This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826025.

A guide to the SET-Plan

Including the role of the Social Sciences and Humanities

This guide has been produced by Energy-SHIFTS – a H2020 project aimed at supporting a European Energy Union that places **societal needs** centrally.

Energy -SHIFTS

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

Elena Dufour
Valentina Lisi
Rosie Robison

October 2019

A guide to the SET-Plan

Including the role of the Social Sciences and Humanities

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Author

Elena Dufour*
European Energy Research Alliance, Belgium

Valentina Lisi
European Energy Research Alliance, Belgium

Rosie Robison
Anglia Ruskin University, UK

*e.dufour@eera-set.eu

The front cover image re-imagines the SET-Plan logo (above) with a focus on society's use of energy, rather than energy technologies in isolation.

Suggested citation

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.

Cover design & formatting by María Torres-Senés. Acento Comunicación

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1. Introduction: why did we write this guide?

This guide is aimed at introducing a key piece of current EU energy policy – the Strategic Energy Technology Plan or 'SET-Plan' – to a wider audience. Whilst we hope it is of use to anyone wanting to learn about the SET-Plan, it is in particular written for researchers working in the energy-related Social Sciences & Humanities (energy-SSH, see Box 1). This is part of ongoing work developing Europe's leadership in using and applying energy-SSH for better energy policy.

There is significant potential for better integration of SSH into the SET-Plan. This is because, whilst many energy-SSH scholars are already interested in, and working towards, policy impact at local, national or international level, the technological focus of the SET-Plan has meant (1) it remains unfamiliar to a large proportion of the energy-SSH community and (2) many areas of SSH research (especially perspectives from the Humanities) are not directly considered in its implementation. There is thus significant untapped potential to bring cutting edge SSH insights more centrally into the SET-Plan's working, to help deliver an energy transition which better meets **societal** (rather than solely technological or economic) needs, for example regarding justice, inclusion or democracy.

The sections of this guide therefore: (i) introduce the SET-Plan of the European Commission, (ii) explain how it is structured, (iii) consider the role of SSH to date, and (iv) describe specific ways that energy-SSH researchers can engage with the SET-Plan and seek impact.

A second guide is also available on the **European Technology and Innovation Platforms** (ETIPs) which currently represent the technology communities actively contributing to SET-Plan actions. Together, these two guides represent meaningful steps in supporting greater understanding and dialogue between diverse SSH communities and key SET-Plan groups. Both guides will be widely distributed to, amongst others, energy-SSH related EU project holders, energy-SSH networks, and SET-Plan actors including the ETIPs and related sectorial fora and the Directorate General for Research & Innovation at the European Commission.

Box 1. A short explanation of energy-SSH

The 'energy-related Social Sciences & Humanities' (energy-SSH) are disciplines which seek to better understand human and social components of the transition to a low-carbon energy system. Energy-SSH thus covers a wide range of disciplines that either study the social phenomena (e.g. norms, values, perceptions, institutions, practices, etc.) that shape how humans interact with the energy system, or study fundamental issues of equity, fairness, duty, faith, ethics, attribution, etc. in the context of the energy system. Energy-related Social Sciences include Psychology, Sociology, Political Science, and Human Geography among others. Energy-related Humanities include Philosophy, Law, Theology, and History among others.

2. The SET-Plan: a short policy history

Initiated in 2008, the Strategic Energy Technology (SET) Plan is a programme from the European Commission. It is not a funding programme but rather aims at helping Member States and Associated Countries align their own national resources. It has the objective of maximising impact by reinforcing joint projects and coordination between national Research and Innovation programmes and budgets, primarily related to low-carbon energy technologies or processes. To achieve this coordination, the programme enables Member States and Associated Countries to cooperate in developing overarching goals via a number of different collaborative groups (see Section 3.). The SET-Plan secretariat sits within the Directorate General for Research & Innovation at the European Commission.

In 2015, the launch of the **Energy Union** saw the SET-Plan incorporated as the Energy Union's fifth pillar, on 'Research, Innovation and Competitiveness'. The Energy Union is a long-term strategy for the EU which seeks to reduce greenhouse gases, mobilise the economy, and deliver a better quality of life for citizens (see quote below[1]). All five of its pillars can be seen in Figure 1.

