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Institutional Leadership and the Solar Transition in Albania: Navigating Complexity for Energy Resilience

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ABSTRACT

Albania has an extraordinary potential for solar energy due to its suitable climate and geographical location. However, for many reasons, it remains an untapped area in this direction despite the growing interest worldwide. Despite some recent improvements, the improvements, again, remain in the initial stages where the need for involvement from many actors is seen. This article mainly examines the role of institutional leadership in the development of solar energy in Albania, focusing on how public institutions can coordinate, regulate, and promote the transition process. The study relied on qualitative data gathered through semi-structured interviews with private investors, regulators, and policymakers. It also investigates energy policy, legal systems, and comparative regional experience by reviewing existing studies and literature. The findings point to insufficient policy consistency, poor coordination, and a fragmented institutional framework. There is a lack of an institution with a defined goal and plan, which is essential for investor trust. The study's findings indicate that the energy transition necessitates political and organizational leadership capable of mobilizing resources, linking stakeholders, and managing complexity. As a result, establishing institutional leadership is critical for maximizing the country's solar potential and connecting it to bigger climate and energy goals.

1. Introduction

The role of local government and administration in sustainable energy transitions has received little attention, even though organizational structures, cultures, and established practices have been demonstrated to produce varying innovation outcomes and technological diffusion at different levels of governance (Inderberg et al., 2023). They play a key role in supporting local economic development and are typically the primary decision-makers in land-use and energy planning. Albania has a high potential for solar energy due to its ideal geographical location and climate conditions (Climatescope, 2024; Lluri et al., 2023; Qamili & Kapia, 2024). The country now has approximately 70 MW of installed solar power, largely from small-scale systems (Lluri et al., 2023). Implementing photovoltaic (PV) systems has various advantages, including less reliance on fossil fuels, economic growth, and job creation (Alkholidi & Hamam, 2019; Lluri et al., 2023). PV technology can be instrumental in mountainous areas and villages without access to public energy (Alkholidi & Hamam, 2019). Albania is currently at a critical juncture in its energy transition, with serious difficulties such as diversifying its energy sources, lowering reliance on hydropower, and aligning with decarbonization goals. (Climatescope, 2024). However, despite technical feasibility and investor interest, Albania's solar businesses have grown slowly and fragmented.

Despite legislative complexity and a lack of technical experience, Albania's solar energy future appears optimistic (Lluri et al., 2023; Qamili & Kapia, 2024). A cost-benefit study shows that investing in solar panels for residential use in Albania is lucrative, with discounted benefits outweighing investment costs over 30 years (Kapidani & Numani, 2023). Continued policy support and investment are critical for Albania to become a regional leader in solar energy.

Albania has tremendous potential for renewable energy development, with vast resources in hydropower, biomass, wind, and solar (Zavalani & Spahiu, 2011). Currently, hydropower accounts for over 90% of the country's electricity output, rendering it vulnerable to climate change and seasonal changes. This dependency causes energy surpluses in the winter and deficits in the summer, necessitating expensive energy imports (Shtjefni & Keçi, 2019).

To overcome these challenges and improve energy security, Albania might broaden its renewable energy portfolio by utilizing solar, wind, and geothermal resources. However, the growth of renewable energy in rural areas has several obstacles, including technological, social, cultural, institutional, and economic ones (Zavalani & Spahiu, 2011). Overcoming these challenges and adopting a varied range of renewable energy sources could help Albania become a prominent actor in the global clean energy revolution.

This study aims to investigate this issue by looking at how institutional leadership affects the development and diffusion of solar technologies in Albania. Drawing on the national report Solar Energy Potential in Albania (Universiteti Luarasi & AKKSHI, 2023), this article provides a policy-oriented assessment of the institutional structures, regulatory gaps, and coordination mechanisms that are influencing the country's solar energy transition.

2. Literature Review

Governments everywhere have turned their attention from high-energy-intensity items to institutional quality and the use of renewable energy to reduce the impact of global commerce on carbon emissions (Khan et al., 2022).

