Introduction to Panel 1 Dynamics of consumption: lessons from multiple crises

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Introduction

The multiple crises that have surged during the last years (COVID, war on Ukraine, inflation, climate change impacts) have all revealed the fragility of our energy dependencies. These crises show how important it is to accelerate on demand reduction for a safer and more secure continent, and not the least to tackle the difficulties of the most vulnerable groups that have been hit hard by rising energy prices. Although efficiency investments are becoming increasingly beneficial, it is a fact that biases are still preventing their optimal implementation. This is reminded by Diaconu (peer-reviewed paper 1-212-24), who adopts a behavioural economics approach to hint at the current impaired conditions in efficiency service markets. The crises have also brought new interest for alternative and more resilient ways of organising energy demand, from flexibility to prosuming. Each crisis triggers emerging practices. Analysing them and understanding the conditions for streamlining positive trends is an important role that research pursues. Quantifying the potential of such consumption dynamics is also necessary to prioritise policies and initiatives, although anticipating behavioural trends remains challenging. All the contributions received in this panel participate in the gathering of essential knowledge that will help Europe shift to safer and greener consumption trends.

Protecting vulnerable groups

The protection of vulnerable groups against climate risks and transformation costs is at the heart of a just transition towards a climate neutral society. This principle is increasingly reflected in the legislative framework of the EU, which requires its Member States to take action to protect vulnerable groups and alleviate energy poverty. The design of targeted policies requires a thorough understanding of energy poverty and the identification of affected populations via suitable metrics. Leveraging a dataset from an Irish study, Kinnear (extended abstract 1-237-24) explores how selected indicators of energy poverty relate to socioeconomic characteristics, inefficient energy behaviours, and seasonal variations. Schumacher et al. (extended abstract 1-141-24) compare the utility of different indicators for identifying households that are vulnerable to rising heat energy prices in Germany and assess the distributional and alleviating impact of different targeted measures. The development of targeted policies also requires an improved understanding of the context and situation of different energy poor populations. Papantonis et al. (extended abstract 1-185-24) contribute to this by taking a closer look at rural energy poverty to inform the development of adequate energy efficiency policy frameworks in consideration of spatial specificities. Burbidge et al. (peer-reviewed paper 1-168-24) in their study reveal how the increased vulnerability of women to energy poverty is reinforced by the lack of gender considerations in existing energy policies.

On the supply side, Libertson and Hörner (extended abstract 1-005-24) analyses the self-perception of Swedish energy utilities in the just transition and develops an analytical framework by defining different archetypes. Beyond the social and political implications, the negative health impacts of energy poverty have gained increasing attention. Dubois' research (peer-reviewed paper 1-310-24) delves into local stakeholders' perceptions of the energy poverty-health nexus in France, emphasising the need to integrate diverse perspectives into policymaking to address this complex issue effectively. Increasing energy prices disproportionately affect low-income households, thereby limiting

their access to essential energy services. Gupta and Zahiri (peer-reviewed paper 1-087-24) investigate heat pump use patterns of low-income households in reaction to energy price increases in the UK, finding reduced indoor temperature levels as a reaction to cope with the additional financial burden. Based on data from a large-scale household survey in the UK, Huebner et al. (extended abstract 1-114-24) show how insufficient indoor heating affects overall wellbeing of respondents, underlining the importance of considering distributional impacts of energy price increases in policy-making.

Insights on demand-side flexibility and prosuming

The shift towards a (decentralised) renewable energy system can reduce fossil fuel dependencies and promote energy democracy. The ability and willingness to become a prosumer or provide flexibility are contingent on the access to (flexible) energy sources as well as individual perceptions of the utility and corresponding motivation. Using evidence from a randomised controlled trial, Boogen and Winzer (extended abstract 1-048-24) examine revealed preferences of Swiss households with regard to heat pump use against the background of changing electricity prices. Employing a mixed-methods approach, de Koning and Kort (extended abstract 1-191-24) investigate the role of core values for Dutch households in providing flexibility and its implications on the flexibility potential that can be unlocked. Lavin and Julienne (extended abstract 1-305-24) contribute to the discussion by examining how preferences towards various demand flexibility mechanisms are formed with regard to fairness perceptions and specificity of provided information.

To promote energy consciousness and incentivise system-serving energy consumption behaviour, the utility of nudges is increasingly studied. In a cross-country intervention study in Croatia and Germany within the EU project NUDGE, Preuß et al. (peer-reviewed paper 1-294-24) found mixed effects of the implemented nudges on prosumer intentions to save energy and energy consciousness, pointing to the influence of national policy frameworks. Building on data from the same project, Kesselring and Pelka (peer reviewed paper 1-086-24) show that intentions are less relevant for behavioural change than exogenous factors such as weather and technology ownership.

Fostering sufficiency practices

Defined by the IPCC as 'measures and daily practices that avoid demand for energy, materials, land and water while delivering human wellbeing for all within planetary boundaries', sufficiency deeply questions the roots of energy use and the excesses of our current societies and lifestyles. It is gaining momentum in the realisation of our energy fragilities. Vadovics and Vadovics (extended abstract 1-286-24) discuss the acceptability of varied sufficiency options based on surveys carried out within the EU-funded project 1.5 ° Lifestyles. Bosseboeuf and Rocci (extended abstract 1-339-24) shows to what extent French citizens are already embracing the concept after it has risen in the national public debate in the last years. The European project FULFILL has also collected extensive field material on sufficiency that allows Flipo et al. (extended abstract 1-043-24) to reveal the positive role that local initiatives can play to embark people in new practices, while Marignac et al. (extended abstract 1-321-24) present the methods developed within the project to better integrate findings from social sciences in energy demand modelling.

Policies are increasingly studied as instruments to create the necessary conditions for change. Solbu et al. (extended abstract 1-053-24) interrogated Norwegian stakeholders to better understand the barriers to sufficiency policies, notably the perceived lack of agency to reduce consumption. Nyfors (extended abstract 1-204-24) investigates how bottom-up expectations from grassroots movements and more usual top-down policy tools may be reconciled. Sufficiency requires revisiting the material arrangements that shape our daily behaviours. In that spirit, Christensen and Gram-Hanssen (extended abstract 1-217-24) explore how far current infrastructures could be swiftly 'reprogrammed' (e.g., turning highways into bus and cycling lanes), pending more profound transformations. It is also interesting to see new disciplines questioning their potential contribution to sufficiency, such as designers in an exploratory research by Strömberg et al. (peer-reviewed paper 1-139-24).

Looking ahead

Anticipating future trends and modelling energy demand remain of paramount relevance to inform policy-making in these troubled times. Brugger et al. (extended abstract 1-192-24) pick four of the main rising societal trends (prosuming, circularity, digitalisation, sharing) and quantify their potential impact on energy use by 2050. Some trends may curb energy demand, while others risk doing the opposite. Durand-Daubin et al. (peer-reviewed paper 1-163-24) show for instance how the emerging use of air-conditioning is threatening climate goals and how much its use depends on comfort perception. Stressing the importance of social justice for a successful transition, Betts-Davies et al. (extended abstract 1-280-24) investigates several scenarios of better income and consumption redistribution in the UK and their climate implications. Similarly, Johnson and Betts-Davies (extended abstract 1-203-24) builds on the European energy scenario CLEVER, published in 2023, to check how far increasingly sufficiency-based societies could tackle inequalities in income and access to energy services.