

The Royal Society of Edinburgh Research Network in the Arts and Humanities

Connecting with a low-carbon Scotland

Disciplinary and interdisciplinary reports,
recommendations and research questions



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Introduction

The Royal Society of Edinburgh Research Network in the Arts and Humanities Connecting with a low-carbon Scotland was established in February 2016 with the objective of exploring what the humanities can contribute to the process of low-carbon transition in Scotland to help mitigate climate change. The Network has brought together over eighty scholars from throughout the UK and Europe, and has involved Creative Scotland and Creative Carbon Scotland in its work and activities.

Since the passage of the UK Parliament's Climate Change Act 2008 and the Scottish Parliament's Climate Change (Scotland) Act 2009, which set the statutory target of reducing Scotland's carbon emissions by 80% by 2050, low-carbon transition has been a key factor in energy and environmental policy in Scotland. Recently, the Scottish Government has signalled that it intends to be even more ambitious. The 2017 Scottish Government Draft Energy Strategy has set out the extremely challenging target of producing 50% of Scotland's total energy generation from renewables by 2030, and further legislation is being introduced to the Scottish Parliament in 2017 to tighten the 2050 target to a 90% carbon emissions reduction.

Thus far, the main focus of activity has been on electricity generation, and significant progress has been made in this context. Coal-fired power stations in Scotland have been phased out and approximately 60% of Scotland's electricity is now generated from renewable sources – mainly hydroelectric and wind turbines – with the remainder coming from the relatively low-carbon (although not renewable) Torness and Hunterston B nuclear power stations. But, impressive though this progress is, electricity generation amounts for only around 20% of Scotland's overall energy consumption. The remaining 80% is in heat and transport, and so to move low-carbon transition forward, we need to change how we heat our homes and workplaces, and how we travel. This next phase will require a fresh approach to transition, for while reforming electricity generation is a largely technocratic process, changing patterns of behaviour requires a more nuanced understanding of cultural and social influences.

It is in this context that the humanities can make a valuable contribution to policy making and public debate in Scotland. Cultural narratives, whether in film, media, novels, plays, government papers or legal instruments are powerful factors in influencing behaviour. The RSE Network has therefore sought to identify key issues in humanities research on Scottish low-carbon transition by bringing together scholars from literature and theatre, visual arts, politics, media and law, and then making a series of recommendations on how the field can be developed further. In so doing, the Network opted to focus on the Scottish and low-carbon aspects, rather than on the debate over what an 'energy transition' actually is and how it is driven, shaped and recognised. Moreover, working in the first instance *within* the humanities is to some degree an atypical way of approaching what the humanities can offer to transition: humanities disciplines have often sought to reach across wide disciplinary distances, for example in visual arts/science collaborations. This is not to say the latter does not work but the experience of the Network opens up the question of what the one approach can yield that the other does not.

A detailed account of the methods used by the Network has been published in the open-access journal *Humanities*¹ under a Creative Commons licence. They were devised to facilitate collaborative working across the humanities in areas where there is comparatively little in the way of developed scholarship - and the theme of energy transition in Scotland is not something which has received much attention from humanities scholars, notwithstanding that there are rich cultural and artistic narratives relating to it.

The first stage was therefore to create discipline-level perspectives on key themes in panel teams, each of which involved five – eight specialists, in order to build knowledge bases within subject areas. Otherwise, interdisciplinary collaboration could be unbalanced by those disciplines which had more developed initial positions dominating from the start. The resulting disciplinary reports for literature and theatre, politics and history, law, media and visual arts are set out below. They provided the narrative foundation for the interdisciplinary (or more specifically interhumanities²) report, which appears thereafter. Following an international conference held at Stirling University in

¹ G. Little 'Connecting Environmental Humanities: Developing Interdisciplinary Collaborative Method', *Humanities* 2017, 6(4), 91; doi:10.3390/h6040091. Available at: <http://www.mdpi.com/2076-0787/6/4/91> (Accessed 22 November 2017).

