



(REVIEW ARTICLE)



## Energy transition law addressing fossil fuel phase-out, just transition principles, and workforce protection mechanisms globally

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World Journal of Advanced Research and Reviews, 2022, 16(03), 1467-1479

Publication history: Received on 06 November 2022; revised on 22 December 2022; accepted on 28 December 2022

Article DOI: <https://doi.org/10.30574/wjarr.2022.16.3.1370>

### Abstract

The global energy transition is reshaping legal systems as states accelerate the phase-out of fossil fuels to meet climate commitments, manage economic disruption, and protect affected workers and communities. Energy transition law has emerged as a critical interdisciplinary field addressing the regulatory, social, and labour dimensions of decarbonisation. This article examines how legal frameworks worldwide are responding to three interlinked challenges: the orderly phase-out of fossil fuel production and consumption, the integration of just transition principles, and the protection of workers and communities dependent on carbon-intensive industries. It analyses emerging statutory, regulatory, and policy instruments that govern coal, oil, and gas exit strategies, including licensing reforms, subsidy withdrawal, and climate-aligned investment controls. The paper further explores how just transition concepts such as fairness, participation, and equity are being translated into binding legal obligations through labour law, social protection schemes, and regional development policies. Particular attention is given to workforce protection mechanisms, including retraining programmes, income support, collective bargaining safeguards, and community regeneration funds. By comparing approaches across jurisdictions, the article identifies best practices, governance gaps, and enforcement challenges in aligning climate objectives with social justice. It concludes that robust energy transition law is essential to ensure that decarbonisation efforts are legally certain, socially inclusive, and economically sustainable, while maintaining public trust and political legitimacy throughout the transition.

**Keywords:** Energy transition law; Fossil fuel phase-out; Just transition; Workforce protection; Climate governance; Labour and social protection

## 1. Introduction

### 1.1. Background and Rationale

Global efforts to address climate change have intensified in response to escalating environmental, economic, and social risks associated with continued fossil fuel dependence [1]. International climate commitments have increasingly recognised that limiting global temperature rise requires a rapid and orderly reduction in coal, oil, and gas production and consumption [2]. Despite these commitments, fossil fuels remain deeply embedded in national energy systems, public finances, and labour markets, creating complex legal and governance challenges for states pursuing decarbonisation [3].

Law plays a central role in shaping the energy transition by translating climate goals into binding obligations, regulatory standards, and institutional frameworks [4]. Energy transition law has emerged as a distinct field that goes beyond traditional environmental regulation, encompassing energy governance, investment controls, labour protection, and

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social welfare mechanisms [5]. Through legislation, regulation, and judicial interpretation, legal systems determine the pace, scope, and fairness of fossil fuel phase-out pathways [6].

Decarbonisation also has profound socio-economic implications, particularly for workers and communities dependent on carbon-intensive industries [7]. Without adequate legal safeguards, the transition risks exacerbating inequality, triggering regional economic decline, and undermining political support for climate action [8]. These realities have prompted growing calls for legally grounded approaches that integrate climate objectives with social justice and economic resilience.

### **1.2. Problem Statement and Research Gap**

Despite the growing recognition of the need for a just energy transition, existing legal frameworks remain fragmented across climate, energy, labour, and social protection regimes [1]. Climate and energy laws often prioritise emissions reduction and market transformation, while labour and social laws address employment impacts in isolation, leading to regulatory gaps and inconsistent protection for affected workers [2]. This fragmentation limits the effectiveness of transition governance and weakens accountability mechanisms [3].

In many jurisdictions, just transition commitments are articulated through policy strategies or political declarations rather than enforceable legal instruments [4]. As a result, workforce protection measures such as retraining, income support, and community redevelopment frequently lack legal certainty, stable funding, or long-term institutional backing [5]. This disconnect between policy ambition and legal enforceability creates uncertainty for workers, investors, and public authorities alike [6].

The academic literature has extensively examined climate law and energy regulation but has paid comparatively less attention to the integration of labour rights and social protection within energy transition law [7]. There remains a need for systematic legal analysis that examines how fossil fuel phase-out, just transition principles, and workforce protection mechanisms interact within and across legal systems [8].

### **1.3. Objectives and Scope of the Study**

This study aims to contribute to the emerging field of energy transition law by providing a comprehensive legal analysis of fossil fuel phase-out, just transition principles, and workforce protection mechanisms. First, it examines the legal instruments and regulatory approaches used to govern the decline of coal, oil, and gas activities across jurisdictions [1]. Second, it analyses how just transition principles—such as equity, fairness, participation, and social dialogue—are incorporated into international and domestic legal frameworks [2].