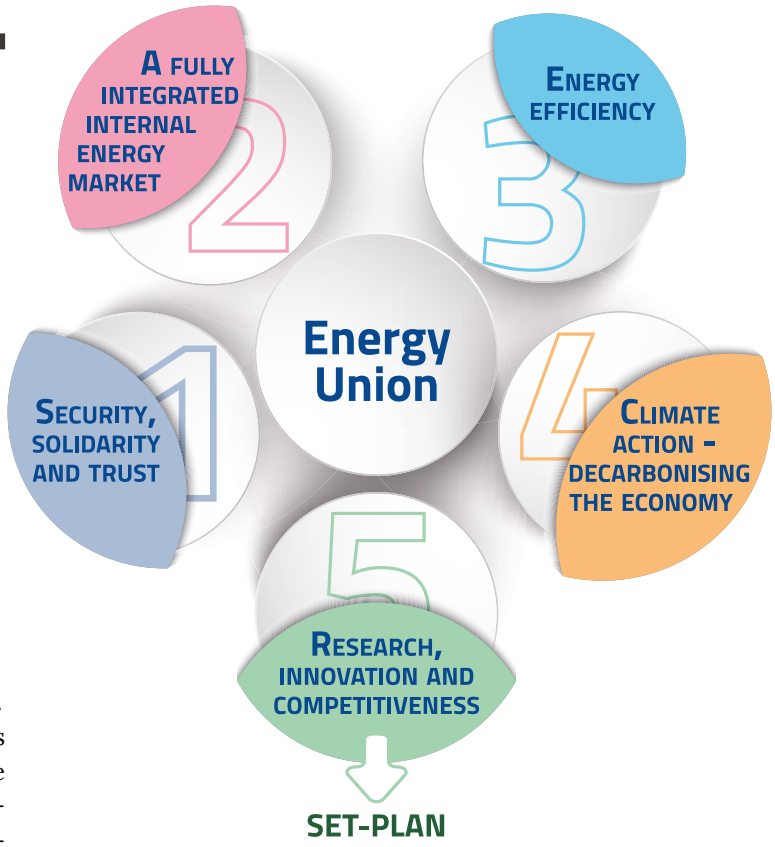

Figure 1. The five pillars of the Energy Union

> *"The energy union strategy, published on 25 February 2015, as a key priority of the Juncker Commission (2014-2019), aims at building an energy union that gives EU consumers - households and businesses - secure, sustainable, competitive and affordable energy."*
>
> Taken from 'Building the Energy Union'

In 2015, for the launch of the Energy Union, the SET-Plan was divided into **six Priorities** – four 'core priorities' and two (Carbon Capture & Storage, and Nuclear) which are priorities for interested Member States. These have been further subdivided into **10 Key Actions** (see Figure 2 and footnote[2] for key references). Progress against these Actions is currently delivered through Implementation Working Groups with related Implementation Plans, and monitored by the Information System of the SET-Plan, SETIS (see Section 3.).

In 2018, the EU published its long-term vision to become a **climate-neutral economy by 2050**[3]. The SET-Plan is seen as a key instrument to foster this transition, in particular regarding Research and Innovation actions aimed at limiting warming well below 2°C via corresponding greenhouse gas emission reduction, as set out in the United Nations Paris Agreement.

In this context, EU Member States are required to develop **National Energy and Climate Plans** (NECPs), which will be frequently updated according to the associated Governance Directive of the EU. The 28 draft NECPs were submitted in December 2018 and are avail-

1 https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/building-energy-union

2 In February 2015, the Energy Union fixed these 4+2 priorities and the division into 10 Key Actions; the Communication detailing these was produced in September 2015: '*Towards an Integrated Strategic Energy Technology (SET) Plan: Accelerating the European Energy System Transformation*' https://ec.europa.eu/energy/sites/ener/files/publication/Complete-A4-setplan.pdf. In early 2016, SET-Plan actors then defined a number of cost and/or performance objectives for the 10 Key Actions, published in various '*Declarations of Intent*'. These can be viewed via https://setis.ec.europa.eu/actions-towards-implementing-integrated-set-plan (by choosing Key Action of interest → 'Target Setting' links).

