



How to unlock the human potential for promoting energy efficiency?

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The context

- Energy efficiency (EE) is worldwide seen as a “win-win” solution (Taylor et al. 2010)
- The European Union has identified EE as a priority in the decarbonisation scenarios advanced in the Energy Roadmap 2050 and in the European Green Deal.
- Nevertheless, the policy goal of EE is not without challenges -> *energy efficiency gap* (Hirst & Brown, 1990; Jaffe & Stavins, 1994)
- It is difficult to explain low take up of EE as purely a rational response to investment under uncertainty” (Stern, 2007)

The state of the art

- Scientists have extensively investigated the decision-making process related to EE investments adopting different disciplinary perspectives (Lopes, Antunes, & Martins, 2012; Wilson & Dowlatabadi, 2007)
- However, EE policy making has mostly been guided by perspectives focusing on drivers and barriers (Lutzenhiser, 2014).
- This approach disregards other perspectives enabling to account for the interconnection between social systems and people.

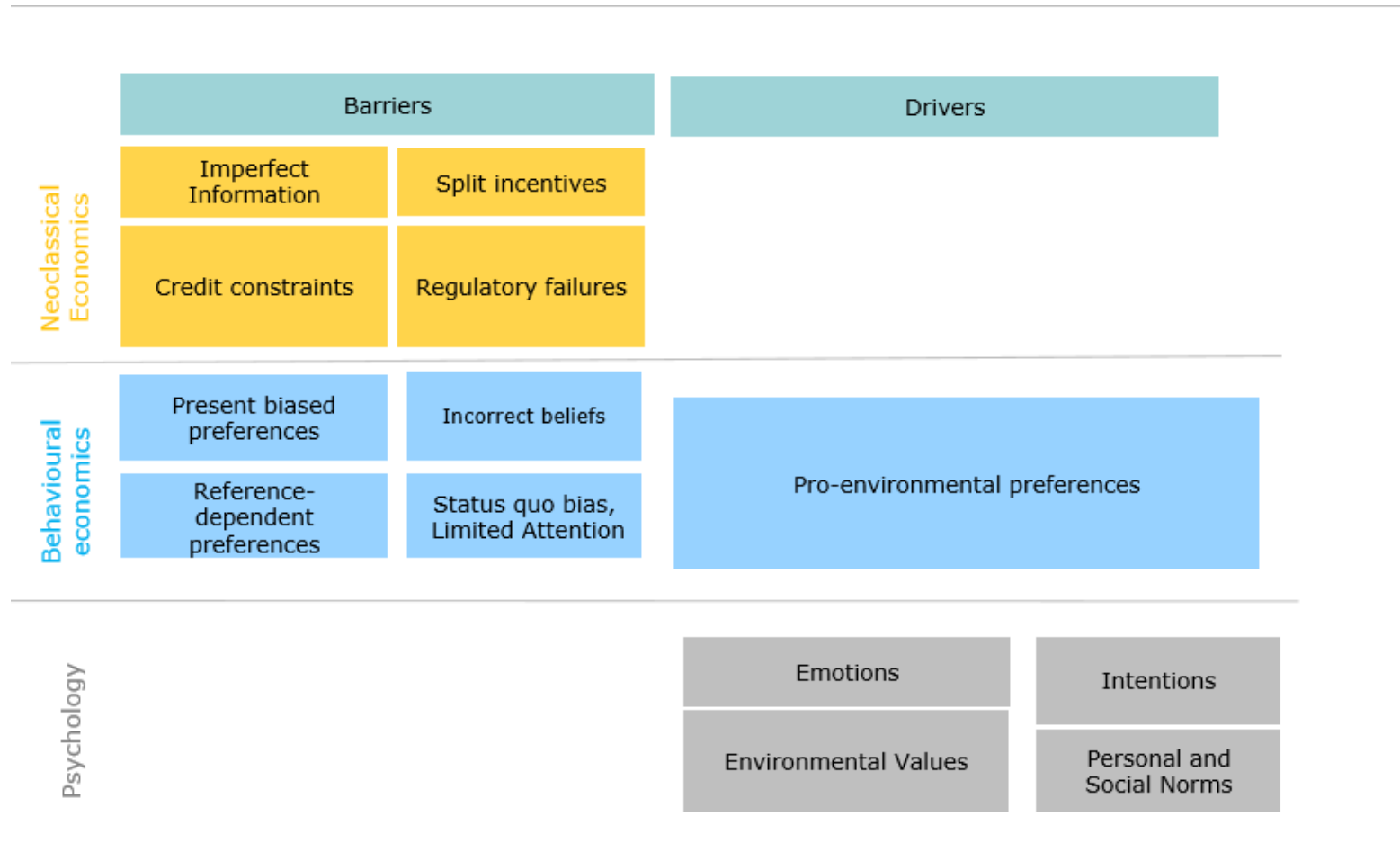
Motivation

- EE policy will unlikely work unless it accounts for the social nature of energy and for distributional, equity and justice issues (Jenkins, McCauley, & Forman, 2017)
