

# Introduction to Panel 1

## The dynamics of limiting (energy) consumption

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### Introduction

Increasingly voices from the research arena, NGOs and sometimes even policymakers, are stating that there are absolute limits to how much we can consume, and that a focus on sufficiency is needed. There are however also a lot of counter voices stating that if we apply (much) more energy efficiency and shift to renewables, we can continue to consume as usual. Both views are rather top-down, often focused on technological solutions or on energy behaviour change of the end-user, e.g. nudging. They often entail a piecemeal approach, instead of a more systemic approach and/or solution. The ambition of our panel is to challenge the status quo and to discuss a possible path forward. In order to better understand the limits to consumption, we find it necessary to *not limit the discussions*, and we hope these contributions stimulate heated discussions on both what's possible, and what's fair and what's not, from the perspective of consumers, policy makers and other stakeholders. This panel also takes the time to reflect on where we stand, what we know and should start implementing, and who has what role to play in limiting (energy) consumption and empowering action.

### Understanding and influencing consumers

Responsibility for change and responding to the climate change challenge is often put on the energy end users – the demand side – demanding major changes with respect to the role of energy in everyday life and/or challenging the level of service or comfort that energy provides. In light of this we have papers that are dedicated to understanding consumption in the light of efficiency – as well as sufficiency – from a consumer point of view, and to understand how to influence the consumer to use less energy. Several of our papers explore state of the art relating to

feedback and energy visualisation, e.g. “Energy visualization” as a tool to influence the energy use in a municipality kitchen’ by Nair & Eklund (1-028-19) and ‘Using digital interventions for behaviour change towards energy efficient behaviour’ by Roser et al. (1-363-19). Gorin & Jeanneret (1-217-19) also explore feedback but looks at it as part of the energy transition in ‘Case study feedbacks to accelerate and strengthen the energy transition’.

Other authors explore other ways of engaging consumers. For example, Lőrincz et al. (1-221-19) present results from an explorative study on household activities in ‘Exploratory analysis of family-related activities during peak electricity periods’ while Di Santo et al. (1-211-19) share experiences from a multi-utility in ‘Non-energy benefit evaluation: the experience of a multi-utility’. In yet another paper, ‘Nudgeathon for encouraging energy behaviour’, Udall et al. (1-170-19) report the use of a new portfolio that combines established means to influence consumption patterns for synergies, while Vadovics et al. (1-331-19) explore the use of different social settings in ‘Limiting energy consumption using different methodologies: carbon clubs, EnergyNeighbourhoods and Living Labs. A comparison of methods and results’. Finally, Klöckner (1-013-19) explores the usefulness of looking at social aspects of energy consumption and reports from two H2020 projects in ‘Understanding the social dynamics of consumer energy choices – some lessons learned from two H2020 projects’.

### Fun, simulating, connecting, shocking and confronting

We also have papers exploring how fun, connecting, shocking, and confronting can be used to limit consumption, i.e. by use of gamification or simulation. ‘Play the game: learning about ener-

gy efficiency can be fun – seriously!’ Cooremans et al. (1-307-19) explain how this is indeed possible while Sousa et al. (1-346-19) present a case study involving young adults in ‘Gamification as a way to involve young adults in energy efficiency and sufficiency – a case study’. Jager & Antosz (1-085-19) discuss how simulation and modelling may help set a new and sustainable course in ‘How simulation may help communities to set a sustainable course’.

Ambrose (1-172-19) presents a way of reconnecting citizens to energy by walking in ‘Walking with Energy: increasing energy visibility through research participation’ while Löfström & Klöckner (1-157-19) in ‘Nature in Your Face: framing co-creative visioning’ suggest a ‘nature’s shock-therapy’ approach for citizens engagement in policy making and innovation. Diakonova & Grünewald (1-203-19) even claims that limiting consumption may actually be beneficial for the quality of life in ‘Better off with less (energy)? Household activities during interventions’.

### Participation, prosumers and new visions

The panel also addresses participation and the shift of the role of humans and their role in limiting consumption. For example, Hansen et al. (1-102-19) explore how the shift from consumer to prosumer influences electricity use in ‘Three forms of energy prosumer engagement and their impact on time-shifting electricity consumption’, while Jahn & Rosenow (1-128-19) discuss photovoltaic self-consumption in ‘Applying the efficiency first principle to photovoltaic self-consumption’. But we also have papers looking at the role of end-users in load-shifting and interventions in provision of electricity. Jensen & Friis (1-116-19) report from ‘Experimenting with resource-intensive practices and related energy consumption levels’. Also, the challenge of achieving voluntary load-shifting in households is explored by Christensen et al. (1-234-19) in ‘How to engage households in energy demand response solutions?’, while Sahakian et al. (1-078-19) investigate laundry and heating routines in ‘Chal-

lenging conventions towards energy sufficiency: ruptures in laundry and heating routines in Europe’.

Some papers explore alternative visions. Vadovics & Živčič (1-312-19) investigate citizen visions and uses this to discuss whether we are ready for energy sufficiency in ‘Energy sufficiency: are we ready for it? An analysis of sustainable energy initiatives and citizen visions’, and Dufournet et al. (1-248-19) discuss how to best argue for energy sufficiency in ‘Energy sufficiency: how to win the argument on potentials?’.

### Policy for limiting (energy) consumption

We finally have a number of papers discussing the policy aspect of limiting consumption, such as Liu et al. (1-387-19) who explores the potential of using quotas in ‘Building energy consumption quotas: a policy tool toward sufficiency?’. Dunlop (1-198-19) explores conceptual energy efficiency gaps in ‘Closing the (conceptual) energy efficiency gap’, while Mickelsson et al. (1-275-19) discuss the possibility of territorial carbon budgets in ‘From Paris to local government action: implementing territorial carbon budgets’. In addition, Covary et al. (1-070-19) will discuss the lighting policy of South Africa in ‘A review of the residential efficient lighting programme rollout in South Africa’. Janda et al. (1-391-19) discuss the hidden stakeholders and their potential in limiting (energy) consumption in ‘Making more of middles: advancing the middle-out perspective in energy system transformation’, while Pellegrini-Masini (1-293-19) discusses the justice and equality issue of limiting consumption and questions whether energy equality policies are really acceptable from the perspective of the energy-poor in ‘Energy equality and energy sufficiency: new policy principles to accelerate the energy transition’. Mac Nulty & Büttner (1-383-19) explore the possibility for a joint action for business and industry in ‘Facilitating joint action towards energy efficiency in business and industry’. To conclude, Johansen et al. (1-332-19) address the very definition of energy efficiency in ‘What’s the magic word? What we talk about when we talk about energy efficiency’.