3 COM(2018) 773 final, '*A Clean Planet for All*' https://ec.europa.eu/transparency/regdoc/rep/1/2018/EN/COM-2018-773-F1-EN-MAIN-PART-1.PDF

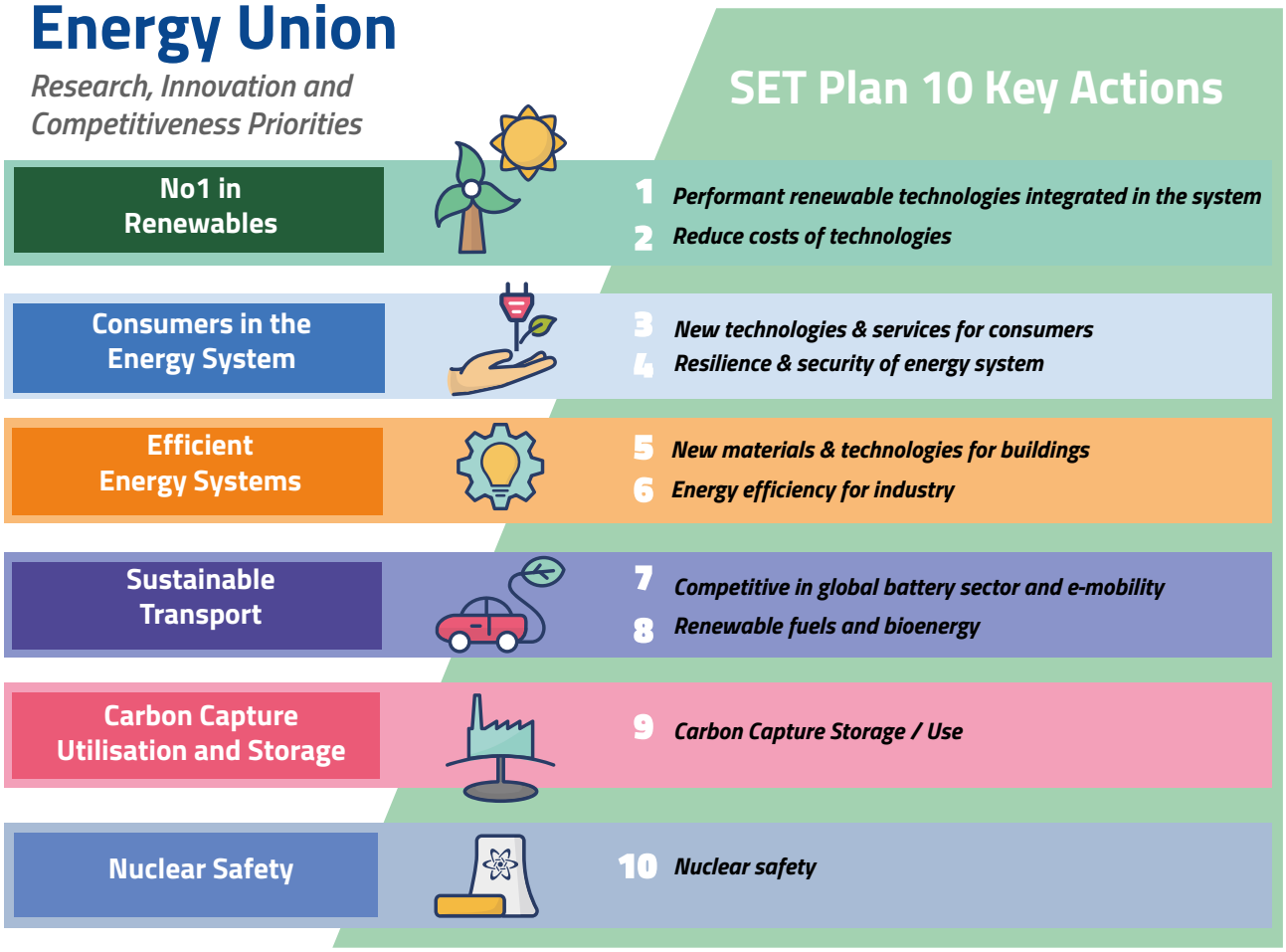

Figure 2. The SET-Plan's 6 Priorities and associated 10 Key Actions.

