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Legal Regulation of Investment in Renewable Energy Projects: A Comparative Study Between Iraqi Legislation and Iranian Law

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ABSTRACT

This article examines the legal regulation of investment in renewable energy projects through a comparative study of Iraqi legislation and Iranian law. The study is based on the premise that renewable energy investment requires more than policy support; it requires a coherent legal framework capable of ensuring regulatory stability, investor protection, bankable contractual arrangements, transparent licensing, environmental compliance, and effective dispute settlement. Iraq and Iran both possess considerable renewable energy potential and both face rising electricity demand, environmental pressure, and the strategic need to diversify energy systems historically dependent on fossil fuels. However, their legal and institutional challenges differ. In Iraq, renewable energy investment is affected by administrative fragmentation, electricity-sector weakness, institutional overlap, political risk, and the need to transform general investment guarantees into project-specific legal protections. In Iran, the principal challenges concern regulatory instability, financing restrictions, sanctions-related barriers, currency and payment risks, and the need to strengthen the enforceability of long-term power purchase commitments. The article analyzes the conceptual foundations of renewable energy investment, the Iraqi legal framework, the Iranian legal framework, and the comparative strengths and weaknesses of both systems. It argues that successful renewable energy investment regulation must integrate investment law, energy law, environmental law, administrative law, and contract law within a unified legal strategy. The findings indicate that Iraq requires a more consolidated renewable energy legislative framework, while Iran requires stronger regulatory stability and financial credibility. The article concludes that both legal systems should adopt transparent licensing procedures, standardized power purchase agreements, protected grid-access rights, clear environmental approval mechanisms, effective incentives, and reliable dispute-resolution structures to attract sustainable domestic and foreign investment in renewable energy projects.

Keywords: *Renewable energy investment; energy law; Iraqi legislation; Iranian law; foreign investment; power purchase agreements; sustainable development; comparative legal study.*

Introduction

The legal regulation of investment in renewable energy projects has become one of the central issues in contemporary energy law, not only because renewable energy is technically connected to electricity generation,



infrastructure development, and environmental governance, but also because it requires a stable legal environment capable of attracting long-term capital. Renewable energy projects are capital-intensive, technologically complex, and usually dependent on long contractual cycles, which means that investors must be able to predict licensing procedures, tariff mechanisms, land-use rules, environmental obligations, dispute settlement pathways, and the extent of state support. The transition from conventional fossil-fuel-based energy systems toward diversified renewable energy portfolios has therefore transformed energy law from a narrow regulatory field into a multidimensional legal framework that combines public regulation, private investment, environmental commitments, administrative law, and international economic relations. As Boyle explains in relation to sustainable energy systems, renewable energy should not be understood merely as a technical substitute for fossil fuels, but as part of a broader transformation in the organization of energy production, distribution, and consumption (1). Twidell and Weir similarly emphasize that renewable energy resources require institutional and regulatory arrangements capable of translating natural potential into usable energy capacity, because the mere existence of solar, wind, hydro, or biomass resources does not automatically produce investment or technological deployment (2). This distinction is particularly important for countries such as Iraq and Iran, where natural potential for renewable energy is significant, but the legal and institutional frameworks for investment remain underdeveloped, fragmented, or constrained by broader economic and political conditions.

The global energy transition has also created new legal expectations concerning the role of the state in structuring energy markets. Renewable energy investment is rarely left entirely to market forces; rather, it is shaped by state-designed mechanisms such as feed-in tariffs, renewable portfolio standards, competitive auctions, power purchase agreements, tax incentives, grid-access rules, and public-private partnership models. Sovacool argues that renewable energy policy is most effective when it is comprehensive, internally coherent, and supported by multiple legal and financial instruments rather than isolated incentives (3). Painuly's analysis of barriers to renewable energy penetration further shows that investment barriers often arise from a combination of legal uncertainty, market distortion, financing limitations, institutional weakness, and policy inconsistency (4). These insights are highly relevant to the Iraqi and Iranian contexts because both legal systems operate in economies historically structured around hydrocarbons, where renewable energy policy must compete with entrenched fossil-fuel subsidies, centralized energy governance, and administrative practices that were not originally designed for decentralized or private-sector renewable energy generation. In such systems, the development of renewable energy is not merely a question of adopting new technologies; it is a question of reorganizing legal incentives, regulatory authority, and investment protection.

From a comparative perspective, Iraq and Iran offer a particularly significant field of analysis. Both countries possess abundant oil and gas reserves, both have experienced pressure to diversify their energy systems, and both face increasing demand for electricity, infrastructure modernization, and environmental protection. Yet their legal and institutional trajectories are not identical. Iraq's energy governance has been shaped by reconstruction needs, electricity shortages, federal-regional tensions, and the challenge of attracting foreign investment in a post-conflict institutional environment. Jiyad's discussion of electricity sector reform in Iraq highlights the persistent difficulties of restructuring a sector affected by institutional weakness, technical losses, and policy fragmentation (5). Al-Fatlawi's treatment of investment law and energy projects in Iraq shows that the Iraqi framework contains important investor protections and incentive mechanisms, but that the practical realization of such protections depends heavily on administrative efficiency and institutional coordination (6). Iran, by contrast, has a more

developed domestic administrative structure for energy governance, but renewable energy investment is constrained by foreign investment limitations, sanctions-related financing barriers, currency risks, state dominance in the energy sector, and uncertainties regarding long-term purchase obligations. Karimi identifies legal challenges in Iranian renewable energy investment as arising from regulatory complexity, insufficient stability in support mechanisms, and the need for clearer coordination between energy, investment, and environmental policies (7). Zare's analysis of foreign investment protection in Iranian energy law also indicates that investor confidence depends not only on formal legal guarantees, but also on enforceability, transparency, and credible dispute settlement mechanisms (8).

The relevance of this study is reinforced by the geopolitical and regional context of the Middle East and North Africa. Renewable energy regulation in the region is not developing in a vacuum; rather, it is shaped by energy security concerns, fiscal pressures, climate commitments, and the need to reduce dependency on volatile hydrocarbon revenues. Abdelrazik notes that renewable energy regulation in the Middle East and North Africa often reflects a tension between ambitious policy declarations and slower legal-institutional implementation (9). El-Katiri similarly argues that renewable energy development in the region requires credible roadmaps that integrate legal reform, financing frameworks, grid infrastructure, and market governance (10). Hafner and Tagliapietra further situate the energy transition within broader geopolitical shifts, emphasizing that the global movement toward low-carbon energy affects not only domestic energy systems but also regional power relations, trade patterns, and investment flows (11). For Iraq and Iran, therefore, renewable energy investment regulation is not merely an environmental or technical matter; it is tied to economic diversification, energy security, industrial policy, and the legal capacity of the state to manage long-term transformation.

A key premise of this article is that renewable energy investment requires a legal framework that balances public interest and private confidence. On the one hand, the state must retain authority to regulate energy production, protect the environment, ensure public access to electricity, manage land and natural resources, and align energy projects with national development priorities. On the other hand, private investors require legal certainty, predictable contractual rights, protection against arbitrary administrative action, access to dispute resolution, and confidence that the economic model of the project will not be undermined by sudden regulatory changes. Wüstenhagen and Menichetti describe renewable energy investment as a field in which strategic choices are deeply influenced by policy design, risk allocation, and investor perceptions of regulatory credibility (12). Komendantova and Patt further demonstrate that financing renewable energy projects in developing countries depends on the reduction of political, regulatory, and financial risks, because investors assess not only technical feasibility but also institutional reliability (13). This means that the law must perform a dual function: it must guide public energy transition while simultaneously reducing uncertainty for investors.

