

Orchestrating the Transition: Non-Market Strategy and Competitive Advantage in Uzbekistan's Renewable Energy Sector

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Abstract

This study examines how international renewable energy firms design and execute non-market strategies to achieve competitive advantage in Uzbekistan's state-led energy transition. Through a qualitative multiple-case study analysis of leading developers operating under Uzbekistan's distinctive "Uzbek Model" of reverse auctions and centralized procurement, the research identifies three core strategic domains: proactive institutional creation, pragmatic mitigation of institutional voids, and the management of paradoxical relationships with both the state and competitors. The findings introduce and develop the concept of orchestration strategy a firm-level dynamic capability to simultaneously compete within a state-defined arena while collaborating to build its institutional and operational foundations. The study contributes to non-market strategy and institutional theory by bridging macro-transition pathways with micro-level strategic action, and offers practical insights for firms and policymakers navigating similar state-orchestrated green energy transitions.

Keywords

Orchestration Strategy, Renewable Energy Transition, State-Led Transition, Non-Market Strategy, Institutional Entrepreneurship, Uzbekistan

1. Introduction

The global transition to renewable energy represents one of the most profound strategic reorientations of the 21st century. While technological and economic dimensions dominate discourse, a critical question remains underexplored: how do firms navigate state-driven emerging markets to build sustainable competitive advantage? This gap is particularly acute in post-Soviet contexts, where energy tran-

sitions intertwine with state transformation and institutional reform [1]. Success here demands more than technical excellence; it requires sophisticated non-market strategy to shape regulatory frameworks and orchestrate ecosystems under uncertainty.

Uzbekistan presents a uniquely revelatory case. Its ambitious pivot targeting 40% renewable electricity by 2030 is orchestrated through a distinct “Uzbek Model” of state-run reverse auctions. This model has attracted billions in FDI from global leaders like Masdar and ACWA Power [2] [3]. Consequently, it creates a strategic arena where firms must simultaneously compete in state-run tournaments while cooperating to build the sector’s foundations.

This study therefore asks: How do international renewable energy firms design and execute non-market strategies to shape, adapt to, and leverage Uzbekistan’s evolving institutional framework for competitive advantage? By posing this question, we directly address three interconnected theoretical gaps. First, we move beyond market-centric models of renewable energy strategy by examining how firms compete when the state is the market architect and sole buyer. Second, we extend non-market strategy (NMS) theory by applying it to the unique context of large-scale, greenfield renewable energy projects within a state-orchestrated “tournament” system. Third, we introduce a firm-level lens to the largely state-centric literature on post-Soviet energy transitions, revealing how corporate agency co-evolves with institutional reform.

Addressing this question makes three contributions. First, it empirically advances strategic management literature with real-time analysis of firm strategy in a high-stakes, state-led transition. Second, it theoretically extends non-market strategy by examining institutional entrepreneurship in a post-Soviet context. Here, we introduce the concept of “orchestration strategy” (adapted from [4] [5]) to capture the dual imperative of competing within a state-defined arena while collaborating to build it. Third, it offers practical insights for firms and policy-makers navigating similar green energy pathways. By illuminating the micro-foundations of macro-transitions the specific firm-level activities that collectively determine national transition outcomes this research bridges a critical gap between institutional theory and strategic practice in sustainability transitions.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature and introduces our conceptual framework of orchestration strategy. Section 3 details the research context of Uzbekistan’s energy transition and the “Uzbek Model.” Section 4 outlines the qualitative multiple-case study methodology. Section 5 presents the empirical findings, organized around three core strategic domains. Section 6 discusses the theoretical, managerial, and policy implications, situates orchestration strategy within a dynamic capabilities framework, and acknowledges limitations while proposing avenues for future research.

2. Theoretical Framework

This study bridges three literatures to address a distinct theoretical gap concern-

ing firm-level agency in state-centric energy transitions.

2.1. Strategic Management in Renewable Energy: The Limits of Market-Centric Models

Research on renewable energy strategy has evolved from examining policy incentives to analyzing dynamic capabilities and business model innovation [6] [7]. While valuable, this literature predominantly focuses on mature Western markets with stable institutions. It thus overlooks contexts where the state is market architect, regulator, and sole buyer. Consequently, it underestimates the non-market dimensions essential for competitive success in emerging economies.

2.2. Non-Market Strategy in Emerging Economies: The Institutional Entrepreneurship Imperative

The non-market strategy (NMS) literature provides crucial tools for analyzing firm behavior in institutionally complex environments. It emphasizes political tie-building, CSR as legitimization, and institutional entrepreneurship actively shaping rules rather than merely adapting to them [8] [9]. However, its application to renewable energy transitions remains limited. Studies typically examine extractive or manufacturing industries, neglecting the unique dynamics of greenfield infrastructure projects governed by long-term PPAs and urgent decarbonization goals. As a result, the specific NMS challenges of navigating state-run “tournaments,” securing social license for land-intensive projects, and mitigating supply chain voids are under-theorized.

