societies

MDPI

Review

Climate Change Is a Class Question: Against the Depoliticization of Green Transition

Enrique-Javier Díez-Gutiérrez [1], José Jesús Trujillo-Vargas [2,*] and José Manuel Corrales-Aznar [3]

[1] Departamento de Didáctica, Universidad de León, 24071 León, Spain; enrique.diez@unileon.es
[2] Facultad de Educación y Humanidades, Universidad Internacional de La Rioja (UNIR), 26006 Logroño, Spain
[3] Facultad de Ciencias Económicas, Empresariales y de la Comunicación, Universidad Europea, Villaviciosa de Odón, 28670 Madrid, Spain; josemanuel.corrales@universidadeuropea.es
* Correspondence: jose.trujillo@unir.net; Tel.: +34-606590264

Abstract

The dominant paradigm of the 'green transition' often frames climate change mitigation as a technocratic, managerial, and market-oriented endeavor. By emphasizing carbon pricing, technological innovation, investment, and individual consumption, some forms of climate governance can obscure the structural distribution of responsibility, vulnerability, ownership, and political power. This review argues that climate change is fundamentally a class question—not because class provides an exhaustive explanation of ecological crisis or political responses but because class relations constitute a major dimension through which responsibility, vulnerability, ownership, labour, resources, and political influence are distributed and contested. Drawing on critical political economy, eco-Marxism, ecological economics, degrowth scholarship, and climate-justice research, we examine five interconnected dimensions: (1) asymmetric responsibilities and vulnerabilities; (2) the political economy and materiality of green capitalism; (3) the distribution of transition costs and benefits; (4) the institutional conditions of a democratic ecological transformation; and (5) the political mediation of climate conflict, including green backlash. We critically engage competing perspectives on green growth, decoupling, market instruments, technological innovation, and compensatory just-transition policies. We conclude that re-politicizing the green transition requires attention to class power, democratic control, redistribution, social protection, participation, and the institutional conditions under which different transition mechanisms operate.

Keywords: climate change; political economy; class power; green capitalism; depoliticization; just transition; far-right populism; eco-socialism; extractivism; democratic planning

Check for updates

Academic Editors: Gabriella Punziano, Oleksandr Dluhopolskyi, Viktor Koziuk and Tetiana Dluhopolska

Received: 24 August 2026
Revised: 4 November 2026
Accepted: 4 November 2026
Published: 17 November 2026

Copyright: © 2026 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.

1. Introduction: The Depoliticization of the Ecological Crisis

Contemporary climate governance combines increasing recognition of the urgency of climate change with a heterogeneous set of policy responses, including regulation, public investment, carbon pricing, technological innovation, industrial policy, market mechanisms, behavioural interventions, and forms of public and private provision [1]. These responses should therefore not be treated as institutionally homogeneous. The critical question developed in this article is narrower: when decarbonization is organized primarily through market rationality, private investment, and technocratic management, to what extent can it address the unequal distribution of responsibility, vulnerability, ownership, labour, and political influence that structures ecological transition?

This article contends that one important tendency within contemporary climate governance is depoliticization: the discursive and institutional process through which conflicts over power, distribution, ownership, and collective priorities are reframed as technical problems of optimization, pricing, expertise, or individual behaviour [2–4]. The argument is not that technical knowledge or market instruments are intrinsically depoliticizing, nor that all climate governance follows the same pattern. Rather, it asks what becomes visible or invisible when distributive and institutional questions are treated primarily as matters of technical implementation.

Against this tendency, the article develops a critical political-economy argument. Its central proposition is that a genuinely just ecological transition cannot be adequately assessed only by aggregate emissions reductions; it must also be examined in relation to ownership, accumulation, wealth, labour, territorial control, social protection, and political participation. From the perspective defended here, leaving these structures substantially unchanged can reproduce important dimensions of inequality even when decarbonization succeeds in reducing emissions. This is an analytical and normative proposition rather than an uncontested empirical conclusion.

To examine this proposition, the article addresses five interconnected dimensions: (1) the class character of the climate crisis; (2) the political economy and materiality of green capitalism, including technological innovation, decoupling, and green extractivism; (3) the distribution of transition costs and benefits; (4) the institutional possibilities and limits of democratic ecological transformation; and (5) the political mediation of climate conflict, including green backlash and far-right mobilization. Throughout, the article distinguishes empirical findings from interpretive synthesis and from the normative implications drawn by the authors.

These concepts are analytically interconnected, but not through a single deterministic sequence. Depoliticization can obscure class power; ownership and accumulation shape transition options; technological and material choices redistribute costs across territories; just-transition institutions can mitigate or reproduce inequalities; and political contestation can alter policy design in return. The framework therefore treats ecological transition as an interactive and institutionally mediated process rather than as a linear progression from ecological crisis to political backlash.

Four concepts provide the analytical backbone of the article. First, depoliticization refers to the transformation of conflicts over power, ownership, distribution, and collective priorities into apparently neutral questions of technical efficiency, individual behaviour, or administrative management. In climate governance, this occurs when political choices about who should reduce emissions, who should pay, and who should control productive assets are reframed as questions of optimal carbon prices, consumer incentives, technological efficiency, or ESG performance [2,4]. Depoliticization does not mean the disappearance of politics; rather, it redistributes political agency by privileging experts, markets, corporations, and administrative institutions over affected publics.

Second, climate change as a class question refers not simply to differences in individual consumption but to the social relations through which production, investment, property, labour, and access to resources are organized. Recent evidence strengthens this perspective. Chancel and Rehm [5–7] show that ownership-based carbon footprints are even more concentrated than conventional consumption-based measures, because wealthy groups disproportionately own carbon-intensive firms and productive assets. Recent attribution research shows that high-income groups have contributed disproportionately to observed warming and climate extremes [5]. The class dimension therefore concerns both unequal responsibility and unequal capacity to protect oneself from climate disruption.

Third, green capitalism denotes an attempt to reconcile decarbonization with the continuation of private accumulation, competitive markets, commodification, and economic growth. The concept does not imply that all private investment in renewable energy is intrinsically incompatible with climate action. Rather, it identifies a structural tension: when decarbonization is subordinated to profitability and accumulation, ecological transformation can reproduce existing inequalities, create new markets for environmental assets, and intensify extraction. Recent political-economy research argues that the disruptive effects of green energy transitions are not incidental but are embedded in changes to ownership, employment, geopolitical relations, supply chains, and everyday life [6].

Fourth, just transition is understood here as a multidimensional political principle rather than a compensatory policy package. A just transition must address distributional justice—who receives benefits and bears costs—together with procedural justice, recognition, corrective justice, and the temporal dimension of transition. Recent work stresses that these dimensions must be considered together, since a policy may redistribute resources while excluding affected communities from decision-making or reproducing historical forms of marginalization [8]. Likewise, household-level research shows that vulnerability to the green transition varies according to income, housing, mobility, geography, and adaptive capacity, making universal or class-blind policy instruments inadequate [9].

2. Methodological Approach: A Critical Integrative Review of the Political Economy of the Green Transition

This article adopts a critical integrative literature review to examine the political-economic foundations of the contemporary green transition and its distributive, territorial, and political consequences. Unlike a conventional systematic review, whose primary purpose is to identify and synthesize empirical evidence according to predefined inclusion and exclusion criteria, an integrative review is particularly appropriate for research questions that require the articulation of different theoretical traditions, empirical literature, and disciplinary perspectives. This approach allows evidence from political economy, ecological economics, political ecology, climate justice, degrowth studies, energy studies, labour research, and scholarship on right-wing populism and environmental politics to be brought into analytical dialogue [6,8–11].

The choice of a critical integrative review is consistent with the central argument of the article: the ecological transition cannot be adequately understood through a single disciplinary or policy framework because its consequences are simultaneously ecological, economic, social, political, territorial, and ideological. Recent research similarly demonstrates the value of integrating literature that has traditionally developed in parallel. For example, reference [12] argues that climate and sustainability-transition research requires greater conceptual integration between sustainability transitions, energy justice, just transition, and climate justice scholarship. Likewise, recent work on transport decarbonization has employed an integrative review to combine empirical research on socio-economic vulnerability, normative theories of climate justice, and evidence concerning public perceptions of policy fairness [13].

The methodological orientation adopted here is therefore critical rather than merely descriptive. The purpose is not simply to catalogue what the literature says about climate change or the green transition, but to identify the assumptions concerning power, property, class, accumulation, labour, territory, technology, and democracy that underpin competing interpretations of ecological transformation. The review consequently treats scientific and policy knowledge as situated within a field of social and political contestation. The integrative-review methodology follows established guidance for synthesizing heterogeneous theoretical and empirical literature [14].