able publicly[4]; final versions are expected by December 2019. Within the NECPs, reporting requirements for the fifth pillar of the Energy Union are linked with SET-Plan objectives. Given that the SET-Plan is the European Commission's tool to collect and report Research and Innovation results, monitor their improvements and formulate recommendations, the NECPs provide an excellent opportunity to make this process systematic and relate NECP progress to SET-Plan progress.

Looking to the future, the SET-Plan is subject to European Commission programming and therefore its structure and configuration is likely to evolve further over the years. The ninth European framework programme for Research and Innovation, **'Horizon Europe'**, will bring new directions for the SET-Plan, such as the creation (still under discussion) of a partnership on 'Clean Energy Transition', directly aimed at boosting national funding resources to execute the SET-Plan Implementation Plans (discussed in Section 3.).

4 https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union/national-energy-climate-plans

3. The SET-Plan working structure

The SET-Plan is led by a **Steering Group**. This decisional body is made of representatives from Member States / Associated Countries drawn from relevant national Ministries, energy agencies, high-level delegates of national research centres or research funders, who meet every three months in Brussels and at the annual SET-Plan conference (see Section 5.).

The SET-Plan's 10 Key Actions, as described in Section 2., are currently being executed by 14 different **Implementation Working Groups (IWGs)**, clustered by sectors or technologies. These IWGs report into the Steering Group. The choice of those specific 14 areas is historical and comes from the outcome of a questionnaire sent out in 2015 by the European Commission to European Member States and Associated Countries, to identify the level of importance of various energy research themes for each country. The 29 replies received led to the set-up of national priorities in the SET-Plan.

These operational bodies, the IWGs, typically include 20-30 members. They are each chaired by a representative of a Member State / Associated Country and include representatives from academia (primarily STEM[5]-focussed), industry, and the European Commission. They operate virtually, as well as meeting in person when needed, but there is no specific frequency for face-to-face meetings.

Each of the IWGs recently produced an **Implementation Plan**. These documents identify concrete Research and Innovation activities to implement the overarching objectives of the 10 Key Actions of the SET-Plan. They were all endorsed between 2017 and 2019 by the SET-Plan Steering Group and financial instruments at national and European level to enable their execution are currently being considered by each IWG.

The 14 SET-Plan IWGs and associated Key Actions and Implementation Plans are shown in Figure 3:

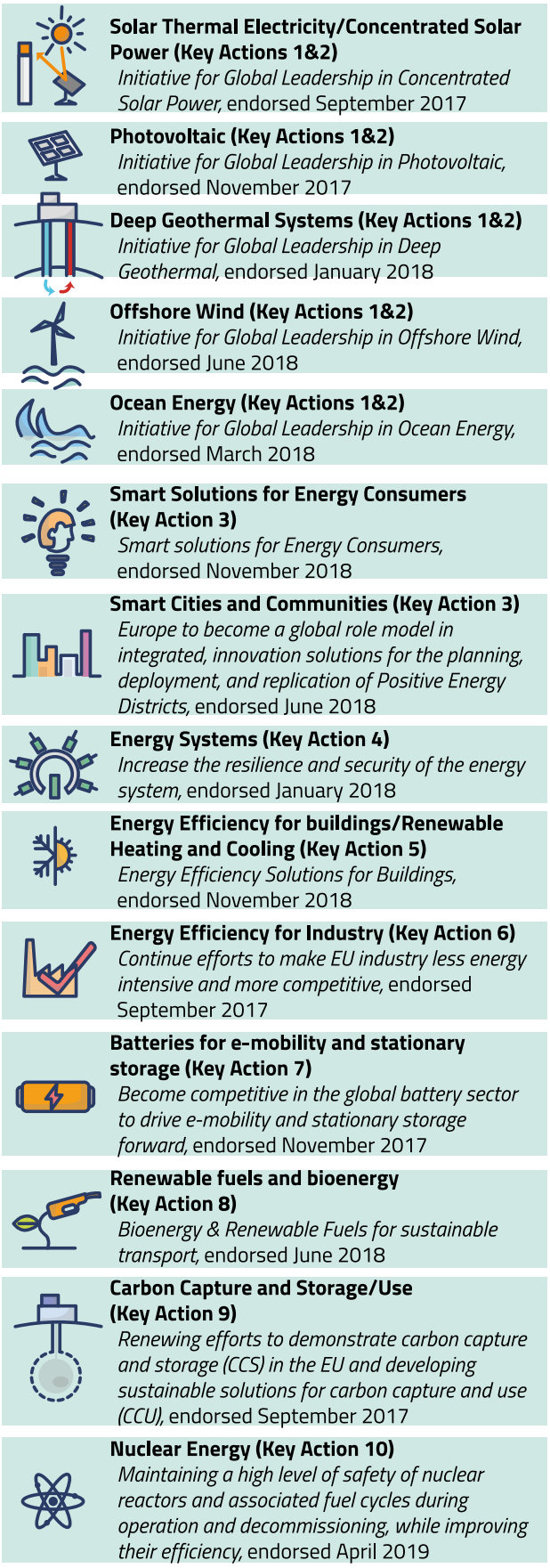

Figure 3. The 14 Implementation Working Groups, associated Key Actions (in brackets) and Implementation Plans (in italics).

5 Science, Technology, Engineering, and Mathematics

The SET-Plan relates to **Research and Innovation** activities, represented through the groupings of (1) the **European Energy Research Alliance (EERA)** and (2) the **European Technology and Innovation Platforms (ETIPs).** These communities are the core actors in the SET-Plan, working hand-in-hand with the IWGs, and are key gateways for becoming more involved in the SET-Plan. They are discussed in more detail in Section 5., as well as in the dedicated guide to the ETIPs (and related sectorial fora) which accompanies this guide (see Section 1.). In addition to those core groups, a range of other actors also support the SET-Plan activities, such as Joint Undertakings, European Joint Programmes, Public-Private partnerships, associations etc.

SETIS is the information platform of the SET-Plan. Its purpose is described in Box 2 below.

Box 2. Who coordinates information about the SET-Plan?

SETIS *is the Information System for the SET-Plan. It provides support for the strategic planning and implementation of European Energy Technology policy (i.e. the SET-Plan) and gathers SET-Plan related documents, such as the different Implementation Plans, in a dedicated website (https://setis.ec.europa.eu/). The SETIS platform undertakes monitoring of SET-Plan actions and activities via a number of KPIs for each Implementation Working Group, thereby assessing the SET-Plan's impact on other policies and helping identify corrective measures if needed (cf. monitoring of the NECPs, as described in Section 3.). A public facing progress report is also published annually:* https://setis.ec.europa.eu/publications/SET Plan-implementation-progress-reports.

Who is SETIS for?

SETIS information relates to the joint progress of the SET-Plan Steering Group, the SET-Plan Implementation Working Groups and the European Commission, and is collated as a resource which supports wider SET-Plan stakeholders: EU Member State authorities, ETIPs, research organisations and associations, industry and the financial community. It also aims to be of interest to the general public and specifically to those interested in low-carbon energy technologies and energy technology innovation at large.

Who is behind SETIS?

SETIS is led by the European Commission, through its Joint Research Centre (JRC).

4. The place of social sciences and humanities in the SET-Plan

In this section we describe some key aspects of how the Social Sciences and Humanities (SSH) are currently integrated into, or sit alongside, the SET-Plan; doing this also allows identification of some areas of SSH research which could be more fully included in future (although this is intended to be illustrative rather than exhaustive). A key message is that there is much interest in, and value recognised from, energy-SSH approaches, but that due to its structure and history SSH experts have not been centrally involved in the SET-Plan to date – hence this guide.