Third, the paper assesses workforce protection mechanisms embedded in labour law, social security systems, and transition-specific legislation, with particular attention to retraining, income protection, and regional economic support [3]. The study adopts a comparative and global perspective, identifying common trends, governance gaps, and best practices across diverse legal systems [4]. By focusing on law as a tool for managing socio-economic change, the paper seeks to inform policy design, legal reform, and future research on socially inclusive decarbonisation pathways [5].

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## **2. Conceptual and Legal Foundations of Energy Transition Law**

### **2.1. Defining Energy Transition Law**

Energy transition law refers to the body of legal norms, institutions, and processes that govern the shift from fossil fuel-based energy systems to low-carbon and renewable alternatives [7]. Unlike traditional environmental law, which focuses primarily on pollution control and conservation, energy transition law addresses systemic economic and social transformation [8]. It encompasses climate mitigation obligations, energy market regulation, industrial policy, labour protection, and social welfare measures within a unified governance framework [9].

The evolution of energy transition law reflects the recognition that decarbonisation is not solely a technological challenge but also a legal and institutional one [10]. Legal systems must coordinate multiple policy domains to manage stranded assets, reallocate capital, and protect affected populations [11]. As a result, energy transition law operates at the intersection of climate law, energy law, labour law, and human rights law [12].

This interdisciplinary character distinguishes energy transition law from earlier regulatory approaches and underscores its role in mediating competing interests among states, markets, workers, and communities [13]. By

embedding social considerations within decarbonisation strategies, energy transition law seeks to ensure that climate action is both effective and socially legitimate [14].

## **2.2. Fossil Fuel Phase-Out as a Legal Imperative**

The legal imperative to phase out fossil fuels is increasingly grounded in international climate obligations and scientific assessments of carbon budgets [15]. Limiting global temperature rise requires that a substantial proportion of known fossil fuel reserves remain unexploited, creating direct implications for licensing, permitting, and investment regimes [16]. Legal systems are therefore under pressure to align domestic energy policies with climate commitments through binding regulatory measures [7].

Fossil fuel phase-out is implemented through a range of legal instruments, including production bans, time-bound licensing restrictions, subsidy reform, and emissions performance standards [8]. Courts have also played a growing role by interpreting climate obligations as requiring more stringent controls on fossil fuel activities [9]. These developments signal a shift from incremental regulation toward planned decline frameworks embedded in law [10].

However, the legal withdrawal from fossil fuels raises complex issues related to property rights, contractual obligations, and investor protection [11]. Managing these tensions requires clear statutory mandates, transparent decision-making processes, and alignment between climate, energy, and investment law [12]. Fossil fuel phase-out thus represents not only a policy choice but a fundamental legal transformation of energy governance [13].

## **2.3. Just Transition Principles in International and Domestic Law**

Just transition principles have emerged as a normative response to the social risks associated with decarbonisation, emphasising fairness, equity, participation, and social dialogue [14]. These principles are increasingly referenced in international climate instruments, labour standards, and human rights frameworks, giving them growing legal significance [15]. While often articulated as soft law, just transition norms are progressively influencing domestic legislation and regulatory design [16].

At the national level, just transition principles are reflected in laws mandating worker consultation, social protection measures, and targeted support for affected regions [17]. In some jurisdictions, these principles have been incorporated into binding climate or energy transition statutes, enhancing their enforceability [7]. Nevertheless, the legal status of just transition remains uneven, with significant variation in scope, precision, and institutional support [8].

Understanding the normative and legal foundations of just transition is essential for assessing its effectiveness as a governance tool. As energy transition law continues to evolve, the translation of just transition principles into enforceable legal obligations will be critical to ensuring that decarbonisation advances social justice alongside environmental sustainability [9].

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## **3. Legal Instruments Governing Fossil Fuel Phase-Out**

### **3.1. International Legal and Policy Frameworks**

International legal and policy frameworks provide the normative foundation for fossil fuel phase-out by establishing shared climate objectives and guiding national implementation strategies [16]. Multilateral climate agreements, most notably the [Paris Agreement](#), require states to pursue mitigation pathways consistent with limiting global temperature rise, thereby indirectly constraining continued fossil fuel expansion [17]. Although such agreements do not explicitly mandate fossil fuel phase-out, their temperature goals and carbon budget logic create legal and policy pressure for states to reduce fossil fuel production and consumption [18].

In addition to binding treaties, soft law instruments play a significant role in shaping global expectations around energy transition [19]. Declarations, roadmaps, and international guidelines promote the gradual elimination of unabated coal power, the restriction of new oil and gas development, and the redirection of finance toward low-carbon energy systems [20]. These instruments influence domestic lawmaking by setting benchmarks for regulatory ambition and best practice, even where formal legal obligations are absent [21].