2.3. Energy Transitions in Post-Soviet Systems: The Missing Firm-Level Lens

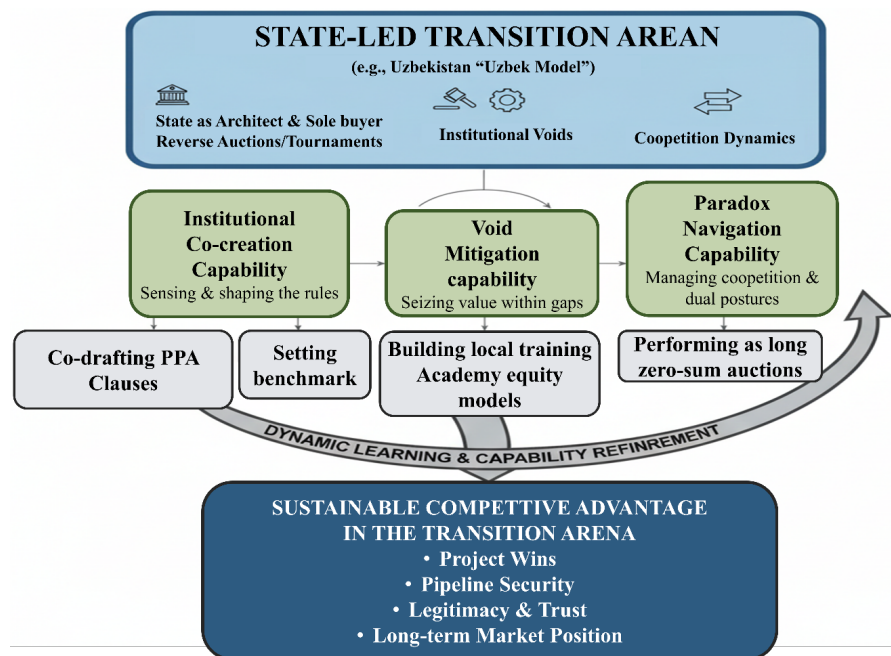
Scholarship on post-Soviet energy transitions valuably documents the legacy of fossil-fuel dependence and the political economy of reform [10]. Yet, it predominantly adopts a state-centric or geopolitical lens, treating the state as a unitary actor. This literature largely neglects the strategic agency of international developers the firms that translate policy into projects. Consequently, there is limited understanding of how firm-level strategies influence institutional evolution. This creates a disconnect between macro-transition pathways and the micro-activities that realize them.

2.4. Synthesis and Conceptual Framework: Orchestration Strategy

The intersection of these literatures reveals a significant gap: a coherent framework explaining how firms deploy integrated strategies to achieve competitive advantage in state-orchestrated, post-Soviet energy transitions. To address this, we introduce the concept of “orchestration strategy.” Building on network orchestration literature [4] and recent work on multi-stakeholder governance in sustainability transitions [5], we define orchestration strategy as the firm-level dynamic capability to simultaneously compete for resources within a state-defined arena while collaborating with state and non-state actors to build the institutional and

operational foundations of that arena.

This capability is operationalized through three interrelated sub-capabilities that align with the micro-foundations of dynamic capabilities: sensing, seizing, and transforming [11]. First, the institutional co-creation sub-capability reflects the firm’s ability to sense emerging policy shifts, interpret the state’s strategic intent, and proactively shape the institutional architecture. It goes beyond passive adaptation to include active participation in drafting regulations, setting technical standards, and influencing auction design thereby shaping the very rules of the game. Second, the void mitigation sub-capability involves identifying and seizing value within institutional voids such as gaps in supply chains, skilled labor, or social license by developing innovative operational solutions. Rather than viewing voids purely as risks, firms treat them as strategic spaces for differentiation and resource orchestration. Third, the paradox navigation sub-capability enables firms to reconfigure internal structures and external relationships to manage the inherent tensions of competing and collaborating simultaneously. It requires organizational ambidexterity to balance dual roles such as being both a trusted state partner and a tough commercial negotiator and to adapt as the transition evolves.



Note: “The Orchestration Strategy Framework operates within a State-Led Transition Arena (characterized by state-as-architect, reverse auctions, and institutional voids). Three interconnected dynamic sub-capabilities drive firm strategy: (1) Institutional Co-Creation (e.g., lobbying, standard-setting), (2) Void Mitigation (e.g., local content strategy, community models), and (3) Paradox Navigation (e.g., managing partner-negotiator duality, coopetition). These capabilities enable the firm to achieve Sustainable Competitive Advantage (project wins, pipeline security, legitimacy), with a feedback loop of Learning & Reconfiguration ensuring continuous adaptation”.

Figure 1. The orchestration strategy framework.

This concept captures the dual posture required in contexts like Uzbekistan’s “Uzbek Model,” where firms must be both competitive bidders and cooperative institutional builders. It illuminates the micro-foundations of macro-transitions. The proposition is that national energy transition outcomes emerge not just from top-down policy but from the aggregation of firm-level strategic choices that shape, adapt to, and leverage evolving institutions. Our empirical investigation explores the specific activities proactive institutional creation, void mitigation, and managing competition that constitute this orchestration capability and its underlying dynamic micro-foundations as seen in **Figure 1**.

3. Research Context: Uzbekistan’s Accelerated Energy Transition

Uzbekistan’s energy sector has undergone a profound transformation. It has shifted from a closed, gas-dominated system to one of the world’s most active markets for utility-scale renewable energy investment. This rapid, state-orchestrated pivot establishes an empirical landscape for analyzing firm-level strategy. It also presents a distinctive puzzle: How can firms achieve competitive advantage in a market that is simultaneously created, regulated, and consumed by the state, yet also requires them to build the very institutional and operational foundations of that market? The features of the “Uzbek Model” are not merely contextual background; they are the constitutive elements of this strategic dilemma. This makes Uzbekistan a critical case for theorizing orchestration strategy.

3.1. Policy Catalyst and the Emergence of the “Uzbek Model”

The strategic turning point was the 2019 “Concept Note for Ensuring Electricity Supply in Uzbekistan 2020-2030,” which mandated that 40% of electricity come from renewable sources by 2030. This ambition was operationalized through a distinctive “Uzbek Model” of development. It is characterized by a reverse auction mechanism and public-private partnerships administered by the state-owned single buyer, JSC “National Electric Grid of Uzbekistan”. The model offered international developers long-term, dollar-denominated Power Purchase Agreements to de-risk investment, effectively creating a new, centralized market overnight.

Notably, while the model provided clear tariff and procurement frameworks, it initially lacked explicit quantitative local content quotas. Instead, developers faced strong qualitative government expectations and political pressure to maximize local procurement, employment, and value addition creating a significant institutional void in supply chain development and workforce capacity. This framework did more than set policy; it designed a specific type of strategic arena with inherent tensions. First, the state’s role as sole counterparty positioned the government not only as a regulator but as the exclusive buyer and contract partner. This elevated non-market engagement from a supportive function to a core competitive imperative. Second, the reverse auction mechanism instituted a formal, state-run “tournament” in which firms compete for projects, establishing a clear competitive

logic. Third, the greenfield nature of the sector meant that no single firm or even the state alone possessed all the capabilities, supply chains, or social license required for implementation. This created an unavoidable collaborative logic.

