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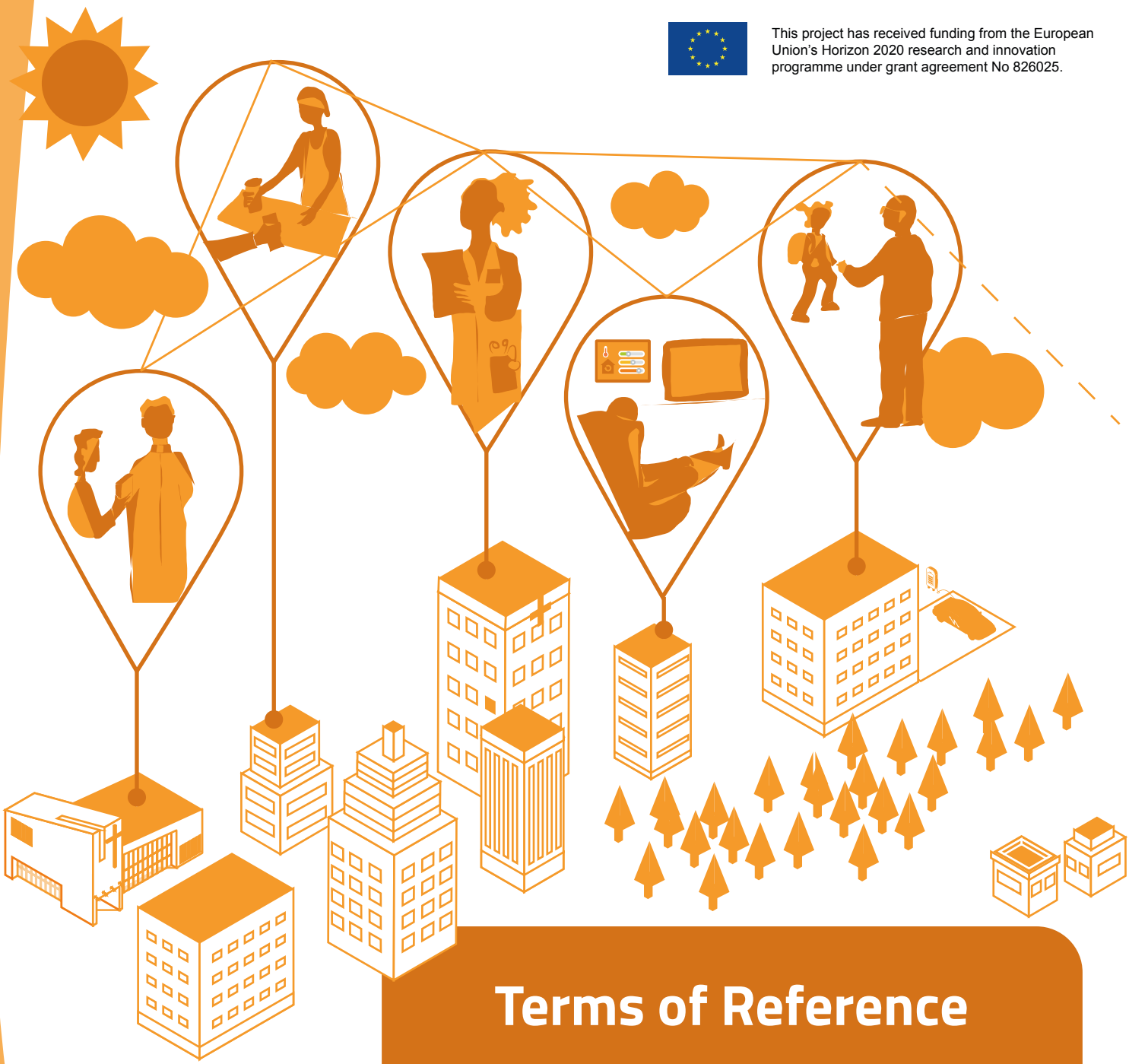