Global norms emerging from international organisations and transnational networks further reinforce fossil fuel phase-out objectives [22]. These norms increasingly frame continued fossil fuel expansion as incompatible with sustainable development and human rights obligations, strengthening the legal rationale for restrictive national measures [23].

Collectively, international legal and policy frameworks function as agenda-setting mechanisms that shape domestic fossil fuel phase-out laws while allowing flexibility in national pathways and timelines [24].

### **3.2. National Legislative and Regulatory Approaches**

At the national level, fossil fuel phase-out is operationalised through a diverse range of legislative and regulatory instruments tailored to domestic energy systems and political contexts [16]. Coal phase-out legislation has emerged as one of the most developed areas, with several jurisdictions adopting statutory deadlines for the closure of coal-fired power plants and prohibitions on new coal infrastructure [17]. These laws often combine environmental regulation with economic transition measures, reflecting the social and regional impacts of coal dependency [18].

Oil and gas phase-out has proven more legally complex due to entrenched contractual arrangements, state revenue dependence, and energy security considerations [19]. Nevertheless, governments are increasingly reforming licensing regimes by limiting new exploration permits, tightening environmental conditions, and introducing climate compatibility assessments for upstream projects [20]. Such reforms signal a shift from expansion-oriented energy law toward managed decline frameworks embedded in statutory and regulatory processes [21].

Fiscal and market-based instruments also play a central role in national phase-out strategies [22]. The withdrawal of fossil fuel subsidies reduces incentives for continued production and consumption, while carbon pricing mechanisms internalise the climate costs of fossil fuel use [23]. When supported by clear legal mandates and long-term policy signals, these tools contribute to the gradual reallocation of capital away from carbon-intensive activities [24].

However, national approaches vary significantly in ambition, scope, and legal certainty. While some jurisdictions adopt comprehensive phase-out legislation, others rely on incremental regulatory adjustments that may be more vulnerable to political reversal [16]. This variation highlights the importance of coherent legal design in ensuring that fossil fuel phase-out objectives are durable, enforceable, and aligned with broader energy transition goals [17].

### **3.3. Legal Risks, Investor Claims, and Regulatory Uncertainty**

The legal withdrawal from fossil fuels generates significant risks related to stranded assets, investor expectations, and regulatory stability [18]. As governments restrict fossil fuel activities, existing infrastructure and reserves may lose economic value, raising concerns over compensation and liability [19]. These dynamics create legal tension between climate objectives and protections afforded under property, contract, and investment law [20].

Investor–state dispute settlement mechanisms have become a focal point for contestation, with investors challenging phase-out measures as indirect expropriation or unfair treatment [21]. Such claims can constrain regulatory ambition and expose states to substantial financial risk, particularly where legal frameworks lack clarity or transitional safeguards [22]. Managing these risks requires carefully designed legislation that explicitly links phase-out measures to public interest and climate obligations [23].

Legal certainty is therefore critical to effective fossil fuel phase-out governance. Clear statutory timelines, transparent decision-making processes, and alignment across climate, energy, and investment regimes can reduce litigation risk and enhance investor predictability [24]. By proactively addressing legal risk, states can strengthen the legitimacy and resilience of fossil fuel phase-out strategies within the broader framework of energy transition law [16].