Thus, the “Uzbek Model” itself generates the central paradox that orchestration strategy seeks to resolve: firms must act as both competitive bidders in a state-defined tournament and cooperative institutional builders of the tournament’s underlying system.

3.2. Market Structure and Defining Strategic Challenges

The implementation of this model has been rapid, creating a concentrated arena dominated by a few strategic groups. Gulf sovereign wealth-backed developers such as Masdar and ACWA Power bring financial heft and high-level political alignment. European independents like Voltalia leverage technological and operational expertise. Chinese state-owned enterprises are prominent as Engineering, Procurement, and Construction contractors. Their landmark projects from Masdar’s pioneering 100 MW Nur Navoi Solar to ACWA Power’s record-low tariff 500 MW Dzhankeldy Wind demonstrate a sequential, project-by-project “tournament” dynamic.

This structure, a direct outcome of the model’s design, crystallizes three definitive strategic challenges that form the empirical core of our investigation.

First, the dual-posture imperative arises from the centralized single-buyer model, which forces firms into a complex relationship with the state. They must perform as long-term, trustworthy partners to the national energy vision while simultaneously acting as hard-nosed commercial negotiators with the same state entity over risk, margin, and contract terms. Success requires mastering this duality.

Second, navigating institutional voids at scale has become essential. The state’s rapid scaling ambition has exposed severe, simultaneous gaps in local supply chains, grid infrastructure, and skilled labor. Unlike in mature markets, firms cannot rely on existing institutions and are compelled to develop extensive mitigation capabilities. Their approach to local content, community relations, and workforce development thus becomes a direct source of differentiation.

Third, co-competition defines the oligopolistic pipeline. Competition is focused on a limited slate of state-sanctioned projects, fostering intense rivalry. Yet systemic risks posed by institutional voids such as grid instability or customs delays are shared by all players. This generates a co-competitive dynamic in which firms must collaborate to solve common problems while competing ruthlessly for individual projects.

In sum, Uzbekistan’s context is defined by a state that has designed a high-stakes arena the “Uzbek Model” but cannot fully populate it with the necessary institutions or capabilities. The rules of competition are clear, but the platform for competing remains incomplete. It is within this concrete, tension-rich context where the imperfections and paradoxes of the state-led model become the primary

terrain for strategy that we investigate how firms deploy orchestration strategies to build competitive advantage. The “Uzbek Model” thus serves not only as a setting but as the generative mechanism for the strategic phenomena under study.

4. Methodology

This study employs a qualitative multiple-case study design to investigate the non-market strategies of international renewable energy firms in Uzbekistan. This methodological approach is particularly well-suited to exploring the complex, real-world dynamics of how firms strategize within an emerging and rapidly evolving institutional environment. Case study methodology allows for an in-depth, contextualized examination of a contemporary phenomenon where the boundaries between the phenomenon and its context are not clearly evident, enabling us to answer the “how” and “why” of the strategic processes at play [12]. A multiple-case design strengthens external validity and analytical robustness by using replication logic, where findings from distinct yet complementary cases are compared to build a more compelling and generalizable theoretical framework [13]. As illustrated in **Figure 2**, the methodology followed a systematic process from case selection through analysis.

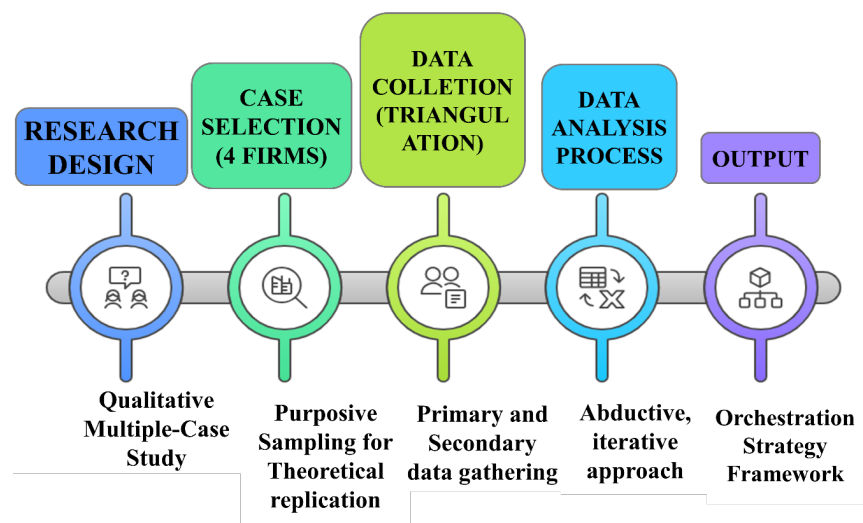


Figure 2. Qualitative multiple-case study methodology flowchart.

4.1. Data Collection Protocol

Data was collected over a twelve-month period, from March 2023 to February 2024, employing a triangulation strategy to ensure construct validity and rich contextual understanding. Primary data consisted of 32 semi-structured interviews with key informants directly involved in the strategic development of Uzbekistan’s renewable energy sector.

Case Selection and Justification: The four focal firms were purposively selected based on three criteria that ensured theoretical replication and coverage of the key strategic groups identified in Section 3.2. First, Firm A represents Gulf sovereign

wealth-backed developers, chosen for its early entry (2019) and high-level political alignment, exemplifying financial heft and strategic state partnerships. Second, Firm B represents European independent developers, selected for its technology-first approach and operational expertise, illustrating a different competitive logic centered on technical standards and project execution. Third, Firm C represents Chinese state-owned enterprises in the Engineering, Procurement, and Construction (EPC) role, included for its unique position in the value chain and its distinct approach to state-to-state relations and supply chain integration. Finally, Firm D, a later-entrant Asian developer, was selected to contrast with first-movers and examine how latecomers navigate an already-structured arena. Together, these four cases provide variance in geographic origin, timing of market entry, technology focus, and strategic positioning, capturing the ecosystem's dominant player types while allowing for comparative analysis of orchestration strategies under different starting conditions.