- Therefore, it should aim to be guided also by those perspectives that explicitly account for social and ethical issues, like those retaining knowledge as socially constructed.
- However, integrating multiple perspectives and translating them into practice is challenging, due to an ‘information gap’ in policy on how to best apply behaviourally targeted policy (Axon et al., 2018).
- This study aims to address this gap by making the case for legitimising different perspectives and knowledge for EE policy.

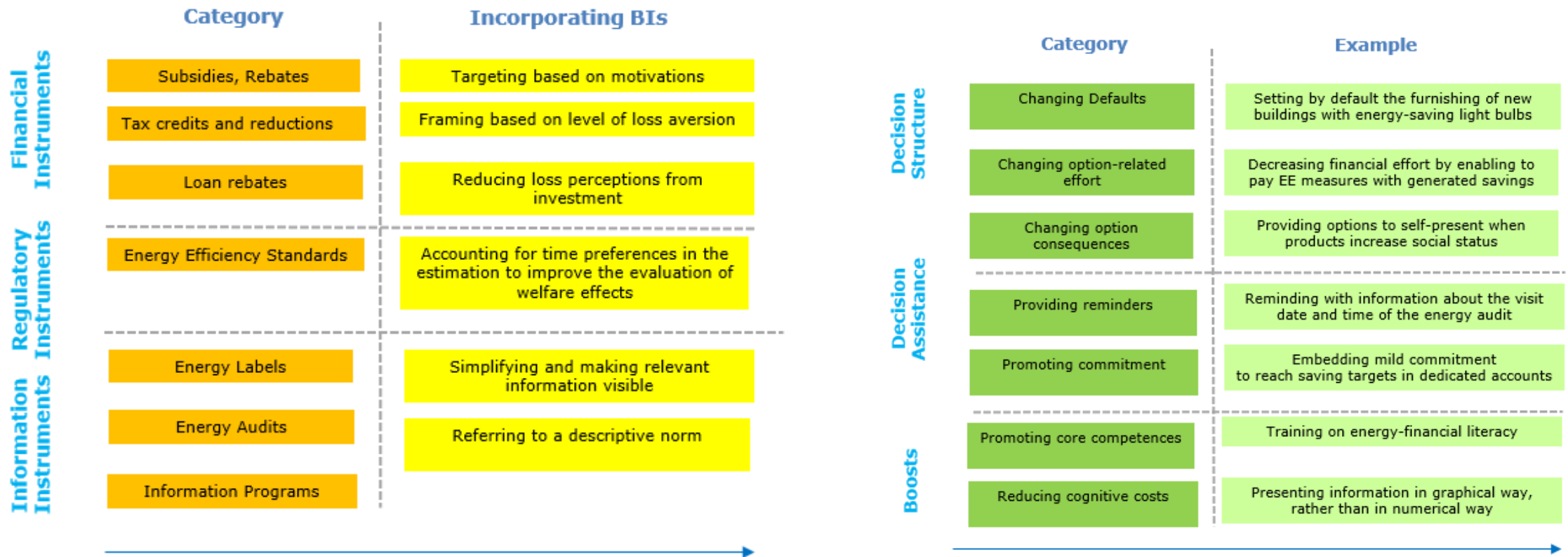
The current approach to EE policy-making

- The dominant scientific approach to energy-efficiency policy-making is that of evidence-based (Bacchi, 2000)
- It is informed by knowledge that is discovered through objective measurement and is assumed to be objective and generalizable.
- In addition, the perspective taken is that of *agency*, with the individual is the unit of analysis (Sovacool et al., 2018).
- The *energy efficiency gap* is understood as a failure for individuals to make optimal choices (Schubert & Stadelmann, 2015).
- The policy goal is to detect and remove(leverage) decisional barriers(drivers).