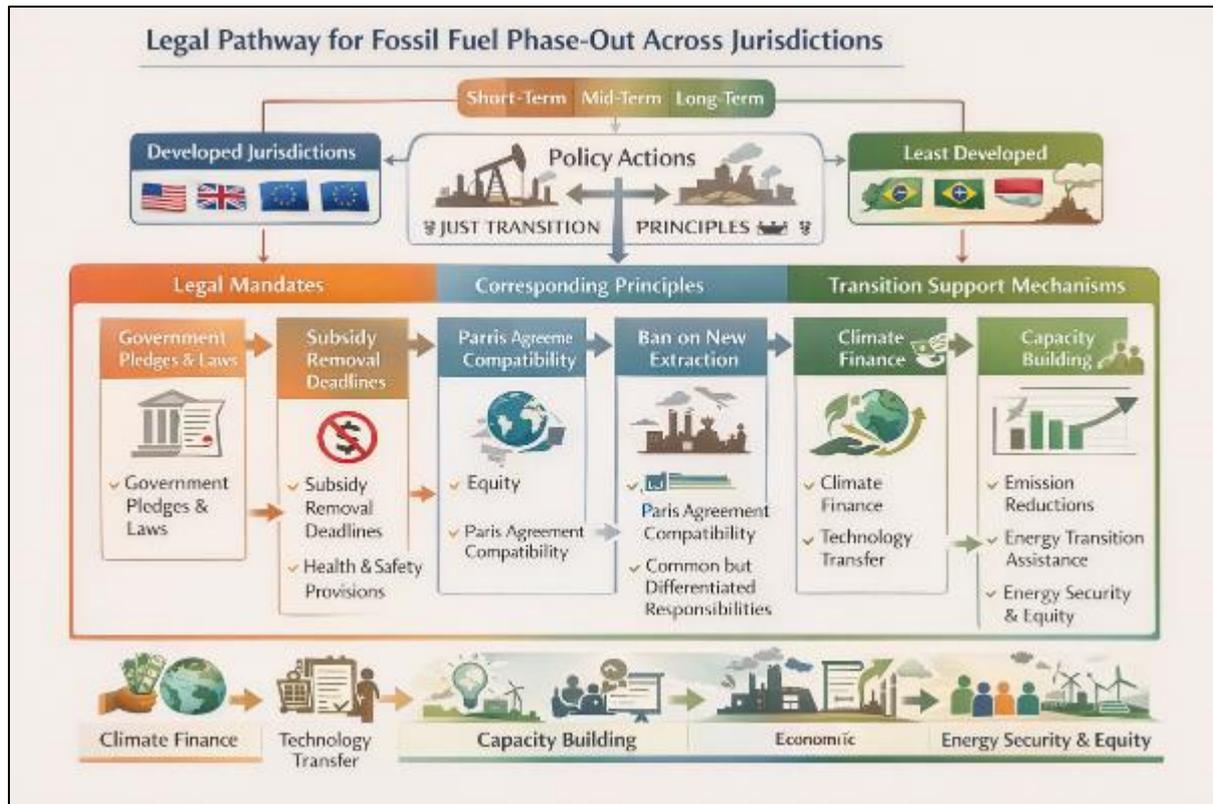


Figure 1 Legal Pathway for Fossil Fuel Phase Out Across Jurisdictions

## 4. Embedding Just Transition Principles in Law and Policy

### 4.1. Translating Just Transition from Policy to Law

Just transition has evolved from a normative policy concept into an increasingly influential legal principle shaping energy transition governance [23]. Initially articulated in political declarations and international policy statements, just transition commitments emphasised the need to balance climate action with social equity and worker protection [24]. However, the effectiveness of these commitments depends largely on their translation into binding legal obligations rather than voluntary or aspirational policy frameworks [25].

Legislative approaches to just transition provide greater legal certainty by establishing enforceable rights, duties, and institutional responsibilities [26]. Statutory provisions may mandate worker protection measures, require social impact assessments for energy projects, or establish dedicated transition funds supported by public finance [27]. By embedding just transition principles in primary legislation, governments signal long-term commitment and reduce the risk of policy reversal during political or economic change [28].

In contrast, policy-based approaches offer flexibility but often lack enforceability and accountability mechanisms [29]. Transition strategies, action plans, and roadmaps may outline social objectives without creating legally binding obligations for employers or public authorities [30]. While such instruments can support experimentation and stakeholder engagement, their reliance on political will limits their capacity to deliver durable social protections. The growing shift toward legislative codification reflects recognition that just transition requires legal force to ensure consistent and equitable implementation across sectors and regions.

### 4.2. Participation, Equity, and Community Rights

Participation and equity are central components of just transition law, reflecting the principle that affected workers and communities should have a meaningful role in shaping transition outcomes [23]. Legal requirements for worker consultation and social dialogue aim to ensure that transition policies reflect lived experience and mitigate adverse socio-economic impacts [24]. These mechanisms are particularly important in fossil fuel-dependent regions where employment loss can undermine social cohesion [25].

Indigenous peoples and local communities face distinct risks in the energy transition, especially where extractive activities have historically intersected with land rights and cultural heritage [26]. Legal frameworks increasingly recognise the need for enhanced protections, including consultation obligations, benefit-sharing arrangements, and safeguards against disproportionate harm [27]. Procedural justice principles reinforce these protections by requiring transparency, access to information, and effective remedies for affected groups [28].

Equity considerations also extend to the distribution of transition costs and benefits across society [29]. Laws that incorporate just transition principles seek to prevent vulnerable populations from bearing a disproportionate share of economic disruption while others capture the benefits of decarbonisation [30]. Embedding participation and equity within legal processes enhances the legitimacy of energy transition measures and strengthens public trust in climate governance.

### 4.3. Governance and Institutional Arrangements

Effective implementation of just transition law depends on robust governance and institutional coordination [23]. Governments play a central role in setting legal mandates, allocating resources, and ensuring coherence across climate, energy, labour, and social policy domains [24]. Regulatory authorities are responsible for operationalising these mandates through licensing decisions, compliance monitoring, and enforcement actions [25].

