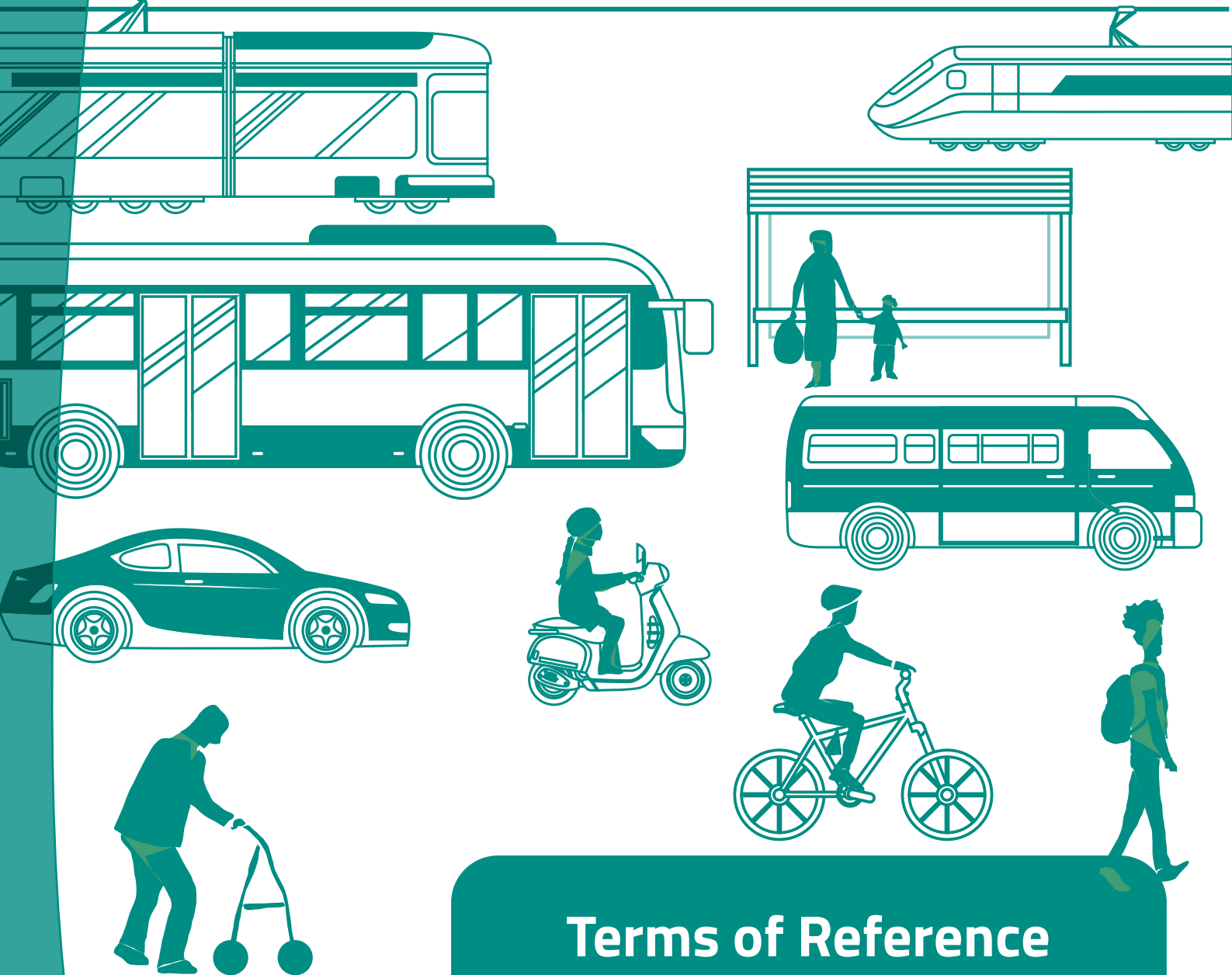


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# Terms of Reference

## *Energy-SHIFTS* Working Group 4 – Transport and Mobility



**Energy**  
**-SHIFTS**

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

Marianne Ryghaug  
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Tessa de Geus  
Derk Loorbach  
Chris Foulds  
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November 2019

# Terms of Reference

Energy-SHIFTS Working Group 4 – Transport and Mobility

November 2019

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# 1. Introduction

- 1.1.** The Energy-SHIFTS Working Groups – of which there are four<sup>1</sup> – 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<sup>2</sup>. This set of Working Group activities form part of the wider Energy-SHIFTS project<sup>3</sup> 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<sup>4</sup>. 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 4 on Transport and Mobility. 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.

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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](https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en)

3 [www.energy-shifts.eu](http://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 'Transport and Mobility'

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

The EU aims to be carbon neutral by 2050 and transport and mobility systems play a key role in this agenda. In 2016, transport accounted for a third of the EU's energy consumption and a fourth of its greenhouse gas emissions. In response to this, the European Commission's White Paper on Transport<sup>5</sup> and proposed 2030 EU climate and energy policy framework<sup>6</sup> set out to reach a 20% transport emissions reduction from 2008 levels by 2030, and 60% reduction from 1990 levels by 2050.

One important avenue through which the Energy Union aims to diversify and strengthen energy options for sustainable transport is through the Strategic Energy Technology (SET) Plan that sets out to increase energy efficiency and speed up the decarbonisation of the transport sector. It seeks to boost research and innovation through two key actions: (1) Action 7 – by becoming competitive in the global battery sector to drive e-mobility forward; and, (2) Action 8 – by strengthening market take-up of renewable fuels needed for sustainable transport solutions.<sup>7</sup> However, this is only a segment of the comprehensive actions across transport and mobility systems needed to reach the targeted goal.