² I.e. interdisciplinarity *within* the humanities.

April 2017, the interdisciplinary report was drafted by the Network co-investigators, circulated for comment to the whole Network, and then revised and finalised by an iterative online process.

It is hoped that the disciplinary and interdisciplinary reports – which have as their key objective the identification of research issues and questions for future exploration – will facilitate further research activity and provide a platform for collaboration not only at disciplinary levels and within the humanities, but also with policy-makers and those working in the STEM subjects. In addition, it is hoped that the themes, issues and questions which have been brought together will be of value to those working in the cultural sector, such as writers, poets, theatre practitioners, artists, journalists and filmmakers, as well as to members of the public. Finally, it was clear at the panel meetings and the Network conference that, despite disciplinary differences, there are many who, although rooted in one discipline, have a real interest in the questions and approaches of others and in finding out more about what they might contribute. Being a disciplinary “outsider” can bring real benefits in identifying where things are being taken for granted or where useful insights are being overlooked: in this context, we should not forget that there is great value in informal intellectual ‘cross-fertilisation’, as well as in more structured disciplinary and interdisciplinary collaborations.

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Literature and theatre panel report

Panel participants: Dr Graeme Macdonald (Warwick University) (panel lead and report drafting); Dr David Borthwick (University of Glasgow); Dr Alex Campbell (Bath Spa University); Dr Laura Watts (IT University of Copenhagen); Prof Carl Lavery (Glasgow University); Prof Gavin Little (Stirling University) (minutes); Prof Axel Goodbody (Bath University); Dr Bradon Smith (Open University/Bath University); Prof Michael Gardiner (Warwick University); Dr Scott Hames (Stirling University)

Apologies: Dr Susan Oliver (Essex University); Kirsty Strang-Roy (PhD candidate, Glasgow University)

The report summarises key issues that emerged from wide-ranging and stimulating presentations and roundtable discussion: the overall objective of the panel session was to explore general themes in selected readings with a view to identifying ideas and research questions which can be taken forward in this and subsequent projects. The research questions which emerged over the course of the day are set out in bold.

1. The role of literature/literary forms in cultural registrations of low-carbon transition / climate change

The panel began with a general discussion on recent intersections between literary studies (and the wider field of cultural studies), the emergent fields of energy humanities/petroculture, and the more established field of environmental humanities. We discussed some of the key claims, debates, and theorisations that have sprung from this intersection, notably the idea that energy impinges on culture and cultural forms as much as culture can be (re)read (and filmed, performed, etc.) to reveal and relate the role of energy – particularly high-carbon forms of energy – in modernity. Whether cultural forms place pressure on energy forms, or have any/some agency in pressurizing the various formations around ‘the carbon complex’ was a question to pursue and consider. The central claim that energy is *social* (and therefore cultural) as much as it is technological/biophysical was also considered. We used this as means to think through and scrutinise the themes, topics and terms of the RSE Network. The spectre of climate change permeates these issues, and literature’s past and present attempts to engage with this phenomenon (viewed as a ‘hyperobject’) were revisited throughout our discussions. There was consensus that the challenges of Paris 2016 provoke a response from all academic subjects to consider the range and extent (if any) of their disciplinary role and responsibility

in confronting the multi-scalar aspects of climate change, and in enabling the necessary forms of Transition to a low carbon future.

It was agreed that whereas literature has proved a ready source of knowledge and practice of environmental awareness and in registering the threats and causes of global warming – in modes of ecocriticism and in the growth and success (and potential exhaustion) of certain genres such as ‘cli-fi’, the discussion required deepening and broadening. There was clearly an uneven geographical and institutional distribution of the (undoubtedly widespread) focus and range of the terms and forms of literary engagement. There were also some anxieties expressed about the possible homogenization of the term ‘Anthropocene’ as a backdrop to ‘low carbon’ discussions.