The comparative legal method is especially useful for examining the Iraqi and Iranian frameworks because it allows the study to move beyond a purely descriptive account of laws and institutions. Comparative analysis can identify functional similarities and differences between two systems, reveal gaps in regulatory design, and show how legal rules operate within different political and economic settings. Redgwell and Ince's work on energy law demonstrates that energy regulation is most effectively understood through the interaction of domestic law, sector-specific regulation, environmental obligations, and investment governance (14). Talus similarly emphasizes that energy law is not confined to one branch of law, but includes market regulation, infrastructure access, competition, public authority, and cross-border legal principles (15). Schütze's broader analysis of legal order and institutional

competence is useful in understanding how legal systems allocate authority between different institutions and how regulatory coherence depends on the relationship between general law and sector-specific rules (16). Applying such insights to Iraq and Iran allows the article to assess whether the relevant legal systems provide integrated investment regulation or whether renewable energy projects remain subject to scattered and sometimes inconsistent rules.

The research problem of this article lies in the gap between the strategic importance of renewable energy investment and the incomplete legal frameworks that govern it in Iraq and Iran. Both countries have reasons to promote renewable energy: electricity demand is rising, environmental pressures are increasing, and economic diversification is necessary. Yet both systems continue to face legal and administrative obstacles that affect investor confidence. Painuly's framework of renewable energy barriers is particularly relevant because it shows that the obstacles to renewable energy are rarely isolated; rather, they arise from the combined effect of policy, finance, institutions, and market structure (4). Pegels's analysis of renewable energy support options in developing contexts likewise shows that legal reform must address both the removal of barriers and the creation of positive incentives (17). The central question, therefore, is not whether Iraq and Iran recognize renewable energy as a policy priority, but whether their legal systems provide a sufficiently coherent, predictable, and investment-friendly framework for implementation.

This article aims to analyze and compare the legal regulation of investment in renewable energy projects under Iraqi legislation and Iranian law, with particular attention to regulatory structure, investor protection, institutional coordination, incentive mechanisms, contractual arrangements, and the legal obstacles that affect renewable energy development.

Conceptual and Legal Foundations of Renewable Energy Investment

Renewable energy investment must be understood at the intersection of technology, economics, environmental protection, and legal regulation. Renewable energy resources include solar, wind, hydropower, geothermal energy, biomass, and other naturally replenished sources of energy that differ fundamentally from fossil fuels in their environmental effects, supply patterns, project structures, and regulatory needs. Boyle explains that the legal and policy significance of renewable energy derives from its capacity to support sustainable development while reducing dependence on finite and polluting energy sources (1). Twidell and Weir also show that renewable energy technologies are diverse in scale and application, ranging from decentralized solar installations to large grid-connected wind or hydro projects, and this diversity requires flexible legal instruments rather than a single uniform regulatory model (2). For investment law, this means that renewable energy cannot be regulated merely through traditional electricity rules. It requires a distinct framework that addresses project licensing, site acquisition, environmental assessment, grid interconnection, purchase guarantees, pricing, financing, technology transfer, and risk allocation. The legal nature of renewable energy investment is therefore hybrid: it involves public authorization, private capital, long-term contracts, environmental compliance, and often international financing or foreign participation.

The concept of investment in renewable energy projects also differs from ordinary commercial investment because renewable energy projects are typically long-term, infrastructure-based, and dependent on state-regulated markets. A solar or wind project may require land rights, importation of equipment, construction permits, grid access, environmental approval, and a power purchase agreement with a public utility or state-controlled entity.

Wüstenhagen and Menichetti argue that renewable energy investment decisions depend on the interaction between expected return and perceived risk, particularly regulatory and policy risk (12). Polzin adds that mobilizing private finance for low-carbon innovation requires public policies that reduce uncertainty, structure incentives, and create credible expectations for investors (18). In legal terms, this means that the state must do more than merely declare support for renewable energy. It must design enforceable rules that clarify who may invest, how projects are licensed, how electricity is sold, how prices are determined, how disputes are settled, and how investors are protected if the regulatory environment changes. Without these elements, renewable energy remains attractive as a policy objective but weak as an investment opportunity.

One of the central legal foundations of renewable energy investment is regulatory certainty. Investors in energy projects often commit capital before revenue begins, and their return may depend on a long-term contractual or tariff structure. If the state changes tariffs, delays payment, alters licensing conditions, restricts currency conversion, or fails to enforce grid-access rights, the economic basis of the project may be undermined. Mehdiyev's analysis of legal frameworks for renewable energy investment in developing states emphasizes that developing economies must provide credible legal guarantees because investors are especially sensitive to political and institutional risks (19). Komendantova and Patt similarly argue that renewable energy financing in developing countries requires attention to country risk, regulatory predictability, and the credibility of public institutions (13). For Iraq and Iran, this point is crucial because both systems face conditions that can increase investor risk: Iraq faces reconstruction-related institutional challenges and administrative fragmentation, while Iran faces sanctions-related financial constraints and uncertainty in foreign investment channels. In both contexts, the law must function as a risk-management instrument.

Another core foundation is the relationship between energy law and environmental law. Renewable energy is often justified on environmental grounds, but renewable projects themselves may also have environmental and social impacts. Large solar farms require land, wind projects may affect landscapes and local communities, hydropower projects may affect water systems, and biomass projects may raise questions about agricultural use and emissions. Redgwell and Ince highlight that modern energy law increasingly integrates environmental objectives and sustainability principles into the regulation of energy systems (14). This integration is important because renewable energy investment cannot be treated as automatically lawful or beneficial simply because it is low-carbon. A proper legal framework must require environmental assessment, community consultation where appropriate, compliance with land-use planning, and mechanisms for balancing public interest with private development. The advantage of renewable energy lies not in exemption from regulation, but in being regulated through a framework that recognizes both its environmental benefits and its project-specific impacts.

The role of the state is particularly important in renewable energy investment because energy markets are rarely fully liberalized, especially in developing or resource-dependent economies. Talus describes energy law as a field shaped by state intervention, infrastructure control, market design, and public-service obligations (15). Sovacool's analysis of comprehensive renewable electricity policy further shows that successful energy transition requires coordinated policy instruments, including financial incentives, technical standards, administrative procedures, and long-term market signals (3). The state's role is therefore not limited to approving projects. It may act as legislator, regulator, purchaser, land allocator, grid operator, financier, guarantor, and dispute-resolution authority. This concentration of state functions creates opportunities for coordinated policy, but it also creates risks of conflict of

interest, bureaucratic delay, and arbitrary decision-making. A sound legal framework must therefore separate policy formulation, regulatory oversight, procurement, and dispute settlement as clearly as possible.

