

Legal Harmonization for Energy Transitions: Embedding SDG 7 and Paris Agreement Norms in National Renewable Energy Law

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ABSTRACT: Achieving Sustainable Development Goal 7 (SDG 7) requires integrating global legal commitments into national renewable energy laws. This article examines how international frameworks particularly SDG 7 and the Paris Agreement can be harmonized with domestic legal systems to accelerate renewable energy transitions. Using a doctrinal-comparative method, it analyzes the legal architectures of the European Union (EU), the United States (US), and Indonesia, focusing on binding targets, incentive models, and policy instruments. The EU's rule-based system (RED III, REPowerEU) illustrates the effectiveness of legally mandated targets and fast-track permitting. In contrast, the US Inflation Reduction Act exemplifies a long-term incentive-based approach using technology-neutral tax credits (Sections 45Y and 48E) to de-risk renewable investment. Indonesia's evolving hybrid model blends regulatory mandates (Perpres 112/2022), planning instruments (RUPTL), and strategic finance platforms (JETP-CIPP), though it faces challenges from regulatory instability, such as rooftop solar policy reversals. These case studies reveal that legal predictability is a key driver of investment and policy coherence. Hybrid legal frameworks in the Global South demonstrate the need for adaptable models that accommodate local governance realities while aligning with international norms. Embedding global standards into national law enhances policy legitimacy, investment security, and implementation effectiveness. The study concludes that harmonizing global and national legal systems through binding obligations, fiscal incentives, and transparent planning is essential for achieving SDG 7. It advocates for legal toolkits that combine enforcement, flexibility, and normative alignment to support inclusive, sustainable energy transitions.

Keywords: SDG 7, Paris Agreement, Renewable Energy Law, Legal Harmonization, RED III, Inflation Reduction Act, Indonesia Energy Policy, Hybrid Legal Frameworks, Regulatory Predictability, Energy Governance.



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INTRODUCTION

The global transition toward sustainable energy systems represents a pivotal intersection between climate governance and development policy. SDG 7 aimed at ensuring universal access to affordable, reliable, and modern energy functions as a legal and institutional anchor that integrates global mandates into national regulatory frameworks. As part of the 2030 Agenda for Sustainable

Development, SDG 7 is linked not only to technological and infrastructural progress but also to legal and institutional reforms, especially in low- and middle-income countries. Complementing SDG 7, the Paris Agreement establishes legally framed commitments, notably through Article 4, which requires countries to prepare and submit Nationally Determined Contributions (NDCs) outlining their mitigation and adaptation strategies. Together, these frameworks form an integrated legal-policy architecture whose success depends on their incorporation into national legislative and administrative systems to achieve coherent and enforceable energy transitions.

Despite growing consensus on the importance of energy reform, implementation remains uneven across regions. The international legal foundations, while normatively powerful, often lack direct enforceability within domestic systems unless incorporated into binding national legal instruments. The Paris Agreement, for example, while mandating the preparation and regular updating of NDCs, relies on domestic laws to give those commitments real effect. This complexity underscores the importance of legal harmonization across governance levels a concept that is gaining traction as both a normative goal and a strategic necessity. Indeed, the relationship between international legal norms and national legislation is increasingly viewed as central to closing the implementation gap in climate and energy policy.

Several studies emphasize the interdependence between international legal frameworks and domestic renewable energy laws. Scholars such as Charles (2023) highlight that SDG 7 serves not only as a developmental target but also as a normative anchor for national energy governance. The associated indicators including universal electricity access, renewable energy shares, and improvements in energy efficiency provide measurable targets against which national progress can be evaluated. These indicators, coupled with the iterative structure of the NDC system, create a dual matrix of normative goals and legal-political accountability. As nations submit increasingly ambitious NDCs, they are expected to reflect these ambitions in domestic planning instruments, regulatory reforms, and fiscal policies.

However, substantial gaps remain. While SDG 7 provides a global benchmark, actual progress varies significantly. Reports by Hofman & Gaast (2018), Roelfsema et al. (2020), and IEA (2024) note that as of 2023, approximately 675 million people lack access to electricity, and over two billion lack clean cooking solutions. These figures demonstrate the urgent need for not only enhanced international coordination but also strong legal and policy interventions at the national level. Moreover, the disparity in access and investment across regions indicates that legal coherence alone is insufficient without financial and institutional capacity to implement change.

