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A Short Overview of Barriers to Decarbonization:

A Political, Economic, Social, Technological, Legal and Environmental (PESTLE) perspective

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Introduction

This review paper analyses the barriers to decarbonisation in literature. The objective is to explore patterns and common themes to identify any insight that might allow for a smoother transition process in future.

The PESTLE framework is used to identify barriers through a Political, Economic, Social, Technological, Legal, and Environmental lens.

The search includes literature relating to global governing bodies, existing industrial sectors, and individual nations.

Method

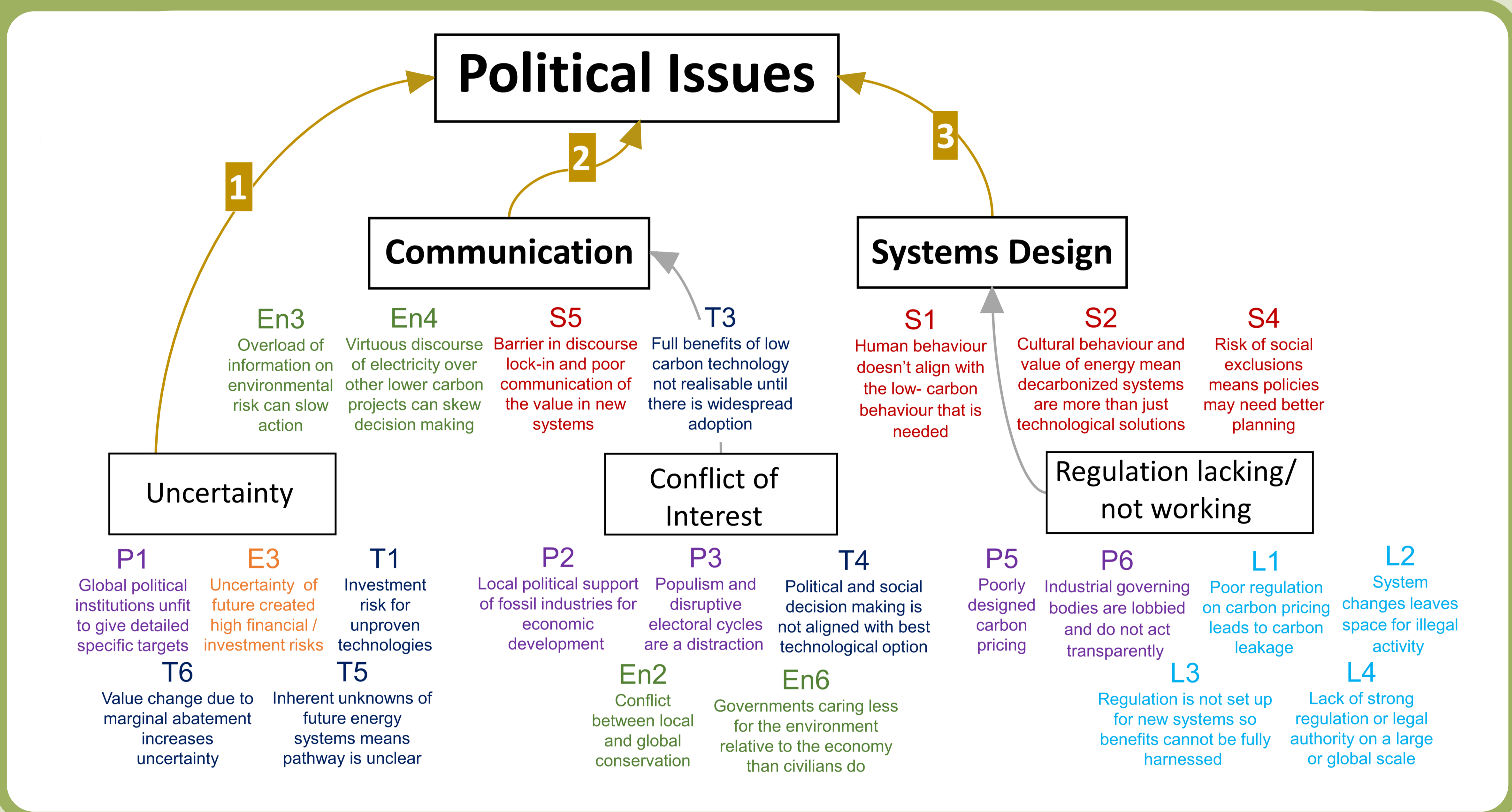
This research is based on a systemic literature review studying 44 papers predominantly from the past 4 years that contain keywords in line with the search criteria:

Politics / Policy
Economic / Cost / Price
Social / Community
Technological
Legal / Regulatory
Environment / Ecosystem / Biodiversity

+ Barriers / Challenges + Decarbonisation

The results are collated and analysed thematically.

Taxonomy of Barriers to Decarbonisation



Legend

- Political Barrier
- Economic Barrier
- Social Barrier
- Technological Barrier
- Legal Barrier
- Environmental Barrier

"Could be reduced by"

"Ultimately becomes an issue of..."

Notes provided below suggest how political actions might mitigate these barriers

Notes

- 1** Uncertainty could be supported by strong political signaling of intent and clear roadmaps of action
- 2** Better communication, effective negotiation and stronger democratic processes reduce the effects of the communication barrier
- 3** Political processes can initiate global systems planning in devising strategy

Conclusions

The analysis highlights how disruption, delay and excess resource use occurs in cases where decarbonisation challenges become barriers. There are two main points of conclusion:

Firstly, Political barriers seem most significant as they appear to underpin most of the other barriers identified. The reason for this is that political tools such as stronger signalling and more productive negotiations could be advantageous in addressing many of the conflicts that arise in technological, economic or environmental sectors.

Secondly, authors identify two themes that emerge as mitigation opportunities across many of the barriers:

- **Stronger communication** with more transparent debate and negotiation
- **Systems thinking** across sectors for areas that undergo big changes because of new, low-carbon technologies