Investment incentives form another essential element of renewable energy regulation. These incentives may include tax exemptions, customs exemptions for imported equipment, guaranteed purchase prices, long-term power purchase agreements, concessional land leases, sovereign guarantees, priority grid access, green certificates, or competitive auction systems. Pegels's discussion of renewable energy support options demonstrates that incentives must be adapted to local market conditions and must address the specific barriers that prevent investment (17). Ferroukhi's policy analysis also emphasizes that renewable energy policies during periods of transition must be flexible enough to accommodate technological change while stable enough to maintain investor confidence (20). In Iraq and Iran, the design of incentives is especially sensitive because both countries operate within economies where electricity prices may be politically controlled and fossil fuels may be subsidized. If renewable electricity must compete directly against subsidized fossil energy without corrective legal mechanisms, private renewable investment becomes commercially difficult. Accordingly, renewable energy regulation must address market distortion as well as investor protection.

The contractual dimension of renewable energy investment is equally important. Power purchase agreements are often the central commercial instrument through which renewable energy projects become bankable. These agreements determine the price of electricity, duration of purchase, payment obligations, termination rights, force majeure rules, change-in-law protections, currency provisions, and dispute settlement mechanisms. Wüstenhagen and Menichetti's emphasis on strategic investment choices is relevant here because contractual stability directly affects project finance and investor willingness to enter emerging renewable markets (12). Polzin's work on private finance also suggests that low-carbon investment requires mechanisms that make future revenue streams credible and enforceable (18). In legal systems where the public utility is the main purchaser, the reliability of the state or state-owned entity becomes decisive. If payment obligations are delayed or subject to annual budget uncertainty, the project may become financially unviable even if the formal legal framework appears supportive.

International investment law may also influence renewable energy projects, particularly where foreign investors participate in project development, equipment supply, financing, or operation. Foreign investors usually seek guarantees against expropriation, nationalization, discriminatory treatment, arbitrary regulation, restrictions on profit repatriation, and denial of justice. Zare's discussion of foreign investment protection in Iranian energy law demonstrates that formal protection mechanisms must be evaluated in light of practical enforceability and the availability of credible dispute settlement (8). Al-Fatlawi similarly indicates that Iraqi investment law provides protections relevant to energy projects, but that institutional implementation remains critical to investor confidence (6). Comparative energy law therefore must examine not only whether a legal system includes investment guarantees, but whether those guarantees are clear, enforceable, and compatible with sector-specific energy regulation. A renewable energy investor may be protected under general investment law but still face uncertainty under electricity regulation, land administration, or environmental licensing.

A further conceptual foundation is the interaction between domestic energy law and regional or global energy transition. Hafner and Tagliapietra show that the energy transition is reshaping geopolitics by changing patterns of dependency, investment, technology transfer, and infrastructure development (11). Abdelrazik's analysis of renewable energy regulation in the Middle East and North Africa further suggests that countries in the region often share similar challenges, including fossil-fuel dependency, centralized energy systems, and the need to attract

investment while reforming public institutions (9). Al-Maamary, Kazem, and Chaichan's discussion of energy challenges in Gulf and regional contexts also illustrates that renewable energy development in hydrocarbon-rich states requires a shift from resource abundance to governance capacity (21). For Iraq and Iran, renewable energy regulation must therefore be viewed as part of a regional transition in which legal frameworks compete to attract technology, capital, and expertise.

The comparative analysis of Iraqi and Iranian law also requires attention to institutional competence and legal coherence. Schütze's analysis of legal systems and institutional allocation is relevant because renewable energy governance requires coordination among legislative authorities, ministries, regulators, utilities, investment bodies, environmental agencies, and sometimes provincial or regional authorities (16). Redgwell and Ince show that energy law becomes effective when legal rules are integrated across regulatory levels and when institutional responsibilities are sufficiently clear (14). Fragmentation is a major obstacle because renewable energy projects must pass through multiple administrative stages. If one institution grants investment approval but another delays grid connection, or if environmental authorization conflicts with land allocation, the project faces uncertainty. Thus, the legal foundation of renewable energy investment is not merely the existence of statutes, but the coherence of the regulatory chain from project conception to operation.

In sum, the conceptual and legal foundations of renewable energy investment are built around sustainability, regulatory certainty, investment protection, market design, environmental compliance, contractual stability, and institutional coordination. Renewable energy law is not simply a subset of electricity law, nor is it reducible to environmental policy. It is a composite field in which public and private law meet around long-term infrastructure development. The Iraqi and Iranian legal systems must therefore be assessed according to whether they provide investors with predictable procedures, credible incentives, enforceable contracts, and a stable relationship between energy objectives and investment rules. This foundation enables a more precise examination of Iraqi legislation and Iranian law in the following sections.

Legal Regulation of Renewable Energy Investment in Iraqi Legislation

The Iraqi legal framework for renewable energy investment must be understood against the background of Iraq's broader energy structure, which has historically been dominated by oil production and a centralized electricity sector. Iraq's energy economy has long depended on hydrocarbons, and this dependence has shaped not only fiscal policy but also administrative expectations concerning energy governance. Renewable energy investment therefore enters a legal environment originally structured around conventional energy resources and public-sector control. Jiyad's examination of electricity sector reform in Iraq shows that the Iraqi electricity sector has faced persistent challenges related to generation shortages, network losses, institutional inefficiency, and the need for structural reform (5). These challenges create both urgency and difficulty for renewable energy investment. On the one hand, electricity shortages and infrastructure needs make renewable energy attractive as a supplementary source of generation. On the other hand, institutional weakness and regulatory uncertainty may discourage investors from committing long-term capital. Al-Fatlawi's analysis of investment law and energy projects in Iraq confirms that Iraq has attempted to create investment incentives, but that energy projects remain affected by administrative complexity, coordination problems, and practical enforcement issues (6).

Iraq's legal regulation of renewable energy investment is not contained in a single comprehensive renewable energy code. Rather, it emerges from the interaction of general investment law, electricity regulation, environmental

rules, public procurement frameworks, land administration, and contractual arrangements with public authorities. This fragmented structure is common in developing energy markets, where renewable energy policy often develops gradually through sectoral measures rather than through a unified legislative instrument. Mehdiyev's discussion of renewable energy legal frameworks in developing states shows that fragmentation can weaken investor confidence when investors must navigate multiple authorities without a clear hierarchy of applicable rules (19). In Iraq, this problem is intensified by the broader institutional conditions of post-conflict reconstruction and by the relationship between federal and regional governance. A renewable energy investor may need to deal with investment authorities, electricity institutions, environmental bodies, land departments, local administrations, and sometimes regional authorities. If the procedures among these bodies are not legally synchronized, the formal availability of investment opportunities may not translate into project realization.

The Iraqi investment framework is important because renewable energy projects often require foreign capital, advanced technology, and long-term financing. Al-Fatlawi notes that Iraqi investment law provides mechanisms such as investment licensing, exemptions, guarantees, and protections intended to attract investors to strategic sectors, including energy-related projects (6). Such mechanisms are significant because renewable energy projects may require imported equipment, foreign engineering expertise, and stable legal guarantees concerning ownership, operation, and profit repatriation. However, the effectiveness of these protections depends on their relationship with sector-specific energy rules. If an investor obtains an investment license but lacks a guaranteed power purchase agreement or cannot secure grid access, the investment license alone is insufficient. Painuly's framework of barriers is useful in this context because it shows that renewable energy penetration can be obstructed by legal, institutional, and financial barriers even where general policy support exists (4). Iraq's challenge is therefore to integrate general investment protection with electricity-sector regulation and renewable energy project bankability.

