Equity, energy and just transitions

Professor Benjamin K. Sovacool, University of Sussex and Boston University

Keynote Address to the World Environment Day Virtual Symposium, The Green Institute, June 5, 2023

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Justice and Equity in Low Carbon Transitions

- Low-carbon transitions are not universally positive. There is compelling evidence that, without vigilance, they can:
  - Create new injustices and vulnerabilities
  - Fail to address pre-existing structural drivers of injustice (both in energy and the wider economy)
- These negative impacts may occur through four different processes:

Concept or process	Dimension	Explanation
Enclosure	Economic	Capturing resources or authority: transferring public assets into private hands, or the expansion of private roles into the public sector
Exclusion	Political	Marginalizing stakeholders: limiting access to decision-making processes and fora, unfair planning or policymaking procedures or access to recourse
Encroachment	Ecological	Damaging the environment: intruding on biodiversity areas or other areas with predisposed land uses, interfering with ecosystem services, shifting emissions sources (but not reducing them)
Entrenchment	Social	Worsening inequality: aggravating the disempowerment of women or minorities, exacerbating vulnerability, and/or worsening concentrations of wealth

Source: Sovacool, BK, BO Linnér, and ME Goodsite. "The Political Economy of Climate Adaptation," *Nature Climate Change* 5 (7) (July, 2015), pp. 616-618.

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The same occurs with disaster recover

Summary of political economy of disaster recovery case studies.

Process	Case study	Explanation
Enclosure	Hurricane Katrina	Public recovery resources primarily benefitted large corporations (casinos, cruise line ships, port operators) and homeowners; private actors use recovery to facilitate their own housing development plans or the capture of public school buildings
	Boxing Day Tsunami	Government-linked private companies used no-build zone policies to seize prized beach front land for their own developments
	Typhoon Yolanda	Privatization of aid distribution reduced the effectiveness of aid, resettlement patterns threatened by land grabs
	Canterbury Earthquakes	Canterbury Earthquake Response and Recovery Act conferred unilateral power to the national government so that it could suspend laws, acquire, hold and dispose of property
Exclusion	Hurricane Katrina	Businesses employed low-wage undocumented workers in reconstruction work, excluding others; minority evacuees faced rent hikes or eviction; women and disaster front-line volunteers were excluded from planning discussions
	Boxing Day Tsunami	Marginalizing policies with tedious procedures for claims excluded certain groups from receiving aid and compensation
	Typhoon Yolanda	A 40 m 'no-build zone' excluded landless occupants from the rehousing process
	Canterbury Earthquakes	A centralized government approach interfered with decision-making processes of local officials and weakened the rights of homeowners in securing insurance claims
Encroachment	Hurricane Katrina	Reconstruction involved infrastructure repair and dredging done in conditions of relaxed environmental standards
	Boxing Day Tsunami	Lack of coordination between agencies resulted in more fishing boats given to communities and intensified fishing activities with depleted fishery resources
	Typhoon Yolanda	Embankments altered the ecology and ecosystem services provision of coastal areas
	Canterbury Earthquakes	Infrastructural repairs resulted in significant diesel emissions; rezoning of urban areas as a result of liquefaction resulted in longer commuting distances
Entrenchment	Hurricane Katrina	Poor, minority, female evacuees were less likely to have access to transport, more likely to face forcible resettlement or remain in temporary shelters; private developers used the disaster as an opportunity to promote their own agendas
	Boxing Day Tsunami	Non-Buddhist communities received less aid due to smaller networks; some donations were politicized and used convert followers
	Typhoon Yolanda	DR and rebuilding strategies focused on men; women were further marginalized with microfinance schemes; poverty and land tenure insecurity were worsened via recovery efforts
	Canterbury Earthquakes	Market led recovery approach increased the vulnerability of renters/tenants and the poor

Sovacool, BK, M Tan-Mullins, and W Abrahamse. "Bloated bodies and broken bricks: Power, ecology, and inequality in the political economy of natural disaster recovery," *World Development* 110 (October, 2018), pp. 243-255.

And climate mitigation interventions more broadly

Energy Research & Social Science 73 (2021) 101916

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Review

Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation

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ARTICLE INFO

Keywords:
Political economy
Political ecology
Low-carbon transitions
Energy transitions
Climate change mitigation
Renewable energy
Mobility

