

Institution: Anglia Ruskin University (ARU)
Unit of Assessment: 14
Title of case study: Shaping EU policy and management of energy research and innovation funding.
Period when the underpinning research was undertaken: 2011 - onwards
Details of staff conducting the underpinning research from the submitting unit:
Name(s): Dr Chris Foulds Dr Rosie Robison Prof. Aled Jones Dr Sarah Royston Dr Melanie Rohse Dr Katrin Buchmann Role(s) (e.g. job title): Principal Research Fellow Principal Research Fellow Professor of Sustainability Research Fellow Research Fellow Research Fellow Period(s) employed by submitting HEI: 2013 - present 2011 - present 2011 - present 2019 - present 2018 - present 2017 - 2019
Period when the claimed impact occurred: 2016-2020
Is this case study continued from a case study submitted in 2014? No
1. Summary of the impact Our energy-related Social Sciences and Humanities (energy-SSH) research provided the impetus for the European Union (EU) to commit to funding SSH in its research and innovation policies. SSH was subsequently embedded in: the EU's forthcoming €95.5bn Horizon Europe funding streams; the Strategic Energy Technology Plan's (SET-Plan) €71.5bn of technical energy funding; and in the aims and scope of €30m+ of specific policy-focused (energy) projects. The EU is thus better prepared to govern low-carbon energy transitions – and respond to other grand societal challenges – as they now more earnestly gather policy evidence that considers human and social factors. All EU citizens, and citizens of Horizon Europe associated countries such as the UK, will benefit. The research underpinning this impact has been led by Drs Foulds and Robison, focusing on energy-SSH issues including e.g. future funding pathways, policy expectations of SSH, forms of interdisciplinarity, and inclusive approaches to funding/managing SSH. They also led deliberative Horizon Scanning exercises, which identified energy-SSH research priorities in support of the EU's energy/climate targets. ARU was the <i>only</i> organisation delivering this policy advice role to the EU, and ARU coordinated all the research activities that <i>underpin</i> this advice.
2. Underpinning research This portfolio of research investigates the roles, understandings, contributions, and collaboration dynamics of furthering under-utilised Social Sciences and Humanities (SSH) ideas in energy policy. To date, SSH have played less of a role in shaping mainstream energy governance agendas than Science, Technology, Engineering and Mathematics (STEM) disciplines. This research brings an interdisciplinary team together from ARU's Global Sustainability Institute (GSI) through a number of large projects. It is primarily linked to two EU Horizon 2020 projects, co-led by Drs Foulds and Robison, with the support of Jones, Rohse, Royston and Buchmann.

SHAPE ENERGY (PI): Horizon 2020, €2m total, €350k to ARU (1 Feb. 2017 – 31 Jan. 2019)

In Social sciences and Humanities for Advancing Policy in European Energy (SHAPE ENERGY), ARU analysed EU research and innovation funding calls, finding that the Humanities were overlooked and that SSH disciplines focusing on rationality and individual agency (e.g. Economics) dominated [Reference-1]. Further, ARU found that the ways in which SSH are being advocated by policy institutions direct energy-SSH towards very particular, instrumental modes of 'interdisciplinarity' [Reference-2]. Systematic literature reviews reiterated the need for embracing ontological/epistemological differences across SSH, rather than assuming consensus [Reference-3]. The importance of being open to divergence was similarly demonstrated by a 'Lexicon' that showcased different interpretations of disciplinary terminology [Reference-4].

Energy-SHIFTS (PI): Horizon 2020, €1m total, €283k to ARU (1 Apr. 2019 – 31 Jul. 2021)

In Energy Social sciences & Humanities Innovation Forum Targeting the SET-Plan (Energy-SHIFTS), ARU found that current policy framings and policymaker expectations of SSH explain the fact that only 1-4% of total EU Horizon 2020 energy research and innovation funding has gone to SSH disciplines since 2014 [Reference-5]. ARU also led on four expert deliberation ('Horizon Scanning') exercises that identified research priorities, which ~400 energy-SSH researchers believed the EU should fund in Horizon Europe, if it is to achieve its Energy Union targets. These deliberative Horizon Scans directly tied into four EU policy areas: Renewables; Smart Consumption; Energy Efficiency; and Transport & Mobility, where there was clear commitment from the EU Strategic Energy Technology Plan (SET-Plan) for significant investment during the 2020s (as per e.g. EU Green Deal ambitions). Our findings included specific energy-SSH recommendations for investing e.g. in transformative governance, energy democracy, inequity and inequality, socio-ecological effects, power relations, engagement and trust, and unintended consequences in everyday life – see Reference-6 for one such Horizon Scanning recommendations report (on energy efficiency) for the European Commission.