Barriers and drivers



Removing barriers and promoting drivers



An alternative approach

- One of the reason why the evidence-based framing became dominant in energy-efficiency policy making is that it relies on positivist assumptions (Wagle, 2000).
- However, there exist alternative views of the reality. As an example, for sociology reality is subjective and socially constructed, and knowledge is generated by interpreting individual meanings and actions (Sovacool et al., 2018).
- Sociology also offers an alternative perspective to that of agency, by focusing on the surrounding (structure), rather the on the individual (Giddens, 1979, 1984).
- This perspective enables to consider also the social implications of EE measures, integrating frames of justice and ethics (Dunlop, 219)

Social structure

- **Social Practices**

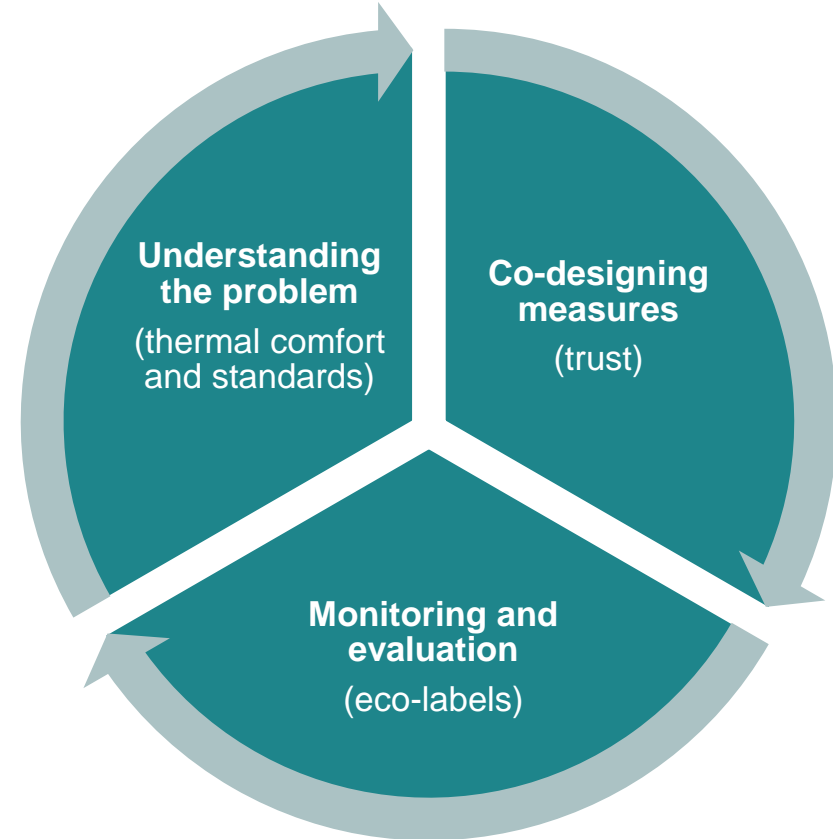
The decision to invest in EE is understood through the lens of the routine and socially shared practices that constitute life at home (Shove, Pantzar, & Watson, 2012).

- **Social classes**

Energy-related practice diffuse across (vertical diffusion) and within (horizontal diffusion) social classes. Some EE investments might diffuse only among the wealthier classes (Bartiaux, Schmidt, Horta, & Correia, 2016).

Energy-efficiency policy making as a democratizing process

- The dominant evidence-based framing of energy-efficiency policy-making aims is to translate objective evidence into practice, and to identify and implement the solutions that work (Bacchi, 2000).
- However, policy-making can be also a tool to enhance democracy, by developing a collective understanding and enacting knowledge (Wagle, 2000).
- Engaging citizens in the policy-making process is key to co-develop more situated and accepted policy measures (Hess & Sovacool, 2020).
- This might not only enable to overcome “societal ceilings” and boost collective acceptance of measures, but can also help to tackle unequal distribution of power (Pereira & Völker, 2020; Hammond, 2020).



Towards a more situated EE Policy

The problem to address should be investigated through a combined approach that quantitatively assesses theory-driven hypotheses over identifiable variables, and through the elicitation of inputs from citizens through engagement activities.

