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Risk perception, regulation, community engagement and acceptance: Navigating the legal and social UK geothermal landscape

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Deep geothermal energy is regarded as an important renewable source of power and heat that has the potential to occupy a central place in a just energy transition as part of the UK's strategy to meet its Net Zero Commitment. Access to deep geothermal energy bears some similar risks to shale gas development, a practice met in the UK with much public concern and controversy. Existing research on shale gas has established that risk perceptions, notably around induced seismicity, were of particular importance to the public and in local communities where exploration was proposed. Furthermore, the UK government's approach to regulating induced seismicity across these two industries has not been uniform. It thus remains unclear how the exploitation of geothermal energy will be received more broadly, and how the government might regulate geothermal activity .

The exploration and exploitation of geothermal energy is intrinsically technical, yet geothermal developments also include social, spatial and political aspects that have so far been neglected in geothermal energy research. As such, in this paper we draw on multiple data sets, including interviews with government, industry and public stakeholders to compare and contrast governance approaches and public risk perceptions tied to shale gas and geothermal energy production in the UK. We suggest some key differences between the shale and geothermal energy industries in terms of technologies, social acceptance and implications for climate change. Yet we also point to divergent issues, in terms of a lack of a cohesive regulatory framework or guidance for community engagement tied to geothermal energy, and how this might negatively impact public perceptions of the practice, thwarting social acceptance. In closing, we make recommendations for establishing more systematic geothermal regulations and policies aimed at creating consistent, environmentally sustainable and socially just practices in the industry moving forward.