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Rebalancing the Trilemma from Below: Stakeholder Perceptions of Trade-Offs in Residential Heat Decarbonisation in urban England

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Extended Abstract

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Abstract Summary

Residential buildings account for 12% of UK emissions, yet heat decarbonisation remains stagnant, exposing a significant gap between net-zero ambitions and on-the-ground progress. Dominant policy frameworks conceptualise this challenge through the energy trilemma - balancing sustainability, affordability, and security - but how different stakeholders actually perceive and negotiate these tensions in practice remains poorly understood. This paper addresses that gap by presenting findings from five online stakeholder focus groups conducted in June and July 2025, involving 27 participants drawn from local authorities, energy providers, housing associations, consumer bodies, non-profits, and academia across urban England.

Three core trade-offs emerged. First, tensions between system-level coordination and individual agency, particularly around heat networks, where consumers lack switching rights and renters are structurally excluded from heating decisions. Second, disagreements over household prioritisation: a "worst-first" approach prioritising fuel-poor households was contested by arguments that early adoption by able-to-pay households would stabilise markets and protect vulnerable groups from the costs of immature technology. The gas grid phase-out added distributional complexity, raising concerns about temporal and spatial justice as infrastructure costs fall on those least able to transition. Third, governance fragmentation - chronic local authority underfunding, regulatory ambiguity, and competing statutory obligations - was identified as a structural barrier to coordinated long-term action.

Strikingly, participants rarely invoked the energy trilemma framework itself. Instead, they framed tensions relationally, through questions of agency, fairness, and institutional responsibility. Some rejected trade-offs as false dichotomies; others reproduced trade-off logic implicitly through discussions of sequencing and distributional fairness.

The presentation concludes that effective heat decarbonisation policy must move beyond incentive design to explicitly address justice dimensions, areas where the current policy

falls short. The transition is best understood not as a technical substitution problem, but as a negotiation over control, accountability, and whose interests are protected.

Presenting Author Biography

Eirini is a PhD Researcher at the Centre for Environmental Policy, focusing on the heat transition in England and on designing policy frameworks that integrate climate risk with stakeholder preferences. Her interdisciplinary, mixed-methods research develops consumer-centric approaches to decarbonising urban heat systems. She is funded by the Science and Solutions for a Changing Planet Doctoral Training Partnership and the Onassis Foundation. During her PhD, she completed a traineeship at the European Commission, contributing to work on thermal energy communities and the Citizens Energy Package.