunciated by the EU and African representatives in Cairo failed implementation till the official creation of JAES in 2007.

The Africa-EU Energy Partnership (AEEP) was also launched at the Lisbon summit in 2007 as one of the eight strategic partnerships that define JAES. The AEEP remains an interregional political dialogue with a primary focus on providing Africa and the EU member states with universal access to affordable, sustainable, and carbon-free energy. One of the compelling initiatives accompanying AEEP is the demand to stabilize and secure energy supply in Europe and Africa. Energy security has been a perennial plight, especially in Sub-Saharan Africa with over-reliance on fossil fuels while energy dependence on oil-rich countries like Russia has made European Union and its member states vulnerable to energy weaponization. Therefore, energy security remains a strategic goal of the EU-Africa partnership to improve energy infrastructure, diversify energy resources available in both regions, and mutually enforce energy resilience. The new energy reality that emanates from the Russia-Ukraine war offers a retrospective lens to understand the peril of energy dependency and this has increased the socioeconomic bond between Africa and the EU [41]. The potential of Africa in fossil fuels and renewable energy has placed Africa in a strategic position to attain global energy security. Therefore, the EU-Africa energy trade is essential to unlock more financial solutions to redeem energy infrastructure in Africa while creating energy security in the EU through an interregional energy supply network [42]. Energy security is most likely inseparable from energy diversification which stands as one of the dominant strategies deployed by energy importing countries. The impact of energy diversification in creating energy security is dynamic and this is better explicated by Palleschi as a complementary tool to gain balance in the energy corridor by energy importing countries [43].

Energy diversification as a driver of energy security in global energy partnerships elucidates the multilateral relationship and spatial distribution of energy resources among countries. Just as the European Union identifies Africa as a partner to create energy security at both ends, nations source multiple energy suppliers to meet domestic energy needs. However, the multilateral energy partnership of a state is conditioned on the possibility of change in energy arrangements which could catastrophize the socio-economic strength of the receiver country. The extension of European energy cooperation to Africa is underscored by the weaponization of energy resources as demonstrated in the Russia-Ukraine war. On the other hand, energy security could be achieved by building a formidable energy mix that absorbs the recurrent surge in energy demand. In other words, the adoption of in-country diversification as energy security mechanism evolves around the heterogeneity of energy resources available in a country.

At the state level, countries within these regions such as Germany have shown new commitment to energy partnership and this is exemplified by the visitation of German chancellor, Olaf Scholz to West African countries, particularly Nigeria and Ghana. The German chancellor has reaffirmed energy partnership as a crucial element in the socioeconomic cooperation among the host countries. Considering the position of Nigeria as the country with the largest gas reserve on the African continent, Germany has shown interest in the development of a gas pipeline to pave the way for Nigeria in the global energy market [44]. It is commonly believed that the integration of Nigeria's gas pipeline with the global energy supply chain will further stabilize gas prices in the global energy market. In other words, AEEP is committed to providing modern energy sources to promote the African energy sector. The structural arrangement of AEEP is based on the high-level meeting through the convergence of political leadership from Africa and the EU to facilitate the interregional energy policy discourse. Hence, AEEP is arguably the most effective of all partnerships of the joint Africa-EU strategy [45].

The EU-Africa joint energy partnership is mutually beneficial in initiating sustainable development projects such as socially inclusive and economically sustainable projects. This holds the potential for long-term economic growth in both regions. Energy is unequivocally a driver of economic development. Sustainable development and economic growth are driven not only by technological advancement but also by energy supply [46]. However, technological transfer and capacity building are also consequential advantages accrue to energy partnerships. The EU support across Africa on renewable energy projects and capacity building in energy sectors through training on new energy technologies highlights the benefits embedded in the EU-Africa energy partnership. One of the frameworks established within the EU-Africa partnership to facilitate knowledge and capacity transfer in both continents is the long-term Europe-Africa partnership on renewable energy to expand the utilization of renewable energy resources through innovative research and technology transfer [47]. The project has marked a significant milestone in the adoption of renewable energy technology and creates more value for its supply chain. The economic benefits of the energy partnership between the EU and Africa cannot be downplayed given the resurgence of investments in energy infrastructure such as mini-grid projects which create more energy access and job opportunities. Also, the compatibility in regulatory frameworks and policy alignment between these regions determines the degree of collaboration.