The purposively sampled interviewees included C-level executives and senior directors ($n = 16$) from these four leading international developer firms who are responsible for market strategy, government affairs, and project development. To ensure analytical balance and depth across cases, interviews were distributed evenly among the four focal firms, with four executive interviews conducted per firm ($4 \times 4 = 16$). To capture the institutional perspective, senior officials ($n = 8$) from key Uzbek state entities, including the Ministry of Energy and the national utility JSC "National Electric Grid of Uzbekistan" (NEGU), were interviewed. Additionally, project managers from engineering and construction partners ($n = 6$) and specialists from financing International Financial Institutions ($n = 2$) provided crucial operational and transactional insights.

Interview Protocol and Themes: The interview protocol was designed to elicit detailed narratives about strategic decision-making, challenges, and firm-state interactions. Key themes included: (1) market entry strategy and initial challenges, (2) approaches to government relations and regulatory engagement, (3) management of institutional voids (supply chain, labor, community), (4) competitive dynamics and relationships with other developers, (5) adaptation to the "Uzbek Model" auction system, and (6) evolution of strategy over time. (A detailed interview guide is available in Appendix A.)

All interviews were recorded, transcribed, and supplemented with detailed field notes. This primary data was substantiated and contextualized by a comprehensive body of secondary archival data, including official policy documents, presidential decrees, public versions of Power Purchase Agreements (PPAs), corporate reports, and industry analyses from authoritative sources such as the International Energy Agency (IEA) [2] and the European Bank for Reconstruction and Development (EBRD) [14].

4.2. Data Analysis Procedure

The analysis followed an abductive, iterative process that moved systematically

between the empirical data and extant theory to develop a grounded understanding of the strategic phenomena [15]. The procedure began with a within-case analysis, where a comprehensive narrative was constructed for each of the four focal firms, detailing their market entry journey, key strategic actions, and encountered obstacles.

Subsequently, a rigorous coding process was implemented. First-order coding involved labelling raw data using the informants' own terms such as "educating the counterparty," "managing local content pressure," or "building political trust" to stay close to the empirical reality. These initial codes were then abstracted into second-order, researcher-centric theoretical themes through constant comparison and aggregation. This analytical distillation surfaced the three core strategic domains presented in the findings.

Finally, a cross-case analysis was conducted to seek patterns of replication and logical contradiction across the four cases. This pattern-matching technique allowed for the identification of consistent strategic archetypes and contingent relationships, ultimately enabling the synthesis of a coherent framework that explains the pathways to securing and sustaining competitive advantage in this distinctive state-led transition context.

5. Findings

The empirical analysis reveals that achieving and sustaining a competitive position in Uzbekistan's renewable energy sector is not merely a function of technical expertise or financial capacity. Instead, it hinges on a firm's adeptness at navigating a complex, state-orchestrated arena through three interrelated strategic domains: proactively co-creating the institutional framework, pragmatically operating within its persistent voids, and mastering a paradoxical relationship with both the state and rival firms.

Our cross-case analysis further shows that firms cluster into distinct orchestration profiles Architect, Integrator, and Ambidextrous based on how they combine and prioritize these strategic activities.

5.1. Proactive Institutional Creation: Lobbying, Standard-Setting, and Partnership Formation

Firms in this nascent market operate not as passive rule-takers but as active institutional entrepreneurs, seeking to shape the very environment in which they compete. This proactive stance manifests in three key activities, with notable variation across the case firms.

First, strategic lobbying focuses less on altering core policies like tariff levels and more on operationalizing them. Early entrants, in particular, engaged in extensive, behind-the-scenes dialogue to clarify vague auction terms and Power Purchase Agreement (PPA) clauses. This activity was most pronounced in Firm A (Gulf sovereign wealth-backed developer), which exemplifies the Architect profile. A senior director from Firm A explained: "*Our negotiations were about cre-*

ating bankability. We were effectively co-drafting the implementation manual with the state agencies, turning a policy ambition into a financeable project. This set a precedent that later competitors simply inherited.” This first-mover advantage in rule-shaping created significant barriers to entry for less strategically engaged firms, solidifying Firm A’s role as a market architect.

Second, firms engage in de facto technical and operational standard-setting. By insisting on international engineering standards, grid compliance protocols, and environmental safeguards during project execution, leading firms raise the sector’s baseline. Firm B (European independent developer), which leans toward the Ambidextrous profile, demonstrated this capability. A project lead noted: *“When we import and enforce global best practices in our wind farm’s grid connection, we aren’t just de-risking our own asset. We are establishing a new normal, which forces everyone including the grid operator to elevate their game. Competitors without this capability struggle to meet the unspoken benchmark.”*

Third, differentiated partnership formation is a critical non-market strategy. Firms archetypically align themselves as: State-embedded partners (forging deep, exclusive ties with a specific ministry or SOE) typified by Firm A (Architect).

IFI-aligned developers (leveraging the policy leverage and credibility of institutions like the EBRD) a common tactic for Firm B (Ambidextrous).

Local consortium builders (partnering with influential domestic industrial groups to navigate bureaucratic and political terrain) a strategy effectively employed by Firm D (later-entrant Asian developer, Integrator profile) to gain legitimacy quickly.