Researchers using a transitions approach have significantly advanced our understanding of the nature of the systemic changes needed to support sustainable development, as well as the mechanisms behind social change over the last ten years (Meadowcroft, 2011). Because modern energy systems tend to be centralized by states and national and multinational energy companies, elites play a significant role in the low-carbon transition. The low-carbon transition can create, challenge, or reinforce the power of these elites. Much of the theoretically based literature on modern socio-technical, low-carbon, or sustainability transitions is rooted in Western academic traditions, and many of these accounts emphasize reflexivity, societal engagement and discourse, and democratic processes (Andrews-Speed & Zhang, 2018).

According to recent studies on the transition to renewable energy, institutional leadership is essential to the success of clean energy projects (Meadowcroft,

2011; Sovacool, 2016). Public institutions are proactive agents that establish the speed and strategic direction of transitions while balancing market dynamics, environmental protection, and economic development goals. They are not just passive regulators. In the context of renewable energy transitions, leadership must span legal, financial, and sociotechnical realms. For example, IRENA (2022) contends that well-designed regulatory frameworks are critical to reducing investment uncertainty and guiding market behavior. In parallel, the International Energy Agency (2023) emphasizes the catalytic effect of fiscal incentives and targeted subsidies in hastening solar energy adoption, particularly in countries with undeveloped capital markets. However, as the World Bank (2021) emphasizes, leadership must extend to the grassroots level via participatory planning, local innovation ecosystems, and processes that maintain procedural and distributive equality.

One of the major contributors to this predicament is a lack of clear institutional leadership capable of steering the political, regulatory, and organizational direction of the renewable energy transition. In recent literature, institutional leadership is defined as an institution's ability to articulate a common vision, coordinate cross-sectoral policies, and establish effective implementation and supervision systems (Boin et al., 2005; Ofosu-Anim & Back, 2021); Northouse, 2022). In terms of energy systems, this refers to governmental institutions' ability to begin, harmonize, and expedite reform initiatives that support the expansion of renewable energy (IRENA, 2020).

International experience has demonstrated that effective transitions to renewable energy are rarely the result of technological capabilities alone. Rather, they result from continuous institutional commitment and systematic alignment of governance systems. Countries such as Germany, Chile, and India demonstrate how integrated, long-term policy frameworks promote transparency, investor trust, and planning predictability (IRENA, 2023). These countries have proved the usefulness of coordinating institutions in reducing bureaucratic friction, allowing for more agile deployment of renewable projects (REN21, 2021). Furthermore, decentralization is a vital driver, as empowering local governments and municipalities allows for more tailored responses to specific socio-geographic situations and accelerates grassroots engagement (IEA, 2022).

Germany's Energiewende is a prime example of this institutional architecture. The success of its solar and wind roll-out can be credited to the early involvement of municipalities and local cooperatives, which invested in renewable projects and functioned as platforms for citizen participation and local ownership (Morris & Jungjohann, 2016). According to these models, institutional leadership must be both vertical (giving a strategic national vision) and horizontal (allowing for distributed innovation and decision making).

While Western Balkan countries face similar structural and historical constraints, recent developments have highlighted rising examples of successful institutional leadership in the solar energy sector. North Macedonia has built one of the region's most transparent solar auction processes, which is backed up by 15- to 20-year power purchase agreements (PPAs) that provide investors with long-term security. In Greece, institutional consolidation was crucial. The formation of an independent energy regulator (RAE) and a market operator (DAPEEP) has improved auction transparency and regulatory compliance, while also incorporating EU climate finance tools (European Commission 2020).

