

Designing for Decision Makers in Net Zero Futures

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Abstract. In the midst of the world’s struggle to respond appropriately to the ongoing climate crisis, additional pressure mounts from other challenges such as economic turmoil and energy crises. While individuals are directly and severely affected by the consequences both short-term and long-term, there is still too much policy focus on consumer and individual led change. This workshop focuses on finding more impactful solutions by turning toward commercial, industrial, and organisational stakeholders in decision-making positions, using Net Zero as a lens to imagine future scenarios. This workshop brings together researchers, practitioners, and stakeholders to share their experience from past and ongoing work in this domain. Utilising guided co-design activities we envisage constructing future scenarios that build upon the participants’ expertise and offer avenues for how HCI research can help design solutions towards a more sustainable tomorrow.

Keywords: Sustainability · Net Zero · Crisis Resilience · Decision Making · Energy Demand · Stakeholder Engagement · Futures.

1 Background

Whilst the impact of Covid-19 has unquestionably been devastating, it has highlighted one thing in particular - in a crisis we can band together and our governments can quickly react to redirect investments and implement emergency measures. This looks to be playing out again with the energy crisis in 2022/2023, as geo-political changes to the availability of world resources, such as natural gas, again trigger multilateral action. We see this as an opening. If governments and decision makers can collaborate with industry, academia, and innovators to fix complex health problems, then there is a chance that they can all work together to get to Net Zero in a timely fashion.

Historically, the field of sustainable HCI focused on individual behaviour change [8]. In-home energy displays and behaviour change interfaces, for example, were intended to help users harness data to reduce the costs associated with

their energy consumption [14]. However, such projects were noted to rely on assumptions that do not consistently hold true: users, like “resource man” [21], are expected to pull the appropriate lever in response to more information, rationally ‘optimising’ their behaviour. Critics have challenged these assumptions [4] and have called sustainable HCI researchers to broaden their horizon, attend to structural problems and support system change, activism and a re-imagination of economic models [3]. Entailing more complexity but also new directions, it is the system changes in the growing visions of Net Zero futures that lie at the heart of these calls.

Imagining future scenarios, such as relating to future world resources, climate change or Net Zero, are powerful design tools. Futures and fictions are growing methods in HCI to help imagine spaces and scenarios where design can engage. These methods should be seen as “research through design” and not as complete systems (e.g. [23]), making space for critical design [10], speculation [11], adversarial design [7], and design fiction [2] in the reimagining of systems. These approaches help designers engage with the politics and scales of systems change that are difficult to imagine in our current systems (cf. [9]) and communicate complexity of future systems with stakeholders through a variety of mediums such as games (cf. [6]) or fictions themselves [15,5]. Our workshop builds on practices of futuring with stakeholders, decision-makers, and practitioners such as using design fictions being used as education tools [17], fictional abstracts being used to generate community discussions [19,1], worker-led speculations [16], design fiction in policy design [22,18], and co-told community energy stories [12].

While sustainability challenges are undoubtedly manifold, achieving Net Zero—a target of completely negating the amount of greenhouse gases produced by human activity by reducing emissions and absorbing carbon dioxide from the atmosphere—brings a particular focus. At a nation state level, Net Zero brings legally binding targets that needs to inform government strategies, but it also cascades down to other sectors and businesses, with profound and far reaching consequences. Many decision makers are poised at a critical juncture, whereby they are now called upon to understand the complexities of GHG emissions arising from their operations, energy sources and supply chains, in order to build roadmaps for their organisations into the future.

Leveraging this critical moment in history, we plan to bring these stakeholders and methods together with HCI practitioners to help envision the role of HCI in achieving Net Zero. The power of these methods and approaches to deal with complexity, imagine alternatives, and be utilised as educational tools are just a few examples of why we are using them in the context of this workshop. We build on our prior work, combining with industry experts, to develop new imaginaries surrounding HCI Net Zero futures. By utilising futures and fictions we aim to create a space that is open, prioritising fun and creativity, all whilst considering future scenarios from which practitioners can develop technology around, creating a community that is critical to broadening the engagement and possibilities of HCI around this critically important and urgent topic. From these futures we aim to explore where there’s scope to help decision-makers steer with

more urgency towards Net Zero, and where the breadth of HCI can play roles in enabling decision-makers to open their minds to the necessity and urgency of Net Zero.