Article 4 of the Paris Agreement operationalizes the normative responsibility of states by mandating iterative submission and enhancement of Nationally Determined Contributions (NDCs). It requires parties to submit and update their NDCs every five years, promoting both continuity and ambition. While these commitments are not legally binding in a strict enforcement sense, they do carry normative and procedural weight. States are expected to progressively increase the ambition of their pledges, report transparently on implementation, and engage in multilateral review processes. This mechanism introduces an accountability logic rooted in procedural norms rather than coercive enforcement. As Savin et al. (2024) and Seddon et al. (2019) argue, this structure facilitates peer pressure and reputational incentives that can motivate national action.

Nevertheless, the flexibility afforded by the non-binding nature of NDCs can also lead to inconsistency. Obergassel et al. (2020) and Mayer (2018) highlight the wide disparity in how countries formulate and operationalize their commitments. Some jurisdictions incorporate NDCs into statutory instruments or executive policy documents, while others treat them as aspirational guidelines. This variation undermines the universal applicability of the Agreement and creates an uneven playing field for climate action. To address this, legal scholars argue for greater internalization of international obligations into national legal systems, thus transforming soft commitments into enforceable rules.

The role of international law in guiding national renewable energy legislation is thus both foundational and facilitative. Treaties such as the Paris Agreement and frameworks like the 2030 Agenda offer guiding principles that inform national strategies. (King & Bergh (2019) show how such guidance can enable governments to establish clear and predictable regulatory environments that attract investment, foster public-private collaboration, and promote innovation. National governments, by aligning legislation with international goals, not only strengthen their global standing but also enhance domestic governance capacity.

Despite these positive alignments, the global energy transition is hindered by persistent investment and policy gaps. Developing countries, in particular, face disproportionate barriers, including limited access to climate finance, insufficient technology transfer, and weak institutional infrastructure. Reports by Griscom et al. (2020) underscore the critical role of international financial mechanisms in addressing these disparities. Furthermore, the current trajectory of energy investments remains misaligned with the levels required to meet global targets, especially in energy access and renewable deployment (Fransen et al., 2021).

Legal and institutional challenges further complicate national implementation. Regulatory incoherence, weak enforcement, and fragmented governance structures are frequently cited as obstacles to policy effectiveness. As Leinaweaver & Thomson (2021) note, these challenges are particularly acute in emerging economies where legal reform may be politically sensitive or resource-intensive. Without integrated strategies that bridge local, national, and global priorities, even the best-formulated laws can fall short of their intended impact. In this context, the role of multi-stakeholder engagement, capacity building, and institutional innovation becomes indispensable.

Finally, translating international development goals into enforceable national obligations remains a fundamental challenge. While the SDGs and the Paris Agreement provide a coherent vision, their implementation depends on the willingness and ability of states to legislate and regulate in line with these frameworks. As Voigt & Ferreira (2016) observe, the effectiveness of international law lies not only in its normative content but in its domestic reception and operationalization. Inclusive governance, robust legal frameworks, and sustained financial commitment are necessary to transform global aspirations into tangible outcomes.

In conclusion, the legal foundations of SDG 7 and the Paris Agreement offer a compelling blueprint for energy transition. Yet, achieving these goals requires far more than international declarations. It demands a concerted effort to harmonize global norms with national laws, supported by targeted investments and institutional reforms. This study builds upon that premise,

seeking to understand how legal systems can better integrate global energy objectives to foster meaningful and equitable transitions.

METHOD

This study adopts a hybrid methodological framework that integrates doctrinal legal interpretation with comparative legal-policy analysis to investigate how international energy norms are harmonized and internalized within national legal systems. The methodology is structured around three main pillars: (i) doctrinal analysis of international and domestic legal instruments; (ii) comparative study of renewable energy frameworks in the EU, US, and Indonesia; and (iii) the integration of SDG 7 and Paris Agreement benchmarks as evaluative standards for legal efficacy.

Doctrinal legal analysis constitutes the foundational method of this research, involving a detailed review of legal texts, treaties, statutes, and regulatory instruments. The method facilitates the identification and interpretation of legal obligations related to SDG 7 and the Paris Agreement, particularly Article 4 concerning NDCs. It enables a systematic evaluation of the legal structures governing renewable energy, such as procurement mandates, tax incentives, and target-setting. This approach offers clarity on the rights and duties imposed on state actors and regulated entities, especially regarding energy access, clean cooking solutions, and renewable deployment.

However, the doctrinal method has certain limitations. It is primarily text-based and often abstracts legal rules from their socio-political contexts, potentially overlooking enforcement issues and real-world constraints. It may also underappreciate institutional capacity variations across jurisdictions, as seen in developing countries like Indonesia, where legal mandates may be diluted by weak enforcement or shifting political will. Despite these limitations, doctrinal analysis remains essential for understanding how international obligations are expressed in domestic law and policy.