2.1 Regulatory Frameworks and Solar Energy in Albania

In Albania, many agencies operate that play a formal role in the management of solar energy, including the Ministry of Infrastructure and Energy, the National Agency for Natural Resources (AKBN), the Transmission System Operator (OST), and the Energy Regulatory Authority. However, the lack of consistent strategic direction and planning between these entities has resulted in coordination gaps and implementation delays (World Bank, 2022). Furthermore, as recent studies have shown, the lack of facilities provided for permits and projects continues to be an obstacle to the deployment of large-scale solar energy projects financed by foreign investors (Energy Community, 2023). The regulatory framework for renewable energy in Albania has undergone several modifications over the past decade, in line with the Energy Community Treaty and, of course, the aspirations to join the European Union. The country's legal changes indeed reflect efforts to comply with EU directives, particularly Directives 2009/28/EC and 2018/2001/EU. These efforts were implemented under Law No. 7/2017, now repealed, and its successor, Law No. 24/2023 "On the Promotion of the Use of Energy from Renewable Sources", which aims to build a competitive and transparent renewable energy market (Sauku, 2024).

For installations below 2 MW, several fiscal incentives have been implemented, including exemptions from VAT and feed-in tariffs. For larger solar power plants, competitive auctions can offer premium prices. However, it must be acknowledged that there is a lack of uniformity and transparency in the way these incentives are implemented. Auctions were initially intended to be institutionalized under the RES Support Scheme (Council of Ministers Decision No. 349/2018), but they too have encountered obstacles in their implementation. Although these projects were created mainly through bilateral agreements rather than a comprehensive national policy, the Karavasta and Spitalla solar parks demonstrate Albania's willingness to attract foreign investment (Leskoviku, 2023). Even with its favorable solar radiation, solar energy accounts for only a small percentage of the country's energy mix. Grid constraints, a lack of smart infrastructure, and difficulties with EIA and connection processes further hamper deployment. Solar energy has been highlighted as a strategic pillar in Albania's National Energy and Climate Plan (NECP), which aims to achieve a 54.4% share of RES in gross final energy consumption by 2030 (Leskoviku, 2023).

3. Methodology

This study focuses on the institutional dynamics that influence the development of photovoltaic energy in Albania. It employs a qualitative, policy-oriented research design. The study's empirical grounds and contextual framework are found in the national project "The Potential of Solar Energy in Albania," which is being carried out in collaboration between the Albanian National Council for Civil Society (AKKSHI) and the University of Luarasi.

Between September and December 2023, representatives from important institutional stakeholders, including the Ministry of Infrastructure and Energy, the National Agency of Natural Resources (AKBN), the Energy Regulatory Entity (ERE), and the Transmission System Operator (OST), participated in a series of semi-structured interviews that produced primary data. Interviews were also conducted with private investors involved in photovoltaic development, ranging from small and medium-sized businesses experimenting with decentralized solar installations to large-scale operators. A flexible interview protocol that was intended to delve into four main thematic areas—institutional coordination, internal administrative capacities, regulatory framework clarity and consistency, and the existence or lack of strategic leadership in the energy transition—guided these discussions.

The study jointly examined a variety of official documents, such as national energy strategies, renewable energy regulatory frameworks, administrative reform studies, and pertinent directives from Albanian regulatory bodies. These records served as a crucial foundation for placing interview results in perspective and locating discrepancies between the creation of policies and their actual application. The study was further strengthened by the use of secondary data, particularly through comparative references to the regulation of renewable energy in other Western Balkan nations and EU member states with comparable institutional restrictions.

A thematic analysis was used to understand the results (Braun & Clarke, 2006), which allowed for the discovery of underlying narratives and recurrent patterns about institutional leadership and the application of solar policy. Data might be coded and grouped using this method into groups according to (1) institutional fragmentation, (2) regulatory uncertainty, (3) capacity limitations, and (4) leadership initiative or void.

Participants verbally consented to the anonymised use of their insights after being made aware of the interviews' academic goal beforehand. All responses are handled per ethical research standards, as advised by the University's ethics guidelines, and no names or positions are directly cited due to the sensitivity of some institutional comments.