The geographical and historical ‘stretchiness’ of ‘low carbon narratives’ was also key to consider. (The specific application of all issues to Scotland/Scottish Literature was noted for a more in-depth discussion later in the day – though arose throughout the various discussion topics – see below). Reminders were issued that energy transition has been a vital matter throughout history and we might learn something from studying previous epochal shifts (with the unprecedented-ness of climate change also kept in focus here). These were apparent in the literary archive. The definitive framing of energy ‘texts’ and ‘discourses’ clearly has a textual/literary quality, but the huge range of ‘energy texts’ (or energised texts) we are able to mine – from Scotland and around the world – is considerable: from eras and periods such as Early Modern Studies and Modernism to modes such as romanticism, realism, and speculative fiction, but also in different *forms* of cultural practice, diverse literary styles and types of texts. We considered, for example, Humphrey Jennings’s *Pandaemonium 1660-1886*, as one of our readings, which collates a whole series of texts from vicars’ diaries to machine manuals that might be considered ‘literary’ and possessing textual/narrative qualities, but we also discussed recent speculative novels, such as *The Sunlight Pilgrims* (2016) by the Scottish writer Jenny Colgan, which emplots the process of climate change locally. We considered a range of examples from poetry to performance and recognised that disproportionately few literary texts speak *specifically* and in sustained fashion in terms of energy, yet asking the question might mean making the issue more visible (seeing ‘carbon’ as *unseen* rather than invisible). The notion was advanced of an ‘energy unconsciousness’ requiring extraction from the various literary strata of fossil-fuel modernity. In actively *looking* for energy, literary and cultural history is suddenly strewn with examples of high carbon narratives. We used these ideas about conceptual perspective to think through how *low* carbon narratives might

present and represent – in Scotland and around the world. They also might appear more explicit in certain places where energy is a more publicly visible and explicit concern (Scotland might be a good example here, though it is not exceptional). We can witness an uptick in energy use, for example, through a variety of narratives relating historical phases of conversion and transition – from hydro to steam to coal and then to oil and gas. They reflect the complexity of any shift in energy use at the larger end of the scale. We get a ‘complex ambivalence’ now in re-reading these texts from the other side of 21st century ecological anxiety. Narratives of energy system change from the past are salient to the kinds of challenges that face us as we seek another massive system change now. Locally, we might ask what is evidenced in past and present narrative forms that can help us better understand Scotland’s transition to high – and low – carbon infrastructures and lifeworlds. Such texts reveal anxieties about resource depletion but also the implications – bio-physical, social, ethical, economic – and (im)morality of living off carbon capital.

The panel also discussed recent critical challenges to the low-carbon ‘usefulness’ of literary studies, such as proffered by Timothy Clark and his provocative extrapolation of literature’s (lack of) capacities within the widely taken up context and concept of the ‘Anthropocene’ (or ‘capitalocene’; ‘cthulucene’, etc). It was agreed that the heterogeneous terms, times, and places of ‘low carbon narratives’ need further mapping, elaboration, and extraction on a local/planetary axis, more conceptual ‘stress-testing’, more definition and theorisation, more evidentiary and interpretive examples. This might lead us to be better able to discuss questions of literary ‘efficacy’.

The possible *limits* and endpoints of literary capacities to fully engage with efforts towards low carbon transition were thus kept in view throughout. This reflexivity was significant when thinking about how best to ‘use’ literary means, how to engage literary and cultural institutions, and beyond that, the general public. The extent to which the *institutions* of literature (from university curricula to cultural festivals, library reading groups and creative organisations) were engaged in what might be called low carbon issues needed more mapping and knowledge-gathering.