3. References to the research

- **Reference-1:** Foulds, C. and Christensen, T.H., 2016. Funding pathways to a low-carbon transition. *Nature Energy*, 1, 16087. <https://doi.org/10.1038/nenergy.2016.87>
- **Reference-2:** Foulds, C. and Robison, R., 2018. (eds.) *Advancing energy policy: Lessons on the integration of Social Sciences and Humanities*. Cham: Palgrave Macmillan. <https://link.springer.com/book/10.1007%2F978-3-319-99097-2>
- **Reference-3:** Ingeborgrud, L., Heidenreich, S., Ryghaug, M., Skjølsvold, T.M., Foulds, C., Robison, R., Buchmann, K. and Mourik, R., 2020. Expanding the scope and implications of energy research: A guide to key themes and concepts from the Social Sciences and Humanities, *Energy Research & Social Science*, 63, 101398. <https://doi.org/10.1016/j.erss.2019.101398>. Submitted in REF2.
- **Reference-4:** Robison, R.A.V. and Foulds, C., 2017. Creating an interdisciplinary energy lexicon: Working with terminology differences in support of better energy policy, *Proceedings of the eceee 2017 Summer Study on Consumption, Efficiency & Limits*. 29 May - 3 June 2017, Presqu'île de Giens, France. pp. 121-130. https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2017/1-foundations-of-future-energy-policy/creating-an-interdisciplinary-energy-lexicon-working-with-terminology-differences-in-support-of-better-energy-policy/. Submitted in REF2.
- **Reference-5:** Royston, S. and Foulds, C. 2019. *Use of evidence in energy policy: the roles, capacities and expectations of Social Sciences and Humanities*, Cambridge: Energy SHIFTS. [Also submitted as an Energy-SHIFTS deliverable to the European Commission's Directorate-General for Research and Innovation (DG RTD)] https://energy-shifts.eu/wp-content/uploads/2019/10/05_Evidence-workshop-report.pdf

- **Reference-6:** Foulds, C., Royston, S., et al., 2020. *100 Social Sciences and Humanities priority research questions for energy efficiency in Horizon Europe*. Cambridge: Energy-SHIFTS. [Also submitted as an Energy-SHIFTS deliverable to the European Commission's Directorate-General for Research and Innovation (DG RTD)]
https://energy-shifts.eu/wp-content/uploads/2020/12/D2.3_WG3_Energy-efficiency.pdf

These illustrative references relate to a portfolio of ARU-led Social Sciences and Humanities research on energy, including:

- EU H2020 **SHAPE ENERGY** (PI: Jones; €2m total; €350k ARU; 01.02.17-31.01.19)
- EU H2020 **Energy-SHIFTS** (PI: Robison; €1m project; €283k ARU; 01.04.19-31.07.21)
- EU H2020 **MEDEAS** (Col: Jones; €4m project, €400k ARU; 01.01.16-31.12.19)
- EPSRC (via UKERC) **Energy-PIECES** (PI: Foulds; £85k; 01.09.18-31.10.19)
- EPSRC **EnergyREV** (Col: Rohse; £9m project, £28k for ARU; 01.12.18-31.03.23)
- British Academy **Energy justice beyond the west** (PI: Jones; £10k; 01.09.17-30.11.18)

4. Details of the impact

Headline overview – ARU ensured Social Sciences and Humanities (SSH) will fulfil its potential in helping the EU to achieve its energy/climate targets, through changing EU policy and management of research/innovation funding

ARU-led research and engagement brought about a close working relationship with the European Commission's (EC) Directorate-General for Research & Innovation (DG RTD). With at least monthly conference calls since February 2016 (and ongoing), ARU's advice ensured that SSH was embedded into the design of the EU Framework Programmes that fund policy-relevant research and innovation (e.g. Horizon 2020; Horizon Europe). These are very large-scale programmes: Horizon 2020 energy work programmes alone have been worth €6bn since 2014; the forthcoming Horizon Europe programme totals €95.5bn; and the Strategic Energy Technology Plan (SET-Plan) is supported by €71.5bn of EU and Member State funding.

By significantly impacting the EU's funding priorities, ARU has in turn shaped the policy approaches behind the EU's world-leading energy and climate targets. The EU and its Member States are significantly more likely e.g. to mitigate climate change and ensure energy security, as evidence on (and methods accounting for) human and social factors is now actively generated and sought out. ARU was the *only* organisation delivering this policy advice role to the EU, and ARU coordinated all the research activities that *underpin* this advice.

Impact 1 – ARU affected the European Union (EU) decision to 'mainstream' and monitor SSH in all of its €95.5bn Horizon Europe funding

Specifically, the EU committed for SSH to be a formal 'mainstreaming' priority for Horizon Europe (i.e. all projects should feature SSH). ARU demonstrated, during the monthly calls to the EC's DG RTD (who oversaw Horizon Europe planning), what the implications were of Horizon 2020's inadequate integration of SSH, and thus emphasised how more mainstreaming work was needed to sufficiently embed SSH ideas within its investments that are actually set up to combat societal challenges. Indeed, ARU's work was repeatedly used within EU policy institutions as an "example of success in justifying the need to prioritise SSH" e.g. across more technical (energy) research/innovation projects [Evidence-1, p.2].