4.1. Aspiration for the Consumer to be 'at the centre' of the Energy System

One of the main stated challenges of the SET-Plan is to put the consumer 'at the centre' of the future energy system, which is taken to mean 1) engaging them through better understanding, information and market transformation, and 2) activating them through innovative technologies, products and services[6]. Relatedly, documentation on the Energy Union describes how it "*seek[s] to empower citizens, businesses, cities, and innovators to play an active role in the energy transition*"[7]. This emphasis on the consumer or citizen playing an 'active role'[8] underscores the way in which SSH understandings in achieving energy transition are seen as relevant at the highest levels. Similarly, the preparations of the NECPs (see Section 2.) call for a socially acceptable and just transition with engagement of civil society and the general public.

However we also see through this that an individualistic approach (e.g. focussing primarily on user choice and individual action, rather than systemic social factors) is often emphasised. This tends to exclude SSH research approaches which deliberately move away from looking at individuals (e.g. practices, histories, political landscapes), although we note that Member States have been asked to outline in their NECPs policies, if any, which address energy poverty including social policy measures and other relevant national programmes. The two IWGs which are intended to include a more explicitly 'human' focus ('Smart Solutions for Energy Consumers' and 'Smart Cities and Communities') both arise from Key Action 3, which focusses on outcomes for consumers (as opposed to e.g. governance actors); furthermore, other IWGs may feel SSH issues belong *only* in those two IWGs and thus see them as less relevant for their own themes.

4.2. High-level cross-cutting themes of Education and Socio-Economics

In December 2014, the document '*Towards an Integrated Roadmap: Research & Innovation Challenges and Needs of the EU Energy System*' was published[6]. It consolidated the SET-Plan Technology Roadmaps elaborated by different energy sectors before 2014. Interestingly, this report identified a number of 'cross-cutting themes', two of which were SSH in nature: (1) Education, and (2) Socio-Economics in support of policy-making. Ambitions related to these themes included (1) an emphasis on development of training programmes for the low carbon energy sector, and (2) ensuring consideration of "*political, economic, institutional, and social issues*". In the latter case, this was ultimately translated into objectives related to modelling and public opinion surveys (two particular segments of SSH research).

Whilst again this demonstrates commitment, and can certainly help SSH researchers consider and demonstrate their relevance to the SET-Plan, this theoretical emphasis is arguably not yet translated into practice, through consistent incorporation into the more technologically-focussed IWGs and their themes.

6 From the publication '*Towards an Integrated Roadmap: Research & Innovation Challenges and Needs of the EU Energy System*', https://setis.ec.europa.eu/system/files/Towards%20an%20Integrated%20Roadmap_0.pdf.

7 COM(2019) 175, '*Fourth report on the State of the Energy Union*', p.2 https://ec.europa.eu/commission/sites/beta-political/files/fourth-report-state-of-energy-union-april2019_en_0.pdf

8 See also: Fox, E., Foulds, C. and Robison, R., 2017. *Energy & the active consumer - a social sciences and humanities cross-cutting theme report.* Cambridge: SHAPE ENERGY, available via www.shapeenergy.eu.

4.3. Use of SSH evidence to date

Energy-SHIFTS conducted a set of interviews, primarily with ETIP members but also some IWG representatives, in spring/summer 2019. Through these we found that evidence related to consumer acceptance, community involvement and communication activities, were often seen as representing the SSH element. Public stakeholder consultations were also the main bridge to connect with civil society and integrate findings in the policy roadmaps.

Another primary route for SSH inclusion thus far has been via the EERA Joint Research Programme on *Economic, Environmental and Social Impacts of Energy Policies and Technologies* ('e3s' - see also Section 5.). As a member of the SET-Plan IWG on 'Smart Solutions for Energy Consumers', e3s has been responsible for drafting a list of Key Performance Indicators (KPIs) to measure *consumer benefits* in clean energy transitions; these have focussed on monitoring the involvement of citizens in energy production, societal readiness levels for clean energy, impacts on household energy bills, energy market participation, and consumer behaviour or preferences related to smart appliances.