Energy governance in the EU and Africa

This section analyses one of the thematic areas of JAES (Africa-EU Energy Partnership-AEEP) to keep the analysis detailed and sparse. It is necessary to briefly explain energy governance in Africa and the EU to understand the peculiarities and institutional differences in this governance domain and how it has necessitated interregional cooperation. The general use of the term 'governance' is sometimes equated with interrelated activities, which include the process of decision-making, organizing, and steering the affairs of a particular entity. Similarly, the Commission on Global Governance report defines governance as "the sum of the many ways individuals and institutions, public and private manage their common affairs" [48]. Therefore, governance is a way through which conflicting and diverse interests are managed.

Concerning the energy sector, energy governance is the institutional arrangement and coordination of actors involved in the politics and policy of energy resources. Relatedly, energy governance is the process of driving the provision of energy services through established law and policy formulation coordinated by private and public actors [49]. Thus, energy governance is characterized by a multiplicity of actors engaged in national and international interactions to coordinate the agenda of global energy affairs. In other words, the dynamics of energy governance drivers and structure have been classified into intergovernmental Organizations (International Energy Agency- IEA), International non-governmental organizations (Environmental and Energy Study Institute- EESI), regional organizations (APEC), and Global financial institutions (World Bank) [50].

The Africa-EU relationship on energy governance demonstrates two contrasting regions ranging from a contrasting technological strength in driving power generation, transmission, distribution, and energy accessibility. Nevertheless, the possibility of comparative advantage between the two regions remains a source of cohesion in pursuing energy transition. Moreover, it is incontrovertible that each region's peculiarities of energy predicaments attract a practical approach through energy partnership and institutional support. Moreover, the imperative of mutual interactions between Africa and the EU is ignited by the perceived global energy challenges such as climate change and energy security which demand energy diversification and attention to renewable energy sources [51]. Therefore, the objectives of the energy partnership in the two regions are centred on energy security, energy efficiency, access to energy resources, and clean and affordable energy.

The EU economy, over decades, has been built and entrenched in carbon-based energy. Therefore, the EU energy governance is key to economic development in European countries. Historical retrospection on the emergence of the EU shows the significance of trade policy as a propelling force for developing energy governance in Europe. The analysis from Knodt and Kemmerzell [52] on the EU energy governance linked the existence of the European Coal and Steel Company (ECSC) and the European Atomic Energy Company (EURATOM) to the governance of energy resources in Europe. The establishment of the Coal and Steel Community and EUROSTAT in 1951 and 1957 respectively, prepared the ground for energy governance in Europe. Not until the Lisbon Treaty in 2009, when central coordination became the new order, the decisions on energy resources in Europe were subjected to Secondary law that was within the state members' competency. One of the profound impacts of the Lisbon Treaty was the transfer of energy competency from a secondary law to a primary statute, as contained in Article 194 of the Treaty on the Function of European Union (TFEU), which allowed the supranational institution to deliberate on the issue of energy concern. Nevertheless, the capabilities to extract energy resources lie within the jurisdiction of the member states. Therefore, the EU energy governance has been motivated toward achieving three critical goals: energy security, sustainability, and competition through the integration of the internal energy market. These objectives reflect the degree of energy import and dependency within Europe, which later formed the core strategy of the energy union to alleviate the effect of energy hegemony [53]. Consequently, the EU energy policy has shifted somewhat attention to renewable energy sources (RES) to achieve the earlier stated energy policy objectives through the instituted green energy deal by exploring the internal capability of regenerative energy.