The idea was advanced that other panel discussions felt an inability to break out of technocratic/top-down/structural discourses, whereas the literature and theatre panel offered a means to consider how imaginative forms and creative practices represent individual/subjective lifeworlds. How this purview might not only afford better access to *affective* carbonising experiences, but also offer

provocative and fanciful imaginary speculations of lived and felt experience in low carbon scenarios was considered. It was also thought essential to ask what a low-carbon sense of the (post)human might be. Such questions also offered a means to animate the *non*-human aspects of carbon and post carbon culture, to think through what was called our ‘multi-species liveability’. This strong feature of feminist/Anthropocene thought attempts to deconstruct/repurpose the hegemonic (carbonised) narratives of human exceptionality that *produce* the Anthropocene anxiety/ sense of nature-in-crisis we are now living with. We discussed ways in which narrative can ‘characterise’ the life of such non-human/inanimate objects. To what extent, for example, are we creating an ethical ecological relationship with plastic? Do we see oil as somehow having a ‘life’? Why is the representation of, say, wind an important low carbon narrative? We considered examples of narratives of toxicity / waste, and of material non-subjective objects and goods, allowing us to think through these things as having some kind of ‘agency’ – as ‘characters’ with some kind of narrative acumen – as ‘vibrant matter’ – somehow ‘part of us’, yet constitutively different from us. Think of how, for example, the plastic dreck on the ocean flotsam sends a message to us as the producers, a signifying return of our waste(ful) economies. It functions as a ‘sensory visual indicator’, prior to any transformation into narrative and other signifying forms. (Visual art, for example, has picked up on this waste/plastic nexus as a strong theme for creative representation). Alternative means of poetic and narrative-attachments can provide a means to conceive and perceive the airborne/sunken/floating/refined/dispersed/embodied world of carbon.

Research Questions

What is the *narrative* interface between energy and environment? How does energy *drive* narratives and vice versa? How and where does literary criticism define and *divine* low-carbon in narratives? In narratives that are *specifically* focussed on carbonised content / themes (‘Petrofiction’, ‘Stories of Coal’, ‘Automobilia’, etc.)? Or, perhaps - in narratives bearing energy at an unconscious or under-elaborated level, ready to be ‘dug’ out?

What do we *mean* / reference when we talk and write about ‘carbon’? Do we need more carbon literacy? Do we need to better exemplify and possibly rethink its definition/meaning, esp. in the shadow of climate change? Does this need more specificity and clarification in specific and even abstract contexts? Does ‘low carbon’ possess a different – or potentially relational – meaning in different contexts and in different disciplines? Also, does the difference between ‘low’ and ‘zero’ carbon require more nuance and elaboration?

When we say ‘narratives’, are we too restricted in our understanding of what that term means/defines? Do we tend immediately to look/think towards fiction, perhaps at the expense of narrative in other forms (esp. poetry, drama, and creative non-fiction, but also various discursive narrative forms: diaries, autobiography, historiography, web content, advertisements, manuals, product descriptions, news content, etc.)? What, if any, are the ‘master narratives’ of climate change or carbon culture? Is there a climate/carbon literary canon? What other stories are there of our dealings with energy – with past and future ideas of energy attached to climate change/carbon culture? How are these related to our politics/economy? What stories of transition are there and what narrative form might they take? What and how can literary critics best contribute to this? We were very alert to the potential ‘reach’ and entanglement of low carbon narratives in other genres, disciplines, contexts, forms – we agreed that this ‘relationality’ was ‘tentacular’. How do we think about the tentacular elements of our ‘carbon material’? How does it reach across and into other disciplinary categories and definitions? (Is low carbon literature related to low carbon philosophy, for example, or low carbon justice, low carbon economy, etc.?) How does literature characterise / imagine the human *in* and *out of* carbon society? What might the post-carbon human look and act like? How do narrative and creative forms render the non-human as a crucial feature of the low carbon imaginary?

To what extent is Literature – and the Literary Institutions (curricula, readers, audiences, festivals, writers, special anthologies, etc.) *conscious* of playing a specific role in climate change mitigation? How do ‘creative forms’ of writing and performing engage publics – literary / general publics? How do literary scholars, in turn, react to the mention / use of literary forms and genres by climate activists/scientists, policy makers, etc.?