Social partners, including trade unions and employer organisations, are increasingly recognised as essential actors in transition governance [26]. Their involvement supports negotiated solutions that balance economic viability with worker protection and social stability [27]. Institutionalised social dialogue mechanisms help translate just transition principles into sector-specific agreements and workplace-level protections [28].

Inter-agency coordination is critical to avoid fragmentation and duplication of efforts [29]. Dedicated transition bodies or task forces can facilitate collaboration among ministries responsible for energy, labour, finance, and regional development [30]. Clear governance arrangements enhance accountability and ensure that just transition objectives are systematically integrated into energy transition law and policy.

**Table 1** Just Transition Legal Approaches in Selected Jurisdictions

Legal Approach	Core Features	Legal Status
Statutory just transition laws	Worker protection, transition funds, consultation duties	Binding
Climate or energy acts with social provisions	Integrated climate-social objectives	Binding
National transition strategies	Policy goals and guidance	Non-binding
Social dialogue agreements	Negotiated workforce protections	Semi-binding

## 5. Workforce Protection Mechanisms in the Energy Transition

### 5.1. Employment Impacts of Fossil Fuel Phase-Out

Fossil fuel phase-out has significant employment implications, particularly in regions with concentrated coal, oil, or gas industries [29]. Job losses associated with mine closures, power plant shutdowns, and upstream production decline can trigger regional economic vulnerability and long-term unemployment [30]. These impacts are often unevenly distributed, disproportionately affecting older workers and communities with limited economic diversification [31].

Skills mismatch presents a further challenge, as workers trained for fossil fuel industries may lack qualifications aligned with emerging low-carbon sectors [32]. Without targeted legal interventions, displaced workers risk exclusion from new employment opportunities created by the energy transition [33]. Workforce protection mechanisms are therefore essential to prevent structural unemployment and social dislocation [34].

Understanding the scale and distribution of employment impacts is critical for designing effective legal responses [35]. Laws that anticipate labour market disruption can facilitate proactive planning rather than reactive crisis management

[36]. Employment impact assessments and transition planning requirements increasingly form part of energy transition governance frameworks.

## 5.2. Labour Law and Social Protection Responses

Labour law and social protection systems provide foundational safeguards for workers affected by fossil fuel phase-out [29]. Redundancy protections, notice requirements, and severance pay obligations help mitigate income loss during employment transitions [30]. Social security mechanisms, including unemployment benefits and early retirement schemes, offer additional income support during periods of job displacement [31].

Collective bargaining and worker representation play a critical role in shaping transition outcomes [32]. Through negotiated agreements, workers and employers can establish tailored protections such as redeployment guarantees, wage insurance, and retraining entitlements [33]. Legal frameworks that support collective bargaining enhance worker agency and ensure that transition costs are shared more equitably [34].

However, the adequacy of labour law protections varies significantly across jurisdictions [35]. In contexts with weak labour institutions or high informality, workers may lack access to basic protections during the transition [36]. Strengthening labour law enforcement and extending social protection coverage are therefore essential components of just energy transition law.

## 5.3. Retraining, Up Skilling, and Employment Transition Schemes

Retraining and Up Skilling programmes are central to workforce protection in the energy transition, enabling workers to move into alternative employment pathways [29]. Legal frameworks increasingly mandate the provision of training opportunities for displaced workers, often linked to labour market needs in renewable energy, construction, and public services [30].