2.1. Scope and Corpus of the Review

The literature examined was organized around seven interconnected fields of scholarship, with the seventh added to ensure systematic engagement with perspectives that do not share the article's critical political-economy premises:

1. Critical political economy of climate change, including research on capitalist accumulation, class relations, carbon inequality, ownership, labour, and the distribution of transition costs.
2. Political ecology and ecological economics, particularly scholarship addressing unequal ecological exchange, metabolic rift, resource frontiers, extractivism, ecological distribution conflicts, and the material limits of economic growth.
3. Eco-Marxist and Marxist ecological approaches, focusing on the relationship between capitalist accumulation, fossil energy, commodification, social reproduction, and ecological crisis.
4. Degrowth and post-growth research, especially scholarship challenging the assumption that continuous GDP growth can be reconciled with ecological stability and examining alternative forms of provisioning, sufficiency, public services, working-time reduction, and democratic planning.
5. Climate justice and just-transition scholarship, including distributive, procedural, recognitional, restorative, and intergenerational dimensions of justice.
6. Research on environmental politics, right-wing populism, and the far right, particularly studies examining climate skepticism, anti-environmental mobilization, green backlash, populist narratives, and the political appropriation of distributive grievances.
7. Research on green growth, decoupling, ecomodernism, technological innovation, market-based climate policy, circular economy, and polycentric or participatory governance, including work that treats market or mixed institutional arrangements as potentially effective under particular conditions.

The review prioritizes peer-reviewed academic literature while incorporating reports from major international institutions when they provide relevant empirical evidence, internationally recognized indicators, or authoritative policy frameworks. The analysis gives particular weight to research published between 2020 and 2026, while retaining earlier foundational works when they are theoretically indispensable to the conceptual framework.

This temporal strategy is important because the academic debate has changed substantially in recent years. Research published in 2025 and 2026 increasingly examines not only whether decarbonization is necessary, but who controls it, who benefits from it, who bears its material costs, and how these distributive conflicts reshape political mobilization. Recent research, for example, examines the disruptive character of green energy transitions from a political-economy perspective [6], the relationship between green transition policies and extractive expansion [15], and the emergence of a political backlash against climate policies [10].

2.2. Search and Selection Strategy

The literature search was conducted up to August 2026 in Scopus, Web of Science Core Collection, and Google Scholar. The literature was identified through searches combining the principal concepts of the study. The search strategy was structured around combinations of the following terms and their equivalents:

- climate change AND class;
- carbon inequality AND wealth;
- climate justice AND class;
- green transition AND political economy;

- green capitalism;
- green extractivism;
- energy transition AND inequality;
- just transition AND labour;
- just transition AND political economy;
- degrowth AND climate change;
- post-growth AND ecological transition;
- climate policy AND right-wing populism;
- far right AND climate change;
- green backlash;
- climate skepticism AND populism.

The search process was complemented by backward and forward citation tracking, particularly for highly cited theoretical works and recent studies directly relevant to the central analytical categories. This procedure was important because concepts such as green capitalism, green extractivism, just transition, and climate backlash are used across different disciplinary literature and are not always indexed using identical terminology.

The inclusion of recent studies was not merely chronological. Priority was given to publications that made an explicit contribution to at least one of the article's central analytical questions: responsibility for emissions, unequal vulnerability, ownership and control, distribution of transition costs, extractive infrastructures, labour relations, democratic participation, or political mobilization.

Studies were excluded when they dealt exclusively with technological performance or engineering efficiency without addressing any social, economic, political, distributive, or institutional dimension relevant to the research questions. Purely behavioural studies were likewise not treated as sufficient when they reduced climate responsibility to individual consumption without considering structural conditions. However, studies from competing perspectives were retained when they addressed mechanisms relevant to the review, even when their theoretical premises differed from those of the authors. In particular, the review considered research on green growth, decoupling, ecomodernism, carbon pricing, technological innovation, circularity, compensatory just-transition policies, and polycentric governance. The purpose was not to establish artificial symmetry but to identify the conditions, mechanisms, limitations, and distributional consequences through which different approaches claim to contribute to ecological transition.

2.3. Analytical Framework and Coding Procedure

The selected literature was subjected to a thematic and conceptual analysis organized around five analytical questions:

(1) Responsibility: Who produces the largest quantities of emissions and ecological damage, and how is responsibility attributed?
(2) Vulnerability: Who is most exposed to climate impacts and to the economic and social costs associated with decarbonization?
(3) Ownership and control: Who owns and controls the infrastructures, technologies, energy systems, financial resources, and productive assets involved in the transition?
(4) Distribution: How are the benefits and costs of ecological transformation distributed between social classes, territories, generations, and the Global North and Global South?
(5) Political mediation: How are these conflicts represented, depoliticized, contested, or politically mobilized, including by right-wing populist and far-right actors?

These questions generated a thematic coding framework comprising seven principal analytical categories (Table 1). The categories were applied across the reviewed literature

and subsequently used to structure the synthesis in Sections 4–8. Particular attention was paid to convergence, tension, and disconfirming evidence within each category:

Table 1. Analytical categories.

Analytical Category	Main Dimensions Examined
Class and inequality	income, wealth, ownership, emissions, vulnerability
Accumulation	growth, profitability, commodification, financialization
Labour	employment, working conditions, industrial conversion, unions
Territory and extraction	critical minerals, land, sacrifice zones, Global South
Governance	markets, state intervention, public ownership, planning
Justice	distributive, procedural, recognitional, restorative and intergenerational justice
Political mobilization	green backlash, populism, climate skepticism, far-right discourse

Source: own work.

This coding framework makes it possible to connect literature that frequently remains separated and provides a traceable route from the review process to the analytical sections. For example, research on critical minerals may focus on extraction, while climate-policy research may focus on emissions, prices, or household effects. Coding both through territory and extraction, governance, labour, and justice makes their interaction visible. The framework was also applied to evidence that complicates the critical interpretation, including work identifying potential benefits from technological innovation, market incentives, public investment, or compensatory policies under particular institutional conditions.

This is particularly relevant to the recent literature on green extractivism. Research published in 2025 and 2026 shows that the transition toward net-zero technologies can simultaneously expand mining, reinforce extractive relations, and generate new conflicts over justice and territorial control [15–22].

2.4. Competing Perspectives and Disconfirming Evidence

Because this is a critical integrative review rather than a meta-analysis, selection and interpretation necessarily involve theoretical judgment. To reduce confirmation bias, the review explicitly considered literature representing competing approaches to ecological transition, including green growth, decoupling, ecomodernism, market-based climate policy, technological innovation, circular economy, compensatory just-transition policies, and polycentric or participatory governance.

These perspectives were not incorporated merely to produce symmetry with the critical literature. They were examined for the mechanisms they identify, the empirical conditions under which they may operate, the benefits they claim to provide, and the limitations or distributional consequences identified in the literature. Evidence that complicates or qualifies the article's interpretation was retained where it directly bears on the analytical questions.

The comparison of competing approaches is conducted from an explicitly stated critical political-economy standpoint. It does not seek to reconcile their underlying theories of property, coordination, justice, or democracy. Instead, it examines whether particular arguments challenge the article's interpretation and which institutional questions remain unresolved. The review therefore distinguishes engagement with an objection from endorsement of the theoretical framework from which that objection originates.

Instead, it asks which institutional combinations are capable of addressing particular ecological and distributive problems while minimizing failures of information, incentives, coordination, accountability, and political capture.

2.5. Primary Analytical Framework and Engagement with Other Perspectives

Critical political economy provides the primary analytical framework of this review. Its central categories are ownership, accumulation, class power, labour, and the distribution of economic and ecological costs. Political ecology contributes an analysis of territorial conflict, dispossession, and unequal access to resources. Climate-justice scholarship informs the explicit normative criteria used to evaluate transition strategies: ecological sustainability, substantive equality, recognition, and democratic accountability.

Within this framework, eco-Marxist and degrowth perspectives make distinct contributions. Eco-Marxist approaches direct attention to the relations between capitalist production, accumulation, and ecological degradation. Degrowth scholarship questions the dependence of provisioning and social welfare on continued aggregate economic expansion and examines sufficiency and alternative forms of provisioning [20,23]. These contributions are not treated as interchangeable: a critique of capitalist social relations does not, by itself, determine a position on aggregate growth, while criticism of growth does not necessarily entail a Marxian account of class or property. Their relationship is considered here in relation to specific questions of resource use, ownership, and provisioning, rather than assumed to constitute a unified theory.

Research on green growth, market-based instruments, and institutional diversity is considered as a source of competing explanations and objections. Such engagement does not give these perspectives the same foundational role as critical political economy. Research on right-wing populism and the far right contributes to the analysis of how distributive grievances interact with identity, institutional trust, territorial conflict, party competition, and political communication [10].

2.6. From Synthesis to Argument

The synthesis uses the analytical categories specified above to interpret the reviewed evidence while identifying disagreements that affect the argument. Agreement on the urgency of decarbonization does not imply agreement on property rights, distributive justice, economic growth, or democratic authority. Where competing perspectives raise relevant objections, these are treated as challenges to the scope or feasibility of the article's proposals, rather than as components of a reconciled theoretical framework.

The final analytical stage consists of a critical synthesis rather than a statistical aggregation of findings. The purpose is to identify recurrent relationships across different literature while preserving theoretical disagreement and institutional variation. Four relationships are especially important, but they are treated as interacting mechanisms rather than as a predetermined causal chain.

Four relationships are particularly important.

- First, carbon inequality is strongly associated with differences in income, wealth, consumption, and ownership; the precise mechanisms and magnitude vary across contexts.
- Second, the material infrastructure of decarbonization can reproduce extractive relations when demand for minerals, land, infrastructure, and investment expands without adequate attention to territorial justice, ownership, labour conditions, and environmental safeguards.