ABSTRACT

This study critically examines 20 years of geography and political ecology literature on the energy justice implications of climate change mitigation. Grounded in an expert guided literature review of 198 studies and their corresponding 332 case studies, it assesses the linkages between low carbon transitions—including renewable electricity, biofuel, nuclear power, smart grids, electric vehicles, and land use management—with degradation, dispossession and destruction. It draws on a framework that envisions the political ecology of low-carbon transitions as consisting of four distinct processes: enclosure (capture of land or resources), exclusion (unfair planning), encroachment (destruction of the environment), or entrenchment (worsening of inequality or vulnerability). The study vigorously interrogates how these elements play out by country and across countries, by type of mitigation option, by type of victim or affected group, by process, and by severity, e.g. from modern slavery to organized crime, from violence, murder and torture to the exacerbation of child prostitution or the destruction of pristine ecosystems. It also closely examines the locations, disciplinary affiliations, methods and spatial units of analysis employed by this corpus of research, with clear and compelling insights for future work in the space of geography, climate change, and energy transitions. It suggest five critical avenues for future research: greater inclusivity and diversity, rigor and comparative analysis, focus on mundane technologies and non-Western case studies, multi-scalar analysis, and focus on policy and recommendations. At times, low-carbon transitions and climate action can promote squalor over sustainability and leave angry communities, disgruntled workers, scorned business partners, and degraded landscapes in their wake. Nevertheless, ample opportunities exist to make a future low-carbon world more pluralistic, democratic, and just.

Table 3
Vulnerable groups mentioned in academic research on political ecology and climate mitigation (n = 198 studies).

Vulnerable group	No. of articles	% of articles
Non-human species	153	77.3%
Local communities, host communities, adopters or households	152	76.8%
Farmers, agriculturalists, or pastoralists	74	37.4%
Rural poor	73	36.9%
Occupational workers, wage laborers, or their unions	72	36.4%
Indigenous/aboriginal groups, ethnic/racial minorities, or members of a lower caste	71	35.9%
Future generations (e.g., nuclear waste)	71	35.9%
Fishers and water resource users	51	25.8%
Environmental groups, civil society, wildlife reservists, land managers or nature conservationists	38	19.2%
Urban poor	36	18.2%
Women (including gender roles)	27	13.6%
Recreationists, campers, hikers, forest users	27	13.6%
Banks, financiers, investors (including fossil fuel incumbents)	27	13.6%
Elderly	13	6.6%
Students	13	6.6%
Disabled individuals	12	6.1%
Forced labor or modern slaves	10	5.1%
Coastal homeowners (e.g. offshore wind energy)	10	5.1%
Prostitutes	10	5.1%
Children or youth (including health impacts)	5	2.5%
Local businesses (including tourism)	5	2.5%
Refugees (including displaced persons and forced migrants)	3	1.5%
Alcoholics	3	1.5%
Affluent suburban homeowners	1	0.5%

Justice and Equity in Low Carbon Transitions

nature communications

Article

https://doi.org/10.1038/s41467-022-35391-2

Decarbonization, population disruption and resource inventories in the global energy transition

Received: 16 May 2022

Accepted: 30 November 2022

Published online: 15 December 2022

Check for updates

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We develop a novel approach to analysing decarbonisation strategies by linking global resource inventories with demographic systems. Our 'mine-town systems' approach establishes an empirical basis for examining the spatial extent of the transition and demographic effects of changing energy systems. The research highlights an urgent need for targeted macro-level planning as global markets see a decline in thermal coal and a ramp up of other mining commodities. Our findings suggest that ramping up energy transition metals (ETM) could be more disruptive to demographic systems than ramping down coal. The data shows asymmetry in the distribution of risks: mine-town systems within the United States are most sensitive to coal phase-out, while systems in Australia and Canada are most sensitive to ETM phase-in. A complete phase-out of coal could disrupt demographic systems with a minimum of 33.5 million people, and another 115.7 million people if all available ETM projects enter production.

Fig. 5 | Global exposure to the coal phase-out and ETM phase-in assumptions carried in the three resource inventories. a Number of regional cities, urban and rural towns and mining projects in global mine-town systems. **b** Top 10 countries with the highest exposure to the coal phase-out assumption, i.e. countries with the largest number of settlements and operational and closed coal mines that are linked inside mine-town systems. **c** Top 10 countries with the highest exposure to the ETM phase-in assumption, i.e. countries with the largest number of settlements and pre-operational ETM projects that are part of the mine-town systems.

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A matrix of inequities and vulnerabilities with low-carbon and sustainable technologies and behaviours