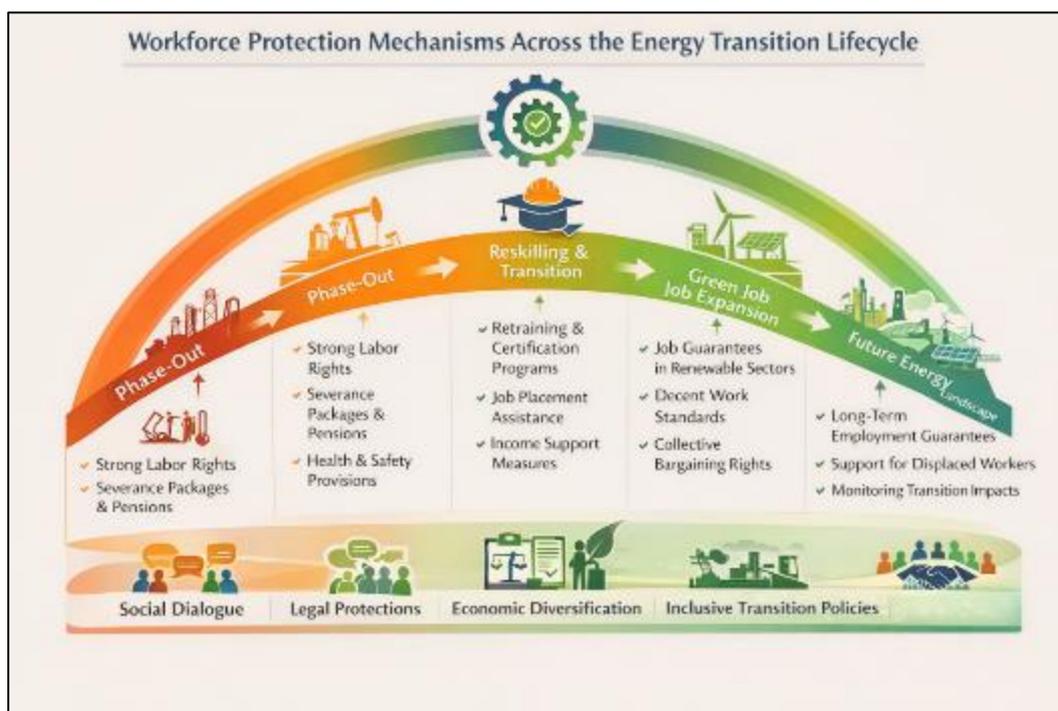
The legal design of retraining programmes influences their accessibility and effectiveness [31]. Statutory entitlements, certification standards, and quality assurance mechanisms help ensure that training leads to meaningful employment outcomes [32]. Coordination between education providers, employers, and public authorities is essential to align training with labour demand [33].

Public-private funding mechanisms support the sustainability of employment transition schemes [34]. Transition funds financed through public budgets, industry levies, or carbon revenues provide resources for training, relocation, and job placement services [35]. When embedded in law, such mechanisms offer predictability and long-term support for affected workers and communities [36]. Effective retraining and upscaling frameworks thus play a critical role in aligning decarbonisation with inclusive economic transformation.

**Table 2** Types of Legal Workforce Protection Measures and Their Functions

Legal Workforce Protection Measure	Primary Legal Basis	Core Function	Role in a Just Energy Transition
Employment protection and redundancy law	Labour and employment legislation	Regulates dismissal procedures, notice periods, and severance pay	Mitigates immediate income loss and prevents arbitrary job termination during fossil fuel phase-out
Unemployment benefits and income support	Social security and welfare law	Provides temporary income replacement for displaced workers	Ensures basic economic security during transition periods
Early retirement and pension bridging schemes	Social insurance and pension law	Allows older workers to exit the labour market without financial hardship	Reduces unemployment pressure and supports dignified workforce exit
Retraining and reskilling entitlements	Education and labour market legislation	Grants legal access to vocational training and skills development	Enables workforce mobility into low-carbon and alternative sectors

Job placement and redeployment obligations	Employment services regulation	Facilitates re-employment through job matching and relocation support	Accelerates labour market reintegration and reduces long-term unemployment
Collective bargaining and social dialogue mechanisms	Labour relations and industrial relations law	Enables negotiated transition agreements between employers and workers	Enhances worker participation and equitable burden-sharing
Regional economic transition funds	Energy transition or regional development law	Finances local economic diversification and infrastructure investment	Supports community resilience in fossil fuel-dependent regions
Occupational health and safety protections	Workplace safety legislation	Addresses health risks during plant closure, decommissioning, and retraining	Protects worker wellbeing throughout the transition lifecycle
Anti-discrimination and equality safeguards	Equality and human rights law	Prevents exclusion of vulnerable groups from transition benefits	Promotes fairness and inclusivity in energy transition outcomes



**Figure 2** Workforce Protection Mechanisms Across the Green Transition Lifecycle

## 6. Comparative and Global Perspectives

### 6.1. High-Income Economies

#### 6.1.1. Structured phase-out and social safeguards

High-income economies have generally adopted more structured and legally explicit approaches to fossil fuel phase-out, supported by stronger institutional capacity and fiscal resources [35]. These jurisdictions often implement statutory phase-out timelines for coal and progressively restrict oil and gas development through licensing reform and climate compatibility assessments [36]. Legal certainty is reinforced through comprehensive climate or energy transition laws that integrate emissions reduction targets with social protection measures [37].

Social safeguards are a defining feature of energy transition governance in high-income economies [38]. Workforce protection mechanisms such as income replacement, early retirement options, and legally mandated retraining schemes are frequently embedded within labour and social security systems. Collective bargaining frameworks further support negotiated transition arrangements at sectoral and enterprise levels, enhancing worker participation and predictability [39].