To assess the effectiveness and adaptability of legal frameworks, the study applies a comparative legal methodology across three case studies: the European Union, the United States, and Indonesia. The comparison focuses on legal instruments such as RED III in the EU, the Inflation Reduction Act in the US, and Indonesia's Perpres 112/2022, Permen ESDM 2/2024, and RUPTL plans. Key variables include the presence of binding targets, the use of incentives, permitting procedures, and policy stability.

The comparative legal approach elucidates how distinct jurisdictions translate shared climate obligations into differentiated regulatory responses, highlighting context-specific pathways and institutional adaptations. It allows the study to examine the structural legal features that make one approach more effective or transferable than another. Yet, challenges in legal comparability include differing levels of codification, political culture, and administrative capacity. Thus, the analysis remains sensitive to contextual distinctions and aims to extract adaptable elements rather than prescriptive models.

Central to the study is the integration of SDG 7 indicators and Paris Agreement obligations into the legal evaluation framework. This allows for a normative and empirical basis to assess whether national laws are conducive to achieving global goals. The indicators including electricity access,

renewable share, energy intensity, and clean cooking access serve not only as policy goals but also as benchmarks of legal performance.

The study also considers best practices in aligning legal research with SDG frameworks. These include the development of SDG-aligned indicators, stakeholder consultations, and the inclusion of cross-sectoral goals such as climate action (SDG 13) and infrastructure (SDG 9). By embedding these into the comparative legal design, the research captures both the letter and spirit of sustainable energy law.

In summary, this methodological framework enables a multidimensional analysis of renewable energy governance. Through doctrinal scrutiny, comparative evaluation, and normative alignment with global goals, the study positions itself to offer actionable insights into how legal systems can be reformed or recalibrated to support the realization of SDG 7 and climate-related objectives.

RESULT AND DISCUSSION

Legal Interpretation

The interpretation of “habitual residence” and “grave risk” under Article 13(1)(b) of the HCCH 1980 Convention reveals significant jurisprudential variation across jurisdictions, influenced by distinct legal traditions and procedural norms.

In the United States, the Supreme Court’s decision in *Monasky v. Taglieri* redefined the approach to habitual residence by rejecting rigid criteria and favoring a fact-intensive inquiry based on the totality of the child’s circumstances. The decision marked a shift toward contextual evaluation over parental intention alone, with courts instructed to consider the child’s lived experience and degree of integration in a specific environment (Trimmings & Momoh, 2021). By contrast, the European Union under the Brussels II bis framework tends to adopt a more formalistic approach, emphasizing structured legal and factual assessments of residence to ensure procedural consistency across member states (Freeman & Taylor, 2023).

Interpretation of “grave risk” similarly diverges. While the Convention articulates that return may be refused if there is a grave risk of exposing the child to physical or psychological harm or placing them in an intolerable situation, Courts demonstrate considerable variation in applying this standard, reflecting differing judicial philosophies toward balancing child protection and return obligations. This divergence highlights the tension between maintaining the prompt return principle and addressing legitimate safety concerns.

The coordination mechanisms under Brussels II bis enhance judicial cooperation among EU member states and with HCCH instruments. These mechanisms promote timely processing of return applications and facilitate the exchange of legal information to align practices (Župan et al., 2020). Meanwhile, the HCCH Guide to Good Practice on Article 13(1)(b) urges the harmonization of judicial standards through educational resources, professional training, and the exchange of best practices (Sandiford, 2019).

Evidentiary Thresholds

The evidentiary burden required to substantiate a grave risk claim varies significantly. In the United States, claimants must provide clear and convincing evidence of imminent harm. Courts rely heavily on documented incidents, psychological evaluations, and credible witness testimony (Parisi et al., 2021). This high threshold reflects a legal culture that values evidentiary precision and judicial discretion.

In EU jurisdictions, although the burden still rests with the claimant, courts may accept a wider range of evidence, including social services reports and multidisciplinary expert opinions (“Ben El Mahi and Others v. Denmark,” 2018). This flexibility permits a more holistic assessment of the child’s context and potential risk factors.

Appellate review standards also differ. In the US, appellate courts are typically deferential to trial-level findings unless there is a demonstrable error in legal interpretation or evidentiary assessment (Parisi et al., 2021). EU appellate courts, in contrast, may take a more supervisory role, particularly when interpreting grave risk in light of established EU jurisprudence (Župan et al., 2020).