Demographic inequity (between groups)	Spatial inequity (across geographical scales)
· Adoption is strongly mandated by gender roles (EVs, improved cookstoves, food-sharing) · Diffusion patterns substantially shaped by class, caste, income or wealth (improved cookstoves, EVs, solar panels, food-sharing) · Exclusion of non-homeowners or those without access to roofs (solar panels) · Adoption patterns favouring wealthier households and communities of mainly white people, and disfavouring those struggling with illness or financial difficulty (solar panels) · Subsidies favouring wealthier households (EVs, solar panels) · Adoption patterns favouring higher-income homes, larger homes and homes with children (food-sharing) · May entrench inequality and a gap in digital skills and awareness (food-sharing) · Can put those with food allergies or special needs at risk of contamination or illness (food-sharing) · Depends on a relatively advanced skillset of food preparation, handling, storage and refrigeration as well as disposal and waste (food-sharing)	· Erodes some spiritual and cultural practices in rural communities (for improved cookstoves) · Threatens rural food preservation based on smoke where alternatives are unavailable (for improved cookstoves) · Contributions to traffic congestion and automobile accidents in cities (EVs) · Lack of charging infrastructure in rural areas (EVs) · Perpetuation of a 'decarbonization divide' between Global North and Global South (EVs, solar panels) · Shifting of conventional cars to peripheral (non-low-carbon) areas (EVs) · Cross-subsidization of energy costs that burden the poor (solar panels) · Unfair and at times exploitative labour practices (solar panels) · Bias towards urban areas and cities, less rural states, and especially wealthier cities and cities in the Global North (food-sharing, solar panels)
Interspecies inequity (between humans and non-humans)	**Temporal inequity (across future generations)**
· Rebounds in increased driving or impinging on forests or nature reserves (EVs) · Roadbuilding and impingement of green spaces or trees in urban areas (EVs) · Pushing of conventional cars to peripheral regions increasing air and water pollution (EVs) · Increased air pollution or carbon emissions from fossil-fuelled electricity (EVs) · Electronic waste streams releasing toxics into habitats (solar panels and EVs) · Environmental destruction and deforestation with mineral and material extraction (EVs and solar panels) · Fossil-fuel use, occupational hazards and pollution from local manufacturing (solar panels) · Potential rebounds in increased waste (and toxins) due to mistakes and improper sorting or handling (food-sharing)	· Embedding private motorized automobility for future generations (EVs) · Failing to address the underlying causes of food waste and unsustainable agriculture (food-sharing) · Cementing future burden of cooking and domestic activities onto women (for improved cookstoves) · Generation of toxic waste streams and disposal concerns for future generations (EVs, solar panels) · For-profit motivations can lead to conflict and community tension over future food pathways and limit sustainable change (food-sharing) · Can legitimize overproduction and food surplus and fail to address the root causes of food insecurity (food-sharing)

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Source: Sovacool, B.K., Newell, P., Carley, S. et al. Equity, technological innovation and sustainable behaviour in a low-carbon future. *Nat Hum Behav* (2022).

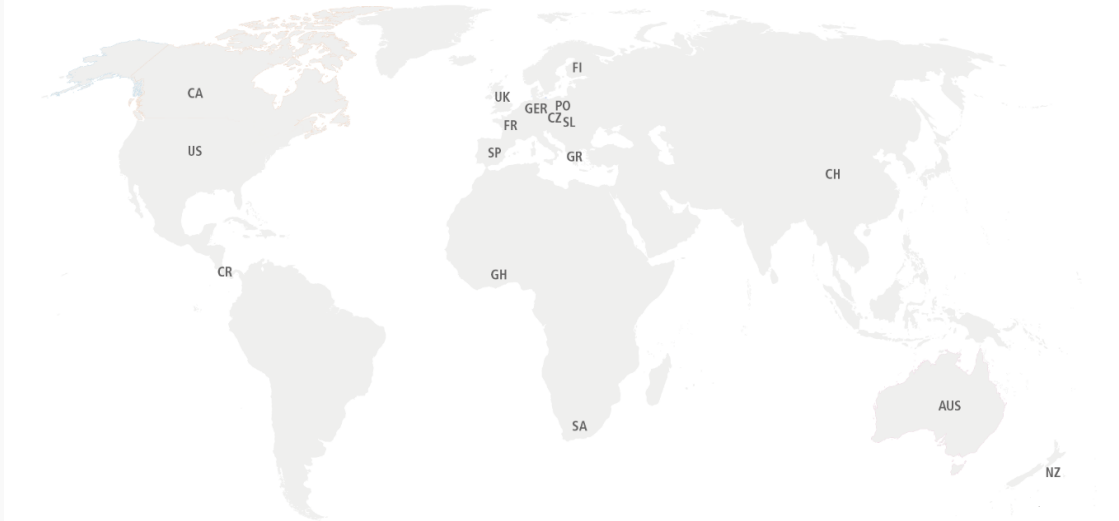
Equity and just transition in the IPCC

- **Just Transition. "**A set of principles, processes and practices that aim to ensure that no people, workers, places, sectors, countries or regions are left behind in the transition from a high-carbon to a low-carbon economy."
- "It stresses the need for targeted and proactive measures from governments, agencies, and authorities to ensure that any negative social, environmental or economic impacts of economy-wide transitions are minimised, whilst benefits are maximised for those disproportionally affected."
- "Key principles of just transitions include: respect and dignity for vulnerable groups; fairness in energy access and use, social dialogue and democratic consultation with relevant stakeholders; the creation of decent jobs; social protection; and rights at work."
- "Just transitions could include fairness in energy, land use and climate planning and decision-making processes; economic diversification based on low-carbon investments; realistic training/retraining programs that lead to decent work; gender specific policies that promote equitable outcomes; the fostering of international cooperation and coordinated multilateral actions; and the eradication of poverty."
- "Lastly, just transitions may embody the redressing of past harms and perceived injustices."