What are the *limits* of cultural representation / creative practice / pedagogy / in relation to the effort to shift to decarbonised futures? In relation to this, what are the *advantages* of a literary /imaginative take on cc and low carbon futures? What might literary / imaginative forms offer (narrative and otherwise) that other disciplines *cannot*? How might stories and narratives come at us from unexpected places? Where do we expect (and not expect) to locate climate change and carbon; how do we detect it and *characterise* it in literary contexts? How do we see the spectral tones / messages of climate change in banal literary narratives, for example, or in non-narrative imaginative forms, such as theatre performance or dance? Does cultural theory and literature offer a means of provoking ways to think and act ‘low carbon’? Do they offer means to create and

envision a radically different world altogether? Do they offer a positive vision of the energy we *need* to expend, and even, to waste?

2. Considering specific, 'privileged' literary genres registering issues around decarbonised futures/low carbon narratives.

There was general agreement that the novel had been a privileged form in the literary attention to petroculture /climate change – most notably with the prolific output and critical attention to 'cli-fi'. The definition and interpretation of the 'low carbon novel' is, perhaps, less attended to in the general literary sphere. We discussed why this might be and also ways and means to think through it – in particular surrounding what we might recognize as a registration/representation of 'low carbon' at the level of content (questions of aesthetics, form and style follow below). Science fiction (and other forms of speculative fiction/narrative) was a particularly prominent subgenre in this field, for obvious, and generally good reason. The cultural theorist Donna Haraway's idea of "sf" as a conjunction of scientific knowledge and science fiction was considered as an example of a genre asking us to think through the inseparable elements of the relation between fact and fiction. "Sf" can operate as speculative fabulation/prophecy/cautionary tale, but how this interacts with disciplines working towards conceivable and actualised energy futures required more work.

There were, furthermore, evident concerns in our discussion regarding the potential exhaustion of certain forms and genres in representing climate change. Recent interventions by the likes of the Indian writer Amitav Ghosh (*The Great Derangement*) bemoan an inattention to forms of realism and documentary narratives in literary responses to the issue. Laurence Buell's notion of writing climate change as literary narrative formally confronting and adapting to environmental crisis was also highlighted. It was proposed that the narrative consequences of this ongoing and *anticipated* crisis are understandably also about the collapse of certain kinds of linear / 'conventional' narrative, especially as a means to register the way cc and the notion of transition erases the familiar world and disperses the future in complex and challenging ways. The panel agreed in the main with Ghosh's point that conventional forms of realism might be unable on their own to confront such a phenomenon, but that less outmoded 'realist' forms might be feasible to explore (more on this below). It is clear that a 'narrative realism' of sorts is a powerful feature of *any* sense/expression of 'transition' as a genuine move from a known and familiar world to one that may be wholly unknown and

ambiguous. The power of the familiar cannot be disposed (since even if it is a world of petroculture [i.e. unsustainable], it is the world that we inhabit and 'love' in many ways – and would wish to preserve and extend). The 'familiarising work' of realism is therefore something for literary critics to push in order to extend and interrogate not only the reasons for present impasses to a transitioned future, but also for more extensive definition of what, exactly 'Transition' signifies and whether it is a helpful term.