The HCCH Guide encourages multidisciplinary and collaborative approaches to gathering evidence, promoting coordination among legal, psychological, and social services professionals (Trimmings & Momoh, 2021; Sandiford, 2019). Such approaches are essential in mitigating inconsistencies and ensuring fact-based, child-sensitive adjudication.

Protective Measures

Protective measures serve as crucial tools in reconciling the obligation to return with the need to safeguard children. Mirror orders and undertakings are commonly used mechanisms to ensure compliance across jurisdictions. Mirror orders replicate judicial decisions in the receiving jurisdiction, promoting enforceability and consistency (Milej, 2018). Undertakings typically involve legally binding commitments by the requesting parent, such as providing housing, financial support, or restricting access to the child until further court review (Sandiford, 2019).

Supervised contact and structured return protocols further support safe transitions. These may include court-monitored visitations, police escorts, or temporary custody arrangements with neutral parties. They are especially relevant in cases involving prior abuse or allegations of violence (Milej, 2018).

Under Brussels II bis, these protective tools are formally integrated into the cross-border enforcement framework. The Regulation facilitates mutual recognition and execution of protection orders, thereby enhancing the legal infrastructure necessary for safe returns (Župan et al., 2020). Courts are increasingly called upon to balance procedural obligations with the child’s best interests, demanding sophisticated judicial reasoning and risk analysis (Trimmings & Momoh, 2021).

Case Outcomes and Trends

Empirical findings from the HCCH Statistical Study (2021) and the ICMEC Regional Report (2023) provide a data-driven perspective on the use and outcomes of Article 13(1)(b).

Out of 3,456 total return applications globally, 21% involved grave risk claims.

Approximately 15% of these resulted in non-return orders.

Median case duration for return orders was 170 days; for non-return cases, 235 days.

These statistics illustrate that while the grave risk exception is not frequently invoked successfully, it remains a critical area of legal contention.

Regional differences are stark. Brussels II bis jurisdictions average faster resolution times (120 days vs. 210 days for non-EU states) and exhibit greater reliance on protective measures (used in 32% of Brussels IIb cases). These efficiencies are attributable to structured cooperation mechanisms and dedicated judicial networks (Župan et al., 2020).

Jurisdictions also vary in their receptiveness to grave risk claims. Some courts are more inclined to accept claims supported by credible evidence, while others favor return orders unless harm is clearly substantiated (Milej, 2018). These trends complicate international cooperation, emphasizing the need for aligned evidentiary standards and clearer judicial guidelines.

Cases involving grave risk also tend to be more protracted due to the necessity of extensive evidentiary hearings, third-party assessments, and procedural safeguards. This delay challenges the prompt return objective of the Convention and may exacerbate trauma for the involved child.

Finally, courts that actively employ protective measures are more likely to issue return orders, suggesting that safeguarding arrangements can mediate judicial reluctance in high-risk cases (Trimmings & Momoh, 2021). Such findings support the growing call for integrated protective protocols as standard practice in return proceedings.

The application of grave risk exceptions in international child abduction cases remains deeply influenced by the prevailing legal cultures and procedural norms within each jurisdiction. The differences in how legal systems interpret and operationalize Article 13(1)(b) of the HCCH 1980 Convention are not merely technical but reflect broader philosophical and systemic distinctions. Common law and civil law traditions approach evidentiary standards and judicial discretion in fundamentally different ways, which leads to significant divergence in outcomes when assessing claims of grave risk (Trimmings & Momoh, 2021).

In common law jurisdictions such as the United States, the evidentiary threshold for grave risk tends to be more stringent, often demanding clear and convincing proof of harm. Courts in these settings are inclined to prioritize procedural integrity and parental rights, sometimes at the expense of nuanced risk factors. The *Monasky v. Taglieri* decision illustrates a parent-centric inclination that, while deferential to trial-level findings, may fail to fully capture the psychological and emotional dimensions of risk to the child. By contrast, courts in European Union member states operating under Brussels II bis exhibit a more structured, child-centered framework, guided by a blend of regulatory standards and social welfare considerations (Freeman & Taylor, 2023). This

divergence can result in inconsistent outcomes, even where the factual matrix is similar, thereby undermining predictability and fairness in return proceedings.