Pathak, M, R. Slade, P.R. Shukla, J. Skea, R. Pichs-Madruga, D. Ürge-Vorsatz, BK Sovacool et al. "Technical Summary." In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.002

“Just Transition” can also be indicated by actions and policies

(a) Just Transition commissions, task forces and dialogues



Australia: La Trobe Valley Authority

Canada: Task Force on Just Transition for Canadian Coal Power Workers

China: Mine closure provisions in the 13th Five Year Plan for Coal Industry Development, 2016–2020

Costa Rica: National Decarbonisation Plan 2018–2050

Czech Republic: Czech Coal Commission

Finland: Working group to ensure a fair and just transition and acceptability of climate measures

France: 2018 Ecological Transition Contracts programme

Germany: German Commission on Growth, Structural Change and Employment (German Coal Commission)

Ghana: The National Dialogue on Decent Work and ‘Just Transition’ to a Sustainable Economy and Society

Greece: National Just Transition Fund for Lignite areas

New Zealand: ‘Just Transitions Unit’ within the ministry of Business, Innovation and Employment (MBIE)

Poland: The 1998 Mining Social Package and Special Privileges for the mining communes

Scotland: Scottish Just Transition Commission

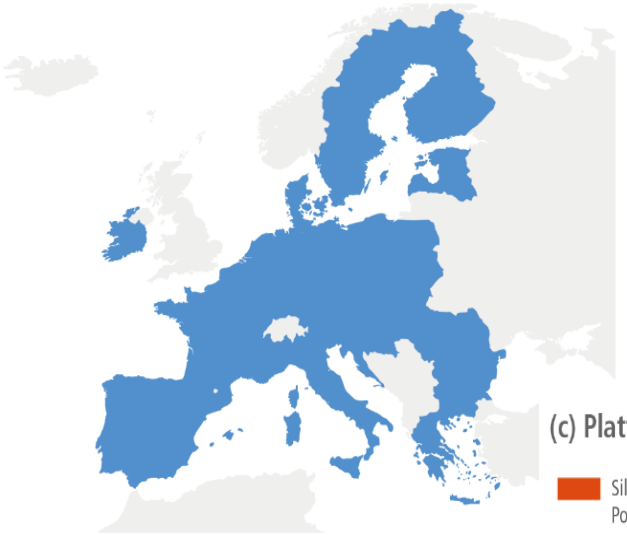
Slovakia: Transformation Action Plan of coal region Upper Nitra

South Africa: National Planning Just Transition Dialogue + the One Million Climate Jobs Campaign

Spain: Framework Agreement for a Just Transition on Coal Mining and Sustainable Development

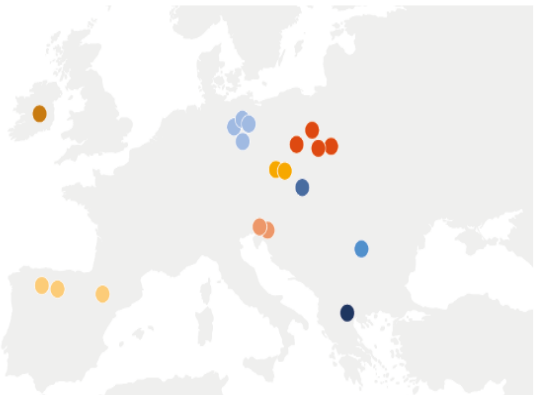
United States: Partnership for Opportunity and Workforce and Economic Revitalisation Plan (POWER+)

(b) European Green Deal – Just Transitions Fund



(c) Platform for coal regions in transition

- Silesia, Lower Silesia, Greater Poland, Lesser Poland
- Brandenburg, Saxony, Saxony Anhalt, North Rhine-Westphalia
- Moravia-Silesia, Usti, Karlovy Vary
- Asturias, Aragón, Castilla-y-León
- Western Macedonia
- Upper Nitra
- Jiu Valley
- Zasavska, Savinjsko-Šaleška
- Midlands



