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2017

Document Version:
Publisher's PDF, also known as Version of record

Transitioning to a local sustainable energy system and rapid decarbonisation: A behavioural economics perspective

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Track: A - Institutions, governance and ethics

Behavioural economics (BE) can be broadly defined as the branch of economics that focuses on cognitive biases, and the motivational and contextual factors that affect individual decision-making processes and resulting choices. Whereas research on BE as applied to energy and decarbonisation is emerging [1–5], scientific knowledge (and resulting policy recommendations) are heavily confined to experimental settings and external validity remains as a challenge [6]. Modelling studies addressing the 1.5°–2°C Paris target strongly suggest that not only a radical technological change is needed, but also an accelerated social transformation [7–10].

Drawing upon BE insights, the purpose of this paper is to identify and discuss community-based perspectives underlying the transition towards local sustainable energy systems and rapid decarbonisation. Aware of the methodological challenges and limitations of BE research methods, (e.g. trade-offs between internal and external validity [5,6] and the 'Hawthorne effect' [11,12]), we use an empirical and real-life setting for the study: Samsø, a 100% renewable energy-powered island that is labelled as one of the most inspiring cases for sustainable energy transitions. Energy-related CO_2 emissions have been negative, as the island produce more CO_2 neutral energy (wind and biomass) than it's used [13]. BE and process tracing form the core of our methodology. Process tracing, understood as the use of evidence to make inferences about causal explanations of a case study [14,15], is used as a qualitative analytical tool to systematically identified and examine 'diagnostic evidence' in relation to four areas: loss aversion [16,17] and its ramifications (e.g. endowment effect, status quo bias), social norms [18], conditional cooperation [19] and salience [20].

Findings suggest that loss aversion combined with a socio-economic crisis (unemployment and depopulation) played a key initial role. Interviews revealed that once the crisis started, a different decision-making scenario under uncertainty arose, in which (future) gains and advantages had a relatively more impact on preferences than crisis-related losses and disadvantages. To avoid losses, a risk-seeking behaviour is identified. Thus, the status quo bias started to diminish. Social norms on behaviour also seemed to play a role, particularly pro-social and altruistic values. However, even if economic and social concerns drove a pro-transition behaviour, it is unclear whether normative behaviour was applicable to the entire island's population. Farmers benefited on multiple levels (e.g. due to tax reductions), which questions pure self-transcendent and pro-social values. Conditional cooperation was driven by trust, public commitment, and information sharing. Managing ingroup/outgroup dynamics and having "local champions" build trust and supported cooperation. Salience of the transition was driven by the above-mentioned crisis, actors facilitating the transition, and local political dynamics. However, salience became more of a factor as projects began to be implemented. In turn, the extent to which social norms may have influenced behavioural

change also depended on the saliency of new energy infrastructure and potential local economic benefits.

From a BE perspective, it is concluded that the socio-economic crisis combined with nationally-driven incentives seemed to affect behavioural anomalies and trigger motivational factors in favour of the energy transition.

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