The project Energy-SHIFTS, as well as the previous SHAPE ENERGY pilot platform *(Social sciences & Humanities for Advancing Policy in European Energy)*, were funded in part to help bring a greater breadth of SSH evidence into the SET-Plan, by centrally involving SET-Plan stakeholders as well as energy-SSH researchers. In June 2019 an Energy-SHIFTS scoping workshop sought to explore the role of SSH evidence in energy policy further, as detailed in the resulting report[9]. A key finding was that there was potential for SSH to be used more fully to *challenge* dominant assumptions (for example regarding energy transition paths), rather than solely supporting current policy directions.

4.4. Structurally challenging to include certain SSH approaches?

As can be seen from Section 3., the majority of IWGs are centred on a specific energy technology. Whilst this is unsurprising, since the SET-Plan has developed from a technological framework aimed at supporting the low-carbon industry, and has to date mainly been driven through industry and STEM research, a consequence is it makes certain SSH approaches difficult to include. Many (perhaps most) SSH researchers – as one example some of those working on themes of energy justice – do not define their own work around one particular energy technology, and therefore may not feel attracted to involvement in one specific IWG or ETIP, or may find it harder to demonstrate the relevance of their expertise.

It is in this context that Energy-SHIFTS is working to highlight a wider diversity of SSH approaches and both (1) help these communities engage with the SET-Plan, and (2) encourage SET-Plan actors to consider new SSH approaches. For example, the four Energy-SHIFTS expert Working Groups will identify important future SSH research questions organised according to the four core SET-Plan priorities.

9 Royston, S. and Foulds, C., 2019. *Use of evidence in energy policy: the roles, capacities and expectations of Social Sciences and Humanities: Scoping workshop report*. Cambridge: Energy-SHIFTS, available via www.energy-shifts.eu.

4.5. Appetite to do more?

In June 2018, the EU's pilot energy-SSH platform, SHAPE ENERGY, was invited to present to the SET-Plan Steering Group. This presentation was an opportunity to highlight some of the extensive work taking place across SSH communities of relevance to the SET-Plan. There was broad appetite at the meeting for greater inclusion of SSH in the SET-Plan, and in particular interest in how SSH might feed into the Implementation Plans. This is echoed by the European Energy Research Alliance's recognition of the importance of bringing essential systemic perspectives of SSH within its technological Joint Research Programmes (see quote below), hence EERA's role as an active partner in Energy-SHIFTS.

"Social innovation will be essential to better understand how humankind can reinvent its society at a pace and to an extent that were never historically achieved. Climate urgency calls for new ways of thinking, designing, testing, implementing and deploying new social models. Only through allowing non-linear and cross-sectorial approaches fostering collaborative contribution of wide categories of historically disconnected stakeholders into a joint co-creation and co-designing effort, could human beings invent new appealing society models and lifestyles that can be deployed and generalized at the required speed and scale."

Adel El Gammal, EERA Secretary General

5. The SET-Plan: Five routes to engage

This section aims to highlight specific routes to include the SET-Plan more directly in your own research activities and/or seek to introduce relevant pieces of your research to the SET-Plan community. Whilst it is aimed at SSH experts, other researchers may also find it useful. We caveat this by noting that structurally, some areas of research may currently be more easily included than others, and indeed this is partly what the work of Energy-SHIFTS aims to highlight and help address.

ROUTE 1

Considering the Implementation Plans in your research activities

Through its 14 Implementation Working Groups and associated Implementation Plans, the SET-Plan runs a vast programme that takes on board a wide variety of actors and contributors. When designing your own projects you may wish to deliberately consider any relevant Implementation Plans, noting that many SSH areas may cut across several of them (or indeed be currently absent).

Since the composition of the IWGs is dynamic (and therefore the latest membership lists are not always publically available), the most appropriate way to channel input from interested stakeholders is via IWG representatives from various different European platforms (see Routes 2 and 3 below), who are the spokespersons of the different technologies and sectors' views.

ROUTE 2

Via the 17 Joint Research Programmes of the European Energy Research Alliance (EERA)

EERA
European Energy Research Alliance

Representing more than 50,000 European energy research experts, EERA helps streamline regional, national and European research efforts, bringing together around 250 research centres and universities across 30 European countries. Its Joint Research Programme (JP) activities are aligned with SET-Plan priorities[10]. Currently, the JP on *Economic, Environmental and Social Impacts* (e3s) is of most relevance to certain disciplines from the Social Sciences and Humanities; its sub-programmes cover, amongst other areas, public perception, market design, and modelling economic impacts[11].