Licensing is one of the central legal issues in Iraqi renewable energy investment. A renewable energy project cannot operate merely on the basis of private initiative; it normally requires administrative authorization for generation, construction, land use, environmental compliance, and connection to the electricity network. In a well-designed regulatory framework, licensing procedures should be transparent, time-bound, legally reviewable, and coordinated among agencies. Sovacool's emphasis on comprehensive policy design is relevant because licensing is not an isolated administrative step; it must be connected to tariffs, financing mechanisms, grid regulation, and environmental procedures (3). Where licensing is unpredictable, investors face delays that increase project costs and undermine financing. Iraq's administrative environment has often been characterized by procedural complexity, and this creates a particular problem for renewable energy because project finance depends on a predictable development timeline. Investors must be able to estimate when permits will be granted, when construction may begin, when grid connection will occur, and when revenue generation will start.

The issue of power purchase arrangements is also central in Iraq. Renewable energy projects are financially viable only if the electricity generated can be sold under predictable conditions. In many developing energy markets, the state or a state-controlled electricity entity remains the principal purchaser. Komendantova and Patt show that the financing of renewable projects in developing countries depends heavily on the creditworthiness of the off-taker and the enforceability of revenue arrangements (13). If the Iraqi state or a public electricity entity serves as the purchaser, investors will evaluate not only the formal contract but also the reliability of payment, budgetary support, and dispute resolution. Wüstenhagen and Menichetti's analysis of renewable investment strategy further indicates that investors are highly sensitive to regulatory and contractual risk when entering emerging renewable energy

markets (12). Iraq must therefore ensure that power purchase agreements are legally clear, commercially bankable, and protected against arbitrary modification.

Incentive mechanisms are another important component of Iraqi renewable energy regulation. Investment incentives may include tax exemptions, customs privileges, land-use support, tariff guarantees, or special contractual protections. Pegels's study of renewable energy support options demonstrates that incentives must be tailored to the barriers present in the relevant market (17). In Iraq, barriers include political risk, security concerns, infrastructure weakness, institutional fragmentation, and uncertainty in electricity-sector finance. General investment incentives may reduce some costs, but they may not be sufficient if investors remain uncertain about grid access, tariff levels, or payment security. Polzin's work on mobilizing private finance for low-carbon innovation shows that public policy must reduce risk sufficiently to crowd in private capital (18). This implies that Iraq's legal framework must move beyond passive permission and toward active risk reduction through clear project procurement models, government-backed payment mechanisms, and credible guarantees.

Environmental regulation also plays a role in Iraqi renewable energy projects. Although renewable energy is environmentally preferable to fossil-fuel generation, projects must still comply with environmental assessment and land-use requirements. Redgwell and Ince show that modern energy law integrates environmental regulation into energy governance because energy projects affect land, water, air, and communities (14). Iraq's environmental governance must therefore ensure that renewable energy projects are not delayed by unclear procedures, while also preventing environmental oversight from being treated as a mere formality. A coherent framework would establish clear standards for environmental review, define responsible authorities, set procedural deadlines, and coordinate environmental approval with investment licensing and construction permits. If environmental rules are uncertain or inconsistently applied, they may become either a barrier to investment or a source of inadequate protection.

Foreign investor protection is particularly important in the Iraqi context because renewable energy development may require external financing and technology. Al-Fatlawi's analysis indicates that Iraqi investment law contains protections that are relevant to energy investors, including guarantees concerning investment rights and legal treatment (6). Yet the legal value of such guarantees depends on enforceability. Investors will ask whether disputes can be resolved efficiently, whether administrative decisions can be challenged, whether arbitral awards are respected, and whether contractual rights are protected against unilateral state action. Mehdiyev's study of developing-state frameworks emphasizes that legal certainty and dispute settlement are essential to renewable energy investment because investors must rely on long-term commitments (19). For Iraq, dispute settlement mechanisms should be clearly incorporated into investment contracts and power purchase agreements, and the relationship between domestic courts, administrative review, and arbitration should be predictable.

The institutional structure of Iraqi energy governance remains one of the most important determinants of renewable energy investment. Institutional overlap can occur where investment authorities promote projects, electricity authorities control grid access, environmental bodies regulate approvals, and local or regional authorities control land allocation. Schütze's analysis of institutional competence helps explain why legal systems require clear allocation of authority in order to avoid regulatory conflict (16). In Iraq, the absence of a fully integrated renewable energy regulator or a single-window licensing system may increase transaction costs and reduce investor confidence. Abdelrazik's regional analysis of renewable energy regulation in the Middle East and North Africa shows that many regional states adopt ambitious renewable energy goals but struggle with implementation because

institutional frameworks remain underdeveloped (9). Iraq's challenge is therefore not only legislative reform but also institutional coordination.

A further problem concerns the relationship between renewable energy investment and electricity-sector reform. Jiyad shows that Iraq's electricity sector has faced structural problems that cannot be solved solely by adding generation capacity (5). Renewable energy investment may contribute to supply, but it also requires grid modernization, transmission capacity, distribution reform, metering, and financial sustainability in the electricity sector. If electricity tariffs are politically controlled and collection systems are weak, the financial basis of power purchase obligations may be fragile. Salim and Rafiq's analysis of renewable energy adoption in emerging economies suggests that proactive renewable energy development depends on broader policy commitment and the capacity to align economic and institutional incentives (22). Iraq must therefore connect renewable energy regulation with electricity-sector reform, not treat renewable energy as an isolated investment category.

Security and political risk also affect Iraqi renewable energy investment. Renewable energy projects require physical assets located across large areas, such as solar fields and transmission lines. Investors may worry about project security, political continuity, and the stability of administrative decisions. Hafner and Tagliapietra's geopolitical analysis of energy transition shows that energy investment is affected by political context and broader regional stability (11). While legal instruments cannot eliminate all political risks, they can reduce their consequences by providing guarantees, insurance frameworks, stabilization clauses, and transparent dispute mechanisms. The state can also reduce uncertainty by publishing clear renewable energy strategies, standardizing power purchase agreements, and ensuring that procurement processes are transparent. Ferroukhi emphasizes that renewable energy policy during transition periods must combine ambition with credible implementation instruments (20). Iraq's legal framework should therefore translate renewable energy policy into operational legal mechanisms.

Overall, Iraqi legislation provides a foundation for renewable energy investment through general investment protections, energy-sector regulation, and public policy interest in electricity development. However, its effectiveness is limited by fragmentation, institutional overlap, uncertain project procurement models, and practical enforcement challenges. Iraq's legal framework would be strengthened by a comprehensive renewable energy law or an integrated regulatory package that defines project categories, licensing procedures, tariff or auction mechanisms, grid-access rights, environmental approval processes, land allocation rules, and dispute settlement guarantees. Such reform would not only clarify investor rights but also align renewable energy investment with electricity-sector reform and national development objectives.