4. Findings

In addition to being essential for spatial planning and citizen engagement, bolstering local institutional capacity and enabling municipalities to take the lead in solar development is also consistent with successful models in the EU and the Western Balkans (Energy Community, 2023; IRENA, 2022). These disparities imply that institutional fragmentation continues to be the primary obstacle to a scalable and inclusive solar transition in Albania, independent of the achievements of individual projects. Photovoltaic development risks continue in a fragmented and reactive manner, are dependent on outside finance, and lack systemic integration in the absence of a well-defined leadership structure to coordinate planning, permitting, and incentive design.

Table I below presents a comparison between the Western Balkan countries regarding the legal and regulatory framework for solar energy.

Table I. *Solar PV Policy Landscape Across Western Balkan Countries.*

Country	Key Regulatory Instruments	Implementation Strength	Main Challenges	Main Source(s)
Albania	Law No. 24/2023 on RES Feed-in tariffs for smaller than 2 MW Auctions. Net metering for prosumers	Moderate (inconsistent implementation, net metering underused)	Fragmented permitting, lack of auction regularity, weak investor confidence	(Energy Community, 2023; European Commission, 2022)
North Macedonia	Auction schemes with 15–20 years PPAs Feed-in premiums Online platforms Net metering	High (transparent, frequent auctions, EU-aligned)	Requires continued institutional capacity building	(CAN Europe, 2024; Energy Community, 2023)
Serbia	Renewable Energy Law (2021) CfDs National RES strategy Private incentives	Moderate to High (transitioning well to modern mechanisms)	Slow permitting, rural grid constraints	(Energy Community, 2023; GIZ, 2023)
Kosovo	Draft RES Law Previous FiTs Pilot solar projects Strategy 2022–2031	Low to Moderate (institutional structures still developing)	Weak grid, no auction system yet, market liberalization delays	(Energy Community, 2023; World Bank, 2022)World Bank (2022); Energy Community (2023); KfW & USAID (2023)
Montenegro	RES Law Feed-in premium proposals Pilot projects EU investments	Low to Moderate (pilot phase, fragmented institutions)	Few auctions, limited coordination, early-stage development	Energy Community (2023); GIZ (2023)

As shown in Table I, in the Western Balkans region, solar energy is increasingly taking up a place on national energy transition agendas. However, what is noticeable is that the level of development of the regulatory framework and institutional organization varies from one country to another.

Despite the positive steps that Albania has taken in the legal framework, implementation remains uncertain and sometimes unstable. Problems with grid connection procedures remain, and the lack of regularity in public auctions often creates uncertainty for investors (Energy Community, 2023; European Commission, 2022).

In contrast, North Macedonia is the regional leader in the transparency and functioning of the auction market for solar projects. The country offers clear procurement schemes with 15–20-year contracts (PPAs), bonuses for small producers, and digital platforms for application and tracking. Although the legal framework is also solid, more institutional intervention is needed to support continued improvement (CAN Europe, 2024).

Serbia, on the other hand, adopted the Law on Renewable Energy in 2021, including innovative mechanisms such as contracts for difference (CfDs) that stabilize income for investors. The national renewable energy strategy and private sector involvement show a moderately high level of implementation, but permitting procedures remain slow, and the energy grid in rural areas remains a bottleneck (Energy Community, 2023; GIZ, 2023).

As for Kosovo, it is at an earlier stage of institutional development. Although there is an energy strategy for the period 2022–2031 and several pilot projects have been launched with support from the EU and KfW, the lack of a robust law and the auction system place Kosovo in a relatively weak position in terms of regulatory readiness. The electricity grid is also weak and the liberalization of the energy market is said to be slow (Energy Community, 2023; World Bank, 2022).

In Montenegro, although there is a law on renewable energy, and several pilot projects have been financed by international partners, institutions are fragmented, and experience with auctions is limited. While there is strong EU interest in investing in new capacities, a coordinated structure to ensure a sustainable and equitable development of the sector is lacking (GIZ, 2023).