- Third, the distribution of transition costs can generate political resistance, particularly where households face visible costs without adequate compensation, public alternatives, or procedural voice.
- Fourth, distributive and institutional conflicts can create political opportunities for competing coalitions, including reactionary forces, but their political effects are mediated by institutions, identities, party competition, territorial dynamics, and political communication.

The analytical model is therefore interactive: ecological pressures, class relations, ownership structures, technological choices, state and market institutions, labour relations, territorial inequalities, and political coalitions interact dynamically. Transition policies redistribute costs and benefits; these distributional effects can reshape political coalitions; political responses can in turn alter policy design, investment, ownership, and technological trajectories.

Rather than proposing a deterministic causal sequence, the framework identifies a set of potentially interacting mechanisms through which ecological restructuring can reproduce or transform existing inequalities. These mechanisms are neither necessarily sequential nor universally present. Their configuration depends on institutional arrangements, policy design, territorial conditions, ownership structures, labour relations, and political mediation.

This interactive model provides the conceptual bridge between the sections that follow. The central proposition is that ecological effectiveness and political legitimacy depend not only on aggregate emissions reductions, but also on how institutional arrangements distribute costs and benefits, organize ownership and labour, govern material infrastructures, and enable democratic participation. The article does not assume that any single institutional mechanism provides a universally superior solution.

The central thesis we maintain is that climate change is a class issue—not because class offers an exhaustive explanation of the ecological crisis or the political responses to it but because class relations structure the distribution of responsibility, vulnerability, ownership, labor, resources, and political influence through which ecological transformation is organized and contested.

2.7. Limitations of the Methodological Approach

Several limitations should be acknowledged. First, this is not a systematic review in the PRISMA sense, nor does it claim exhaustive retrieval of all publications on climate change, class, or the green transition. Its purpose is theoretical integration and critical synthesis. The interpretive character of the review means that the choice of analytical categories and the weighting of literature cannot be considered theory-neutral.

Second, the heterogeneous nature of the literature makes direct comparison between studies difficult. The reviewed scholarship includes quantitative assessments of carbon inequality, qualitative political-economy analyses, political discourse studies, conceptual contributions, and policy evaluations. Rather than treating these forms of evidence as interchangeable, the analysis uses them for different analytical purposes.

Third, the critical orientation of the review necessarily involves a normative dimension. The review evaluates ecological-transition strategies in terms of social justice, democratic participation, ecological sustainability, and the distribution of power. The review also has a theoretical boundary: it does not undertake a comprehensive comparison or reconciliation of Marxian, Hayekian, and Ostromian approaches to political economy. The discussion of knowledge and collective action identifies challenges to the institutional proposals advanced here but does not demonstrate that those challenges have been resolved. The normative case for democratic ecological transformation should therefore be distinguished from an empirical demonstration of the feasibility or superiority of a particular institutional design.

Finally, the rapid development of research on green extractivism, climate backlash, critical minerals, and just transition means that the literature is evolving rapidly. The incorporation of recent studies from 2025 and 2026 is therefore essential, but the conclusions should be understood as part of an ongoing scholarly debate rather than as a definitive closure of these questions. Recent work on extractivism, for example, increasingly emphasizes the interaction between material infrastructures, political economies, and ideological narratives rather than treating extraction simply as a technical input to decarbonization.

3. Conceptual Framework: Depoliticization, Class, Green Capitalism and Just Transition

The conceptual framework is grounded in critical political economy, with particular attention to how ownership, accumulation, and class power organize ecological responsibility and the distribution of transition costs. Political ecology, eco-Marxist scholarship, and selected contributions from degrowth and climate-justice research develop specific dimensions of this analysis. The article does not propose a synthesis of Marxian political economy, Hayekian market coordination, and Ostromian institutional analysis. Its engagement with the latter two perspectives is limited to examining challenges concerning knowledge and collective action that any proposal for democratic ecological transformation must confront.

The starting point is that anthropogenic climate change is not produced or experienced uniformly. Historically specific systems of production, energy use, consumption, investment, and accumulation distribute responsibility, exposure, and capacity to respond unevenly. The concept of the Anthropocene has generated important debate, but a class-sensitive analysis asks which social groups, institutions, ownership structures, and territories have contributed most to emissions and which possess greater capacity to respond [24–26]. This does not require treating class as the only relevant axis: gender, race, colonial relations, geography, occupation, citizenship, and institutional position can intersect with class and modify these patterns.

At the same time, the transition away from fossil fuels cannot be considered politically neutral. The infrastructures, technologies, markets, minerals, labour processes, and institutions required for decarbonization are themselves embedded in particular relations of ownership and accumulation. The central theoretical question is therefore not simply whether economies can decarbonize, but under what social relations decarbonization takes place and whose interests those relations serve.

3.1. The Depoliticization of the Ecological Crisis

The concept of depoliticization is central to the argument developed here. It refers to the transformation of political conflicts concerning power, distribution, ownership, and collective priorities into apparently neutral problems of technical management, economic efficiency, individual behaviour, or expert administration.

Climate governance frequently operates through this mechanism. Carbon emissions are converted into measurable units; environmental damage becomes a question of pricing; citizens are transformed into consumers who are expected to make "greener" choices; and complex conflicts concerning production, infrastructure, property, and distribution are reframed as problems that can supposedly be solved through technological innovation, carbon markets, taxation, or behavioural incentives.

This does not mean that politics disappears. Rather, political agency is redistributed. Decisions that could be subjected to democratic contestation are transferred to markets, experts, financial institutions, corporations, and technocratic agencies. The result is a narrowing of the political field in which alternative forms of ecological transformation become more difficult to articulate [2,4].

Depoliticization is particularly significant because climate change necessarily involves distributive choices. Every transition policy implicitly answers questions such as: Who must reduce consumption? Who pays for decarbonization? Which industries are protected or transformed? Who owns renewable-energy infrastructures? Who controls critical minerals? Who receives subsidies? Which territories become extraction zones? And which forms of consumption are considered socially necessary?

These are not technical questions. They are political questions concerning distribution and power.

The dominant discourse of green transition can nevertheless obscure these conflicts by presenting decarbonization as a universal interest whose implementation is primarily a matter of technical optimization. The language of efficiency, innovation, competitiveness, neutrality, and "consumer choice" can thereby conceal the social relations underlying climate policy.

This is one of the central contradictions of contemporary climate governance: while the ecological crisis is increasingly recognized as existential, the political-economic structures responsible for producing and distributing environmental risks frequently remain outside the scope of the debate.

3.2. Climate Change as a Class Question

The second pillar of the conceptual framework is the proposition that climate change is fundamentally a class question.

This proposition should not be reduced to the observation that poorer people have smaller carbon footprints than richer people. Its meaning is structural: class relations constitute a major dimension through which responsibility for emissions, access to resources, vulnerability to climate impacts, adaptive capacity, and political influence are distributed. Class is therefore treated as a central analytical dimension rather than as an exhaustive explanation of climate politics.

The literature on carbon inequality has demonstrated substantial disparities in emissions between income groups. High-income households consume more energy-intensive goods and services, travel more, occupy larger homes, and possess greater access to carbon-intensive forms of mobility. However, focusing exclusively on consumption can underestimate the structural role of wealth and ownership.

Recent research strengthens this argument by examining ownership-based carbon footprints. Chancel and Rehm [7] demonstrate that global carbon inequalities become substantially more pronounced when emissions associated with ownership of productive assets and investments are considered. This is theoretically important because it shifts the focus from the individual consumer to the owner of capital and productive capacity.

Consequently, the relevant distinction is not simply between "high-carbon" and "low-carbon" individuals. It is between different positions within the structures through which production and accumulation are organized.

The class dimension also concerns vulnerability. Working-class households and precarious populations often have fewer resources with which to adapt to rising temperatures, energy-price increases, housing insecurity, transport costs, or employment disruption. They are also more dependent on infrastructures and public services over which they exercise little individual control.

This creates a fundamental asymmetry. Those with the greatest responsibility for emissions often possess the greatest capacity to protect themselves from climate impacts, while those with comparatively smaller carbon footprints may face disproportionate exposure to environmental and economic risks.

Recent research further reinforces the connection between income and responsibility. Reference [5] shows that high-income groups have contributed disproportionately to observed climate extremes, adding an important dimension to the literature on carbon inequality. The issue, therefore, is not simply that wealthier groups currently emit more; their historical and structural contribution to climate disruption is also disproportionately large.

Climate change should consequently be understood through the intersection of emissions, wealth, property, labour, and vulnerability.

3.3. Green Capitalism and the Contradictions of Decarbonization

The third concept is green capitalism. The term refers here to institutional arrangements that seek to reconcile ecological transition with continued capitalist accumulation, private ownership, market competition, commodification, and economic growth. It does not imply that all private actors share identical intentions or that private investment, competition, and technological innovation are intrinsically incompatible with climate mitigation. The analytical question is whether and under what regulatory, distributive, and institutional conditions these mechanisms can contribute to decarbonization while also addressing inequality, ecological limits, and democratic control.