The promotion of renewable energy sources in the EU energy field is not only premised on the expression and ambition to be the first carbon-free continent but also on the institutional configuration that drives the policy instruments toward achieving energy security through RES. Similarly, the establishment of a distinct governance instrument (Governance of Energy Union and Climate Action) facilitated the EU effort on the 2030 energy transition objective. However, the contestation against the desirability of RES within supranational and national levels in the EU demonstrates politicization and energy polarization [54].

To juxtapose energy governance in Africa, it maintains a distance posture given the absence of supranational institutions that govern energy affairs in Africa. However, the defunct

Organization of African Unity (OAU), now the African Union (AU), instituted the African Energy Commission (AFREC) through the Lusaka Convention on the African Energy Commission of July 2001, which was later ratified in December 2006 [55]. However, the commission lacks the authority to govern the AU member states' energy decisions harmoniously. Consequently, there are disparities in the level of internal ratification of the article of this convention among the 54 member states of the AU, which are equal members of AFREC. Moreover, Article 3b of the Convention of the African Energy Commission (CAEC) stresses the imperative of joint development of energy resources through cooperation in energy sectors among member states to promote regional and subregional projects [56]. Similarly, the lack of a central institutionalized governing mechanism has spawned fragmented sub-regional institutions saddled with the similar responsibility of advocating access to sustainable energy. For instance, the Economic Community of West African States (ECOWAS), in partnership with the West African Economic and Monetary Union (WAEMU) and the EU, launched an energy governance program in Abuja, Nigeria, in 2018 to strengthen energy governance in West Africa [57].

Despite the fragmented institutional structure of energy governance, which is evident in regional (AU) and subregional organizations in Africa, the common denominator remains the ambitious move to bridge the gap in energy access. The AU's objective of alleviating energy poverty and promoting universal access to clean and sustainable energy is jointly shared across sub-regions of Africa. This position has been demonstrated in the 41st session of the AU Executive Council, where all member states unanimously agreed on deploying available energy resources to enhance energy access and just transition [58]. On the other hand, ECOWAS has geared efforts towards increasing 35% of the West African Population that has access to electricity. Similarly, ECOWAS regional intervention in energy plight has been institutionalized with the Regional Renewable Energy Policy (RREP) through the construction of the Regional Off-Grid Electricity Access Project (ROGEP), funded by the World Bank, which intends to provide universal access to electricity in West Africa by 2030 [59]. Nonetheless, the methodology adopted by the AU with the fundamental objectives of the African Energy Commission (AFREC) has promoted collaborative effort both within and outside Africa. Therefore, the goals of AFREC, which include the development of energy policies, mobilization of technical and financial support for member states, and implementation of capacity-building programs [60] are in consonant with the objective of this empirical interrogation.

It is crucial to reiterate that the challenge of energy governance in Africa is not extremely distant from other governance problems such as environmental, water scarcity, and food insecurity which are mainly addressed with a national approach. Moreover, the constraints in governance capacity in Africa are predominantly attributed to limited financial and economic capabilities [61].

Internal contradictions on African energy potentials

Africa is undoubtedly rich in natural resources. However, the paradoxical state of socio-political and economic realities in Africa has been a source of scholarly concern [62]. There is a need to widen the access to electricity across African sub-regions to stimulate socio-economic development. In other words, economic development remains a mirage where 6 million population have no access to energy, and about 730 million rely on traditional biomass as the source of energy [63]. Therefore, energy demand, supply, and consumption are directly linked to the general standard of living, quality of life, and economic development [46]. The availability of energy resources in Africa is incoherent and incomplete because of the under-exploration of the available resources.