The EU's Innovation and Networks Executive Agency (INEA) also now prioritises the inclusion of SSH researchers on their proposal evaluation panels, as part of ensuring that the EU's SSH mainstreaming ambitions are shaped by SSH research communities themselves [Evidence-2] following direct engagement by ARU.

ARU engaged the DG RTD team responsible for monitoring the EU's commitment to SSH funding (e.g. via a training event). It was clear that ARU evolved their thinking, given that their 4th Monitoring Report's (published Feb. 2019) [Evidence-3] repeated core messages (e.g. regarding risks of SSH as an "add-on") provided in the ARU-authored Research & Innovation Agenda for energy-SSH in Horizon Europe (submitted to DG RTD in Jan. 2019). For example, the Director General of DG RTD himself stated that the *"earlier SSH expertise is integrated in a project – not merely as an add-on element – but as a core element, the more impact it can create"* (p.4). Such statements directly align with the Fifth Principle of our Research & Innovation Agenda, which specifically petitioned the EC to fund projects that integrated SSH into its core concepts, and not merely as a tool to generate impact at the end. In fact, DG RTD went further by committing in the report to develop *"new [monitoring] methodologies to assess the quality of SSH integration and what effectively makes the difference between SSH as an add-on or as a core element"* (p.95).

Impact 2 – ARU changed EU SET-Plan strategies, influencing EU and Member State policy directions on €71.5bn of energy research and innovation funding

At an EU policy level, ARU changed the thinking and evidence-gathering plans of the EU Strategic Energy Technology Plan (SET-Plan) Steering Group and its associated Implementation Working Groups. Collectively, these groups guide an EU energy research and innovation spend of €71.5bn over 2016-2024.

Our invited presentation to EU Member States (via the EU SET-Plan Steering Group, 13 June 2018) changed thinking and built EU momentum behind the possibilities provided by energy-SSH insights. Most significantly, the presentation led the Steering Group to re-engage with energy-SSH, as there had been no engagement in any SSH issues since 2014 [Evidence-1]. Following this EU SET-Plan Steering Group success, SSH policy discussions continued with specific SET-Plan Implementation Working Groups. For example, over June-November 2020, ARU co-authored the updated Offshore Wind Working Group's Implementation Plan (published March 2021) and gained endorsement from the EU and all Member States, as part of directly aligning with the new EU Offshore Wind Strategy (published October 2020). As such, ARU ensured that SSH-inspired commitments (e.g. co-creating solutions with citizens; anticipating future societal challenges; recognising technologies' unintended consequences) were incorporated into €1.1bn spending in European Offshore Wind until 2030 [Evidence-4]. Such an SSH contribution has never happened before in any of the 14 Working Groups' Implementation Plans. This impact on EU SET-Plan policy making was reiterated further by Foulds and Robison being invited back to present to the EU SET-Plan Steering Group on SSH synergies with Implementation Plan developments (10 December 2020) [Evidence-1].

SSH is thus no longer excluded from EU-level Member State discussions on the SET-Plan, as further demonstrated by Foulds being invited to co-host a joint DG ENER (Directorate-General for Energy) and DG RTD workshop (20 Nov. 2019) on the roles of energy-SSH for EU-wide citizen engagement. Without ARU's involvement, EU strategy and implementation concerning energy research and innovation would remain constrained to technological silos (e.g. Solar PV; Ocean Energy; etc.). Indeed, ARU additionally co-organised an 'SSH integration' masterclass for energy technologists (1 Dec. 2020), with both DG RTD and DG ENER [Evidence-5].

ARU also worked closely with the European Energy Research Alliance (EERA) – which is the EU's formal 'research pillar' of the SET-Plan – helping it to further realise the potential of SSH. This led to SSH becoming an integral feature of the EU's forthcoming Clean Energy Transition Partnership (CETP), which will align and coordinate €563m of Member State funding in priority SET-Plan research and innovation areas. Moreover, ARU was one of the select (non-Member State) reviewers of the CETP's 2020 Strategic Research and Innovation Agenda, particularly in relation to the CETP's cross-cutting 'socio-economics' theme [Evidence-6].