In recent years, HCI workshops have successfully addressed speculative and smart energy futures. The 2020 NordiCHI workshop “Speculative Energy Futures: Post-human Design for the Energy Transition”, for example, encouraged participants to employ speculative design strategies to envision energy infrastructures that are not human-centric [20]. And in summer 2022, a workshop titled “Designing Domestic Smart Energy Futures” at the International BSC Human-Computer Interaction Conference, challenged the HCI community to consider ways in which they can contribute to designing new, user-centred and fair domestic smart energy futures [13]. What sets our workshop apart from previous events is the focus on commercial, industrial, and organisational stakeholders in decision-making positions: we will bring together practitioners from industry, facilitators, and HCI experts to imagine Net Zero futures that focus on how imagining futures for commercial settings and businesses can help exhaust their large possible impact.

This workshop is motivated by the following provocations:

- Building on the breadth of HCI, where can we imagine our role in policy, organisational and systems change in futures where Net Zero is prioritised?
- Would we be on this trajectory of climate catastrophe if our policy makers and business leaders had been more bold about committing to Net Zero futures sooner?
- How can fictions and futures shift the focus from individual consumers with collectively little power toward changing energy supply chains, energy networks or the energy consumption of large commercial organisations?
- What industry practices surrounding Net Zero futures can we build upon?
- Can we imagine futures where energy companies in private ownership choose to invest in futures prioritising people and planet over profit?

2 Expected Outcomes

The goal of the workshop is to focus on producing tangible, useful outcomes for all attendees based on the collective experiences and interests. We aim to facilitate engagement among participants prior to the workshop, guided by the organisers, minimising the “getting to know” phase during the workshop itself and gaining more time for workshop activities. The morning sessions will be kicked off by short presentations to showcase Net Zero examples outside of academia and design fiction scenarios, and the co-design exercise will be led by experienced design fiction workshop organisers. This will allow us engage in collective activities that takes participants’ research and interests and translate it into Net Zero futures scenarios.

All workshop material will be available for all participants after the workshop via the Miro boards and online Teams meeting logs. Pending all workshop participants’ permission, we plan to make most of this material accessible via

the workshop website as well for non-attendees. Furthermore, the organisers will invite participants interested in collaborating on a paper to ICT4S, LIMITS, or another related conference sharing Net Zero futures stories as a means to document and communicate the workshop outcomes in an archival publication.

3 Target Audience

We invite interested researchers and practitioners to join us in a workshop aiming to design solutions for decision makers towards Net Zero futures. In the midst of the world’s struggle to respond appropriately to the ongoing climate crisis, additional pressure mounts from other challenges such as economic turmoil and energy crisis. In this workshop, we bring together researchers, practitioners, and stakeholders to share their experience from past and ongoing work. Utilising guided co-design activities we envisage brainstorming future scenarios that build upon the participants’ expertise and offer avenues how HCI research can help designing solutions towards a more sustainable tomorrow. We aim for a diverse set of participants with experiences or with a vested interest in engaging with decision-makers to promote sustainability.

4 Key Organisers

Christian Remy is a Senior Research Associate at Lancaster University working on a project called “Net Zero Insights” aiming to develop tools for decision makers in energy management at various stakeholders. His primary research topic for most of the last decade has been in sustainable HCI with a plethora of publications, workshops, and organisational experience.

Oliver Bates is a Research Fellow at Lancaster University. He is a multi-methodological pragmatist, increasingly grounded in design and HCI, working with policy makers, workers, and service users. Recent work includes a collection of design provocations and games as part of Crank & File, and the design of low carbon and socially just futures in the context of Net Zero commercial energy demand and gig economy courier work.