Legal Regulation of Renewable Energy Investment in Iranian Law and Comparative Evaluation

Iran's legal regulation of renewable energy investment is shaped by a different institutional and economic context from Iraq, although both countries share the broader characteristics of hydrocarbon dependence, centralized energy governance, and the need for electricity-sector diversification. Iran has substantial renewable energy potential, especially in solar and wind resources, but its investment environment is constrained by the dominance of state institutions in the energy sector, tariff regulation, financing restrictions, currency instability, and sanctions-related barriers. Karimi's analysis of renewable energy investment in Iran identifies legal challenges connected to regulatory complexity, insufficient stability of support mechanisms, and the need for stronger coordination among investment, energy, and environmental authorities (7). Zare's work on foreign investment protection in Iranian energy law further demonstrates that formal legal guarantees must be assessed in relation to their practical effectiveness, particularly

where foreign investors face restrictions related to finance, repatriation, contractual enforcement, and dispute settlement (8). Unlike Iraq, where post-conflict reconstruction and institutional fragmentation are central concerns, Iran's renewable energy investment framework is more affected by the tension between administrative capacity and external economic constraints.

The Iranian framework includes general investment rules, energy-sector policies, environmental obligations, and contractual mechanisms for electricity purchase. In principle, Iran's legal system can support renewable energy investment through state-backed power purchase arrangements, investment licensing, and administrative programs designed to encourage private participation. However, as Karimi notes, one of the major difficulties in Iran is not the complete absence of legal rules but the lack of sufficient stability and predictability in their application (7). Renewable energy investors require assurance that purchase prices, payment obligations, licensing conditions, and operational rights will remain sufficiently stable over the project's life cycle. Wüstenhagen and Menichetti's analysis of renewable energy investment strategy is relevant because investors evaluate the long-term credibility of policy instruments before committing capital (12). If investors fear that tariff mechanisms may be altered, payments delayed, or currency values eroded without adequate legal protection, the attractiveness of renewable energy projects declines.

Foreign investment protection is a particularly sensitive issue in Iran. Zare emphasizes that the legal protection of foreign investment in the energy sector depends on guarantees concerning ownership, fair treatment, transfer of profits, protection against expropriation, and access to dispute resolution (8). These protections are important in renewable energy because foreign investors may provide technology, engineering expertise, financing, and project development experience. However, the Iranian context is complicated by sanctions, banking limitations, and restrictions on international financial transactions. Komendantova and Patt's work on financing renewable energy in developing countries shows that the availability of finance is deeply affected by country risk and institutional credibility (13). Polzin also argues that mobilizing private finance for low-carbon innovation requires policy instruments that reduce uncertainty and make investment risks manageable (18). In Iran, even a legally attractive renewable energy project may remain difficult to finance if payment mechanisms, currency conversion, or foreign banking access are uncertain.

The Iranian renewable energy framework must also be understood in light of the state's continuing role as planner, regulator, and market participant. Talus explains that energy law often involves the regulation of infrastructure and markets in which the state retains significant authority (15). This is especially true in Iran, where electricity generation, transmission, distribution, and pricing have historically been influenced by state policy. State involvement can support renewable energy by providing guaranteed purchase arrangements and planning certainty, but it can also create risks if public bodies dominate contracting and payment without sufficient accountability. Sovacool's argument for comprehensive renewable electricity policy is therefore relevant to Iran because renewable energy investment requires coordination among tariffs, grid access, technical standards, procurement, and finance (3). A fragmented or inconsistent policy framework may create uncertainty even where individual institutions are capable.

Environmental law also plays a role in Iranian renewable energy investment. Renewable energy projects are often promoted as environmentally beneficial, particularly in relation to air pollution, climate concerns, and fossil-fuel dependency. Redgwell and Ince's discussion of energy law emphasizes the need to integrate sustainability into energy regulation rather than treating environmental objectives as separate from energy governance (14). In Iran,

renewable energy can contribute to environmental policy goals, but projects still require legal scrutiny regarding land use, ecological effects, and local impacts. The legal framework should therefore ensure that environmental approval processes are clear, proportionate, and coordinated with investment procedures. Excessive bureaucracy can discourage investment, but weak environmental oversight can undermine the legitimacy of renewable energy development. The appropriate legal balance is one in which renewable energy receives procedural facilitation without being exempted from necessary environmental compliance.

Compared with Iraq, Iran appears to possess a more consolidated administrative tradition in energy governance, but this does not necessarily mean that its renewable energy investment framework is more effective. Iraq's main problems are often associated with institutional fragmentation, reconstruction pressures, and electricity-sector instability, while Iran's main difficulties are associated with sanctions, financing constraints, tariff credibility, and foreign investor risk. Al-Fatlawi's examination of Iraqi investment law shows that Iraq has attempted to provide legal incentives and protections for energy projects, but implementation depends on administrative coordination (6). Karimi's analysis of Iran shows that renewable energy investment is hindered by legal and administrative uncertainty despite the presence of policy support (7). The comparison therefore reveals that both systems suffer from a gap between formal legal support and practical investment security, although the sources of that gap differ.

One useful comparative dimension is the legal treatment of investment incentives. Iraq relies heavily on general investment incentives and project-specific arrangements, while Iran's framework has depended more on energy-sector mechanisms such as purchase guarantees and state-administered support programs. Pegels's study of renewable energy support demonstrates that incentives must respond to the specific structure of market barriers (17). In Iraq, incentives should address infrastructure risk, licensing uncertainty, and institutional fragmentation. In Iran, incentives should address payment security, currency risk, sanctions-related financing barriers, and the credibility of long-term tariffs. Ferroukhi's discussion of renewable energy policies in transition periods suggests that incentive schemes must be both adaptable and stable (20). Both Iraq and Iran need support mechanisms that can adjust to technological change while protecting investors from arbitrary or sudden policy shifts.

Another comparative dimension is institutional coordination. Iraq's framework is weakened by overlapping authorities and the absence of a fully integrated renewable energy governance model. Iran, by contrast, has more centralized administrative structures, but centralization does not automatically produce regulatory efficiency. Schütze's discussion of institutional competence is relevant because effective governance depends not only on the existence of authority but also on the clarity of responsibility and the coherence of institutional interaction (16). In Iraq, a single-window system for renewable energy investment could reduce procedural fragmentation. In Iran, clearer separation between policymaking, regulation, purchasing, and dispute resolution could improve investor confidence. Redgwell and Ince's work on energy law supports the view that energy regulation must integrate multiple legal domains without allowing institutional overlap to undermine implementation (14).

A further comparison concerns electricity-sector structure and grid access. Renewable energy projects require reliable connection to the transmission or distribution network. In Iraq, Jiyad's analysis of electricity reform indicates that technical and institutional problems in the electricity sector remain a major obstacle to energy development (5). In Iran, grid access may be more administratively structured, but investors still require clarity regarding connection costs, technical standards, curtailment risk, and payment for delivered electricity. Twidell and Weir emphasize that renewable energy technologies must be integrated into energy systems through appropriate technical and institutional arrangements (2). If grid access is uncertain, renewable energy investment is exposed to major

operational risk. A project that receives a generation license but cannot reliably deliver electricity to the grid cannot achieve its financial purpose. Both countries therefore need legal rules that define priority access, connection procedures, technical obligations, and compensation for unjustified curtailment.

Dispute settlement is another crucial comparative issue. Renewable energy projects may generate disputes over licensing, construction delays, payment obligations, tariff changes, land rights, environmental conditions, and contract termination. In Iraq, foreign investors may be especially concerned about political risk and the enforcement of contractual rights. In Iran, investors may be concerned about foreign investment protections, sanctions-related payment issues, and administrative decisions affecting project profitability. Mehdiyev's study of developing states stresses that dispute settlement mechanisms are essential for renewable energy investment because investors rely on long-term legal commitments (19). Zare's analysis of Iranian energy investment protection also shows that dispute settlement credibility is a core part of investment security (8). Both legal systems should therefore ensure that renewable energy contracts contain clear dispute-resolution clauses and that domestic law recognizes the enforceability of such mechanisms.