5.2. Pragmatic Mitigation of Institutional Voids: Local Content, Community, and Labor

While firms help shape high-level rules, they must concurrently navigate the significant institutional voids that characterize a rapidly transitioning economy. The strategic response to these voids is a key differentiator. The local content imperative presents a central challenge. Operating in the absence of fixed quantitative quotas, firms responded to evolving qualitative expectations from the state to localize supply chains, create jobs, and transfer technology. Firms exhibit a spectrum of strategies, from minimalist compliance-based approaches (meeting implicit expectations through basic civil works contracts) to strategic value-chain integration (investing in local component assembly or technical training centres). A manager from an Asian late-entrant firm described its logic: *“We view localization not as a tax, but as a long-term competitive investment. By building a skilled local operations team, we solve our own talent shortage, reduce operational costs, and demonstrate a commitment that resonates deeply with the government, securing goodwill for future bids.”*

Similarly, community relations have evolved from corporate social responsibility (CSR) afterthoughts to core operational risk mitigation strategies. Firms now recognize that social license is as critical as a government permit. Innovative ap-

proaches include structured community-investor models, where local populations are offered small equity stakes or revenue-sharing agreements. One developer piloting this model stated, “Turning adjacent communities from potential opponents into financial stakeholders aligns their interests with the project’s success. It’s a strategic cost that pre-empts costly delays and reputational damage.” Furthermore, the simultaneous launch of multiple mega-projects has triggered a war for skilled labor. Competitive advantage here is built not just on salary but on capability-building systems. Leading firms have established dedicated training academies with local universities, creating a proprietary talent pipeline that locks in human resources and raises the barrier for competitors scrambling for the same limited pool of expertise.

5.3. The Delicate Balance of Collaboration and Competition

The “Uzbek Model” engenders a uniquely paradoxical strategic landscape where firms must simultaneously be collaborative partners and fierce competitors with the same entities. This is most acute in the relationship with the state. Firms must perform as long-term, trustworthy partners to the national energy vision, sharing knowledge, providing technical assistance, and aligning corporate messaging with state objectives. This collaborative performance builds essential political trust and informational access. Yet, in parallel, they must act as hard-nosed commercial negotiators, relentlessly defending margin, risk allocation, and contractual terms within the state-mandated framework. A financial director captured this duality: “You breakfast with ministers as a partner in the nation’s green future, and you spend the afternoon in a tense negotiation with their utility lawyers over liability clauses. Success requires mastering both roles without letting the friction of one undermine the other.”

This paradox extends to inter-firm dynamics, characterized by cooptation. Firms engage in calculated collaboration through industry associations to address common systemic barriers, such as grid connection delays or customs hurdles, presenting a united front to the government on issues of shared pain. However, this cooperation dissolves completely at the auction stage, where the competition is zero-sum for a limited pipeline of state-sanctioned projects. A strategy head from a Middle Eastern firm admitted, “We share best practices on community engagement in formal forums, but our bidding strategy and government access are our crown jewels. Every project won by our ‘colleague’ is a direct loss for us.” This environment fosters a complex dance where public collegiality masks intense, private rivalry for institutional favor and project awards.

5.4. Emergent Orchestration Profiles: Linking Case Evidence to Strategic Typology

The cross-case analysis reveals that firms’ strategic postures coalesce into three identifiable orchestration profiles, each aligned with a specific case firm’s demonstrated behavior:

The Architect Orchestrator (exemplified by Firm A): This profile prioritizes the institutional co-creation capability. Firm A used its first-mover status, financial heft, and high-level political access to shape the foundational rules of the “Uzbek Model.” Its strategy focused on lobbying, precedent-setting in PPAs, and embedding favorable technical standards, aiming to wire the emerging system to its advantage.

The Integrator Orchestrator (exemplified by Firm D and aspects of Firm C): This profile excels at the void mitigation capability. Rather than shaping high-level policy, these firms focus on mastering the operational terrain. Firm D invested deeply in local content strategies, community models, and workforce development, building competitive advantage through superior, socially embedded execution and lower operational risk.

The Ambidextrous Orchestrator (exemplified by Firm B): This profile maintains balanced strength across all three capabilities. Firm B combined proactive engagement in technical standard-setting, innovative void mitigation through training academies, and sophisticated management of the partner-negotiator duality. This required and reflected significant organizational agility and comfort with paradox.

These profiles are not rigid but represent dominant strategic orientations observed in the empirical data. They illustrate how firm-level orchestration strategies are not uniform but are instead contingent on a firm’s resources, entry timing, and strategic intent, directly shaping its pathway to competitive advantage in Uzbekistan’s state-led transition arena.

6. Discussion

6.1. Theoretical Contributions: Advancing Orchestration Strategy Theory

This study makes three interrelated theoretical contributions by developing and empirically grounding the concept of orchestration strategy within the context of state-led sustainability transitions.

First, we significantly extend the theory of non-market strategy. Traditional NMS frameworks often treat political activity, strategic CSR, and stakeholder management as distinct, parallel activities [8]. Our findings demonstrate that in a transition context like Uzbekistan’s, these activities are not parallel but deeply integrated and sequential components of a holistic orchestration capability. Firms do not merely adapt to institutions or influence policy in isolation; they actively orchestrate the entire multi-actor system state agencies, international financiers, local communities, and competitors to co-create a viable market. This moves beyond the established concept of network orchestration, which typically focuses on managing innovation ecosystems for value creation [4]. Transition orchestration is distinct: it involves simultaneously competing within a state-defined tournament while collaborating with the same state and rivals to build the tournament’s very rules and infrastructure. It is a strategy of competitive co-creation, where the

arena and the contest are shaped concurrently.

To further sharpen this contribution, we distinguish orchestration strategy from related constructs. While institutional work focuses on the purposive actions aimed at creating, maintaining, or disrupting institutions [16], orchestration strategy encompasses this but is fundamentally relational and ecosystemic—it is about positioning the firm within a network of actors, both cooperating and competing, to steer institutional outcomes toward favorable competitive terrain. Similarly, political strategy often emphasizes influence over discrete policies or rent-seeking [17]. Orchestration strategy subsumes political activity but is broader, integrating it with operational and collaborative actions to build the market's foundational capabilities, not just its rules. What is distinct in our framework is the simultaneity of competition and collaboration within the same actor set and the explicit recognition of the firm as an ecosystem architect in a state-dominated field, a role that requires managing paradox, not just influence.