Terms of Reference

Energy-SHIFTS
Working Group 2 – Smart Consumption

Energy-SHIFTS

ENERGY SOCIAL SCIENCES & HUMANITIES INNOVATION FORUM TARGETING THE SET-PLAN

Rosie Robison
Tomas Moe Skjølsvold
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November 2019

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Contents

1. Introduction

1.1. The Energy-SHIFTS Working Groups – of which there are four[1] – will run from Autumn 2019 to Summer 2020. These will provide a detailed list of energy-related Social Sciences and Humanities (energy-SSH) priorities for the future of EU-funded research and innovation, specifically under its forthcoming Framework Programme 9: Horizon Europe[2]. This set of Working Group activities form part of the wider Energy-SHIFTS project[3] that aims to significantly improve the profile of and opportunities for energy-SSH in EU energy research and innovation funding policymaking. Energy-SHIFTS has a direct policy advice role to the European Commission's Directorate General for Research and Innovation (DG RTD), and this Working Group will submit its recommendations to the Ecological and Social Transitions (C5) and the Clean Energy Transition (D1) units. There is real interest within these units to better understand what the energy-SSH research interests are from the energy-SSH research communities themselves.

1.2. Horizon Scanning is a widely used set of methods that are used to gain 'foresight' about emerging opportunities and risks, identify knowledge gaps at the frontiers of fast-evolving phenomena, and set strategic priorities for decision-makers or researchers. Horizon Scanning is well-established within Europe, and most particularly within the UK, where policymakers have recognised the need for taking heed of 'early warning signs' and taking a more proactive (rather than reactive) approach to complex problems. A variety of methods exist to do this, from exploring existing literatures to surveying experts in a field. The method we use in our Energy-SHIFTS Working Groups is a slightly adapted version of the Delphi technique previously used to identify, for instance, the top 100 questions for biodiversity, conservation and global agriculture[4]. This involves canvassing subject experts and their networks for their opinions on key knowledge priorities, categorising the answers, and reaching a joint consensus on the most important questions (up to a list of a 100, though shorter lists of say 10 key priorities, have also been produced).

1.3. This particular document outlines the 'Terms of Reference' for Working Group 2 on Smart Consumption. Specifically, we cover the main tasks, roles, responsibilities and ultimately boundaries of the work envisaged for this Working Group, and thereby also the steps it will take in conducting an Horizon Scan. This is one of the first publications associated with our Working Groups, and we hope it emphasises our ambitions to be policy-relevant, but also to crucially allow space for SSH ideas to take the lead in e.g. constructively reflecting on the assumptions embedded within associated energy policy and governance agendas.

1 The set of four Terms of Reference follow a standard template, with identical content for all sections other than sections 2, 3.1, and 5, which are tailored.

2 For more details on the forthcoming €100bn EU Horizon Europe programme, see: https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en

3 www.energy-shifts.eu

4 E.g. Pretty, J. et al., 2010. The top 100 questions of importance to the future of global agriculture, *International Journal of Agricultural Sustainability*, 8(4), 219-236.

2. Preliminary description of 'Smart Consumption'

2.1. *EU Energy Union and SET-Plan context*

Within the EU's flagship Energy Union programme, policy actions targeting society[5] are being operationalised through its 'Smart' strategies. Specifically, the Union seeks to address energy-related social needs through SET-Plan Key Action 3 "*new technologies and services for consumers*" aimed at increasing consumer participation in, and accelerating progress towards, a smart energy system[6]. 'Smart' is thus considered to be the key factor in transforming people's relationships to future energy systems. This means the present Energy-SHIFTS Working Group on 'Smart Consumption' has significant potential to act as a bridge between diverse SSH research and those Energy Union policy targets which are most explicitly aimed at socially-relevant outcomes.

SET-Plan Key Action 3 as identified above has in fact given rise to two (out of 14) endorsed Implementation Plans, with the second explicitly bringing in the role of smart cities. These are described in brief as follows: "*The SET-Plan action* 3.1 [on Energy Consumers] *addresses a digitalised eco-system where consumers, companies or stakeholders can offer or use energy services for houses and commercial buildings in cities through different sources of data (energy, weather, traffic, etc.) using real-time monitoring and control. On the other hand, SET-Plan action* 3.2 '*Smart Cities and Communities*' *supports the planning, deployment and replication of 100 'Positive Energy Districts' by 2025*"[7].