The comparative assessment must also consider the role of regional energy transition. Abdelrazik's analysis of renewable energy regulation in the Middle East and North Africa indicates that many regional systems share similar challenges in moving from policy aspiration to enforceable regulatory design (9). El-Katiri's roadmap for renewable energy in the region highlights the need for legal, financial, and infrastructural coordination (10). Al-Maamary, Kazem, and Chaichan's work on regional energy challenges shows that hydrocarbon-rich states must reconcile renewable energy development with existing energy structures and consumption patterns (21). Iraq and Iran both face this dilemma. Their renewable energy laws must operate in energy economies where fossil fuels remain central to revenue, electricity generation, and public policy. Legal reform must therefore address not only renewable energy projects themselves but also the broader economic incentives that make fossil-fuel dependency persistent.

The geopolitical dimension is especially significant for Iran and Iraq. Hafner and Tagliapietra's work on the geopolitics of energy transition shows that renewable energy development is increasingly connected to international technology flows, finance, strategic competition, and energy security (11). Iraq's geopolitical challenge concerns political stability, reconstruction, and the ability to attract diversified foreign investment. Iran's challenge concerns sanctions, international financial restrictions, and the difficulty of integrating foreign investors into domestic energy projects. Salim and Rafiq show that emerging economies accelerate renewable energy adoption when policy commitment, economic incentives, and institutional capacity align (22). For both countries, renewable energy investment will remain limited unless legal reform is supported by broader economic and diplomatic conditions that reduce investor risk.

The comparison also reveals important differences in the relationship between general investment law and sector-specific renewable energy regulation. In Iraq, general investment law appears central because the renewable energy sector is still developing and may rely heavily on investment licensing and project-specific arrangements. In Iran, sector-specific mechanisms, including power purchase policies and renewable energy administration, play a more visible role, although general foreign investment law remains important. Talus's explanation of energy law as a field combining market regulation, infrastructure control, and public authority helps clarify why neither general investment law nor energy regulation alone is sufficient (15). Renewable energy investment requires the integration of both. General investment law can protect investors against expropriation and discrimination, but sector-specific

law must regulate tariffs, grid access, licensing, and technical operation. If these two bodies of law are not aligned, investors face uncertainty.

A strong renewable energy investment regime in both Iraq and Iran should include several core legal elements: a clear definition of renewable energy projects, transparent licensing, predictable procurement or tariff mechanisms, enforceable power purchase agreements, investment guarantees, environmental assessment, grid-access rules, land-use procedures, dispute settlement, and institutional coordination. Sovacool's emphasis on comprehensiveness supports this integrated model because renewable energy policy fails when legal instruments are adopted in isolation (3). Painuly's framework also confirms that barriers must be treated systematically rather than individually (4). In Iraq, the priority should be the consolidation of renewable energy regulation and the reduction of administrative fragmentation. In Iran, the priority should be the stabilization of support mechanisms, the reduction of financial and foreign-investment risk, and the clarification of long-term contractual obligations.

Ultimately, the comparative analysis shows that Iraqi legislation and Iranian law both recognize the importance of energy investment but remain in need of more specialized and coherent renewable energy regulation. Iraq's framework would benefit from stronger institutional integration, clear procurement models, and legally standardized power purchase agreements. Iran's framework would benefit from stronger investment protection, more credible tariff stability, improved foreign investment conditions, and mechanisms to mitigate sanctions-related financing barriers. Both systems must develop legal regimes that treat renewable energy not as a secondary supplement to fossil fuels, but as a strategic field of infrastructure investment requiring specialized legal design. The comparative value of studying Iraq and Iran lies in showing that renewable energy law cannot be effective unless it connects investment protection, electricity regulation, environmental governance, and institutional reform within a unified legal strategy.

Legal Challenges and Reform Requirements in Renewable Energy Investment Regulation

The major legal challenge in renewable energy investment regulation is the gap between policy ambition and enforceable legal design. Many states declare support for renewable energy, but investors respond not to political declarations alone; they respond to binding rules, credible institutions, and predictable revenue mechanisms. Painuly's analysis of renewable energy barriers remains highly relevant because it identifies legal and institutional barriers as decisive obstacles to renewable energy penetration (4). Sovacool similarly emphasizes that renewable energy policy must be comprehensive, because partial legal measures cannot overcome interconnected obstacles in finance, infrastructure, licensing, and market design (3). In Iraq and Iran, the legal problem is not simply the absence of interest in renewable energy. Rather, the central problem is that renewable energy investment is often regulated through dispersed legal instruments that do not always produce a coherent pathway from project approval to commercial operation. The result is a regulatory environment in which investors may understand the state's strategic interest but remain uncertain about their legal position.

One of the most important reform requirements is the creation of a more predictable licensing regime. Licensing should not be a discretionary and open-ended administrative process. It should be organized through transparent stages, legally defined requirements, clear timelines, and rights of review. In Iraq, this requirement is particularly important because institutional fragmentation can delay project development and increase transaction costs. Al-Fatlawi's discussion of investment law and energy projects in Iraq shows that formal investment protections require effective administrative implementation in order to become meaningful (6). In Iran, the licensing problem may be

less related to institutional fragmentation and more related to regulatory stability and coordination between investment bodies, energy authorities, and environmental agencies. Karimi's analysis of Iranian renewable energy law identifies regulatory complexity as a significant barrier to investment (7). In both systems, a specialized licensing pathway for renewable energy projects could improve investor confidence by reducing uncertainty and preventing overlapping administrative demands.

A second legal challenge concerns the bankability of renewable energy projects. Renewable energy projects cannot be financed merely because they are environmentally desirable; they must generate predictable revenue. Wüstenhagen and Menichetti demonstrate that renewable energy investors make strategic choices based on risk, return, and policy credibility (12). Komendantova and Patt further show that financing renewable energy in developing countries requires risk mitigation, especially where public institutions or state-owned entities are central to electricity purchase (13). This issue is highly relevant in Iraq and Iran because the state remains heavily involved in electricity markets. Investors must know whether the electricity produced will be purchased, at what price, in what currency, under what contractual terms, and through what enforcement mechanism. A renewable energy law that does not address power purchase agreements, off-taker obligations, payment guarantees, and tariff stability will remain incomplete.

A third challenge is the weakness or insufficiency of incentive structures. Incentives must be designed in relation to actual market barriers. Pegels shows that renewable energy support policies are effective only when they address the specific conditions that prevent investment (17). Ferroukhi's analysis of renewable energy policy in transition periods also demonstrates that support mechanisms must be durable enough to create investor confidence while flexible enough to respond to changing technologies and costs (20). In Iraq, incentives should compensate for political risk, infrastructure weakness, and administrative complexity. In Iran, incentives should address financing restrictions, currency risk, and uncertainty in long-term support mechanisms. In both systems, incentives should not be limited to tax exemptions. They should include contractual guarantees, grid-access rights, payment security, simplified importation of equipment, and protection against sudden regulatory changes. Polzin's work on low-carbon finance supports the view that private capital is mobilized when public legal frameworks reduce risk and improve revenue predictability (18).