This does not imply that renewable technologies, energy efficiency, electrification, or private investment are intrinsically incompatible with climate mitigation. The issue is structural: when decarbonization is subordinated to the imperatives of profitability and accumulation, ecological transformation can reproduce rather than overcome existing social inequalities.

The central contradiction can be formulated as follows: The capitalist economy must continuously expand accumulation, while ecological stability requires reductions in material and energy throughput in many high-consumption sectors.

The concept of green growth attempts to resolve this contradiction by arguing that economic growth can be sufficiently decoupled from environmental degradation through technological innovation, efficiency improvements, renewable energy, and market mechanisms [27–31].

However, the empirical and theoretical literature remains contested. Some high-income countries have achieved periods of absolute decoupling of GDP and consumption-based CO_2 emissions, although recent evidence finds that the rates achieved have generally fallen short of those required for Paris-compatible pathways [31]. Degrowth and post-growth scholarship therefore challenges the assumption that GDP growth should remain the central objective of economic policy [23].

Recent research has added another dimension to this debate by emphasizing the disruptive character of green energy transitions. Reference [6] argues that energy transitions transform existing political-economic arrangements, affecting ownership, labour, supply chains, geopolitical relations, and everyday life. The transition is therefore not simply a technological substitution of fossil fuels by renewable energy; it is a reorganization of infrastructures and economic power.

This distinction is crucial. A transition may reduce carbon emissions while simultaneously expanding commodification, financialization, labour precarization, or private control over essential infrastructures.

The question is consequently not whether capitalism can become "greener", but what social and political relations are reproduced through the process of making capitalism greener.

The same conditional approach applies to market instruments. Carbon pricing, emissions trading, public–private investment, and other incentives can contribute to emissions

reductions where they are well designed, monitored, and embedded in broader regulatory and social-policy frameworks. At the same time, their distributional effects, volatility, coverage, additionality, administrative capacity, and potential for rent-seeking or symbolic compliance require evaluation. The relevant question is consequently not "markets or planning" in the abstract, but which institutional combination is appropriate to the ecological and distributive problem at hand.

Technological innovation can reduce emissions and material intensity, but its aggregate effects depend on deployment speed, rebound effects, infrastructure, energy sources, material requirements, regulation, and access. Circular economy and recycling can reduce primary material demand in some sectors, but they do not eliminate material and energy requirements or guarantee absolute reductions in throughput. The article therefore treats technology and innovation as necessary components of transition in many sectors, while rejecting the assumption that technology alone resolves distributive, ownership, territorial, and political conflicts.

The critical issue is therefore not whether any decoupling occurs, but its type, scale, speed, durability, and distribution. Relative decoupling is analytically different from absolute decoupling; territorial reductions differ from reductions in consumption-based footprints; and short-term improvements differ from sustained reductions compatible with ecological limits. Existing evidence reviewed here raises serious questions about whether global, absolute, and sufficiently rapid decoupling can be assumed as a general consequence of continued economic growth [27,28,32].

Green growth and decoupling constitute important alternatives to the political-economy interpretation advanced here. Green-growth approaches argue that economic activity can increasingly be separated from greenhouse-gas emissions and resource pressures through renewable energy, efficiency, innovation, electrification, circularity, and appropriate policy incentives [27,28,32]. These approaches should not be dismissed as merely ideological: technological substitution and efficiency improvements can produce real environmental gains, and market or mixed instruments can alter investment incentives under particular institutional conditions.

3.4. Green Extractivism: The Material Foundations of the Green Transition

The concept of green extractivism extends the previous argument by drawing attention to the material foundations of decarbonization.

Electric vehicles, batteries, renewable-energy infrastructures, digital grids, wind turbines, solar panels, and energy-storage technologies require substantial quantities of minerals and other natural resources. The transition therefore does not eliminate the material metabolism of industrial society. Instead, it can reorganize it geographically and technologically [16,17,21,22].

This creates a potential contradiction: a transition presented as a move away from ecological destruction may simultaneously intensify extraction in particular territories.

Research published in 2025 and 2026 has increasingly examined this contradiction. Reference [21], for example, analyzes the transformation of Chilean mining in response to global demand associated with the energy transition. Reference [22] similarly examines the metals required for a European just energy transition and the contradictions involved in relying on expanded mineral extraction.

The concept of green extractivism therefore highlights the geography of transition costs. The ecological and social costs of decarbonization may be displaced from affluent consumption centres toward territories in which minerals, land, water, and labour can be incorporated into global production chains under unequal conditions [15–19,21,22]. This does not imply that all mineral extraction associated with decarbonization has the same

social or ecological effects; outcomes depend on governance, labour standards, territorial rights, technology, recycling, substitution, demand management, and the distribution of benefits.

This brings the analysis into dialogue with political ecology and theories of unequal ecological exchange. The relevant question becomes not merely how much carbon is reduced but where the material costs of that reduction are located and who bears them.

Green extractivism thus complicates simplistic narratives of a universal transition in which "society" collectively moves toward sustainability. There is no single ecological transition experienced in the same way everywhere. There are multiple transitions, differentiated by class, territory, race, gender, labour position, and geopolitical location [8,9,11,15].

3.5. Just Transition: Beyond Compensation

The fourth major concept is just transition.

Originally developed within labour and environmental movements, the concept sought to ensure that workers and communities affected by environmental restructuring would not be forced to bear its costs. It subsequently became institutionalized within international organizations, governments, and climate-policy frameworks.

This institutionalization has expanded the visibility of social justice within climate governance, but it has also generated a potential narrowing of the concept. "Just transition" can become synonymous with compensation, retraining, temporary subsidies, or measures designed to make existing decarbonization policies politically acceptable.

Such measures may be necessary and can be important components of a just transition. The critical question is whether compensation is combined with meaningful participation, social protection, labour rights, public alternatives, and opportunities for affected workers and communities to influence transition pathways. Compensation and structural transformation should therefore not be treated as mutually exclusive categories.

A more substantive conception of just transition must incorporate at least five dimensions of justice:

1. Distributive justice—who receives the benefits and who bears the costs of transition.
2. Procedural justice—who participates in decisions concerning transition pathways.
3. Recognitional justice—whose identities, knowledge, histories, and needs are recognized.
4. Restorative or corrective justice—how historical ecological and social harms are addressed.
5. Intergenerational and transitional justice—how the burdens and benefits of transformation are distributed over time.

Recent scholarship strongly supports this multidimensional understanding [8] argue that the success of the green transition depends on its ability to incorporate multiple dimensions of justice rather than reducing justice to distributive compensation [11] while also demonstrating that the incorporation of just-transition principles into climate legislation can range from meaningful governance to more performative forms of institutionalization.

The concept should therefore not be reduced either to making green policies socially acceptable or to a single institutional model. A substantive just transition asks whether affected workers and communities receive adequate protection and acquire meaningful capacity to influence the direction of economic transformation. Procedural participation is consequently part of the analytical framework rather than an optional addition.

3.6. The Political Contestation of the Green Transition

The final element of the framework concerns the relationship between ecological transition and political mobilization.

Climate policy creates distributive conflicts because it changes prices, employment structures, infrastructures, land use, taxation, consumption patterns, and investment pri-

orities. These conflicts can be addressed through democratic redistribution and public provision, but they can also be politically appropriated by reactionary forces [8,11,13,33–37].

Recent research identifies an emerging green backlash associated with right-wing populism [10], showing that opposition to climate policies can provide political opportunities for right-wing populist actors, particularly when policies are perceived as imposing unequal economic burdens.

This dynamic is particularly important because far-right actors can combine genuine social grievances with anti-environmental narratives. Rather than simply denying climate change, contemporary reactionary politics can frame ecological policies as evidence of elite domination, excessive taxation, bureaucratic control, attacks on national sovereignty, or threats to ordinary people's livelihoods.

The political problem is therefore not simply "climate denial". It is the political mediation of material grievances generated by unequal transition policies.

This distinction is crucial to the argument developed in the following sections. If ecological transition is implemented through regressive taxation, market-based mechanisms, privatized infrastructures, and insufficient public alternatives, the resulting social discontent can be redirected against environmentalism itself.

Conversely, if climate policy is associated with public services, lower energy costs, decent employment, housing, public transport, democratic ownership, and redistribution, ecological transformation can become materially connected to improvements in everyday life.

The political struggle over climate change is consequently also a struggle over the social meaning of ecological transition.

3.7. An Integrated Analytical Model

The concepts developed above should be understood as interconnected dimensions of a common analytical framework rather than as independent variables. Depoliticization, class relations, ownership and accumulation, extractive dynamics, justice claims, and political mobilization interact through institutional arrangements that shape both the distribution of transition costs and benefits and the possibilities for democratic participation. Accordingly, the article adopts an interactive analytical framework in which ecological pressures, socioeconomic inequalities, ownership structures, infrastructures, institutions, and political coalitions mutually influence one another. This framework underpins the central argument of the article: decarbonization alone is insufficient to characterize a transition as socially transformative; its democratic and distributive character depends on how power, resources, participation, and social protections are organized throughout the transition process.