Regional development policies also play a critical role in mitigating uneven socio-economic impacts [40]. Targeted investment in affected regions, supported by legally established transition funds, helps promote economic diversification and long-term resilience. While challenges remain, particularly in managing political resistance and legacy infrastructure, high-income economies demonstrate how legal integration of climate, labour, and social policy can support socially inclusive fossil fuel phase-out pathways [41].

## **6.2. Emerging and Fossil Fuel-Dependent Economies**

### *6.2.1. Development challenges and capacity constraints*

Emerging economies and fossil fuel-dependent states face more complex legal and economic challenges in pursuing energy transition objectives [35]. Fossil fuel industries often play a central role in national development strategies, employment generation, and public revenue, making rapid phase-out politically and economically sensitive [36]. Legal frameworks in these contexts tend to prioritise energy access and economic growth, with climate and social considerations addressed incrementally [37].

Institutional and administrative capacity constraints further limit the effectiveness of energy transition law [38]. Regulatory agencies may lack resources to enforce environmental standards or implement workforce protection measures at scale. Labour law coverage is frequently uneven, particularly in informal or subcontracted employment, leaving many workers vulnerable during transition processes [39].

Financing constraints pose an additional barrier [40]. Limited fiscal space restricts governments' ability to fund retraining programmes, income support, and regional redevelopment initiatives. As a result, just transition commitments are often articulated in policy documents rather than embedded in binding legislation [41]. These challenges highlight the need for tailored legal approaches that balance decarbonisation with development priorities while progressively strengthening social protection systems.

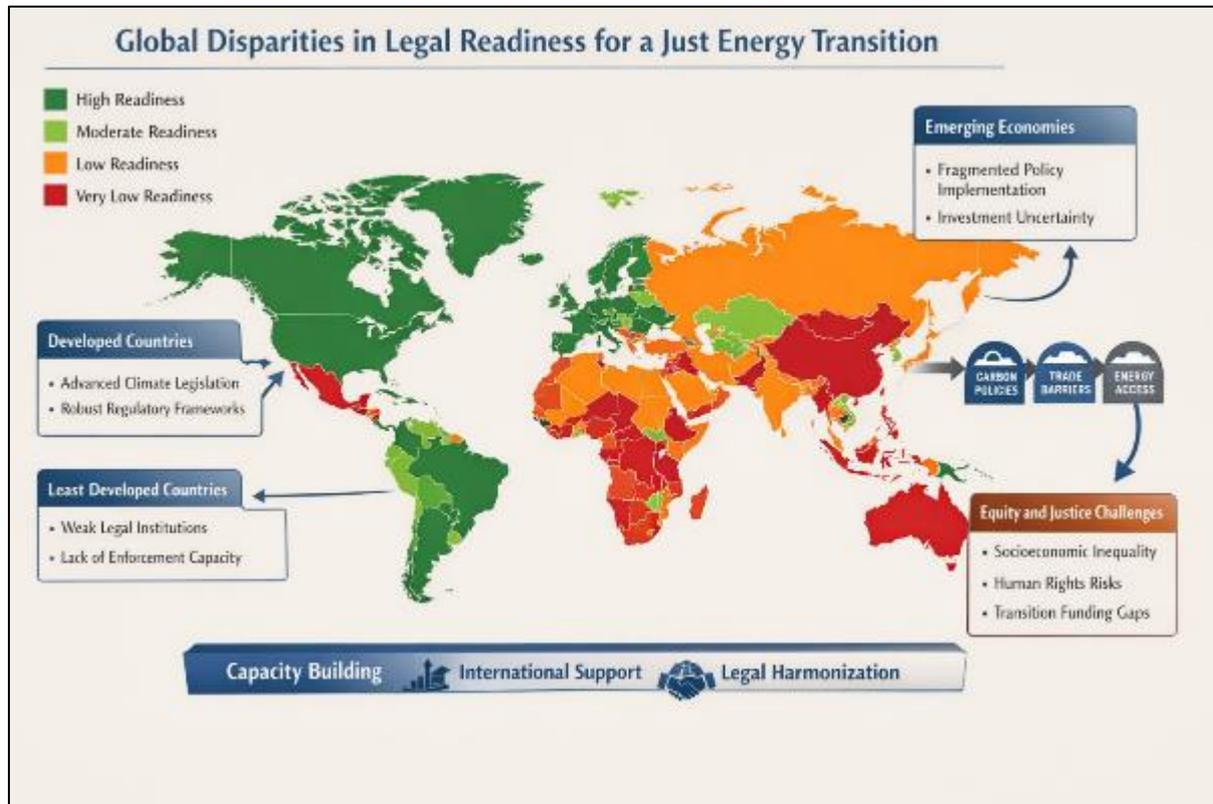
## **6.3. Global Inequality and International Support Mechanisms**

### *6.3.1. Climate finance, technology transfer, and cooperation*

Global inequality significantly shapes the distribution of costs and benefits associated with the energy transition [35]. Low- and middle-income countries often bear disproportionate transition burdens despite having contributed less to historical emissions [36]. Addressing this imbalance requires international legal and financial mechanisms that support equitable transition pathways [37].