There is some degree of existing SSH expert involvement in the groups tasked with these two Plans (which is not the case in all 14). Thus SSH themes already being considered include, amongst other things, energy market participation, and consumer behaviour or preferences related to smart appliances[8].

2.2. *Definition of 'Smart Consumption'*

Whilst not wanting to pre-empt outcomes of the Working Group by adopting an overly rigid definition, some form of initial definition serves to both explain to external parties the foci of the Group and help draw boundaries with the other three Working Groups.

Thus, we are taking 'Smart' to refer to energy technologies which are digitally enabled and networked for (usually real time) monitoring and/or control. The term 'Consumption' in the Working Group's title shows an emphasis on these technologies in homes, workplaces and communities, rather than within *industrial scale production or use* of energy, which are not central objects of attention for this Working Group, unless associated with commercial buildings in cities (see subsection 2.4 also).

There was a deliberate choice not to title the group 'Smart Consumers' since we seek to include actors beyond the classical 'end-users' involved in the making of 'Smart Consumption'. This reflects the capacity of SSH to expand on a traditional understanding of consumption as being constituted by the consumer choices of individuals, to it being a phenomenon constituted by the actions of a series of actors and technologies.

5 With 'consumers' usually being the central societal grouping considered. We note the clear potential for SSH to help widen this to consider other actors (such as workers, and those in governance roles) more directly. See subsection 2.2.

6 COMMUNICATION FROM THE COMMISSION – A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy. C(2015) 080 final. Available: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2015:80:FIN [Published 25 February 2015].

7 SET Plan Temporary Working Group 3.1 (2018) *Energy Consumers Implementation Plan*. SET Plan Information System: Brussels. Available: https://setis.ec.europa.eu/system/files/set_plan_consumers_implementation_plan.pdf [Accessed 27 November 2019].

8 Dufour, E., Lisi, V. and Robison, R., 2019. A *guide to the SET-Plan: Including the role of the Social Sciences and Humanities*. Cambridge: Energy-SHIFTS. Available: https://energy-shifts.eu/wp-content/uploads/2019/11/Energy-SHIFTS_D1.4_SET-Plan_Scoping-guide.pdf [Accessed 27 November 2019].

2.3. *Working Group example debates and scope*

We do not attempt to cover or predict here the range of priorities which may arise from expert members of the Group. Instead we point to a few recent examples of how SSH has brought alternative perspectives to the 'smart' debate (i.e. beyond techno-economic assessments), often with the aim of making smart futures as effective and inclusive as possible.

***Smart utopia*:** Many SSH authors have critiqued the very visions seemingly proposed via the EU's priorities, that 'smart' will necessarily revolutionise energy use and, in particular, lead to significant energy savings, and the idea that non-smart (or 'dumb') is inherently problematic. Such authors point out that day-to-day life involves messiness and argue this is not something that should (or indeed could) be 'designed out'.

***Unintended consequences of smart*:** While smart is often advocated as a tool to improve the decisions of consumers, many SSH scholars have highlighted how the same smart technologies can also be used for different purposes by other actors, such as law enforcement or advertisers. Further, SSH research has suggested that the dominant modes of design within smart energy technology may alienate certain social groups from energy engagement and threaten to strengthen existing societal divisions.

***Material politics and participation*:** New forms of connections made possible through smart technologies are impacting on the political. As an example, 'smart' has made more explicit the role of social groups other than consumers in the energy system, thus remaking how governance is performed. Further, 'smart' has opened up new forms of mundane and domestic political engagement with environmental issues.

2.4. *Boundaries with the other three Working Groups*

Here we discuss interrelations with each of the other three Working Groups. These boundaries may be revisited over time.

***Renewables* (WG1):** smart technology associated with the industrial scale production or use of energy is not a central object of attention for this Working Group, however the use of renewable energy technologies as part of smart networks within homes, workplaces or communities may be considered. Prosumption may be an empirical area of interest, again where the focus is on the smart enabling of this. We also note that variable production from renewables often results in a systemic need for flexible demand, which smart in turn is seen to help enable.