Before implementing an objectively method-driven policy measure, involved actors should be engaged in a co-design process where they co-produce and trial a prototype to achieve a shared solution.

Quantitative methods employed to identify the impact of an intervention, should be complemented by involved actors' tacit knowledge and experiences, elicited through direct consultation.

To sum up

- EE policy making currently reflects an approach aiming to influence investment decisions limited to the removal of barriers and the promotion of drivers of optimal decision-making.
- However, given the socially embedded nature of energy, it will unlikely work unless it accounts for social and contextual considerations.
- This study aimed to contribute to inform the development of a more situated policy agenda that seeks to increase, in addition to efficacy (level of adopted EE), also acceptance and justice, by making the case for legitimising different types of knowledge and perspectives.

Thank you

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References (1/2)

- Axon, S., Morrissey, J., Aiesha, R., Hillman, J., Revez, A., Lennon, B., ... Boo, E. (2018). The human factor: Classification of European community-based behaviour change initiatives. *Journal of Cleaner Production*, 182, 567–586.
- Bacchi, C. (2000). Policy as discourse: What does it mean? Where does it get us? *Discourse: Studies in the Cultural Politics of Education*, 21(1), 45–57
- Bartiaux, F., Schmidt, L., Horta, A., & Correia, A. (2016). Social diffusion of energy-related practices and representations: Patterns and policies in Portugal and Belgium. *Energy Policy*, 88, 413–421.
- Dunlop, T. (2019). Mind the gap: A social sciences review of energy efficiency. *Energy Research & Social Science*, 56, 101216.
- Giddens, A. (1979). *Central problems in social theory: Action, structure, and contradiction in social analysis* (Vol. 241). Univ of California Press.
- Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Univ of California Press.
- Hammond, M. (2020). Sustainability as a cultural transformation: The role of deliberative democracy. *Environmental Politics*, 29(1), 173–192.
- Hess, D. J., & Sovacool, B. K. (2020). Sociotechnical matters: Reviewing and integrating science and technology studies with energy social science. *Energy Research & Social Science*, 65, 101462.
- Hirst, E., & Brown, M. (1990). Closing the efficiency gap: Barriers to the efficient use of energy. *Resources, Conservation and Recycling*, 3(4), 267–281.
- Jaffe, A. B., & Stavins, R. N. (1994). The energy-efficiency gap What does it mean? *Energy Policy*, 22(10), 804–810.

References (2/2)

Jenkins, K., McCauley, D., & Forman, A. (2017). Energy justice: A policy approach. *Energy Policy*, 105, 631–634.

Lopes, M., Antunes, C., & Martins, N. (2012). Energy behaviours as promoters of energy efficiency: A 21st century review. *Renewable and Sustainable Energy Reviews*, 16(6), 4095–4104.

Lutzenhiser, L. (2014). Through the energy efficiency looking glass. *Energy Research & Social Science*, 1, 141–151.

Pereira, Â. G., & Völker, T. (2020). Engaging With Citizens. In *Science for Policy Handbook* (pp. 78–95). Elsevier.

Schubert, R., & Stadelmann, M. (2015). Energy-using durables—why consumers refrain from economically optimal choices. *Frontiers in Energy Research*, 3, 7.

Shove, E., Pantzar, M., & Watson, M. (2012). *The dynamics of social practice: Everyday life and how it changes*. Sage.

Sovacool, B. K., Axsen, J., & Sorrell, S. (2018). Promoting novelty, rigor, and style in energy social science: Towards codes of practice for appropriate methods and research design. *Energy Research & Social Science*, 45, 12–42.

Stern, N., & Stern, N. H. (2007). *The economics of climate change: The Stern review*. Cambridge University Press.

Taylor, P. G., d'Ortigue, O. L., Francoeur, M., & Trudeau, N. (2010). Final energy use in IEA countries: The role of energy efficiency. *Energy Policy*, 38(11), 6463–6474.

Wagle, U. (2000). The policy science of democracy: The issues of methodology and citizen participation. *Policy Sciences*, 33(2), 207–223.

Wilson, C., & Dowlatabadi, H. (2007). Models of decision making and residential energy use. *Annu. Rev. Environ. Resour.*, 32, 169–203.