4. Class, Responsibility and Vulnerability

Some accounts of the Anthropocene emphasize humanity as a collective driver of planetary change. A class-sensitive political-economy analysis adds that greenhouse-gas emissions are generated through highly differentiated systems of production, investment, consumption, and ownership [24,38]. The purpose is not to reject the Anthropocene as a concept, but to specify which social groups, institutions, and economic structures have contributed most to ecological disruption and which possess greater capacity to respond.

4.1. Wealth Concentration and the Luxury Emissions of the High-Carbon Elite

Empirical studies on global carbon inequality reveal substantial disparities in emission profiles. Chancel estimates [39] that the richest 10% of the global population accounted for 48% of global emissions in 2019, while the bottom 50% accounted for 12%; earlier estimates likewise documented pronounced global carbon inequality [40]. Oxfam [41] reports that

the richest 1% were responsible for 16% of global emissions in 2019—roughly equivalent to the emissions of the poorest 66% of humanity. These figures refer to different population groups and should therefore not be conflated.

These disparities are even more striking when analyzing consumption patterns vs. asset ownership. High-income individuals emit astronomical volumes of carbon through hyper-luxurious lifestyle consumption, including private aviation, superyachts, multiple luxury residences, and hyper-frequent long-haul travel [42]. However, as [43] notes in his analysis of 'polluter elites', the most decisive carbon footprint of the capitalist class stems not from their direct personal consumption, but from their investment portfolios. By holding controlling stakes in fossil fuel corporations, petrochemical industries, industrial agriculture, and commercial aviation, the top 1% exercises structural ownership power over carbon-intensive production networks. Thus, carbon emissions are fundamentally embedded in capital ownership.

4.2. Capitalist Accumulation, Imperial Drainage, and Asymmetric Vulnerability

The class character of climate change is equally evident in the geographic and social distribution of climate impacts. In line with theories of unequal ecological exchange [44,45], the Global North and domestic ruling classes have accumulated unprecedented financial wealth by appropriating biophysical resources and atmospheric sink capacity from the Global South and subordinate classes. Yet, the material consequences of climate breakdown—extreme thermal stress, rising sea levels, crop failures, and severe weather events—fall disproportionately on those who contributed least to cumulative historical emissions.

Within national borders, climate vulnerability is strictly conditioned by class position. Working-class communities, precarious workers, and racialized minorities lack the financial resources to adapt to thermal extremes, purchase air conditioning, retrofit substandard housing, or relocate from high-risk floodplains [46]. When extreme weather events strike, working-class households face irreversible asset loss and income destruction, while wealthy elites utilize private insurance, fortified real estate, and financial liquidity to insulate themselves from planetary disruption. Climate change is thus an amplifier of pre-existing class inequalities.

5. Competing Models of Green Transition

A defining feature of mainstream green-growth policy is the attempt to combine economic growth with environmental improvement through market mechanisms, technological innovation, and private investment [29,30,47]. These policy frameworks seek to reduce the environmental intensity of economic activity without necessarily transforming underlying ownership structures or patterns of consumption. Whether and to what extent such strategies can deliver sufficiently rapid and equitable decarbonization remains an empirical and political question [27,28,31].

5.1. The Myth of Absolute Decoupling and Market-Based Solutions

A central pillar of green-growth approaches is the possibility of absolute decoupling—GDP growth alongside declining aggregate material or carbon throughput. Empirical research documents absolute decoupling in some countries and periods, but other studies find that global or sustained decoupling at the scale and speed required for climate stabilization remains insufficient [27,28,31,32]. The evidence therefore supports a conditional rather than categorical assessment of decoupling: outcomes vary by indicator, geography, time period, consumption versus territorial accounting, and policy context.

Furthermore, market-based climate instruments such as carbon pricing and emissions trading can produce measurable emissions reductions under some policy designs and

contexts, while their distributional effects and broader political-economic consequences remain contested [48–51]. Carbon trading can also transform atmospheric sink functions into tradable commodities and financial assets [52], raising concerns about commodification, offset quality, and distributional effects [48,49]. These market mechanisms therefore require assessment not only in terms of aggregate mitigation but also in terms of policy design, revenue recycling, and social incidence [51].

5.2. Green Extractivism and the Re-Colonization of the Global South

The technological pathways associated with decarbonization—including electrification, renewable energy, storage, and digital grids—require substantial quantities of critical materials [16,17]. This creates material and territorial challenges that cannot be solved by emissions accounting alone. It does not follow that renewable technologies are inherently extractivist or that all mining associated with the transition has identical consequences; rather, the transition requires governance of extraction, labour, land, water, recycling, substitution, and demand.

Recent research reinforces this critique. Studies of Chile identify a new phase of green extractivism in which mineral expansion is justified by global demand for decarbonization technologies [21], while European scenarios reveal the substantial metal requirements and geopolitical risks embedded in renewable-energy expansion [22].

In regions such as the 'Lithium Triangle' of South America (Argentina, Bolivia, Chile) or cobalt mining zones in the Democratic Republic of Congo, the green transition manifests as ecological destruction, water depletion, displacement of Indigenous communities, and violent labor exploitation [18,19]. The decarbonization of core capitalist economies is thus predicated on the continued sacrifice of peripheral labor and territories. This dynamic reinforces capital accumulation by creating lucrative new investment frontiers for transnational corporations while reproducing imperial global class hierarchies.

6. Distributional Effects and Transition Costs

A recurrent concern in the literature is that some decarbonization strategies rely heavily on pricing mechanisms, carbon taxes, subsidy reform, and consumer-facing incentives. Such instruments can be environmentally effective, but their social effects depend on policy design, income distribution, availability of alternatives, and compensation. Where lower-income households face proportionally higher costs and lack affordable alternatives, climate policy can become regressive [53,54].

6.1. Regressive Taxation and Energy Poverty

Because lower-income households tend to devote a larger share of disposable income to basic necessities such as residential heating, electricity, food, and commuting, carbon pricing and other consumption-related climate policies can be regressive when they are poorly designed or insufficiently compensated [51,54]. The distributional effects are not uniform, however: they depend on consumption patterns, income sources, health effects, and—crucially—how carbon-pricing revenues are recycled through transfers or public provision.

For example, consider an illustrative suburban or rural worker living in a poorly insulated home with no access to public transit. Such a household may have limited practical ability to respond to higher carbon prices by purchasing a $40,000 electric vehicle or installing a geothermal heat pump. In the absence of accessible public alternatives or targeted compensation, market incentives can therefore impose higher adjustment costs on households facing structural constraints [51].

6.2. Neoliberal State Strategy: Protecting Capital, Punishing Labor

This asymmetric distribution of decarbonization costs illustrates a broader institutional problem: public policy can socialize some transition risks while allowing benefits from investment, infrastructure, or innovation to be distributed unevenly [55,56]. The relevant empirical question is how particular policy designs distribute costs and benefits, rather than whether all public support for private investment should be understood as privatization or capture.

The Gilets Jaunes mobilization in France illustrates how climate-related taxation can become embedded in broader distributive conflicts [57]. The episode should not be reduced to a single causal mechanism: fuel taxation interacted with perceptions of inequality, taxation, representation, territorial distance, and distrust. Its relevance here is that climate policies can become politically contested when material costs are visible, alternatives are limited, and citizens perceive the distribution of burdens as unfair.

7. From 'Just Transition' Rhetoric to Democratic Ecological Transformation

Recent scholarship also warns against treating just transition as a purely compensatory category. Reference [11], comparing climate framework laws in Ireland, Scotland, and Spain, distinguishes between meaningful governance and performative legal incorporation. Reference [8] argues that green-transition justice requires distributional, procedural, recognitional, corrective, and transitional dimensions to be considered together.

In response to growing social resistance, mainstream institutions such as the International Labour Organization (ILO), the European Union, and trade union federations have increasingly incorporated the concept of 'Just Transition' into their policy vocabulary [33,34]. Originating in the labor movements of the 1970s and 1980s under the leadership of unionists like Tony Mazzocchi, the concept was initially designed as a radical demand to ensure that workers in polluting industries were not sacrificed in environmental protection efforts [35].

7.1. The Co-Optation of 'Just Transition'

In contemporary institutional usage, "Just Transition" can become narrowly focused on compensation, retraining, severance, or regional development. Such measures can be valuable, particularly for workers and communities facing immediate disruption, but they need not exhaust the concept. A broader conception combines compensation and social protection with participation, labour rights, public investment, and institutional capacity to influence transition pathways [36,37].

7.2. Pillars of Democratic Ecological Transformation

The article proposes Democratic Ecological Transformation as a normative orientation grounded in the preceding analysis of class power and ecological inequality [58,59]. Its purpose is to reduce the dependence of essential provisioning on purchasing power, expand democratic authority over investment and production, and distribute the costs of decarbonization according to responsibility and capacity. These commitments establish the criteria against which institutional proposals are assessed; they do not establish that public ownership or planning will automatically achieve them. Four pillars are proposed, each requiring specific institutional safeguards and further evaluation.

1. De-commodification and Public Provisioning: Essential services—including energy, water, public transportation, housing, and healthcare—can be organized through universal public provision or other non-market forms in order to reduce the extent to which access to basic needs depends on purchasing power [60]. Such provision can lower barriers to low-carbon living, but its effectiveness depends on fiscal capacity, service quality, institutional accountability, and democratic governance.