Institutional fragmentation is one of the key conclusions. Currently, several institutions, including the Ministry of Infrastructure and Energy, ERE, AKBN, and OST, share responsibility for the development of solar energy; however, there is no central coordinating structure to provide strategic vision as well as responsibility (Energy Community, 2023; World Bank, 2022). Permitting processes have been delayed due to this circumstance, and investors have not been given enough insight.

The lack of involvement of local authorities, which are a cornerstone of the development of decentralized energy in international practices, is another significant factor. Local authorities in Albania may be considered as under-capable and ineffectively involved in solar projects, in contrast to Croatia or Germany, where municipalities actively support such projects (IRENA, 2022; REN21, 2021).

The study also demonstrates that there isn't a single organization devoted to the advancement of renewable energy that serves as a resource for all public and private stakeholders. The energy transition process in Albania is still reliant on bilateral agreements or individual projects backed by foreign actors, like the Karavasta and Spitallë photovoltaic parks, because there isn't a clear institutional leader in place (Energy Community Secretariat, 2023).

Interviews with businesses and public stakeholders revealed widespread concerns about regulatory uncertainty and a lack of fiscal and financial incentives to decrease investment risk. This unpredictability makes it impossible to carry out long-term plans, forcing investors to act opportunistically rather than strategically. Finally, focus group participants emphasized the necessity for a shared planning framework and a single point of contact for administrative procedures and authorizations to expedite decision-making and foster confidence among investors.

Finally, the results highlight the necessity of better stakeholder communication, strategic vision, and policy coherence. The need for a "single window" system for permits, easier access to information about legal processes, and more robust public-private consultation mechanisms was emphasized by participants from civil society and regulatory agencies. Trust and investment in Albania's solar future will continue to be limited in the absence of these factors.

5. Conclusions

The study's qualitative methodology is based on semi-structured interviews and documentary analysis with institutional and private stakeholders in Albania's solar energy industry. Analysis was done on national strategic papers, pertinent laws, international organization reports, and comparative regional experiences in the Western Balkans. The regulatory framework, institutional problems, and perceptions of institutional leadership in this industry were all thoroughly understood thanks to this research.

The study's findings confirm that Albania has a high potential for solar energy, particularly in the southern and coastal regions, as evidenced by climatic data and technical analyses developed within the framework of the report "Solar Energy Potential in Albania" (Luarasi University & AKKSHI, 2023). However, this potential does not transfer into integrated growth, owing to a lack of a stable institutional and political framework.

To improve environmental quality and achieve carbon neutrality, policymakers and regulators need to place a strong emphasis on institutional support, not just letting the market run wild. Of course, this should start by encouraging investment in renewable energy diversification and use. At the same time, this also increases their financial success.

At this crucial moment when the world's attention is focused on renewable energy sources, Albania needs a clear strategy for diversifying its renewable energy sources. Although in some legal and regulatory areas Albania seems to need to improve, what should be emphasized is that Albania has not had an urgent need for alternative sources, because until now it has supplied over 90% of its needs with hydropower. However, it needs not only the strengthening of existing agencies, but also the creation of a National Renewable Energy Authority, which will coordinate planning and cooperate with international partners. On the other hand, strengthening local governments and equipping them with technical and administrative capacities is essential to advance with more decentralized solar systems and to guarantee access to clean energy.

What is important and what emerges from the focus groups of this study is that this transition cannot be led by the market alone. It must be guided by a strategic institutional vision that should include legal reform, technological innovation, fiscal incentives, and community involvement. Albania has a unique opportunity to move from isolated pilot projects to an integrated strategy for solar energy, which brings energy sustainability, economic growth, and environmentally sustainable development.

Although this study adds to a previously unexplored area in Albania and provides comparison references with other nations in the region, it does not empirically analyze how policies affect the actual amount of solar energy produced. Another drawback is the small number of interviews because it was challenging to reach representatives of the public and private sectors during the planning stage. Additionally, the quantitative study is limited by the absence of comprehensive official data on permits, actual costs, and project progress.

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CONFLICT OF INTEREST

The author reports no conflict of interest.

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