Legal culture also affects the integration of soft-law instruments, particularly the HCCH Guides to Good Practice. While these guides are crafted to promote uniform interpretation and application of the Convention, their effectiveness is constrained by cultural and institutional inertia. Jurisdictions that heavily prioritize formal legal sources may resist the adoption of non-binding guidance, perceiving it as lacking authoritative weight (ÇAMI, 2023). This limits the Guides' influence on harmonizing grave risk interpretations, especially in courts that emphasize precedent or statutory rigidity. Furthermore, divergent national philosophies concerning parental autonomy, state intervention, and child welfare exacerbate inconsistencies in the practical application of the grave risk exception (Milej, 2018).

These challenges are compounded by disparities in national enforcement of return orders. Although the Hague Convention envisions a seamless and cooperative system of international child protection, the reality is often more fragmented. Member states differ in how they interpret and execute return obligations, leading to a patchwork of compliance. For example, some jurisdictions might prioritize swift return based on a formalistic interpretation of habitual residence, while others might invoke additional procedural delays to investigate potential harm claims (Župan et al., 2020). The inconsistent enforcement undermines the credibility of the Convention and risks protracted litigation, further destabilizing the affected child's environment.

Addressing these inconsistencies necessitates structural and procedural reforms. One key recommendation is the establishment of standardized frameworks for grave risk evaluations. These would provide courts with consistent guidelines on the types of evidence required, the appropriate threshold for non-return decisions, and the role of protective measures in mitigating potential harm ("R (Sandiford) v. Secretary of State for Foreign and Commonwealth Affairs," 2019). By clarifying these expectations, such frameworks would improve transparency, reduce judicial discretion disparities, and enhance confidence among litigants and practitioners (Trimmings & Momoh, 2021).

Another critical area for reform is judicial education. Judges often operate within culturally and institutionally entrenched paradigms, which can shape their understanding of child welfare and parental rights. Training programs that highlight the cross-cultural dimensions of grave risk, the psychological aspects of child trauma, and the interpretive scope of international instruments could significantly improve adjudication quality. These programs should be tailored not only to emphasize legal knowledge but also to encourage sensitivity to the human realities underlying abduction cases.

In addition, regular international dialogue is essential for building consensus on contested legal interpretations. Forums organized by the HCCH, international legal associations, and regional bodies can provide platforms for judges, academics, and policymakers to share experiences and explore innovative practices. For instance, case study reviews, mock appellate panels, and collaborative workshops can facilitate mutual learning and reveal underlying assumptions that influence judicial reasoning. These exchanges are especially valuable in cultivating a shared

understanding of grave risk, which is vital for ensuring consistent and fair application of the Convention (“*R (Sandiford) v. Secretary of State for Foreign and Commonwealth Affairs*,” 2019).

Moreover, the role of protective measures in resolving grave risk disputes must be further institutionalized. Courts that effectively use mirror orders, undertakings, and safe-return protocols are better positioned to issue return orders with confidence that the child’s welfare will not be compromised. As shown in numerous EU and US cases, the successful implementation of protective frameworks often determines whether the return is ordered. Thus, efforts to codify the use of such tools and ensure their enforceability across jurisdictions are central to harmonizing outcomes.

Ultimately, while the HCCH 1980 Convention provides a robust foundation for addressing international child abduction, its long-term efficacy depends on reconciling the disparities in grave risk application. Legal convergence does not necessitate uniformity but requires functional equivalence in outcomes. The well-being of the child articulated in both the UNCRC and the HCCH frameworks must remain the guiding principle. To achieve this, international law must be accompanied by domestic reforms that prioritize child safety, judicial competence, and procedural justice. Cross-border collaboration, soft-law innovation, and policy harmonization together form the cornerstone of a more effective and humane system of international child protection.

CONCLUSION

This study highlights that harmonizing international energy commitments particularly those under SDG 7 and the Paris Agreement with domestic legal frameworks is fundamental to accelerating renewable energy transitions. Through doctrinal and comparative analysis of the EU, the US, and Indonesia, it demonstrates that a balance between regulatory enforcement and fiscal incentives is necessary. Legally binding targets, such as those in the EU’s RED III, enhance compliance and predictability, while the US incentive-based model through the Inflation Reduction Act fosters private-sector engagement and technological innovation. Indonesia’s hybrid approach illustrates how emerging economies can adapt global norms within national capacities, emphasizing the need for stable, transparent, and context-sensitive regulation.

Ultimately, achieving SDG 7 depends on sustained legal transformation that embeds global principles into national law while ensuring inclusivity and institutional accountability. The creation of coherent and flexible legal toolkits integrating binding obligations, fiscal incentives, and participatory governance can reduce policy fragmentation and strengthen implementation. Such alignment between global commitments and national legislation is not only a matter of compliance but a strategic foundation for long-term energy security, equitable development, and resilient climate governance.

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