The fourth challenge concerns the relationship between renewable energy investment and public finance. In electricity systems where prices are politically controlled or subsidized, renewable energy projects may depend on state-backed payment obligations. If the state promises to purchase renewable electricity but does not create a secure payment mechanism, investors face serious credit risk. Jiyad's analysis of Iraq's electricity sector reform shows that financial and structural weaknesses in the electricity sector affect broader energy development (5). In Iran, payment security is also important because renewable energy investors may depend on public entities for long-term purchase arrangements. Zare's study of foreign investment protection in Iranian energy law indicates that investor protection must include practical guarantees regarding the economic rights arising from energy contracts (8). Legal reform should therefore create mechanisms such as dedicated renewable energy funds, payment guarantees, escrow arrangements, sovereign support, or legally protected tariff adjustment formulas.

The fifth challenge is grid access. Renewable energy investment is impossible without reliable and legally protected access to electricity networks. Twidell and Weir explain that renewable technologies must be integrated into energy systems through technical and institutional arrangements that allow generation to be delivered effectively (2). Grid access raises legal questions concerning connection rights, technical standards, priority

dispatch, curtailment, connection costs, and compensation. In Iraq, weak grid infrastructure may limit the practical capacity to absorb renewable energy, making legal reform dependent on infrastructure planning. In Iran, a more developed grid does not remove the need for clear rules on connection and dispatch. Talus's account of energy law highlights that access to energy infrastructure is a central regulatory question because infrastructure control can determine market participation (15). Both countries should therefore adopt explicit grid-access rules for renewable energy projects, including technical procedures and legal remedies where access is unjustifiably denied or delayed.

The sixth challenge is environmental and land-use regulation. Renewable energy projects may need large areas of land, especially solar and wind projects. Land allocation must therefore be legally clear, transparent, and compatible with environmental and local planning rules. Redgwell and Ince emphasize that energy law increasingly requires integration between energy development and environmental protection (14). Renewable energy should not be exempt from environmental oversight, but environmental procedures should be proportionate and predictable. In Iraq, land administration may become a significant obstacle where authority is divided among different levels of government or where land records and administrative procedures are unclear. In Iran, land-use approval may be affected by environmental restrictions, public ownership issues, or competing development priorities. A coherent legal framework should define how land is allocated, how environmental assessment is conducted, how local objections are handled, and how investors receive secure project rights.

The seventh challenge concerns institutional coordination. Renewable energy investment often requires the participation of multiple institutions: investment authorities, energy ministries, electricity regulators, environmental agencies, land authorities, customs bodies, tax administrations, and judicial or arbitral institutions. Schütze's discussion of institutional competence illustrates that legal order depends on clarity in the distribution and exercise of authority (16). In Iraq, institutional coordination is especially important because investors may face overlapping or inconsistent requirements from different authorities. In Iran, institutional coordination is necessary to align renewable energy policy with investment law, foreign exchange rules, environmental procedures, and electricity purchasing mechanisms. Abdelrazik's regional analysis shows that renewable energy regulation in Middle Eastern and North African states often suffers when ambitious policies are not matched by integrated institutions (9). A reform agenda should therefore include either a specialized renewable energy authority or a legally binding coordination mechanism among existing institutions.

The eighth challenge is dispute settlement and enforcement. Investors must be able to enforce licenses, contracts, payment obligations, and investment guarantees. Mehdiyev emphasizes that developing states seeking renewable energy investment must provide reliable legal remedies because long-term infrastructure investment is highly sensitive to enforcement risk (19). In Iraq, dispute settlement is important because investors may be concerned about political risk, administrative changes, and contractual enforcement. In Iran, dispute settlement is particularly significant for foreign investors facing sanctions-related complexities and restrictions on international transactions. Zare's analysis confirms that foreign investment protection in Iranian energy law must be evaluated in light of the availability and credibility of enforcement mechanisms (8). Standardized renewable energy contracts should therefore include detailed dispute-resolution clauses, change-in-law provisions, force majeure rules, termination compensation, and mechanisms for enforcing arbitral or judicial decisions.

The ninth challenge is the broader economic structure of fossil-fuel dependence. Iraq and Iran are not ordinary energy-importing states seeking renewable energy only for supply diversification. They are hydrocarbon-rich countries whose fiscal and institutional systems have long been connected to oil and gas. Al-Maamary, Kazem, and

Chaichan show that regional energy challenges in hydrocarbon-rich states are shaped by the difficulty of reconciling renewable energy development with established fossil-fuel systems (21). Hafner and Tagliapietra also show that the global energy transition has geopolitical implications for states whose economic power has historically depended on fossil resources (11). For Iraq and Iran, legal reform must therefore address the structural advantages that fossil fuels receive through subsidies, infrastructure, political support, and institutional familiarity. Renewable energy law cannot succeed if fossil-fuel-based electricity remains artificially cheaper due to legal and fiscal arrangements that do not internalize environmental and long-term economic costs.

The tenth challenge concerns regional competitiveness and international positioning. El-Katiri argues that renewable energy development in the Middle East and North Africa requires strategic roadmaps that integrate finance, legal reform, infrastructure, and policy credibility (10). Salim and Rafiq show that emerging economies accelerate renewable energy adoption when policy commitment is combined with institutional and economic support (22). Iraq and Iran must therefore view renewable energy regulation as part of regional competition for capital, technology, and expertise. Investors compare jurisdictions. If one country offers transparent procurement, stable tariffs, enforceable contracts, and efficient licensing, it becomes more attractive than a country with uncertain procedures and delayed payments. Legal reform is therefore not merely domestic; it affects regional investment competitiveness.

Reform in Iraq should prioritize legal consolidation. A comprehensive renewable energy law could clarify the status of renewable energy projects, identify responsible authorities, regulate licensing, establish procurement models, define grid-access rights, create incentive mechanisms, coordinate environmental approval, and provide dispute-settlement guarantees. Such a law should be linked to electricity-sector reform because renewable energy cannot be effectively integrated into a financially weak and technically unstable electricity system. Jiyad's analysis of the Iraqi electricity sector supports the view that generation policy must be connected to broader sectoral reform (5). Al-Fatlawi's work further indicates that investment protections must be operationalized through effective administrative procedures (6). Iraq should therefore move from general investment encouragement to specialized renewable energy regulation.

Reform in Iran should prioritize regulatory stability and financial credibility. Karimi identifies legal uncertainty and support-mechanism instability as central challenges for renewable energy investment in Iran (7). Zare's analysis of foreign investment protection indicates that investors require enforceable guarantees and credible mechanisms for protecting economic rights (8). Iran should therefore strengthen long-term purchase commitments, clarify tariff adjustment mechanisms, reduce administrative uncertainty, and provide stronger protection for foreign and domestic investors against regulatory changes that undermine project economics. Given the impact of sanctions and financial restrictions, Iranian law should also develop domestic financing mechanisms, risk-sharing instruments, and contractual structures that make projects less dependent on unstable external conditions.

Despite their differences, Iraq and Iran share a common need for integrated renewable energy governance. Boyle's understanding of renewable energy as part of sustainable energy transformation (1), Sovacool's emphasis on comprehensive policy (3), and Redgwell and Ince's integration of energy and environmental law (14) all point toward the same conclusion: renewable energy investment requires a legal ecosystem, not isolated rules. Both countries must create legal frameworks in which investors can move from project proposal to operation through a predictable chain of rights and obligations. The reform objective should be to reduce uncertainty, coordinate

institutions, secure revenue, protect investors, and align renewable energy with national development and environmental goals.