Second, this research advances institutional theory, particularly the literature on institutional entrepreneurship, by elucidating its multi-level, practice-based nature in a post-Soviet transition economy. Prior work often highlights institutional entrepreneurship as a high-level, strategic posture [18]. Our findings unpack this into a concrete set of orchestration practices that operate at both macro and micro levels. At the macro-institutional level, firms engage in lobbying and technical standard-setting to shape the formal regulatory architecture. At the micro-institutional level, they build training academies and community-investor models to establish new local norms and capabilities. Orchestration strategy, therefore, bridges the persistent gap between institutional creation and on-the-ground implementation. It shows how firms enact institutional change not through grand declarations but through the cumulative, often mundane, work of drafting contract clauses, training technicians, and negotiating with village elders. This granular view reveals institutional entrepreneurship as a distributed, practical capability rather than a rare, heroic act.

Third, we contribute to the literature on socio-technical and energy transitions by introducing a rigorous firm-level strategic lens, addressing the field's acknowledged bias toward macro-level, policy-centric analyses [19]. While transitions research excellently maps landscape pressures, regime dynamics, and niche innovations, the strategic agency of incumbent and new-entrant firms the key actors who finance, build, and operate new systems remains under-examined. Our orchestration strategy framework provides this missing link. It explains how the micro-foundations of corporate strategy the daily decisions on partnerships, lobbying, and community engagement aggregate to shape macro-transition pathways. The Uzbek case demonstrates that the national transition is not a simple implementation of top-down policy but an emergent outcome of iterative negotiation and strategic interplay between the state and a handful of orchestrating firms. By detailing this interplay, we offer a more complete, dynamic model of how capital, technology, and institutions combine to co-produce a green energy transition.

6.2. The Orchestration Strategy Framework: A Dynamic Capabilities Perspective

Building on our empirical findings, we conceptualize orchestration strategy as a higher-order, or “meta,” dynamic capability essential for competition in state-led transition arenas. This framework posits that sustainable advantage in such contexts is secured not by possessing static resources but by continuously developing and deploying three interrelated sub-capabilities, which correspond directly to the strategic domains revealed in our study. This conceptualization represents a significant extension of dynamic capabilities theory, moving it from its traditional application in technology-intensive, market-driven environments [20] into the institutional and political domain, where the landscape itself is the primary locus of volatility and opportunity.

First, the institutional co-creation capability reflects a firm’s aptitude for sensing nascent policy shifts and shaping their operationalization. This goes beyond mere regulatory compliance or political lobbying. It involves the sophisticated ability to “read” the state’s strategic intent, engage in a technical dialogue to translate broad goals into bankable contracts, and establish precedents that become embedded in the sector’s institutional fabric. As evidenced in Uzbekistan, firms with this capability acted as proto-consultants to the government, helping to draft the de facto rulebook. This redefines the institutional environment from an exogenous constraint to an endogenous resource that can be proactively molded, aligning with the dynamic capabilities tenet of shaping not just adapting to the business environment [11].

Second, the void mitigation capability encapsulates the firm’s capacity to seize value within the systemic gaps in supply chains, skilled labor, and social license that characterize rapid transitions. Where traditional strategy might see these voids as paralyzing risks, orchestration strategy treats them as strategic spaces for differentiation. This capability involves identifying which voids to address (e.g., investing in local training versus importing labor) and designing innovative operational solutions (e.g., community equity models) that simultaneously solve an immediate constraint and build a long-term, defensible advantage. It represents a dynamic form of resource orchestration [21], where firms bundle and leverage assets in novel ways to overcome institutional shortcomings.

Third, and most distinctively, the paradox navigation capability is the firm’s proficiency in reconfiguring its assets and relationships to manage the inherent tension of being both a collaborative partner and a fierce competitor. This involves maintaining dual, often contradictory, postures: presenting as a trustworthy, long-term ally to the state while negotiating as a tough commercial counterparty, and cooperating with rivals on systemic issues while competing ruthlessly for discrete projects. This capability is fundamentally about ambidexterity managing the present (competing in today’s auction) while building the future (collaborating to ensure a functional sector for tomorrow’s auctions). It requires internal structures and cognitive frames that allow for this duality without organizational paralysis.

In sum, our framework posits that orchestration strategy is the dynamic capability to manage the co-evolution of the firm and its institutional context. It extends dynamic capabilities theory by situating it within the political economy of state-led transitions, where the most critical “dynamics” are institutional, not purely technological or market-based. Success depends on a firm’s ability to sense and shape the rules of the game (co-creation), seize advantage within its imperfections (void mitigation), and reconfigure itself to thrive within its inherent contradictions (paradox navigation). This tripartite capability set provides a novel theoretical lens for understanding competitive advantage in the growing number of economies where the state, not the market, is the primary orchestrator of industrial transformation.

6.3. Managerial Implications: Building Orchestration Capabilities

The findings of this study yield concrete, actionable guidance for firms seeking to compete in state-led energy transitions in Uzbekistan and analogous markets. Success demands a fundamental shift from viewing non-market activities as peripheral, supportive functions to recognizing them as core components of an integrated orchestration capability. Managers must move beyond ad-hoc government relations or CSR initiatives and instead strategically cultivate a portfolio of orchestration practices tailored to their firm’s position and the market’s evolutionary stage.

First, firms must conduct a candid orchestration capability audit. This involves mapping existing strengths and gaps against the three core sub-capabilities: institutional co-creation, void mitigation, and paradox navigation. A firm strong in technical engineering but weak in local stakeholder engagement, for example, possesses an imbalance that poses significant risk in a context where social license is paramount. The audit should assess not only internal resources but also the quality and depth of external networks with state entities, international financiers, local communities, and industry peers.

Based on such an audit, firms can identify and pursue one of three strategic orchestration profiles, each with distinct resource allocations and strategic priorities. Our empirical cases provide clear illustrations of these profiles:

The Architect Orchestrator: This profile is optimal for first-movers and market-shapers with strong political capital, deep financial reserves, and high-risk tolerance. Firm A (Gulf sovereign wealth-backed developer) exemplifies this profile. Architects prioritize the institutional co-creation capability. Their strategy is to engage at the highest policy levels to influence the foundational rules of the market the auction design, the standard PPA, and the technical grid codes. Their goal is to “wire” the emerging system with standards and precedents favorable to their operational model, creating enduring first-mover advantages and high barriers for followers. The primary risk for Architects is over-investment in a market that may evolve slowly or change direction.