***Energy Efficiency* (WG3):** smart technologies are often argued to bring benefits in terms of efficiency, as well as being a key means via which consumers can seek to reduce their energy consumption, and thus there will be debates of interest to both groups. Lines of reasoning related to the ways energy consumers should or do act are also often echoed across the two topics. There are therefore likely to be the most direct overlaps for Smart Consumption with the Energy Efficiency Working Group, and the Steering Groups will liaise closely.

***Transport* (WG4):** the Smart Consumption Working Group will tend not to focus on debates concerning smart transport solutions with the important exception of smart charging of Electric Vehicles within the context of household or city networks.

3. Organisational structure and responsibilities

3.1. Working Group 2's activities will be organised and led by a Steering Committee, which will be made up of the following individuals:

- Chair: Dr Rosie Robison, Global Sustainability Institute, Anglia Ruskin University (rosie.robison@anglia.ac.uk).
- Co-chair: Dr Tomas Moe Skjølsvold, Department of Interdisciplinary Studies of Culture, Norwegian University of Science and Technology (tomas.skjolsvold@ntnu.no).
- Critical Policy Friend: Johanna Lehne, E3G – Third Generation Environmentalism (johanna.lehne@e3g.org).
- Early-Stage Researchers: Emily Judson, Department of Geography, University of Exeter (e.judson@exeter.ac.uk); and Viera Pechancová, Department of Management and Marketing, Tomas Bata University (pechancova@utb.cz).

3.2. The role of the Critical Policy Friend is to inform the Working Group of relevant ongoing policy debates. In particular, they will:

- Provide advice on initial setup and problem framing of the Working Group, as part of feeding into the Horizon Scan's original point of departure.
- Provide written comments on strategic important milestones (e.g. categorisations of the questions) and key outputs (e.g. final list of research questions) to ensure relevance for current policy debates and to suggest alternative framings if required.
- Sit in on 1-3 of the Working Group member interviews, to contextualise their understanding of SSH histories associated with Smart Consumption.
- Reflect on the Working Group processes, debates and outcomes, as part of completing fieldnotes at selected moments.

3.3. The Working Group will include two Early-Stage Researchers (ESRs). These ESRs will not be participating in the Horizon Scan itself, but will be an invaluable part of the Steering Committee co-ordinating the Working Group activities. Exact contributions and activities will be decided upon discussion with the Chair and Co-Chair. As a minimum, they will likely support on identifying further potential Working Group members, in addition to providing their own reflective fieldnotes.

3.4. The Working Group itself will be made up of 25-30 Social Sciences and Humanities researchers, from different disciplines and countries, working on various aspects of energy. All these Working Group members are expected to participate in the following ways:

- Respond to Horizon Scan questions, which focus on (1) identifying top energy-SSH research needs for Horizon Europe, and (2) providing supporting justifications. This is the mandatory, core requirement as a Working Group member. Members would also be encouraged to canvas their wider networks for input (e.g. their university's research groups, their professional associations, or even through relevant meetings they attend, etc.).
- Provide reflections that aid the Steering Committee in categorising the questions received and narrowing down the final list of questions to 100, through an iterative process of around three rounds.
- Sign off on the final list of e.g. 100 questions, including the opportunity to attend a virtual meeting to discuss these final questions with other Working Group members
- Whilst individual Horizon Scan responses will by default be anonymously presented, the Working Group members will automatically be entitled to be co-authors of the Energy-SHIFTS recommendations report (submitted to the EC DG RTD's energy strategy unit), as well as the subsequent journal paper. There is no an expectation to be actively involved in the writing of the final report, but there will

be the opportunity to feed in beyond mere participation in the Horizon Scan (should there be appetite).