Nevertheless, renewable and non-renewable energy sources immensely contribute to power generation in Africa. The geographical advantage accrued to the abundant energy resources in Africa has triggered more international cooperation to tap into renewable energy and aid energy transition. The conventional energy sources in the African region have been the mainstay of economic development in many sub-regions of Africa. In other words, 50% of the energy supply

in the African continent is derived from fossil fuels, including coal, oil, and natural gas [64]. On renewable energy, the rate of solar irradiation in Africa has boosted the deployment of solar photovoltaic (PV) and solar thermal to diversify energy sources. Despite the enormous potential of solar energy, below 25% of the African population is effectively engaged in solar energy [65]. However, sub-regional preferences for different sources of energy explain the divide in the degree of energy accessibility. For instance, solar and wind energy are actively deployed in North Africa with 98% energy accessibility, while West Africa, East Africa, Central Africa, and Southern Africa have leveraged less on solar technology with low energy accessibility of 47%, 23%, 25% and 48% respectively [66].

For further elaboration on the African endowment of energy resources, it is necessary to demonstrate the diversity of these resources based on the regional constellation. A significant chunk of oil and gas reserves are situated in West and North Africa, with 90% in Algeria, Nigeria, Sudan, Libya, and Angola, while the Republic of South Africa contributes the largest coal deposit [67]. Similarly, ten percent of the world mining output of Uranium belongs to Malawi [68]. However, the Koeberg nuclear power plant in South Africa remains the only nuclear power station in Africa. Although, no sub-region in Africa has a legitimate monopoly in deploying renewable technology. However, the intervention of private investors and international institutions has given more prominence to some countries in adopting renewable energy. Nonetheless, the daily distribution of solar irradiation within Africa is relatively homogeneous because approximately 85% of the African topography attracts about 2000 kWh per year [69]. Other energy sources like geothermal and wind are under-used. **Table 1** shows the synopsis of Africa's potential in renewable energy.

Table 1. Renewable energy potentials in African sub-regions [70]

Region	CSP(TWh/yr)	PV(TWh/yr)	Wind(TWh/yr)	Hydro(GWh/yr)
Central Africa	29,909	61,643	12,395	59,393
Eastern Africa	175,777	219,481	165,873	101,492
Northern Africa	93,544	109,033	130,316	570,730
Southern Africa	149,610	162,817	108,235	334,600
Western Africa	22,747	103,754	40,846	415,857
Total	**471,587**	**656,728**	**457,665**	**1,482,072**

The division of Africa into three regions based on energy performance, North Africa, South Africa, and Sub-Saharan Africa, has shown that the bulk of the challenge confronting energy generation lies in the latter. Therefore, the African energy sector is still at a crossroads, given the technological demand to transit from conventional energy sources. Even though, energy transition needs to be preceded by universal access to energy because, without general accessibility, there is nothing to transition from [71]. To corroborate this argument, it is interesting to know that oil-producing countries in the sub-Sharan region, such as Nigeria and Ghana, lack the technological capability to refine the quantity of crude oil demanded while spending a significant portion of national income on oil importation to meet energy demand [72]. Amidst these contradictions and vast energy potentials, the solution to the energy woes could be the creation of an institutional mechanism to enhance energy governance in Africa through regional cooperation and public-private partnerships.

DISCUSSION

This discussion is organized based on the analytical framework introduced in the earlier section which includes Capacity building, private and public sector cooperation, and technical and financial support. This empirical lens allows a critical discussion of the findings and empirical realities that characterized the EU-Africa energy partnership. Beyond abstraction, AEEP is better understood within the context of socio-economic and technological factors that shape the governance of energy resources and the implementation of energy projects within the framework of EU-Africa energy partnerships.