2. Public Ownership and Democratic Control of the Energy Sector: Energy-democracy research emphasizes community and public control, distributed governance, and the redistribution of power in renewable-energy transitions [61]. In this article, nationalization or municipalization is therefore treated as one possible institutional pathway rather than as an empirically universal prerequisite. The broader proposition is that energy infrastructures should be subject to democratic accountability and oriented toward public needs rather than solely toward shareholder returns [62,63].

3. Redistribution of Wealth and Working-Time Reduction: Progressive redistribution and social protection can reduce the regressive effects of transition policies [64]. Working-time reduction is proposed in degrowth scholarship as one possible mechanism for sharing productivity gains, reducing time pressure, and expanding non-market time [23,65]. Its effects are conditional on wages, productivity, employment, social protection, and the distribution of income and time; it should therefore be treated as a policy option requiring institutional design rather than as an automatic ecological outcome.

4. Democratic Planning and Industrial Conversion: Rather than relying exclusively on market signals, industrial conversion can incorporate collective worker participation and democratic planning [59]. Workers in carbon-intensive manufacturing, defence, and extraction possess situated technical knowledge relevant to industrial conversion [59]. The proposal is to give this knowledge an institutional role in investment and production decisions, alongside scientific expertise and the knowledge of affected communities; however, such knowledge is dispersed [61] and must be combined with institutional mechanisms for coordination, experimentation, and learning [62,63].

7.3. The Knowledge Problem as a Challenge to Democratic Planning

Hayek's account of dispersed knowledge presents a substantive challenge to proposals for economic planning [61]. His argument is not simply that public authorities lack sufficient data. It concerns the use of changing, context-specific knowledge distributed among actors and the role of prices in coordinating their activities without requiring that knowledge to be assembled by a single authority. Consequently, acknowledging this problem while merely adding participation or feedback does not establish that a planning arrangement can perform the relevant coordination tasks.

The disagreement also concerns the authority through which economic priorities are established. The normative position defended here is that access to essential goods and the allocation of ecological burdens should be subject to democratic justification and distributive criteria. This position does not follow from Hayek's account of price coordination. Conversely, the ability of prices to communicate scarcity does not, by itself, settle how purchasing power, ownership, or decision-making authority should be distributed. These are distinct questions, and the article does not claim to reconcile their competing normative foundations.

The implication for the present proposal is a limitation rather than a completed solution. Democratic planning must explain how it would elicit situated knowledge, revise mistaken decisions, respond to changing conditions, and prevent administrative concentration of power. Worker and community participation, transparent information, and revisable decisions are proposed as requirements to investigate, not as proof that the knowledge problem has been overcome. This review therefore defends democratic authority over transition priorities while leaving the comparative performance of specific coordination arrangements open to further institutional and empirical analysis.

7.4. Collective Action, Polycentric Governance, and Unequal Power

Ostrom's institutional analysis is considered separately from Hayek's account of market coordination. Her work examines how collective-action problems can be addressed through diverse institutional arrangements, including forms of self-governance that cannot be reduced to either competitive markets or centralized state administration [62,63]. Polycentricity concerns multiple centres of decision-making with a degree of autonomy and institutional relationships through which their activities are coordinated. It should therefore not be used simply as a synonym for participation or for implementation at different administrative scales.

For this article, the relevant contribution is the need to examine the rules through which actors cooperate, monitor commitments, resolve disputes, and coordinate across scales. However, the existence of multiple decision centres does not, by itself, satisfy the distributive and democratic criteria defended here. From a critical political-economy perspective, the analysis must also ask who owns relevant assets, who can afford to participate, whose decisions carry authority, and whether powerful actors can displace ecological costs onto other communities.

A tension consequently remains between institutional autonomy and binding collective obligations. Local or sectoral decisions may conflict with wider emissions commitments, redistributive obligations, or the rights of affected populations elsewhere. The proposal advanced here is that decentralized decision-making should operate within publicly justified ecological and social obligations, with mechanisms for representation, redistribution, and appeal. This is the article's normative proposal, not a conclusion attributed to Ostrom or evidence that polycentric governance and Marxian political economy have been theoretically reconciled.

7.5. Trade-Offs and Unintended Consequences

Each proposed mechanism involves trade-offs. Public provisioning requires fiscal and administrative capacity; public ownership requires accountability; redistribution can encounter political resistance and fiscal constraints; working-time reduction may affect employment and income differently across sectors; industrial policy can generate technological lock-in or capture by incumbents; participation requires time and institutional capacity; and decentralized governance can produce coordination problems. These risks do not invalidate the proposed transformation, but they mean that institutional design must be evaluated through evidence, monitoring, and revision rather than assumed to be self-executing.

The "war mobilization" analogy can illuminate the need for rapid coordination of resources and productive capacity, but it should not be treated as a complete institutional model. Wartime mobilization can involve exceptional centralization and reduced democratic deliberation. The relevant lesson for ecological transition is therefore the capacity to coordinate resources rapidly around collectively defined objectives, while retaining democratic participation, transparency, accountability, and institutional pluralism.

8. Political Mobilisation and Green Backlash

The depoliticization of climate policy and the distribution of transition costs can have important political consequences, but these effects should not be understood as deterministic. Recent research identifies a green backlash associated with right-wing populism [10,26,66], while studies of environmental politics emphasize identity, party competition, institutional trust, territorial conflict, media narratives, and perceptions of status or economic threat [14,67–69]. Class-based distribution is therefore treated as one important mechanism within a broader field of political mediation.

8.1. Weaponizing Working-Class Grievances: Far-Right Eco-Skepticism

Far-right parties (e.g., Rassemblement National in France, Alternative für Deutschland in Germany, Vox in Spain) in several European contexts have framed climate policies as projects imposed by distant or urban elites and have connected environmental regulation to taxation, cost of living, sovereignty, employment, or rural and territorial grievances [67,70]. These claims are political constructions rather than transparent descriptions of policy effects. Their relevance for the present analysis is that distributive conflicts can provide material content for broader narratives whose political success depends on institutional and partisan conditions.

Recent empirical research documents this political dynamic: [10] identifies a broad green backlash associated with right-wing populism, while [14] shows how German and Austrian radical-right actors connect climate skepticism to economic narratives about unfair burdens, hidden agendas, and threats to particular groups. Research on the German heating-law controversy likewise documents discursive frames of expropriation, disenfranchisement, ideological conflict, green cronyism, and demands to 'take everyone along' [71].

The political implications are therefore contingent. When ecological transition is experienced as a top-down discipline while protection from its costs is perceived as uneven, grievances can be incorporated into anti-environmental coalitions. Conversely, policies associated with social protection, public alternatives, decent employment, and participation may alter the political meaning of transition. Neither pathway is automatic: outcomes depend on policy design, institutions, political organization, and competing narratives.

8.2. Re-Politicizing Climate Change from Below

A critical implication of this analysis is that climate politics cannot be separated from the material conditions under which people experience transition. Broad ecological coalitions are more likely to address social conflict when climate action is connected to employment, public services, affordable housing and energy, mobility, and democratic participation [26,50]. From the political-economy perspective defended here, the task is not to assume that class interest automatically produces a particular political coalition, but to examine how material interests are organized and politically mediated.

To understand political responses to climate policy, the analysis emphasizes the importance of broad coalitions around material interests, including employment, public services, housing, transport, and social protection [8,13,26,36,68,69,72]. The proposition that such coalitions are more politically durable is treated here as an analytical inference rather than as a universal empirical law.

Linking climate action to social protection, decent work, public services, and democratic control can provide a basis for broader coalitions, but the formation of such coalitions remains contingent. The article therefore treats political mobilization as an arena of contestation rather than as a predictable consequence of distributive policy.

The proposed Democratic Ecological Transformation is a normative orientation whose institutional feasibility remains to be established in specific contexts. Its commitments are to reduce structural inequalities, protect essential provisioning, respect ecological limits, and expand democratic authority over economic decisions. Institutional arrangements should be evaluated against these commitments and their practical consequences, including the distribution of decision-making power. Listing public ownership, market instruments, participation, and decentralized coordination does not explain how conflicts among them would be resolved; that requires analysis of particular sectors and institutional rules.

These qualifications strengthen rather than weaken the political-economy argument. If climate transition changes ownership, investment, employment, infrastructure, prices, territorial relations, and access to essential goods, then it necessarily raises questions about

who has the authority and resources to shape those changes. The class question is therefore not a complete theory of climate politics; it is a necessary dimension of an analysis of how ecological transformation is socially organized and contested.

The review also modifies the original argument in three ways. First, the review distinguishes criticism of market-led transition from a demonstration that a particular planning arrangement would perform better. The structural diagnosis identifies problems of ownership and unequal power; it does not remove the need to assess coordination, information, incentives, and accountability in the proposed alternatives. Second, a just transition cannot be reduced either to compensation or to structural ownership change: procedural participation, social protection, labour rights, recognition, and democratic accountability are also relevant. Third, political backlash should not be treated as a direct consequence of transition costs. Material grievances interact with political institutions, identity, territorial conflict, party competition, and political communication.