Christina Bremer is a Doctoral Student at Lancaster University. With a background in cognitive science and HCI, and keen interest in sustainability, her research focuses on the energy-saving potential of behaviour change and energy efficiency technologies in buildings. Alongside her research, Christina works as a UX designer for a company that specialises in energy forecasting.

Adrian Friday is a Professor of Computing and Sustainability at Lancaster University. He is passionate about understanding the role of ICT in promoting sustainability in various settings including the home, and is currently working with commercial partners to achieve Net Zero through better understanding of their energy and contextual data. He advises the Royal Society “Digital Technology and the Planet” working group.

Carla Gröschel is working at Capgemini as software engineer within various projects and contexts. She tries to embed the topic of sustainability into her

work, for instance as being part of the Center of Excellence Sustainability at Capgemini.

Naomi Jacobs is a Lecturer in Design Policy and Futures Thinking at Lancaster University. Her research investigates how design approaches, particularly speculative methods and design fiction, can be used to inform policymaking. Prior work has focused on the nature of digital public space, and questions of ethics, transparency and trust in digital technologies.

Ben Kirman is a Senior Lecturer and member of the Digital Creativity Labs at the University of York, with a background in speculative and critical design. His work uses fiction, games and prototyping as a way to explore futures of technology in playful ways that can help understand the complex effects of a changing world.

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— Workshop Organisation —

1 Submission Process

We ask participants to submit a 2-4 page extended abstract stating past, ongoing, or expected future research related to the workshop’s theme, sent to the main organiser’s email address, linked from the workshop website, by June 1.

All accepted participants will be asked to share a short summary of their position paper that will be disseminated to other participants via the website (<http://wp.lancs.ac.uk/netzerofutures>, to be set up upon workshop’s acceptance). These short summaries focus on the participants’ previous experience with stakeholder engagement and their stakeholders’ stance towards Net Zero, or sustainability more broadly. They will also be asked to answer a question inviting them to speculate about a possible future based on their expertise.

We will ask workshop attendees to skim those short stories prior to the workshop and facilitate engagement, by creating a Miro board with predefined questions, or assigning participants into groups of similar themes, depending on number of submissions and spread as well as similarity of topics. This is to ensure at least a minimum level of interaction between attendees before the workshop, cutting down on the “getting to know” phase in the morning session of the workshop itself, and gaining more time to focus on the futures-thinking aspects of the workshop.

2 Organisation

The workshop’s duration is planned to take a full day. We envision the preliminary schedule of the workshop as outlined in Table 1. Times can be adjusted based on the conference’s organisational schedule, e.g., for venue opening times, catering, and coffee/lunch opportunities. If desired, workshop participants are welcome to join for an informal post-workshop dinner.

The morning session will focus on hearing thought-provoking insights from outside academia, followed by a brief round table of all attendees. Due to the pre-workshop knowledge exchange we aim to keep this short and devote more time for the following brainstorming activities, which will start after coffee with a Miro board session in which we will draw connections between workshops’ attendees previous and ongoing research to get everyone involved. The main activities before and after lunch will be focusing on co-designing solutions towards Net Zero futures, led by workshop co-organiser Naomi Jacobs whose research in designing future speculations will provide invaluable guidance. These activities aim to take participants’ existing work settings, project them into a Net Zero future, and brainstorm how to design towards those futures. A round table discussion session will wrap up the workshop in the late afternoon session.

Table 1: Workshop schedule

Time	Activity
8:30	Pre-workshop setup, meet and greet
9:00	Intro and welcome
9:15	Provocation: Net Zero in the consulting world (Carla Gröschel)
9:30	Provocation: Net Zero future examples
9:45	Round table & collaborative board
10:30	Coffee
11:00	Breakout groups (1)
12:30	Lunch
14:00	Sharing design speculations
14:30	Coffee
15:00	Breakout groups (2)
16:00	Show and tell, discuss
16:45	Wrap up