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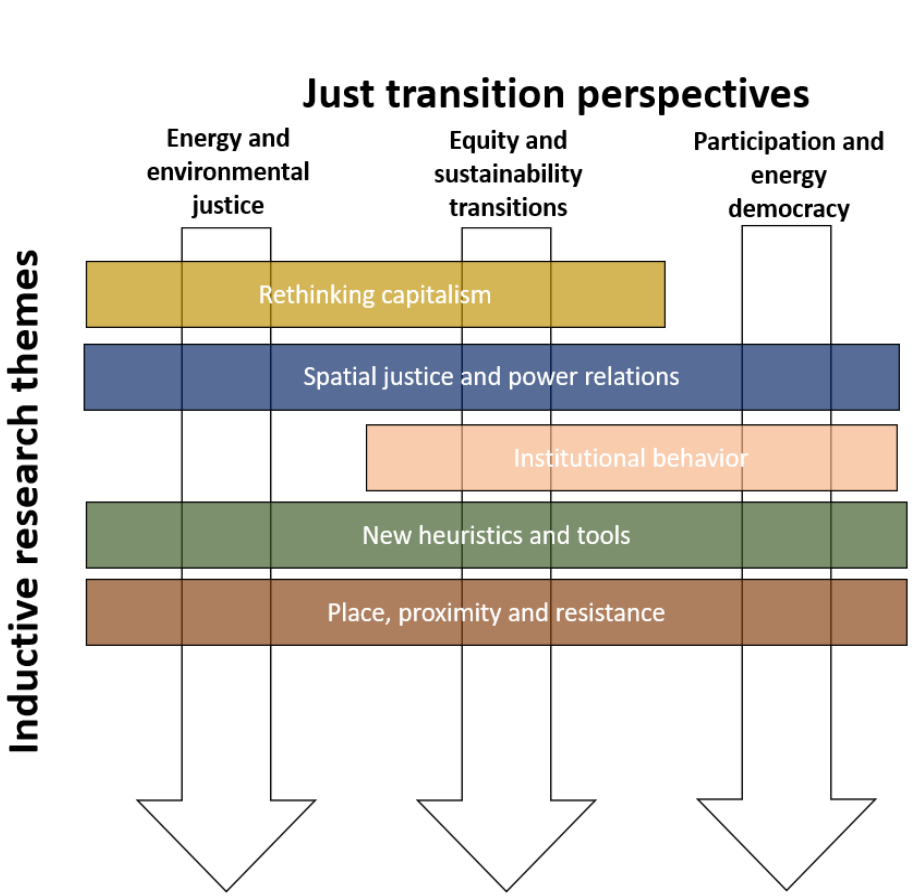
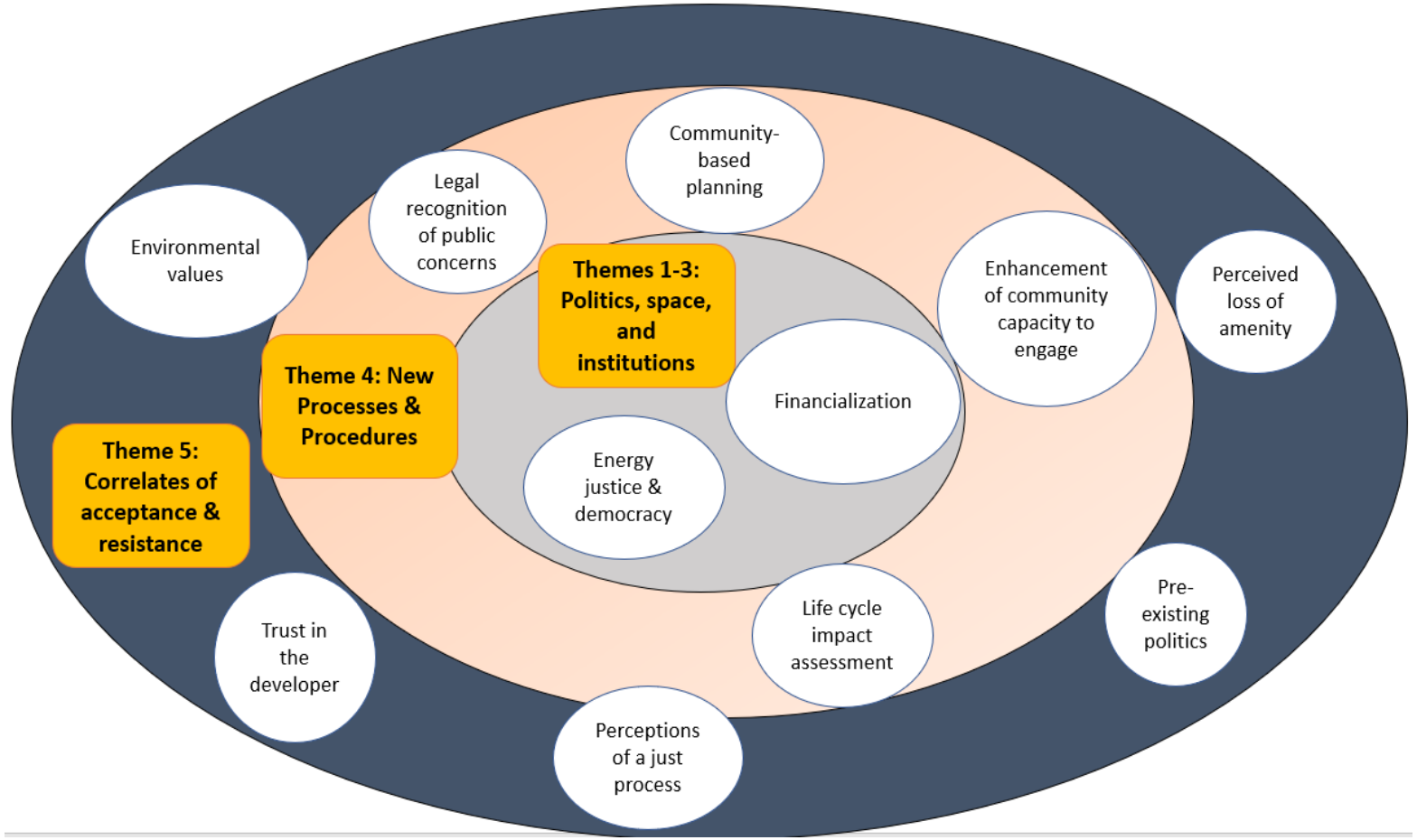
Industrial decarbonization Just Transitions frameworks