- 10 members will be interviewed by the Chair and Co-chair. The aim of this interview is to get expert perspectives on the development of SSH research relevant to the Working Group topic, including important and emerging debates or 'splits', as well as the interviewee's perspectives on how particular perspectives (if any) have been 'mainstreamed' into policy, why, and to what effect. The interviews will also provide an opportunity to identify the new Working Group members, in filling the remaining final positions. This is optional and not a requirement for all Working Group members.
- Possibility of attending the SET-Plan 2020 Conference and/or the end-of-project Energy-SHIFTS 2021 Conference, to exchange ideas with the Energy-SHIFTS consortium as well as others involved in all four Energy-SHIFTS Working Groups. This is optional and not a requirement for all Working Group members.

4. Recruitment of Working Group members

4.1. To be eligible for Working Group membership, one must:

- Be invited to participate by a member of the Steering Committee, with sign-off from both the chair and co-chair necessary.
- Self-identify as a researcher, whether based in e.g. industry or academia.
- Currently work in SSH, even if their original training (e.g. PhD) was in Science, Technology, Engineering and Mathematics (STEM) disciplines.
- Currently work in a research role based in a country that is eligible for Horizon 2020 funded, i.e. EU member state or Horizon 2020 'Associated Country'[9].
- Have significant insights in Smart Consumption, evidenced through a clear track record in e.g. publications.

4.2. Whilst we will primarily be recruiting Working Group members through targeted invitations, we also welcome informal approaches to the Steering Committee. We note that our priorities for recruitment of Working Groups members include:

- Gender balance, with at least 40% (target of 50%) non-male.
- Geographical balance in terms of the organisation's location, particularly regarding spread across the North, South, East, and West regions of Europe[10]. Within this, a diversity of countries is also essential.
- SSH disciplinary diversity, with at least 10 SSH disciplines included, as well as some selected previous experiences of working in STEM disciplines.
- Gatekeeper roles, whereby they e.g. manage research groups, run journals, have active roles in professional networks, etc.
- Frontrunners, who are e.g. challenging the status quo within the research field and ultimately advancing SSH perspectives – through, for instance, meaningfully pushing the boundaries of developing and applying novel theoretical perspectives.

9 https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf

10 As per the UN's Geographic Regions classifications for Europe's regions https://unstats.un.org/unsd/methodology/m49/.

5. Names of initial of Working Group members

- Christian Büscher, Institute for Technology Assessment and Systems Analysis, Karlsruhe Institute of Technology, Germany.
- Sarah Darby, Environmental Change Institute, University of Oxford, UK.
- Tom Hargreaves, 3S Research Group, University of East Anglia, UK.
- Andrew Karvonen, Division of Urban and Regional Studies, KTH Royal Institute of Technology, Sweden.
- Yael Parag, School of Sustainability, IDC Herzliya, Israel.
- Stefan Schwarzkopf, Department of Management, Politics and Philosophy, Copenhagen Business School, Denmark.
- Grégoire Wallenborn, Centre for Studies on Sustainable Development, Free University of Brussels, Belgium.

6. Indicative timeline for Working Group activities

Date	Activity
Sep 2019	Working Group ESRs selected.
Nov 2019	Working Group 'Terms of Reference' published.
Dec 2019	Methodological guidelines for horizon scanning approach published.
Jan 2020	Interviews (10 per Working Group) undertaken.
Jan-Feb 2020	Final recruitment of 25-30 Horizon Scan participants (i.e. Working Group members) per Working Group.
Feb-May 2020	Horizon scanning process to take place with Working Group members.
Jun 2020	Write-up and final analysis of Horizon Scans.
Jul 2020	Submit report of energy-SSH research needs for FP9 (Horizon Europe) to the European Commission's Directorate General for Research and Innovation (DG RTD).
Sep 2020	Publish accompanying Annotated Bibliography (one per Working Group).
Autumn 2020	SET-Plan annual conference, with possibility of side-event to formally announce the Working Group recommendations to the EU SET-Plan policy communities.

7. Acknowledgements

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Energy Social sciences & Humanities Innovation Forum Targeting the Set-Plan

a.r.u. Global Sustainability Institute

drift for transition

EERA European Energy Research Alliance

acento comunicación

Jagiellonian University in Kraków

NTNU Norwegian University of Science and Technology

E3G