The review supports the article's central proposition in a qualified sense. Across the literature examined, class and inequality recur in the distribution of emissions, vulnerability, labour impacts, ownership, and the costs and benefits of transition. This does not establish class as the sole explanatory variable. Rather, it indicates that climate transition is structured through social relations in which class interacts with territory, race, gender, institutions, technology, political identity, and geopolitical position.

9. Conclusions: Controlling the Economic Transformation

The debate surrounding the green transition should move beyond a simplified opposition between economic development and environmental protection. The central political-economy question is how the economic transformation required by climate change is governed, whose interests shape it, and how its costs and benefits are distributed. Decarbonization can coexist with substantial technological and market innovation, but its social meaning depends on ownership, labour, public provision, territorial relations, and democratic participation.

From the perspective developed here, market-led green-transition strategies risk reproducing structural inequalities when decarbonization is pursued without sufficient attention to ownership, distribution, labour, territorial effects, and democratic control. This does not mean that carbon pricing, private investment, technological innovation, or other market mechanisms are inherently ineffective. Their contribution depends on regulatory design, social protection, public alternatives, monitoring, and the institutional distribution of decision-making power.

Re-politicizing the green transition therefore requires recognizing that climate change is a class question (Figure 1)—not because class explains every dimension of ecological crisis or political mobilization, but because class relations constitute a major dimension through which responsibility, vulnerability, ownership, labour, resources, and political influence are distributed. From the political-economy perspective defended here, a genuinely just transition requires more than emissions reductions: it requires attention to redistribution, democratic participation, social protection, and the organization of economic power. Democratic Ecological Transformation is proposed as a normative orientation towards these objectives. The review does not establish a complete institutional alternative or reconcile Marxian, Hayekian, and Ostromian approaches. Its engagement with knowledge and collective-action problems identifies requirements that proposals for transformation must address, including coordination, accountability, and the distribution of authority. The article's contribution is to explain why these institutional questions must be examined together with class power, ownership, and ecological inequality.

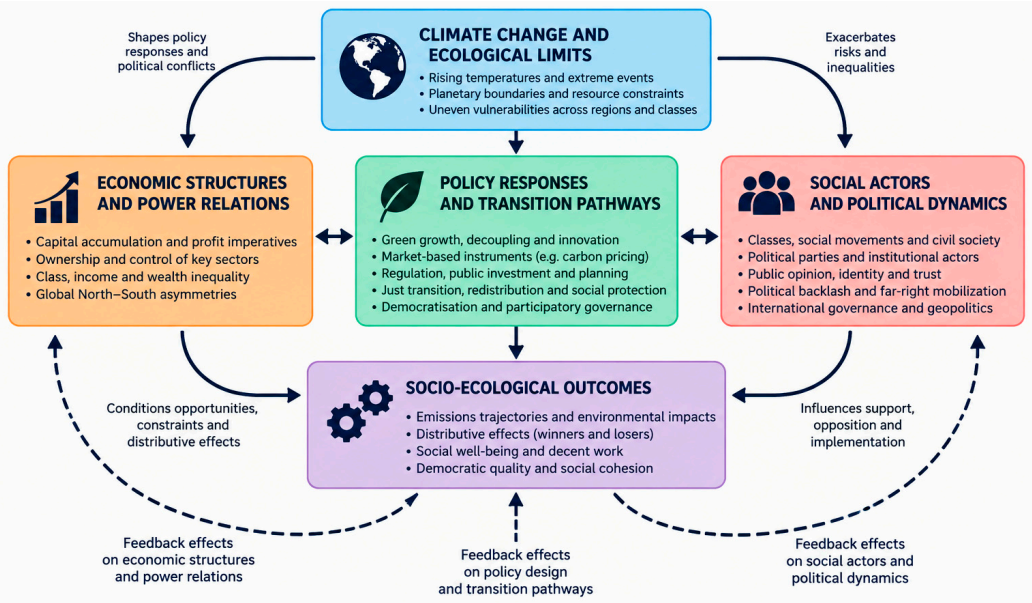


Figure 1. Climate Change as a Class Question: An Interactive Political-Economy Framework.

Author Contributions: Conceptualization, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; methodology, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; software, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; validation, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; formal analysis, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; investigation, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; resources, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; data curation, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; writing—original draft preparation, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; writing—review and editing, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; visualization, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; supervision, J.J.T.-V., E.-J.D.-G. and J.M.C.-A.; project administration, J.J.T.-V., E.-J.D.-G. and J.M.C.-A. All authors have read and agreed to the published version of the manuscript.

Funding: This work was carried out within the framework of two competitive research projects funded by the European Union: 620320-EPP-1-2020-1-ES-EPPJMO-MODULE, "Building up an Inclusive and Democratic Europe through a Dialogical Co-Creation of Intercultural Solutions to the Rise of Neo-Fascism and Xenophobia" (2020–2023), and 101175858-GOODEUROPE-ERASMUS-JMO-2024-HEI-TCH-GOODEUROPE, "Educational and Social Policies for a Europe of the Common Good" (2023–2026).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: No new data were created or analyzed in this study. Therefore, data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. IPCC. *Climate Change 2023: Synthesis Report*; Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change; IPCC: Geneva, Switzerland, 2023.
2. Swyngedouw, E. Apocalypse now! Fear and yearning for climate catastrophe. *Theory Cult. Soc.* **2010**, *27*, 213–232.
3. Mouffe, C. *On the Political*; Routledge: London, UK, 2005.
4. Bornemann, B.; Graf, A.; Lederer, M.; Marquardt, J.; Schwindenhammer, S.; Weiland, S. Conceptualizing and analyzing de-politicization in environmental and climate politics: Introduction to the research topic. *Front. Polit. Sci.* **2026**, *8*, 1726794. [CrossRef]
5. Schöngart, S.; Nicholls, Z.; Hoffmann, R.; Pelz, S.; Schleussner, C.-F. High-income groups disproportionately contribute to climate extremes worldwide. *Nat. Clim. Change* **2025**, *15*, 627–633. [CrossRef]