Capacity building in research and innovation in energy sector

Aside from the regular institutional structure, which includes academics, professionals, and technical officers in the energy field, stakeholders' engagement in decision-making on energy issues epitomizes AEEP intervention in Africa. Hence, energy governing capacity is revamped through research and innovation. The Africa-EU partnership on renewable energy has shown the need to broaden the horizon of all actors advocating energy sustainability by acquiring the necessary skills and knowledge to combat the energy challenges in Africa. In other words, the interregional energy cooperation between Africa and Europe is beyond rhetoric and political discussion. Therefore, research and innovation have become a new point of convergence for Africa-EU interaction to speed up the provision of clean and affordable energy across Africa and Europe. For instance, the Long-term Europe-Africa Partnership on Renewable Energy (LEAP-RE), a program coordinated by the Euro-African consortium in collaboration with the European Commission, is a veritable platform for knowledge transfer for private and public stakeholders in the African energy sector [73]. Moreover, the LEAP-RE program exemplifies a research-driven approach adopted by the AU-EU alliance to uplift Africa's poor energy generation and supply. Therefore, the initiation of the LEAP-RE program is immersed with the primary focus of Africa- EU energy cooperation. However, three distinct areas of its intervention are worthy of explanation. The first and second pillars of the program encompass the implementation of a multinational and individual research proposal, innovation, and capacity building, respectively, while the third pillar emphasizes the management phase and the sustenance of interregional renewable energy governance between AU and the EU [47].

The interest of AEEP in propagating renewable energy within the African and EU member states informed the engagement in technical training to upskill the energy entrepreneurs whose strategic position at the grassroots is significant for the promotion of access to novel energy sources. Moreover, the increase in technological know-how is requisite for the global renewable energy campaign, which has become AEEP's methodological stance in capacity building. In addition, among the interventions of AEEP on energy training and knowledge transfer is the 'Renewable Energy Project Design and Development' organized in conjunction with the Southern African Development Community (SADC) 's Centre for Renewable Energy and Energy Efficiency (SACREEE) [74]. The Workshop was designed to provide technicians in the energy field with vocational training on renewable energy resources planning, design, and installation of the solar system. Therefore, the Africa-EU cooperation on energy has been a product of shared values which propels the commitment to solve future energy challenges through collective action.

AEEP and public sector organization on energy transition strategy

Multilevel coordination and the inclusion of public sector organizations are crucial for achieving AEEP objectives on regional electricity transmission and widening the access to power supply. The reality of the energy sector in Africa has attracted multilateral energy support and stakeholders ranging from the private to public sector, which invariably increased the quantum of official development assistance (ODA) in Africa [75]. However, the fulcrum of this institutional and international support for energy is to implement low-carbon energy. Its efficacy rests on the mutual coordination between AEEP and public sector organizations in the host countries. The

second AEEP high-level meeting (HLM) that took place in Addis Ababa, Ethiopia, in 2014 received the presence of energy ministers of the AU member states and energy experts, which defines the significance of inclusiveness in energy dialogue. Similarly, The energy decision-makers in Sub-Saharan Africa including ministries of energy, rural electrification, renewable energy agencies, power regulators, and other national energy-concerned institutions have been charged to take an active role in stimulating general electrification through clean energy sources [76].

The AEEP energy stakeholder forum remains an exceptional platform bringing people of diverse dexterity in the energy field to achieve the goals of energy efficiency, energy security, and energy access. The first AEEP stakeholder forum took place in Cape Town in May 2010 with 250 representatives from private and public domain, researchers, civil society organizations, government officials, and financial institutions [77]. The essence of the forum is to synergize efforts toward monitoring the progress in the energy transition. Moreover, the central concern of the forum remains how to invigorate the investment in renewable energy through support from private investors, which explains the notion of "three stakeholders group, two continents, and one joint responsibility" [78]. Therefore, an intense collaboration between institutions and private bodies is inevitable to manifest AEEP's demand for the wide distribution of renewable energy resources. Following the initiation of the energy stakeholder forum, the stakeholder consultations which were carried out in Ghana, Djibouti, Uganda, Cameroon, and Zambia extended the scope of intergovernmental partnership through the engagement of various civil society and public organization to promote the interest of AEEP on rural electrification and unrestricted access to electricity (AEEP, 2014).