This deep relationship with EERA also facilitated further impact on the policy priorities discussed by EU SET-Plan communities. For example, a dedicated SSH session (involving ARU) was organised at the EU 2020 SET-Plan conference (25 Nov. 2020). EERA itself has also begun re-structuring its resources and activities to better support what the EU now wants from energy-SSH. Examples include hiring an EERA Policy Officer with an energy social science PhD (who had actually only encountered EERA through her collaboration with ARU's Energy-SHIFTS project); and recruiting Foulds as the UK representative for its EU-wide Joint Programme on 'Environmental and Social Impacts of the Energy Transition', which EERA has committed to re-organise in line with Energy-SHIFTS outcomes (e.g. Horizon Scanning priorities). [Evidence-6]

Such progress is supported by other EU stakeholder bodies similarly embedding SSH into their policy positions. For example, the European University Association's European Platform of Universities in Energy Research & Education formally integrated SSH into its 'Energy Transition and the Future of Energy Research, Innovation and Education: An Action Agenda for European Universities' (published Dec. 2017) [Evidence-7]. This Action Agenda also contained explicit references to SHAPE ENERGY's Lexicon [stemming from Reference 4] and led to the EUA President stating that SSH are "*as important as engineering and natural sciences ... to address the energy transition*" (p.4, Evidence-7), which is a significant shift given SSH's usual positioning.

Impact 3 – ARU ensured the policy foci and precise call wording of €30m+ EU energy research and innovation calls explicitly accounted for SSH

ARU was asked by DG RTD to provide recommendations for their annual energy-SSH funding calls (2018; 2019; 2020) and there was clear evidence that our suggestions led directly to the wording/foci of these three calls (€10m/call). For example, the H2020-LC-SC3-2020's call on 'Energy Citizenship' was what ARU had recommended when discussing inclusive engagement, and the H2020-LC-SC3-2019's call on 'Challenges facing carbon-intensive regions' included the rise/role of populism that ARU also recommended [Evidence-8].

ARU was instrumental in guiding INEA's thinking on how funding calls were constructed, helping them realise that the call wording used will attract certain types of SSH research communities, and thereby also attract certain ways of identifying different policy solutions [Evidence-2]. Indeed, Foulds reviewed INEA's investments on €16m of SSH energy policy projects. He also assisted INEA in a post-review 'Call Text Analysis' for the EC's DG ENER, providing advice on the roles afforded to SSH around consumer engagement in future funding calls.

ARU's impact on the directions of Horizon 2020 calls was enhanced by Foulds' reviews of draft Horizon 2020 energy calls, on behalf of the UK delegation, as a member of the UK Government Department for Business, Energy & Industrial Strategy's (BEIS) Energy Efficiency Stakeholder Group. Each of the three Horizon 2020 Energy Work Programmes (2014-15; 2016-17; 2018-20) was reviewed by Foulds three times (nine reviews in total). [Evidence-9]

Other EU Member State and Associated Country delegations, who were also tasked with reviewing energy funding calls for their countries, similarly incorporated SSH into their thinking and review activities. For example, Bulgaria and Moldova delegations responded positively to the ARU-authored Research & Innovation Agenda, saying that they would follow ARU's recommendations for SSH in their Horizon Europe and Horizon 2020 negotiations [Evidence-10].

5. Sources to corroborate the impact

- ***Evidence-1: Letter of support from Policy Officer, European Commission Directorate-General for Research & Innovation (DG RTD) on impact on EU (SSH) funding priorities.***

- **Evidence-2:** *Letter of support from Project Officer, EU Innovation and Networks Executive Agency (INEA) on impact on management and processing of EU energy project proposals.*
- **Evidence-3:** *European Commission's Social Sciences and Humanities (SSH) monitoring in Horizon 2020 report, showing impact on evaluation of SSH spending, in relation to the Horizon Europe recommendations in SHAPE ENERGY's Research & Innovation Agenda.*
- **Evidence-4:** *Letter of support from Coordinator of SETWind, detailing impact of ARU's SSH insights on the development of the EU SET-Plan Implementation Plan on Offshore Wind.*
- **Evidence-5:** *Letter of support from Head of Innovation, Research, Competitiveness and Digitalisation Unit, European Commission Directorate-General for Energy (DG ENER) on impact of increased policy interest on SSH.*
- **Evidence-6:** *Letter of support from Secretary General, European Energy Research Alliance, on role of SSH in the CETP and in EERA's own strategic orientation.*
- **Evidence-7:** *European Platform of Universities in Energy Research & Education's Action Agenda, showing energy-SSH integration into European University Association priorities.*
- **Evidence-8:** *ARU's recommendations to the European Commission on energy-SSH funding priorities, showing how ARU directly shaped dedicated energy-SSH funding calls.*
- **Evidence-9:** *Letter of support from UK National Contact, EU Energy Focus, detailing SSH reviewer role of EU Horizon 2020 energy calls for UK Government (EU Member State) delegation.*
- **Evidence-10:** *Email examples showcasing support for SHAPE ENERGY Research & Innovation Agenda, which informed EU Horizon Europe positions for Bulgaria and Moldova.*