6. Barragan Contreras, S.J.; Paterson, M.; Jackson, J.; Trommer, S.; Behuria, P.; Hickey, S. Capturing the disruptive nature of green energy transitions: A political economy approach. *Energy Res. Soc. Sci.* **2025**, *123*, 104039. [CrossRef]
7. Chancel, L.; Rehm, Y. Global inequalities in ownership-based carbon footprints. *Nat. Clim. Change* **2026**, *16*, 781–789. [CrossRef]
8. Prainsack, B.; Neves, M.P.; Sahlin, N.E.; Biller-Andorno, N.; van den Hoven, J.; Laukyte, M.; Łuków, P.; Molnar-Gabor, F.; Murphy, T.; Sharon, T.; et al. The Green Transition will be just—Or it won't succeed. *Environ. Sci. Policy* **2026**, *179*, 104372. [CrossRef]
9. Mulder, P.; Hopman, B.; Dalla Longa, F.; Rodriguez, M.; Wijlhuizen, E. Operationalizing just transition: A data-driven framework for assessing household vulnerability to climate change and the green transition. *Environ. Innov. Soc. Transit.* **2026**, *61*, 101162. [CrossRef]
10. Bosetti, V.; Colantone, I.; De Vries, C.E.; Musto, G. Green backlash and right-wing populism. *Nat. Clim. Change* **2025**, *15*, 822–828. [CrossRef]
11. Johansson, V. Just transition in framework climate laws: Between meaningful governance and performative law. *Rev. Eur. Comp. Int. Environ. Law* **2025**, *34*, 155–169. [CrossRef]
12. Zan, T.T.; Pogge, T. Just distribution in and post sustainability transition. *npj Clim. Action* **2026**, *5*, 46. [CrossRef]
13. Maltais, A.; Strambo, C.; Gong, J. Designing fair and politically viable transport transitions: A framework for transition assistance policies in higher-income countries. *Energy Res. Soc. Sci.* **2026**, *131*, 104470. [CrossRef]
14. Torraco, R.J. Writing Integrative Literature Reviews: Using the Past and Present to Explore the Future. *Hum. Resour. Dev. Rev.* **2016**, *15*, 404–428. [CrossRef]
15. Fairhead, X. Mining for a 'net-zero age': The changing place of the extractive industries in green futures and implications for a European just transition. *Energy Res. Soc. Sci.* **2025**, *129*, 104359. [CrossRef]
16. Dunlap, A.; Jakobsen, J.R. *The Violent Technologies of Extraction: Political Ecology, Critical Agrarian Studies and Green Extractivism*; Palgrave Macmillan: Cham, Switzerland, 2019.
17. Voskoboynik, D.M.; Andreucci, D. Greening extractivism: Environmental justice and clean energy transitions. *Polit. Geogr.* **2022**, *97*, 102680.
18. Riofrancos, T. *Resource Radicals: From Native Lands to the Extraction State*; Duke University Press: Durham, NC, USA, 2020.
19. Sovacool, B.K.; Hook, A.; Martiskainen, M.; Brock, A.; Turnheim, B. The toxic trends of green extractivism. *Glob. Environ. Change* **2020**, *60*, 102031.
20. Toikka, A.; Ruuska, T.P.K.; Wiman, L.; Heikkurinen, P. Degrowth and postgrowth: A systematic literature review of growth-critical science. *Ecol. Econ.* **2026**, *240*, 108830. [CrossRef]
21. Arias-Loyola, M.; Vergara-Perucich, F.; Encinas, F. Green(ing) extractivisms: Chile's mining evolution and adaptation to the global energy transition. *Extr. Ind. Soc.* **2025**, *22*, 101618. [CrossRef]
22. Cardozo Useche, V.; Poggi, F. The contradiction of green extractivism: Analyzing the metals demands for a just energy transition in Europe. *Energy Res. Soc. Sci.* **2026**, *131*, 104518. [CrossRef]
23. Kallis, G.; Paulson, S.; D'Alisa, G.; Demaria, F. *The Case for Degrowth*; Polity Press: Cambridge, UK, 2020.
24. Malm, A. *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*; Verso Books: London, UK, 2016.
25. Moore, J.W. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*; Verso Books: London, UK, 2015.
26. Huber, M.T. *Climate Change as Class War: Building Socialism on a Warming Planet*; Verso Books: London, UK, 2022.
27. Hickel, J.; Kallis, G. Is green growth possible? *New Political Econ.* **2020**, *25*, 469–486. [CrossRef]
28. Haberl, H.; Wiedenhofer, D.; Virág, D.; Kalt, G.; Plank, B.; Brockway, P.; Creutzig, F. A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions. *Environ. Res. Lett.* **2020**, *15*, 063003. [CrossRef]
29. OECD. *Investing in Climate, Investing in Growth*; OECD Publishing: Paris, France, 2017. [CrossRef]
30. World Bank. *Climate Change Action Plan 2021–2025*; World Bank Group: Washington, DC, USA, 2021.
31. Vogel, J.; Hickel, J. Is green growth happening? An empirical analysis of achieved versus Paris-compliant CO2–GDP decoupling in high-income countries. *Lancet Planet. Health* **2023**, *7*, e759–e769. [CrossRef] [PubMed]
32. Parrique, T.; Barth, J.; Briens, F.; Kerschner, C.; Kraus-Polk, A.; Kuokkanen, A.; Spangenberg, J.H. *Decoupling Debunked: Evidence and Arguments Against Green Growth*; European Environmental Bureau: Brussels, Belgium, 2019.
33. ILO. *Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All*; International Labour Organization: Geneva, Switzerland, 2015.
34. European Commission. *The European Green Deal*; COM(2019) 640 final; Comisión Europea: Brussels, Belgium, 2019.
35. Stevis, D.; Felli, R. Global labour unions and just transition to a green economy. *Rev. Int. Polit. Econ.* **2015**, *22*, 29–53. [CrossRef]
36. Morena, E.; Krause, D.; Stevis, D. (Eds.) *Just Transitions: Social Justice in the Shift Towards a Low-Carbon World*; Pluto Press: London, UK, 2020.
37. Räthzel, N.; Uzzell, D. (Eds.) *Trade Unions in the Green Economy: Working for the Environment*; Routledge: London, UK, 2013.
38. Patel, R.; Moore, J.W. *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*; University of California Press: Berkeley, CA, USA, 2017.
39. Chancel, L. Global carbon inequality, 1990–2019. *Nat. Sustain.* **2022**, *5*, 931–938. [CrossRef]

40. Kartha, S.; Kemp-Benedict, E.; Ghosh, A.; Nazareth, A.; Gore, T. *The Carbon Inequality Era: An Assessment of the Global Distribution of Consumption Emissions from 1990 to 2015*; Oxfam & Stockholm Environment Institute: Oxford, UK; Stockholm, Sweden, 2020.
41. Oxfam. *Climate Equality: A Planet for the 99%*; Oxfam International: Oxford, UK, 2023.
42. Wiedmann, T.; Lenzen, M.; Keyßer, L.T.; Steinberger, J.K. Scientists' warning on affluence. *Nat. Commun.* **2020**, *11*, 3107. [CrossRef] [PubMed]
43. Kenner, D. *Carbon Inequality: The Role of the Polluter Elite in Climate Change*; Routledge: London, UK, 2019.
44. Hornborg, A. *Global Ecology and Unequal Exchange: Fetishism in a Zero-Sum World*; Routledge: London, UK, 2011.
45. Hickel, J.; Dorninger, C.; Wieland, H.; Suwandi, I. Imperialist appropriation in the world economy: Drain from the Global South through unequal exchange, 1990–2015. *Glob. Environ. Change* **2022**, *73*, 102467. [CrossRef]
46. Islam, S.N.; Winkel, J. *Climate Change and Social Inequality*; UN DESA Working Papers, No. 152; Naciones Unidas: New York, NY, USA, 2017.
47. Jaffe, A.M. Green capitalism and the cultural political economy of climate change. *Energy Res. Soc. Sci.* **2020**, *69*, 101717.
48. Spash, C.L. The brave new world of carbon trading. *New Political Econ.* **2010**, *15*, 169–195. [CrossRef]
49. Lohmann, L. Financialization, carbon markets and the carbon crisis. *Dev. Change* **2012**, *43*, 85–110.
50. Döbbeling-Hildebrandt, N.; Miersch, K.; Khanna, T.M.; Bachelet, M.; Bruns, S.B.; Callaghan, M.; Edenhofer, O.; Flachsland, C.; Forster, P.M.; Kalkuhl, M.; et al. Systematic review and meta-analysis of ex-post evaluations on the effectiveness of carbon pricing. *Nat. Commun.* **2024**, *15*, 4147. [CrossRef] [PubMed]
51. Shang, B. The Poverty and Distributional Impacts of Carbon Pricing: Channels and Policy Implications. *Rev. Environ. Econ. Policy* **2023**, *17*, 64–85. [CrossRef]
52. Harvey, D. *Justice, Nature and the Geography of Difference*; Blackwell: Oxford, UK, 1996.
53. Markkanen, S.; Anger-Kraavi, A. Social impacts of climate change mitigation policies and their implications for inequality. *Clim. Policy* **2019**, *19*, 827–844. [CrossRef]
54. OECD. *Distributional Impacts of Energy Transition Pathways and Climate Change*; OECD Economics Department Working Papers, No. 1820; OECD Publishing: Paris, France, 2024. [CrossRef]
55. Gabor, D. The Wall Street Consensus. *Dev. Change* **2021**, *52*, 429–459. [CrossRef]
56. Akbulut, B.; Demaria, F.; Gerber, J.F.; Martínez-Alier, J. Who should be in charge of ecological transition? Degrowth and the state. *Ecol. Econ.* **2019**, *165*, 106318.
57. Chassany, A.S. 'End of the month' vs 'end of the world': Macron's tax dilemma. *Financ. Times* **2018**.
58. Aronoff, K.; Battistoni, A.; Aldana Cohen, D.; Riofrancos, T. *A Planet to Win: Why We Need a Green New Deal*; Verso Books: London, UK, 2019.
59. Barca, S. *Forces of Reproduction: Notes for a Counter-Hegemonic Anthropocene*; Cambridge University Press: Cambridge, UK, 2020.
60. Coote, A.; Percy, A. *The Case for Universal Basic Services*; Polity Press: Cambridge, UK, 2020.
61. Hayek, F.A. The Use of Knowledge in Society. *Am. Econ. Rev.* **1945**, *35*, 519–530.
62. Ostrom, E. Polycentric systems for coping with collective action and global environmental change. *Glob. Environ. Change* **2010**, *20*, 550–557. [CrossRef]
63. Ostrom, E. Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *Am. Econ. Rev.* **2010**, *100*, 641–672. [CrossRef]
64. Piketty, T. *Capital and Ideology*; Harvard University Press: Cambridge, MA, USA, 2020.
65. King, L.C.; van den Bergh, J.C.J.M. Worktime reduction as a solution to climate change: Five scenarios compared for the UK. *Ecol. Econ.* **2017**, *132*, 124–134. [CrossRef]
66. Forchtner, B. (Ed.) *The Far Right and the Environment: Politics, Discourse and Communication*; Routledge: London, UK, 2019.
67. Malm, A.; Collective, Z. *White Skin, Black Fuel: On the Danger of Fossil Fascism*; Verso Books: London, UK, 2021.
68. Hilmar, T. Cassandra from the far right: How the German and Austrian populist radical right links climate skepticism with economic issues. *Environ. Polit.* **2025**, *35*, 1225–1254. [CrossRef]
69. Díez-Gutiérrez, E.J. *Ecología de Clase o Barbarie Capitalista*; Ediciones Akal: Madrid, Spain, 2023.
70. Lockwood, M. Right-wing populism and the climate change agenda: Exploring the linkages. *Environ. Polit.* **2018**, *27*, 712–732. [CrossRef]
71. Haas, T.; Sander, H.; Fünfgeld, A.; Mey, F. Climate obstruction at work: Right-wing populism and the German heating law. *Energy Res. Soc. Sci.* **2025**, *123*, 104034. [CrossRef]
72. Stephens, J.C. Energy Democracy: Redistributing Power to the People Through Renewable Transformation. *Environ. Sci. Policy Sustain. Dev.* **2019**, *61*, 4–13. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.