It is worth knowing that AEEP is just one of the partnerships and alliances aiding the revitalization of the energy sector in Africa. The other establishments include Africa Energy Group, the Programme for Infrastructural Development in Africa (PIDA), and Sustainable Energy for All (SE4ALL). All these 'high-level initiates', including AEEP, have shown concern about raising institutional capacity to unlock Africa's energy potential. Within the scope of AEEP, the implementation of clean and accessible energy projects has attracted the creation of different initiatives and programs with the primary aim of tackling energy challenges within Europe and Africa. In other words, the energy alliance between Africa and Europe has produced frameworks like the EU Energy Initiative (EUEI) created to eradicate energy poverty and the Partnership Dialogue Facility (PDF) to manage energy projects and coordinate regional and international energy policy discourse. The EU Partnership Dialogue has aided regional energy partnerships not only in Africa but also in Latin America, the Pacific, and Southeast Asia and most notably served as the secretariat for the Africa-EU joint strategy on energy.

The deployment of low carbon technology and financial aids

Although Africa is incontrovertibly self-sufficient in energy resources, as previously explained. However, the realization of the full potential requires financial and technical intervention to consolidate its efforts in tapping into the variety of energy resources. Therefore, the need to mobilize financial and technical resources has been a mutual reality that characterizes the Africa-EU energy support to fulfill the sustainable development goal 7. For example, out of the 24.4 billion euros appropriated for official development assistance (ODA) by the EU, 11.1 billion euros have been committed to energy projects in Africa [79]. In addition, multilateral institutions have largely supported the procurement and installation of renewable energy components such as solar PV, and wind turbines, and bearing other necessary economic consequences to haste energy transition in Europe and Africa. The predominant contributors to energy projects in Africa are the African Development Bank (ADB), the EU, and the World Bank [75]. Various African states receive energy support in the form of aid and loans from the mentioned international institutions.

The provision of technical assistance in energy generation and transmission has aided the quest towards meeting energy demand in Africa, most especially in the sub-Saharan region,

where there is a considerable lacuna between total energy demand and quantity of energy generated. The deployment of renewable energy technology remains the mode of technical assistance in Africa. Contrastingly, the Institute for Sustainable Development and International Relations contends that the transition of the energy field in African countries surpasses the importation of technological devices rather than raising internal and local technological innovation to build needed renewable energy generators [80]. The absence of local arrangements for energy production, and the over-reliance on fossil fuels to sustain industrial production may thwart the efforts on clean energy provision. Nevertheless, the significant amount of assistance African countries receive on energy reform comes from technical support. For instance, data from the AEEP report shows that 84 percent of energy aids are technical assistance while 64 percent provide direct funds [75].

The mobilization of technical equipment in Africa to increase power generation from renewable energy has yielded colossal results over the years. Detailed analysis of power generation from renewable sources shows that hydropower is Africa's leading technology in grid supply. From 2010 to 2015, an additional 2,174 megawatts were recorded from hydropower generation through AEEP support in restoring collapsed hydropower plants to increase efficiency in power generation across African countries [81]. On the other hand, the projection of AEEP in extending the power generation from solar sources by 500 megawatts in 2020 was far reached before the slated time. Comparatively, the total solar installation capacity as of 2016 was 1,546 megawatts compared to 2010, with a total installed capacity of 130 megawatts. Similarly, wind and other renewable energy sources are not exempted from AEEP's scope in building energy capacity for regional transmission within Africa and between Africa and Europe.