UK 70s era 'disaster texts' were considered as an example of a more recent example of how culture deals with impending (global) crisis: forms of post-apocalyptic neo-medievalism are common features of a post-carbon/disaster world (see for example, the *Mad Max* movie franchise). In the UK, these might also be viewed constitutionally; generally rethought as an alternative narrative of technological (mal)development and cultural reorientation (see more on this below). This is the 'tabula rasa' element of imagined crisis, where the future scenario offers a pedagogic element to the present in what it foretells. Narrative responses such as this have often placed readers outside a stable, teleological narrative, where the threat of crisis is responded to by anti-realism and the promotion of estrangement. (The post-carbon society is usually fraught and conflictual, though it is not without Utopian strands). Stability as we know it is indefinitely disrupted and postponed in this vision of the future. Dystopian imaginaries are also prolific in this context. Questions of form and genre also arise here. If realist narrative is not up to the challenge of conveying the low carbon imaginary (or the imagined threat of the consequences of the high carbon future), then what also falls are some of the assumptions of an evolving organic society aligned to fossil fuels. This sense of the organic state has, of course, been particular to UK constitutional forms. (Whether we can see the UK as an outdated 'Petro-state' capable of transitioning into renewables has some currency here, in how the future of the UK is imagined as a low carbon state). Overall, the panel agreed that the ways we *do* orthodox literary analysis might be somewhat challenged by the demands of a decarbonized society.

The exceptional place and function of *poetry* as a low-carbon form was also discussed. Poetry was perhaps less attended to despite the prolific amount of poets and poetic work carried out in eco-literary circles. It was noted that examples of 'petro-poetry' were accumulating, though this was still pretty dispersed and under the radar. Poetry "gives you the ability to move with much more surface detail" – offering transitory movement and experience through metaphor and fragment. It was, perhaps also less anthropocentric, more attuned to forms, sounds, and objects of 'nature'. Carrie Etter's 2016 climate

change poem 'Scar' was examined as an 'example of ecopoetics dealing with scale'. We discussed the renewable energy poetry of Alec Finlay and also the work of the Dark Mountain project as examples of 'low carbon poetics'. Poetry clearly offers something additional and different, possibly something more dynamic and fluid than prose in representing/interpreting the various contingent registers, responses and registrations along local/global conduits that climate change and the carbon-complex requires. Poetry offers a bricolage form, able to negotiate between different scales and discourses. T. Clark's recent work on the Anthropocene and the function of the literary expressed anxiety about being able to narrate – and therefore enact meaningful change on individual/granular levels. Poetry may be 'better' at mediating this. The fundamental question that emerges from this entire line of questioning is the capacity of *narrative* forms and genres to really and effectively engage with climate change. Considering, once again, the *limits* of the literary here might be an *enabling* admission, rather than a disabling or fully pessimistic one. (Even if this is interpreted as a means to exceed such limits/barriers, or understand more about what puts them in place).

Research Questions

Is there a specific literary genre that might be more effective than others in registering low carbon transition? A privileged genre for decarbonised futures/narratives? Should low carbon narratives be future-oriented? Are certain forms of narrative less attributed/attended to in critical circles? Are catastrophe narratives exhausted? Do they have a restricted power because we fantasise about 'saving ourselves' through fictional narratives, esp. *after* the disaster has occurred? Do they operate as a powerful form of displacement, inattentive to the 'slow violence' and multi-scalar effects of climate change?

Does low carbon transition need to attend to unconventional narrative forms? What are the limits of the disciplinary silos of literature? In what ways might literature present as a corollary and/or complement and/or oppositional force to science/scientific opinion? How do we rethink what we commonly understand to be 'narrative' – or reconsider its usefulness (or uselessness) – in terms of what we generally think of as *a* or *the* low-carbon narrative? Might poetry, in its alternative and various forms provide a wholly different means of linguistic, (non)narrative means of exploring low-carbon experience? Is there a low carbon poetics that rejects/poeticises conventional narrative form? Also, how do other texts, periods and genres from across literary history come 'back to life' in the midst of the carbon-crisis?

How do we tell stories together? Haraway asks “How do stories have material /communal /collaborative qualities and effects” in the context of transition? How do we understand / track the effect of such low carbon cultural production on various audiences? The forms of narrative address are significant here – how are low carbon stories told? What form, to whom? How are they most effectively disseminated? How prevalent are they in different cultural geographies?