The Integrator Orchestrator: This profile suits later entrants, specialized tech-

nology providers, or firms with strong local execution expertise. Firm D (later-entrant Asian developer) and Firm C (Chinese SOE EPC contractor) in its project execution role align with this profile. Integrators excel at the void mitigation capability. Rather than shaping high-level policy, they focus on mastering the operational terrain. They develop superior models for local content fulfillment, build hyper-efficient local supply chains, design innovative community benefit schemes, and establish elite training programs. Their competitive advantage lies in flawless, cost-effective, and socially embedded execution, allowing them to win projects by demonstrating superior implementability and lower operational risk, even if they did not set the original rules.

The Ambidextrous Orchestrator: This is the most complex but likely the most sustainable profile for long-term market leadership. Firm B (European independent developer) demonstrated tendencies toward this profile. Ambidextrous orchestrators maintain strength across all three capabilities. They possess the political savvy to engage in institutional dialogue, the operational excellence to navigate voids, and the organizational agility to manage competitive and collaborative postures simultaneously. This profile requires significant investment in strategic leadership, decentralized decision-making, and a culture comfortable with paradox. The reward is resilience and adaptability; as the market matures from the policy-formation phase to the scaling-and-optimization phase, the ambidextrous firm can seamlessly shift its orchestration emphasis.

For firms currently in the Uzbek market or eyeing similar frontiers, the imperative is clear: match your orchestration profile to your strategic intent and legacy capabilities. A late-arriving technology specialist should not waste resources trying to out-lobby an entrenched Architect; it should instead out-execute them as an Integrator. Conversely, a state-backed sovereign wealth fund entering a new market has the natural endowment to assume the Architect role. Critically, firms must also plan for orchestration evolution. An initial focus as an Architect may need to transition toward Ambidexterity as the market consolidates and operational excellence becomes the new battleground. Ultimately, viewing strategy through the lens of orchestration transforms the non-market environment from a source of uncertainty into a structured field of strategic action, where deliberate capability building directly translates into competitive advantage and project pipeline security.

6.4. Policy Implications: Designing for Effective Orchestration

For policymakers and state institutions managing energy transitions, this study's orchestration perspective offers a crucial reframing: international firms are not merely passive contractors executing a state-designed plan, but active, strategic agents whose capabilities and behaviors fundamentally co-determine transition outcomes. Therefore, effective policy must move beyond setting targets and allocating tenders to consciously designing institutional frameworks that strategically channel, leverage, and learn from firm-level orchestration. The goal is to trans-

form corporate strategic effort from a variable to be managed into a resource to be harnessed for public value creation.

First, policymakers must design mechanisms that channel firm orchestration toward public goals. The Uzbek case reveals that firms will inevitably invest in non-market activities lobbying, community engagement, training to secure advantage. The policy challenge is to align these investments with national development objectives. This requires moving from blunt instruments, like generic local content quotas, to smart, outcome-linked incentives. For example, a procurement scoring system could award premium points not just for the percentage of local materials used, but for verifiable investments in local vocational training academies or technology transfer programs that build long-term domestic capacity. Similarly, community benefit requirements could be structured to incentivize the innovative equity-sharing models observed in our findings, ensuring local populations transition from stakeholders to shareholders in the energy transition. This approach turns the firm's drive for legitimacy and competitive advantage into a direct engine for skills development, industrial upgrading, and just transition outcomes.

Second, the state must consciously architect the competitive arena to balance tension with collaboration. The "Uzbek Model" of sequential auctions creates intense tournament-like rivalry, which drives down tariffs but can discourage the collective action needed to solve systemic sector-wide problems (e.g., grid modernization, standardization). Policymakers can design structured collaboration spaces within the competitive framework. This could involve mandating or facilitating industry working groups under state guidance to tackle shared technical challenges, creating shared research and development platforms for grid integration, or establishing transparent data-sharing protocols on resource availability. By formally recognizing and providing a venue for the necessary "coopetition," the state can harvest the innovative energy of competition while ensuring it does not come at the cost of collective sectoral learning and stability.

Third, and most critically, states must institutionalize feedback loops between firm learning and policy refinement. The most successful firms in our study acted as real-time sensors and adaptors, learning about institutional voids and operational bottlenecks through direct experience. Currently, this learning is often proprietary and used for private advantage. Policymakers can create formal, periodic review structures such as post-project implementation reviews involving developers, contractors, financiers, and community representatives to systematically capture these insights. This transforms firm-level orchestration experience into a public learning resource, enabling iterative policy evolution. The regulatory framework itself should be designed as adaptive, with clear review clauses that allow for the adjustment of PPAs, technical standards, and auction rules based on aggregated market experience. This creates a virtuous cycle where policy enables effective firm orchestration, and the lessons from that orchestration, in turn, refine policy.

In conclusion, the orchestration lens implores policymakers to see their role not just as regulators or procurers, but as system architects and lead orchestrators. The state's ultimate task is to design a resilient, learning-oriented institutional ecosystem that productively engages the strategic capabilities of private firms. By channeling orchestration toward public value, balancing competition with collaboration, and embedding continuous learning into the policy process, states can more effectively and efficiently achieve the dual goals of rapid decarbonization and sustainable socio-economic development.

6.5. Limitations and Future Research

While this study provides an in-depth exploration of orchestration strategy in a critical context, several limitations must be acknowledged to frame its contributions and guide future inquiry. First, the qualitative, case-based methodology, while ideal for theory-building, limits the statistical generalizability of our findings. Our framework is derived from the specific dynamics of Uzbekistan's state-led "tournament" model; its applicability to more liberalized, market-driven transitions or to sectors beyond utility-scale renewables requires empirical testing. Second, the perspective is largely firm-centric, capturing the views of developers, state officials, and financiers. A deeper integration of community and civil society perspectives would provide a more holistic view of how orchestration impacts local development and social acceptance. Third, the research captures a snapshot of an ongoing transition (circa 2023-2024). The long-term sustainability of the identified orchestration strategies and their performance outcomes as projects move from financial close to full operation and eventual asset management remains to be seen.