Climate finance plays a critical role in enabling fossil fuel phase-out and workforce protection in resource-constrained contexts [38]. International funding mechanisms support renewable energy deployment, social protection programmes, and institutional capacity building. However, gaps remain between pledged and delivered finance, limiting the effectiveness of legal and policy commitments [39].

Technology transfer and knowledge sharing further support inclusive transition governance [40]. Access to low-carbon technologies, skills development, and regulatory expertise enhances domestic capacity to implement energy transition law. International cooperation frameworks facilitate alignment between climate objectives and development needs, reinforcing the legitimacy of global decarbonisation efforts [41]. Strengthening these mechanisms is essential to ensure that energy transition law contributes to both climate mitigation and global social justice.



**Figure 3** Global Disparities in Legal Readiness for a Just Energy Transition

## 7. Legal Challenges, Enforcement Gaps, and Future Directions

### 7.1. Weak Enforceability of just Transition Commitments

Despite growing recognition of just transition as a normative goal, its enforceability within legal systems remains weak [40]. In many jurisdictions, just transition commitments are articulated through policy instruments, strategic plans, or political declarations that lack binding legal force [41]. The absence of enforceable rights, duties, and remedies limits accountability and reduces the ability of affected workers and communities to challenge inadequate implementation. This legal fragility undermines confidence in transition governance and risks eroding public support for decarbonisation efforts [42].

### 7.2. Conflicts Between Climate, Trade, and Investment Law

Conflicts between climate objectives and existing trade and investment law frameworks present additional challenges [43]. Fossil fuel phase-out measures may be contested under international investment agreements or trade rules that prioritise market access and investor protection. Investor-state disputes can constrain regulatory ambition, delay implementation, and impose significant financial burdens on states pursuing climate-aligned policies [44]. These tensions highlight the need for legal coherence across climate, energy, trade, and investment regimes to ensure that decarbonisation measures are not systematically undermined by competing legal obligations [45].

### 7.3. Need for Integrated Energy-Labour Legal Frameworks

Another critical gap lies in the lack of integrated energy-labour legal frameworks [40]. Energy transition laws frequently focus on emissions reduction and infrastructure change, while labour and social protection laws operate separately, addressing employment impacts only after disruption occurs [41]. This siloed approach limits the effectiveness of workforce protection mechanisms and fails to anticipate cumulative socio-economic effects. Integrated legal frameworks that embed labour protections, retraining entitlements, and social dialogue obligations within energy transition legislation can support more proactive and equitable governance [42].

#### 7.4. Future Role of Courts and Regulatory Bodies

Courts and regulatory bodies are likely to play an increasingly significant role in shaping the future of energy transition law [43]. Judicial decisions interpreting climate obligations, labour rights, and administrative duties can strengthen enforcement and clarify state responsibilities. Regulatory authorities, through licensing, compliance monitoring, and enforcement actions, can operationalise just transition principles in practice [44]. As litigation and regulatory oversight expand, legal institutions may become central arenas for resolving conflicts between decarbonisation goals and social protection, reinforcing the rule of law in energy transition governance [45].

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### 8. Conclusion

This paper has examined the emergence of energy transition law as a critical framework for governing fossil fuel phase-out while addressing the social and economic consequences of decarbonisation. It has shown that the legal management of energy transition extends beyond emissions reduction to encompass labour protection, social equity, and regional economic resilience. Fossil fuel phase-out, when embedded in clear and coherent legal instruments, can provide certainty and direction for markets, workers, and public authorities alike.

The analysis highlights the importance of just transition principles as a bridge between climate ambition and social justice. While these principles are increasingly recognised in international and domestic policy, their effectiveness depends on translation into binding legal obligations supported by robust institutions and adequate resources. Workforce protection mechanisms such as income support, retraining, and social dialogue are essential to ensuring that decarbonisation does not exacerbate inequality or social exclusion.

Ultimately, legally grounded just transition frameworks are central to the legitimacy and durability of the global energy transition. Aligning decarbonisation with social justice requires integrated legal approaches that anticipate disruption, protect affected populations, and promote inclusive economic transformation. As states accelerate climate action, the development and enforcement of comprehensive energy transition law will remain vital to achieving a fair, stable, and sustainable low-carbon future.

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