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5 European Commission – DG for Mobility and Transport, 2011. Roadmap to a single European transport area – Towards a competitive and resource-efficient transport system: [https://ec.europa.eu/transport/sites/transport/files/themes/strategies/doc/2011\\_white\\_paper/white-paper-illustrated-brochure\\_en.pdf](https://ec.europa.eu/transport/sites/transport/files/themes/strategies/doc/2011_white_paper/white-paper-illustrated-brochure_en.pdf) (Accessed 22.11.2019).

6 European Commission, 2013. Green Paper. A 2030 framework for climate and energy policies: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0169&from=EN> (Accessed 22.11.2019) and European Council, 2014. Conclusion 23/24 October 2014: [https://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/145397.pdf](https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf) (Accessed 22.11.2019).

7 European Commission, 2015. SET-Plan Actions. Implementation processes and expected outcomes. [https://setis.ec.europa.eu/system/files/set\\_plan\\_expected\\_outcomes\\_and\\_process.pdf](https://setis.ec.europa.eu/system/files/set_plan_expected_outcomes_and_process.pdf) (Accessed: 12.09.2019).

### 2.2. Definition of 'Transport and Mobility'

This Energy-SHIFTS Working Group defines transport and mobility as a broad field and problem area that includes transport technologies, different energy sources, and various mobility practices. Whilst 'transport' puts focus on various transport technologies and infrastructures, 'mobility' is meant to add a broader understand of movement. Namely, mobility goes beyond moving from A to B and refers to a broad spectrum of actors and processes connected to movement that embodies e.g. experiences, issues of access and justice, and movement of both human and non-human actors.

This Working Group thus approaches transport transitions as the development and appropriation of new transport technologies governance and management of transport, as well as efforts to change mobility practices. It aims to challenge a narrow techno-economic framing of transport by recognising the role of a broad spectre of SSH perspectives. The Group recognises that deep interventions necessary to assure a carbon neutral transport system in Europe by 2050 – spanning across mobility modes (road, maritime, air-transport) and requiring analysis of numerous different actors and processes that – will have to be utilised for successful transitions, and as such is included within our broad starting definition.

### 2.3. Working Group example debates and scope

This Working Group aims to identify the critical questions needed to reach the 2050 carbon neutral goal in the area of transport and mobility. To achieve deep interventions necessary in the area of transport and mobility, we will seek to explore overlapping roles of technological innovation, change of practice, and policies in the transport sector, as well as possible distinctive features between different transport and mobility modes.



Examples of possible topics of relevance could include: defining different but intertwined features of transport transitions e.g. behavioural, institutional, market design, infrastructural; identifying the role of sharing economy models, electrification and autonomous driving; defining the relationship between infrastructure transformation, mobility behaviour and social change; identifying avenues for destabilization of existing transport system e.g. car industry (incumbents); exploring the role of governance, policy and different regulative mechanisms; and/or considering other ethical aspects of transition. In this pursuit, this Group will open up space for both applied and critical thinking about the multitude and intersecting of pathways towards a carbon neutral 2050 future.

#### **2.4. Boundaries with the other three Working Groups**

There are several overlaps between this Working Group on transport and mobility and other three

Working Groups. One of the main reasons is that transport and mobility are closely linked to questions of energy provision (e.g. storage solutions), energy consumers (e.g. drivers), and infrastructural development (e.g. vehicle to grid solutions).

We will therefore coordinate with the other Working Groups in order avoid overlap. In relation to WG1 on renewables, the transport and mobility group will cover topics of renewables that relate to transport. For instance, biofuels such as biogas and bioethanol, solar-powered aeroplanes and wind-power shipping. In relation to WG2 on energy efficiency, WG4 will cover topics of energy efficiency of vehicles, aeroplanes, trains, and other forms of transportation. And finally, in relation to WG3 on smart consumption, this transport and mobility group will include smart transport system technologies, but likely avoid smart city solutions as a whole.



## 3. Organisational structure and responsibilities

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

- Chair: Marianne Ryghaug, Department of Interdisciplinary Studies of Culture, Norwegian University of Science and Technology (marianne.ryghaug@ntnu.no).
- Co-chair: Derk Loorbach, The Dutch Research Institute for Transitions, Erasmus University Rotterdam (loorbach@drift.eur.nl).
- Critical Policy Friend: Quentin Genard, E3G - Third Generation Environmentalism (quentin.genard@e3g.org).
- Early-Stage Researchers: Aline Scherrer, Fraunhofer Institute for Systems and Innovation Research ISI (aline.scherrer@isi.fraunhofer.de); and Emilia Smeds, Urban Innovation and Policy Lab, University College London (emilia.smeds.13@ucl.ac.uk).

**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 transport.
- 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'<sup>8</sup>.
- Have significant insights in transport, 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<sup>9</sup>. 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.

<sup>8</sup> [https://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/3cpart/h2020-hi-list-ac\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf)

<sup>9</sup> As per the UN's Geographic Regions classifications for Europe's regions <https://unstats.un.org/unsd/methodology/m49/>.



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## 5. Names of initial of Working Group members

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- Jillian Anable, Institute for Transport Studies, University of Leeds, UK.
- Marc Dijk, International Centre for Integrated Assessment & Sustainable Development, Maastricht University, The Netherlands.
- Matthias Finger, École Polytechnique Fédérale de Lausanne (EPFL), France.
- Marlene Freudendal-Pedersen, Department of Planning, Aalborg University, Denmark.
- Milos Mladenovic, Department of Built Environment, Aalto University, Finland.
- Nathalie Ortar, École Nationale des Travaux Publics de l'État (ENTPE), France.
- Tim Schwanen, Transport Studies Unit, University of Oxford, UK.



## 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.



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## 7. Acknowledgements

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