1. These limitations delineate fertile ground for future research. We propose four priority avenues: Comparative Analysis of Orchestration in Varieties of Transition Governance. Our framework emerged from a strong, centralized state model. Future studies should test and refine it by examining orchestration strategies in contexts with different governance architectures. How do firms orchestrate in decentralized, subsidy-driven markets (e.g., earlier phases of the German *Energiewende*), in fragmented, public-private hybrid models (e.g., India), or in resource-rich states with less institutional capacity than Uzbekistan? Comparative research could develop a typology of transition contexts and identify which orchestration profiles (Architect, Integrator, Ambidextrous) are most effective in each.

2. Operationalization and Measurement of Orchestration Capabilities. To move from qualitative theory to empirical validation, scholars should develop survey instruments and quantitative metrics for the three core sub-capabilities. Research could measure a firm's institutional co-creation capability through its participation in standard-setting bodies, the seniority of its government relations function, or the content analysis of its public commentary on policy drafts. Void mitigation capability could be proxied by investments in local training infrastructure or the

sophistication of community benefit agreements. Developing these measures would allow for large-N studies testing the relationship between orchestration capabilities, project win rates, financial performance, and social impact.

3. Longitudinal and Phase-Dependent Studies of Orchestration Evolution. Transitions are not static; they progress through distinct phases from policy formation and market creation to scaling, optimization, and eventual maturity. A critical question is: How must orchestration strategy evolve across these phases? Does the premium shift from institutional co-creation in the pioneer phase to cost-efficient void mitigation in the scaling phase? A longitudinal research program, tracking firms and projects over a 5 - 10 year horizon, could map this strategic evolution and identify the dynamic capabilities required to avoid obsolescence. This would also help answer whether early-mover advantages secured through architectural orchestration are durable or erode over time.

4. Internal Organizational Enablers of Orchestration Capability. Our study focuses on the strategic activities and capabilities firms deploy externally. A crucial complementary avenue is to investigate the internal organizational structures, processes, and leadership styles that enable successful orchestration. How do firms design their organizational architecture integrating government affairs, CSR, sustainability, and operational teams to be ambidextrous? What leadership competencies and cognitive frameworks allow executives to manage the paradoxes inherent in orchestration? Research could employ organizational design or leadership theory to uncover how firms build internal cohesion and decision-making protocols that support the simultaneous pursuit of competitive and collaborative logics.

In conclusion, this study establishes orchestration strategy as a vital lens for understanding corporate action in state-led sustainability transitions. By acknowledging its boundaries and charting a clear path for future research, we hope to catalyze a broader scholarly conversation that further develops, tests, and refines this framework, ultimately contributing to more effective strategies for both firms and policymakers navigating the complex path to a low-carbon future.

7. Conclusions

This study has sought to understand how international renewable energy firms secure competitive advantage within a state-led transition, using Uzbekistan's distinctive "Uzbek Model" as a revelatory case. Through a qualitative, multi-case analysis, we have demonstrated that success in this context extends far beyond technical expertise or financial capacity. Instead, it hinges on a firm's ability to deploy a sophisticated orchestration strategy a dynamic capability that enables firms to simultaneously compete within a state-defined arena while collaborating to build its institutional and operational foundations.

Our empirical findings reveal three interconnected domains of strategic action that constitute this orchestration capability. First, firms engage in proactive institutional creation, acting as institutional entrepreneurs who lobby, set technical

standards, and form strategic partnerships to shape the evolving regulatory framework. Second, they pragmatically mitigate institutional voids, transforming gaps in local supply chains, skilled labor, and social license into opportunities for differentiation through localized investment, community-engagement models, and workforce development. Third, they navigate paradox, mastering the delicate balance of being both a cooperative long-term partner and a fierce commercial competitor with the state and with rivals. From these activities, three distinct orchestration profiles emerge: the Architect, who shapes the rules; the Integrator, who masters execution within the rules; and the Ambidextrous Orchestrator, who blends both logics for sustained resilience.

Theoretically, this research contributes to multiple streams of literature. It advances non-market strategy by showing how political, social, and operational activities are integrated into a holistic orchestration capability within transition contexts. It enriches institutional theory by unpacking institutional entrepreneurship into a set of concrete, multi-level practices that bridge policy design with on-the-ground implementation. Furthermore, it addresses a critical gap in socio-technical transitions research by introducing a rigorous firm-level strategic lens, explaining how corporate agency co-evolves with and co-produces macro-level transition pathways. By conceptualizing orchestration strategy as a meta-dynamic capability, we also extend dynamic capabilities theory into the political-institutional domain, where the primary volatilities and opportunities reside in the shifting rules of the game rather than in technology or markets alone.

For practitioners, this study offers clear implications. Managers must view non-market engagement not as a peripheral function but as a core strategic capability. By conducting an orchestration capability audit and intentionally cultivating an Architect, Integrator, or Ambidextrous profile aligned with their firm's resources and the market's phase, they can transform institutional complexity from a source of risk into a foundation for advantage. For policymakers, the findings underscore that firms are strategic co-producers of the transition, not passive contractors. Effective policy should therefore be designed to channel firm-level orchestration toward public value through smart incentives for local capacity building, structured spaces for co-competition, and adaptive feedback loops that institutionalize learning from corporate experience.

While grounded in the specific context of Uzbekistan's renewable energy sector, the orchestration strategy framework provides a valuable lens for analyzing firm-state dynamics in other state-led industrial transformations and emerging economies. Future research should test this framework in varied institutional settings, develop metrics to measure orchestration capabilities, and track their evolution over the full lifecycle of a transition. In closing, this study illuminates the intricate dance between corporate strategy and state design in building sustainable energy futures. It reveals that in contexts where the state constructs the arena but cannot populate it alone, the ultimate victors are those firms that learn to orchestrate shaping the terrain even as they compete upon it.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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