Source: Upham, P, BK Sovacool, and B Ghosh. "Just transitions for industrial decarbonization: A framework for innovation, participation, and justice," *Renewable & Sustainable Energy Reviews* 167 (October, 2022), 112699, pp. 1-16.

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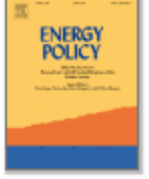
Energy Policy

Volume 105, June 2017, Pages 677-691

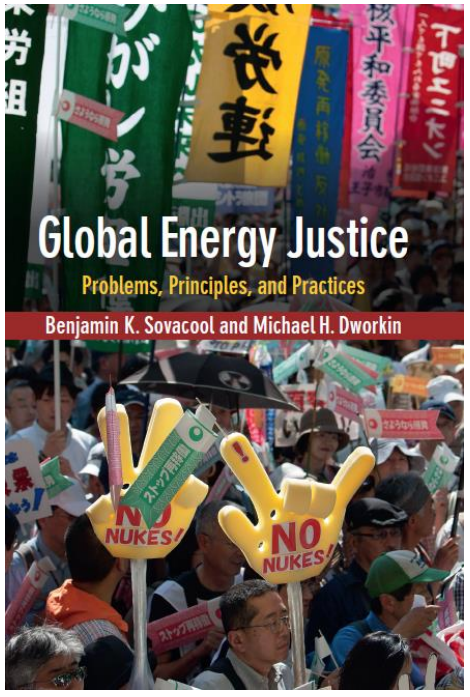


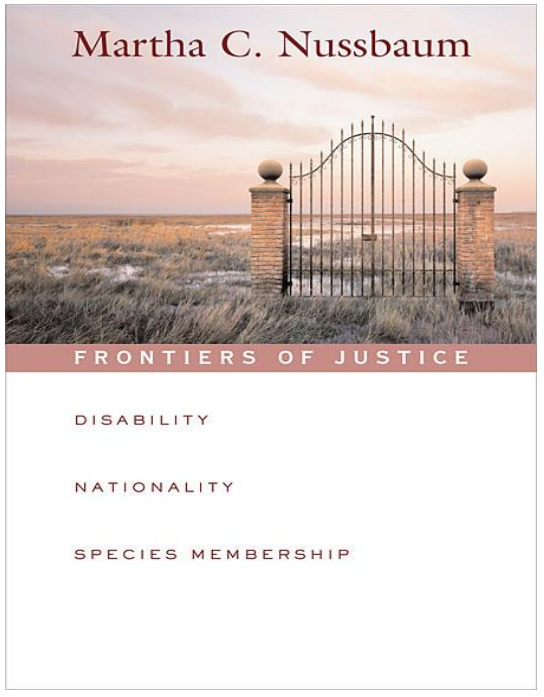
New frontiers and conceptual frameworks for energy justice

Benjamin K. Sovacool [a, b], Matthew Burke [c], Lucy Baker [b], Chaitanya Kumar Kotikalapudi [b], Holle Wlokas [d]

Show more

1. *Non-Western theories and applications to energy justice*
2. *Beyond anthropocentrism (appreciating non-human life)*
3. *Cross-scalar or "whole systems" issues*
4. *Business models and "co-benefits" or "positive externalities"*
5. *Political economy or "winners and losers" and "trade-offs"*
6. *Deconstructing energy justice as a discourse*