CONCLUSION

The global energy governance structure over two decades has been featured with the emergence of global and regional organizations engaging in energy partnerships across borders. The adoption of a new paradigm for energy governance and policy change has become a shared responsibility among state entities and institutions to ensure universal access to clean and sustainable energy. The quest to support the eroding state institutional capacity from the socio-economic challenge posed by globalization has amplified the relevance of international organizations in energy governance. Therefore, multilateral relations have extended beyond regular inter-state structure. Regional grouping and interregional cooperation have become a universal approach to the global governance agenda on common goods such as sustainable development and climate change advocacy. Therefore, the EU's interaction with the African continent embodies region-to-region relations, which have grown over the years with a focus on energy, science, and technology. Indeed, the emergence of interregionalism as a sub-discipline has given a new empirical lens to investigate the dynamics of state interactions.

This research has adopted interregionalism as a valuable paradigm to assess the Africa-EU energy cooperation. The formation of a joint Africa-EU strategy that encapsulates all areas of interaction complements the long-standing relationship between the EU and Africa, the Caribbean, and the Pacific (ACP). The Africa-EU strategy is built on a redefined principle that treats Africa as an equal regional partner rather than asymmetric power relations that characterized early EU engagement with developing countries. Hence, the Africa- EU shared vision on climate change mitigation, and universal energy access remains the motivation for interregional political dialogue on energy governance. This article has delved into a comparative energy regionalism examining the intersection of energy resources across African sub-regions. The strategy to mitigate the enormous disparities between energy demand and production in Africa lies in the AU's capacity to interact on energy issues beyond the African continent.

The theoretical analysis of interregionalism mostly sails the path of conceptual exploration and semantic analysis to disentangle and deconstruct the phenological transition in a global political arrangement. The theoretical discussion on old and new regionalism explicates the

recognition of non-state actors to complement the state-centric approach as the primary unit of analysis on international phenomena. However, the neoliberal assumption of international cooperation is adopted as the operationalized variable to explain the essence of interregional cooperation. One of the basic generalizations of liberal institutionalism is the possibility of state cooperation to embrace international peace, which is antithetical to the realist proposition on state behaviour in the international system. Therefore, Africa-EU relations support the framework of the neoliberal conception of state cooperation through the international institution.

The empirical analysis embraces the theoretical arguments established on criteria; capacity building, private and public cooperation, and technical and financial support to locate the impact of the interregional partnership on energy governance capacity. This study confirms with empirical evidence that the Africa-EU engagement on energy has revolutionized the energy sector in Africa by diversifying power generation through modern technologies. The total energy generated from renewables between 2010 to 2013 is unprecedented in Africa's energy transition history. Therefore, energy transition has become a reality built on concerted efforts. In addition, the continuous integration process in Africa extends beyond the removal of trade barriers and incorporates an integrated renewable energy market and transborder electricity transmission.

The AEEP demonstrates an empirical example of pure interregionalism, which denotes region-to-region interaction. However, this research has limitations that may inform future research. The first limitation is that the research focuses on intercontinental relations with less attention to the peculiarities in sub-regional energy challenges in Africa. The second limitation is that the empirical analysis accentuates AEEP project reports to illuminate the achievement of the energy partnership over the years and how it impacted energy governance in Africa. There is limited academic literature to support the empirical discussion on AEEP. Despite its limitations, the study certainly adds to our understanding of the interplay between energy governance and inter-regional cooperation. Ultimately, since the dynamics of partnership on energy transition across countries are evolving, this study is open to further discussion on exploring other sources of renewable energy beyond the scope of this research.

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NOMENCLATURE

Abbreviations

ADB	African Development Bank
AEEP	Africa-EU Energy Partnership
CAEC	Convention of the African Energy Commission
CSP	Concentrated Solar Power
ECOWAS	Economic Community of West African States
EC	European Community
EU	European Union
JAES	Joint Africa-EU Strategy
OAU	Organization of African Unity
ODA	Official Development Assistance
PV	Photovoltaic
ROGEP	Regional Off-Grid Electricity Access

	Project
RREP	Regional Renewable Energy Policy
ROs	Regional Organizations
SADC	Southern African Development Community
WAMU	West African Economic and Monetary Union

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