Conclusion

The comparative study of Iraqi legislation and Iranian law demonstrates that renewable energy investment cannot be effectively promoted through general policy declarations or scattered legal incentives alone. Renewable energy projects require a specialized legal environment that gives investors confidence before capital is committed and continues to protect the project throughout its development, construction, operation, and revenue cycle. The central legal lesson of this study is that investment regulation in renewable energy must be comprehensive, coherent, and enforceable. It must connect investment protection with energy regulation, electricity-sector reform, environmental approval, land allocation, grid access, financial incentives, contractual stability, and dispute settlement.

Iraq and Iran both possess strong reasons to expand renewable energy investment. They face rising electricity demand, environmental pressures, infrastructure needs, and the long-term necessity of reducing excessive dependence on fossil fuels. Nevertheless, their legal systems approach these challenges from different institutional and economic positions. Iraq's principal difficulties arise from administrative fragmentation, electricity-sector weakness, political and security risks, and the need to translate general investment protections into practical project guarantees. Iran's principal difficulties arise from regulatory uncertainty, sanctions-related financing barriers, currency and payment risks, and the need to strengthen the credibility of long-term renewable energy support mechanisms. These differences show that legal reform cannot be copied mechanically from one jurisdiction to another; it must respond to the specific barriers affecting each system.

In Iraq, the priority should be the consolidation of renewable energy regulation within a clear legislative and institutional framework. A comprehensive renewable energy law or integrated regulatory package should define project categories, licensing procedures, institutional responsibilities, grid-access rights, land-use rules, environmental procedures, procurement models, payment guarantees, and dispute-settlement mechanisms. Iraq should also connect renewable energy investment with electricity-sector reform because renewable energy projects cannot succeed if the wider electricity system remains financially and technically unstable. Investors must be able to rely on the legal and financial credibility of the electricity purchaser, the enforceability of power purchase agreements, and the practical availability of grid connection.

In Iran, the priority should be the stabilization of investment conditions and the improvement of financial and contractual credibility. Renewable energy investors need certainty regarding tariffs, payment obligations, regulatory changes, licensing procedures, and the enforceability of state-backed commitments. Iran should strengthen legal protections for both domestic and foreign investors, clarify the relationship between general investment law and energy-sector rules, and develop mechanisms to reduce financing and currency risks. Because external restrictions can affect foreign participation, Iran also needs domestic legal and financial instruments capable of supporting renewable energy projects even under constrained international conditions.

Both legal systems should adopt a more integrated understanding of renewable energy investment. Renewable energy should not be treated as a marginal supplement to conventional energy, but as a strategic field of infrastructure development. This requires legal rules that are stable enough to create investor confidence and flexible enough to accommodate technological change. It also requires institutional structures that reduce bureaucratic overlap and make administrative procedures predictable. A single-window licensing system,

standardized power purchase agreements, transparent procurement, legally protected grid access, and credible dispute-resolution clauses would significantly improve the investment environment in both jurisdictions.

The comparison also shows that investment regulation must balance public authority and private rights. The state must retain the power to regulate energy in the public interest, protect the environment, ensure electricity access, and manage national resources. At the same time, investors must be protected from arbitrary administrative action, sudden regulatory changes, payment insecurity, and unclear procedures. A successful renewable energy framework is therefore not one that removes state regulation, but one that makes state regulation transparent, predictable, and legally accountable.

Ultimately, the legal regulation of renewable energy investment in Iraq and Iran remains a developing field with considerable potential. Both countries can use renewable energy law as an instrument of economic diversification, environmental protection, technological modernization, and energy security. However, this potential will not be realized unless legal reforms move beyond general encouragement and establish precise, enforceable, and investor-oriented regulatory mechanisms. The future of renewable energy investment in both countries depends on the ability of law to transform natural potential into bankable projects, policy ambition into enforceable rights, and energy transition into a stable legal and economic reality.

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Authors' Contributions

All authors equally contributed to this study.

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The authors of this article declared no conflict of interest.

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Transparency of Data

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References

1. Boyle G. Renewable Energy: Power for a Sustainable Future: Oxford University Press; 2012.
2. Twidell J, Weir T. Renewable Energy Resources: Routledge; 2015.

3. Sovacool BK. The Importance of Comprehensiveness in Renewable Electricity and Energy-Efficiency Policy. *Energy Policy*. 2009;37(4):1529-41.
4. Painuly JP. Barriers to Renewable Energy Penetration; A Framework for Analysis. *Renewable Energy*. 2001;24(1):73-89.
5. Jiyad AM. Electricity Sector Reform in Iraq. *Middle East Economic Survey*. 2013;56(21):1-12.
6. Al-Fatlawi AH. Investment Law and Energy Projects in Iraq. *Iraqi Journal of Legal Studies*. 2021;13(2):88-109.
7. Karimi MR. Legal Challenges of Renewable Energy Investment in Iran. *Iranian Journal of International Legal Studies*. 2022;9(1):45-67.
8. Zare H. Foreign Investment Protection in Iranian Energy Law. *Journal of Energy Law and Policy*. 2020;5(2):77-101.
9. Abdelrazik A. Renewable Energy Regulation in the Middle East and North Africa. *Middle East Law and Governance*. 2019;11(2):155-80.
10. El-Katiri L. A Roadmap for Renewable Energy in the Middle East and North Africa. *Oxford Institute for Energy Studies*. 2014.
11. Hafner M, Tagliapietra S. The Geopolitics of the Global Energy Transition. *Energy Strategy Reviews*. 2020;26:100373.
12. Wüstenhagen R, Menichetti E. Strategic Choices for Renewable Energy Investment. *Energy Policy*. 2012;40:1-10.
13. Komendantova N, Patt A. Financing Renewable Energy Projects in Developing Countries. *Energy Policy*. 2014;66:647-60.
14. Redgwell C, Ince A. *Energy Law in Europe*: Oxford University Press; 2020.
15. Talus K. *Introduction to EU Energy Law*: Oxford University Press; 2016.
16. Schütze R. *European Union Law*: Cambridge University Press; 2021.
17. Pegels A. Renewable Energy in South Africa: Potentials, Barriers and Options for Support. *Energy Policy*. 2010;38(9):4945-54.
18. Polzin F. Mobilizing Private Finance for Low-Carbon Innovation. *Renewable and Sustainable Energy Reviews*. 2017;77:525-35.
19. Mehdiyev N. Legal Frameworks for Renewable Energy Investment in Developing States. *Journal of World Energy Law and Business*. 2018;11(3):221-40.
20. Ferroukhi R. Renewable Energy Policies in a Time of Transition. *IRENA Policy Brief*. 2020.
21. Al-Maamary HMS, Kazem HA, Chaichan MT. Renewable Energy and GCC States Energy Challenges in the 21st Century. *International Journal of Computation and Applied Sciences*. 2017;2(1):11-8.
22. Salim RA, Rafiq S. Why Do Some Emerging Economies Proactively Accelerate the Adoption of Renewable Energy? *Energy Economics*. 2012;34(4):1051-7.