Progress in Human Geography
OnlineFirst

https://doi.org/10.1177/03091325221132561

SAGE journals

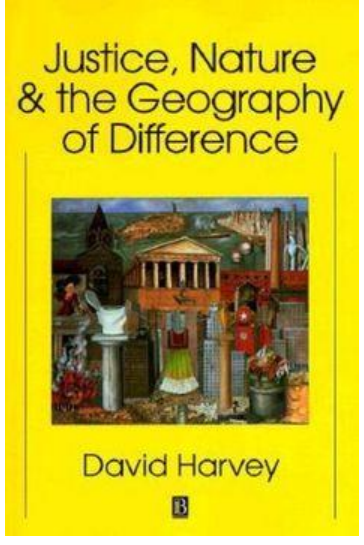
Submitted Paper

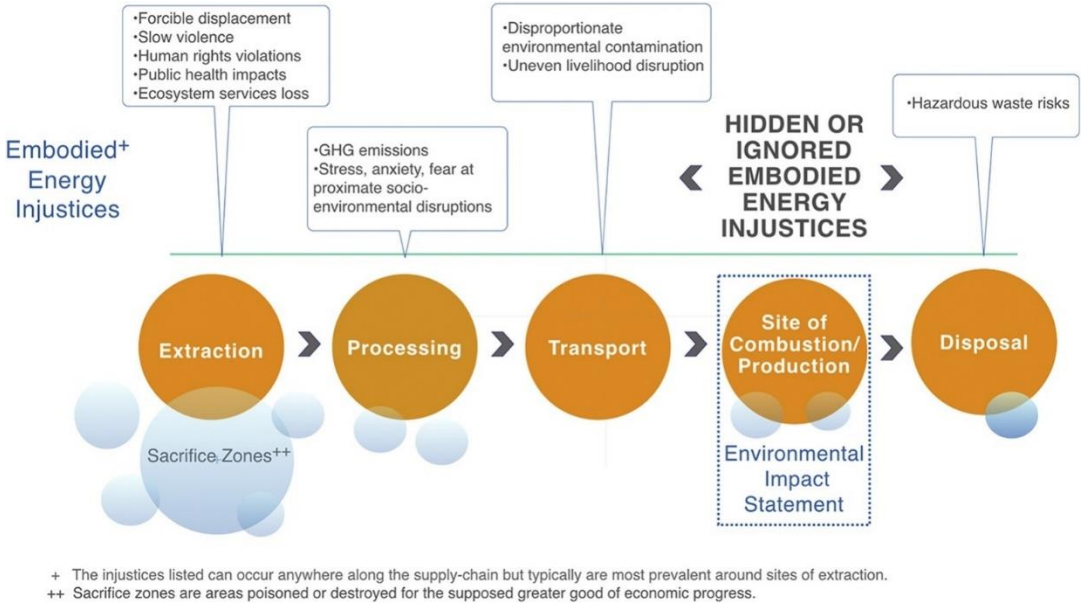
Decolonizing energy justice from the ground up: Political ecology, ontology, and energy landscapes

Carlos Tornel

Abstract

The purpose of the paper is to expand the concept of energy justice by considering the struggles over coloniality and cultural identity in the Global South and their interactions with the spatial and historical development of energy systems and the ongoing forms of energy transitions. The article argues that the current conceptualizations of energy justice cannot be separated from the politics of incumbency as, without a decolonial critique, they tend to reproduce rather than transform hegemonic power relations. To be transformative, energy justice must be articulated from the politics of actually existing unsustainability. In other words, the starting position for energy justice must be that energy injustices are already embedded in existing energy systems and energy policies. Drawing on Latin-American decolonial thought, and the work of political ecologists around energy, this article advocates looking beyond a universalized conception of justice towards an approach where justice is based on a sense of place and is informed by the community's relationship with the land. Using the concept of energy landscapes, the article puts forth an alternative way of understanding energy systems and conceptualizations of justice in decolonial settings.





\+ The injustices listed can occur anywhere along the supply-chain but typically are most prevalent around sites of extraction.
++ Sacrifice zones are areas poisoned or destroyed for the supposed greater good of economic progress.

Responding to this call:

Energy Research & Social Science 97 (2023) 102996

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

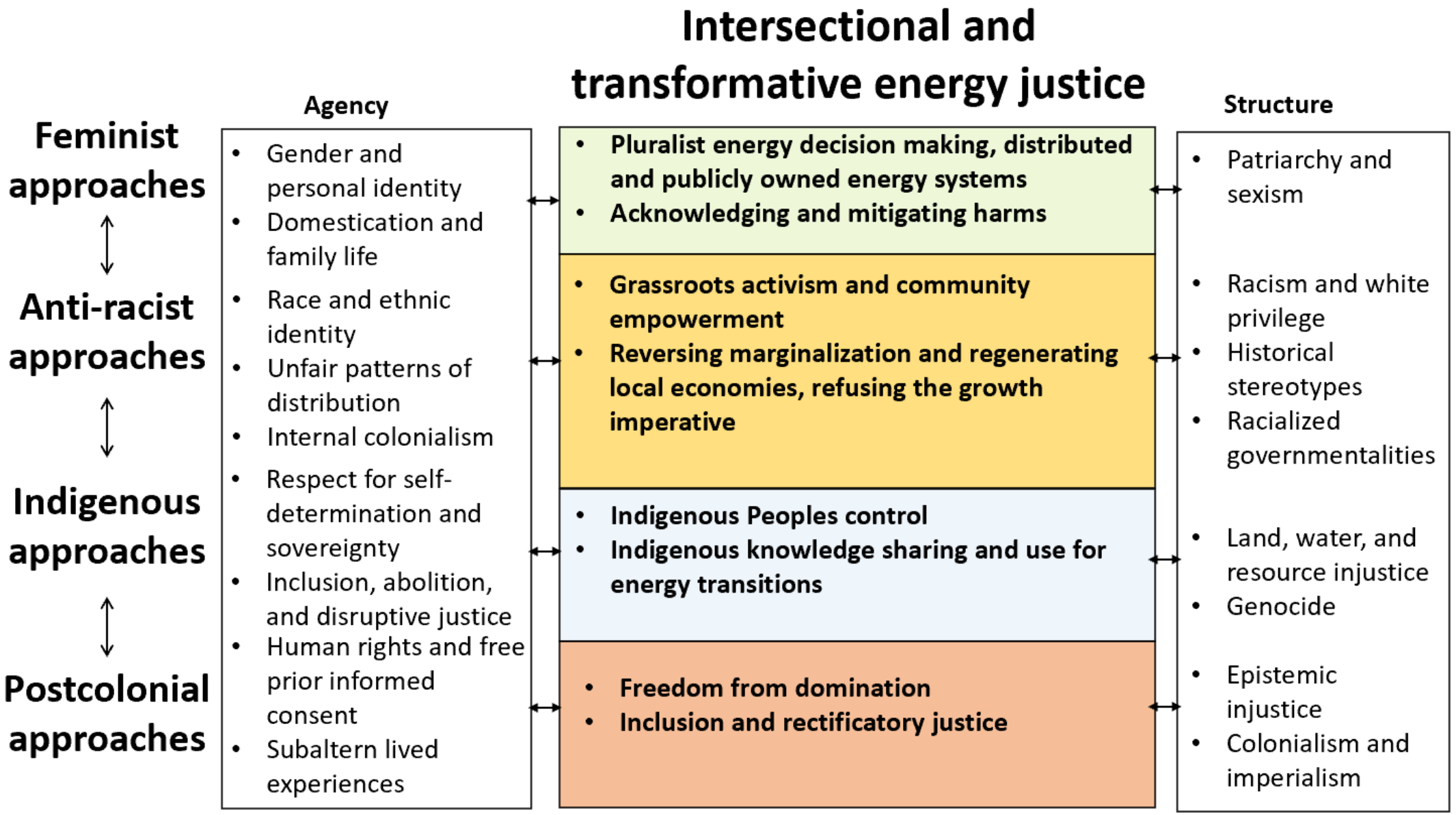
Perspective

Pluralizing energy justice: Incorporating feminist, anti-racist, Indigenous, and postcolonial perspectives

Benjamin K. Sovacool [a,b,c,d,*], Shannon Elizabeth Bell [e], Cara Daggett [e], Christine Labuski [e], Myles Lennon [f], Lindsay Naylor [g], Julie Klinger [g], Kelsey Leonard [h], Jeremy Firestone [g]

Literature	Disciplinary groundings	Predominant focus	Structural explanations for injustice
Feminist theories of justice	Philosophy, law, ethics, moral studies, gender studies, women's studies, Black and transnational feminisms, eco-feminism, feminist political ecology, Marxist feminism, gender and development studies, post- and decolonial feminisms, queer theory, disability studies	Gender, power and inequality, public vs. private life (boundaries of domestication and family practice), intersectionality, bodily harm, energy democracy, human wellbeing, reproductive justice, pink collar jobs, cultures of care, collaborative ownership, embodiment	Patriarchy and gender disempowerment; capitalism
Anti-racist theories of justice	Critical Race Theory, Demography, education studies and pedagogy, Black studies, political economy, anti-racist praxis, Africana studies, environmental justice	Ethnicity, knowledge production, legacies of discrimination, internal colonialism, racialized governmentalities, unfair patterns of distribution, the legitimacy of false consensus, regenerative economy, justice	Racism and white supremacy; capitalism
Indigenous justice	Indigenous studies, Indigenous political theory, Indigenous law, history, environmental, water and climate justice	Indigenous rights, self-determination and sovereignty, responsibility-based, Indigenous traditional ecological knowledge, Indigenous-led governance	Genocide, capitalism, land and water injustice, dispossession
Postcolonial justice	Area studies, development studies, development economics, history, indigenous studies, environmental and climate justice, postcolonial theory, political ecology	Human rights and free prior informed consent, freedom from domination, epistemic injustice, subaltern lived experiences, inclusion and rectificatory justice	Colonialism and imperialism

Sovacool, BK, SE Bell, C Daggett, C Labuski, M Lennon, L Naylor, J Klinger, K Leonard and J Firestone. "Pluralizing Energy Justice: Incorporating Feminist, Anti-Racist, Indigenous, and Postcolonial Perspectives," *Energy Research & Social Science* 97 (March, 2023), 102996, pp. 1-8



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