Research organisations wanting to take part in an EERA policy working group need to become an EERA member and to belong to one or several Joint Research Programmes (https://www.eera-set.eu/about-us/become-a-member/).

ROUTE 3

Via the European Technology and Innovation Platforms (ETIPs) and sectorial fora

ETIPs

Whilst these platforms are sectorial networks led by industry (and therefore have less representation from academia than the EERA Joint Programmes), they do gather a broad range of relevant actors across the value chain of a given technology or domain (research, industry, funders, regulators, consumers, NGOs). They are generally managed by a secretariat, steered by a governing board, and structured around several thematic working groups.

Interested stakeholders can enquire about taking part in one or several working groups by simple request to the Chair of the ETIP. It is also possible to contribute by participating in an ETIP workshop. The overall number of stakeholders per ETIP may vary but it can reach hundreds of stakeholders for the most popular ones. See our accompanying publication: '*A guide to the ETIPs: Including the role of the Social Sciences and Humanities*' (link given in Section 1.).

A list of ETIPs is available via: https://setis.ec.europa.eu/about-setis/community, and we also note the current additional sectorial fora: European Construction Technology Platform; Energy-SHIFTS; Hydropower Europe; Smartspend.

ROUTE 4

Energy-SHIFTS forum activities

Energy-SHIFTS

One of the aforementioned sectorial fora is Energy-SHIFTS, the project which has produced this guide. We are a direct initiative to bridge the gap between more diverse SSH communities and the SET-Plan. Ways energy-SSH researchers can engage include:

10 A list of EERA Joint Research Programmes is available here: https://www.eera-set.eu/eera-joint-programmes-jps/list-of-jps/

11 https://www.eera-set.eu/eera-joint-programmes-jps/list-of-jps/economic-environmental-and-social-impacts-jp-e3s/

- Joining the Forum's mailing list (via website[12]) for alerts to all opportunities and outputs;
- Adding themselves to the SHAPE ENERGY researcher database[13], a key tool being used for sourcing energy-SSH experts;
- Via the Policy Fellowship programme, which will invite relevant energy-SSH experts for 1-1 dialogue with policyworkers from across Europe;
- Attending the final conference, in early 2021;
- Exploring the Forum's many open access reports.

You may find other resources from the pilot SSH platform, SHAPE ENERGY, of use for example in making the case for why more needs to be done to include SSH in energy policies and targets. Finally, you can become a signatory of the '*SHAPE ENERGY research & innovation agenda* 2020-2030'[14] – a set of seven principles on how energy-SSH can be better embedded into energy policymaking, innovation and research over the next decade.

For further details please contact project co-leads Dr Chris Foulds (chris.foulds@anglia.ac.uk) and Dr Rosie Robison (rosie.robison@anglia.ac.uk).

ROUTE 5

Annual SET-Plan conference and associated social media

The high-level SET-Plan conference is an annual event usually taking place during autumn (although this does vary). Co-organised by the European Commission, the Presidency of the Council of the European Union (with the current country holding the Presidency usually hosting the conference) and the European Committee of the Regions, it brings together decision-makers, authorities, stakeholders and researchers to monitor the progress of SET-Plan goals, present progress achieved and discuss new ways forward. The subjects covered vary from one year to the other, depending on the hot topics of the period. Participation is free of charge.

The 13th SET-Plan Conference will be held on November 13th - 15th, 2019 in Helsinki under the auspices of the Finish Presidency: https://www.setplan2019.fi/

Twitter: @SETPlan_eu / @SETPlan19 / @Regions4Climate

12 www.energy-shifts.eu
13 https://shapeenergy.eu/index.php/researcher-database/
14 https://shapeenergy.eu/index.php/agenda-2020-2030/

6. Acknowledgements

Many thanks to Chris Foulds, who reviewed this guide prior to publication, as well as the representatives from the ETIPs and IWGs who Energy-SHIFTS interviewed when preparing this guide. The Energy-SHIFTS project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 826025.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826025.

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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