

## Keynote BinBin Pearce – #EIE2023

Making connections between transdisciplinary research, design thinking, transitions research and implementation science – A joint effort for confronting real-world, complex challenges

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### *The keynote*

In my keynote, I will delve into the complexities common to societal challenges and how they link to transdisciplinary research, design thinking, transitions research, and implementation science. We will explore how emergent phenomena, unperceived factors or "unknown unknowns", and context sensitivity can both impede and foster desired changes. Drawing from my work on energy transition, I'll investigate how combined insights from these fields can navigate aspects of complexity and enhance strategies pertinent to implementation science. Key questions to be addressed include:

- How can concepts from transdisciplinary research, like joint problem framing, effectively engage stakeholders and partners by revealing underlying mental models and values?
- How can design thinking facilitate the connection between implicit values and mental models, and the identification, development and testing of implementation strategies?
- In what ways can perspectives from transitions research support the tailoring of strategies to better fit respective implementation contexts?

### *About Dr BinBin Pearce*

BinBin is an assistant professor for policy analysis and design in the Faculty of Technology, Policy and Management, at the Delft University of Technology, based in the Netherlands. Her research interests include studying public participation processes in the energy transition through a transdisciplinary lens, policy design for the energy transition, collaborative decision making for sustainable development, joint problem framing processes, and integrated systems and design thinking. She is the coordinator and lead principal investigator of the Horizon 2020 project Energy Citizens for Inclusive Decarbonization (ENCLUDE). The goals of this project are to improve the integration of insights from social sciences for integrated assessment, demand-side and agent-based models to understand the impact of individual and collective behavior on decarbonization pathways, as well as to work directly with citizens around the world to build a collective understanding of the energy transition. She has also developed an approach for complex problem solving integrating design and systems thinking for university students that has been the foundation of an award-winning course for environmental science students at ETH Zurich. She was trained as an environmental engineer at Stanford University and received a PhD from the Yale School of Forestry and Environmental Studies focused on urban metabolism and industrial ecology.

The following publications provide further perspective represented in this keynote and provides more background:

Pearce, B. J., Deutsch, L., Fry, P., Marafatto, F. F., & Lieu, J. (2022). Going beyond the AHA! moment: insight discovery for transdisciplinary research and learning. *Humanities and Social Sciences Communications*, 9(1), 123. <https://doi.org/10.1057/s41599-022-01129-0>

Pearce, B. J., Dallo, I., Choi, V., Freihardt, J., & Middel, C. N. H. (2022). Forks in the road: Critical design moments for identifying key processes in stakeholder interaction. *GAIA - Ecological Perspectives for Science and Society*, 31(4), 222–230. <https://doi.org/10.14512/gaia.31.4.6>

Pearce, B. J., & Ejderyan, O. (2019). Joint problem framing as reflexive practice: honing a transdisciplinary skill. *Sustainability Science*, 15(3), 683–698. <https://doi.org/10.1007/s11625-019-00744-2>

Pohl, C., Pearce, B., Mader, M., Senn, L., & Krütli, P. (2020). Integrating systems and design thinking in transdisciplinary case studies. *Gaia*, 29(4), 258–266. <https://doi.org/10.14512/gaia.29.4.11>

Pearce, B., Adler, C., Senn, L., Krütli, P., Stauffacher, M., & Pohl, C. (2018). Making the Link Between Transdisciplinary Learning and Research (D. Fam, Linda Neuhauser, & P. Gibbs, Eds.; pp. 167–183). Springer International Publishing.

Geels, F. W., & Johnson, V. (2018). Towards a modular and temporal understanding of system diffusion: Adoption models and socio-technical theories applied to Austrian biomass district-heating (1979–2013). *Energy Research & Social Science*, 38, 138–153. <https://doi.org/10.1016/j.erss.2018.02.010>