3. The imagined landscape as a powerful and recurring feature in low carbon narratives – an ‘energyscape’

The panel noted the emergence of new disciplinary formations and subfields – such as The Blue Humanities; Energy Humanities, etc. – from recent literary engagements with fossil fuels/climate change/ecological crisis/ecocriticism. The terrain of these formations is multi-scalar and striated across political and cultural geographies and extra-national/national/regional/local ecologies. Scotland was a key focus in this discussion, given its varied terrain; its intersecting energy modalities; its devolved political relations; its ambitious policy aims for climate mitigation and energy transition.

We considered how energy narratives change conceptions of distance and centre – especially around islands and ‘peripheral/semi-peripheral’ spaces. The way we rethink the *sea* as a connector and a source of different energy possibilities is changing, especially as a post-oil sensibility takes hold. (Though we did acknowledge the intensification of oceanic sites as extractive spaces for globally expanding marine capitalism). Orkney was a specific focus here, as an avant-garde, ‘leading’ space of energy transition; but also as a cultural-geological space of ‘deep time’ processes; a place of ‘unmodern stories’, where stone and rock retain a powerful cultural/symbolic resonance. This is a strong feature in Scottish cultural history to the present, offering possible perspectives on the coming encounter with a post- and pre-carbon temporality. How we see and imagine landscapes can alter the manner in which it is valued. This can also push at our understanding of what an anthropocentric narrative might be – in terms of the right to own and ‘produce’ and ‘control’ nature and landscapes – might be a certain naivety in popular visions of (Scottish) landscape as somehow wholly ‘natural’, outwith the realms of modes of production and human activity (more of which below).

Emergent political differences between Edinburgh and Westminster in the approach to renewable energy were also discussed. How cultural narratives engage with this were considered. A history of wind energy in a particular

space, for example, can facilitate a ‘renewable’ identity – and may initiate a ‘culture of renewables’ in much the same way as a petroculture might be said to have been installed and reproduced in the 20th century (or an agricultural space then and now). Such ‘renewable culture’ may affect a ‘policy’ story that has constitutional resonances in different spaces. The caveat was made that the *idea* of ‘reindustrialisation’ through renewables, which has some heft in recent Scottish debates, is to some extent a *fictive* vision, and also a form of nostalgia, even if it is a mode of remaking and repurposing – presented as a ‘saving’ of the future’.

Scotland has already a considerable narrative of tidal energy, possibly under-recognized as such, but apparent in a considerable set of stories/poems/plays/artistic renditions of the sea. ‘Blue Humanities’ aim to make ‘salt/fresh water’ narratives part of the energy-ecology discussion. The ocean as an “always moving” material and cultural phenomenon provides opportune space to think about old/new connections between the Scottish tidal/sea scene and the larger world-ecology. Elizabeth Deloughrey’s theory of the ocean as a site of disposal, but also a site of ‘liquid modernity’, pulling waste and goods and peoples around was significant to the Scottish context. The way in which we perceive the ocean as a ‘site of historical and ongoing extraction’; of water as having narrative potential, will be key to the way in which low carbon narratives are framed. *Onshore* is also of interest here, particularly in the figure and image of the *beach* – a throughline in Scottish literature and literature of the Blue Humanities. What does the beach *throw up* and cast back to us, making other toxic worlds and their waste visible? It also offers trans-nationally conjoined narratives of recycling and salvaging, stories and symbols of ‘local rock and global plastic’. The agency of the sea as a means to throw up global toxicity onto local beaches and cultural consciousness is narrative potential, providing cultural currents and connections across the Atlantic. The wash on the beach forces us to question our sense of ecological value and its limits; and how we perceive offshore castings of waste and excess from the consumer world-system we reproduce, as they are brought onshore – ‘back’ to us and made visible. The oceanic system is *social* – full of carbons and plastics and a ‘weird plastic wilderness’ out there is appearing on the fringes and shores of Scotland. Even though we think this world of ‘plastic wilderness’ is ‘out there’, this is a reminder of the world we and others create as it appears to us in wastes, cast back and regurgitated by poetic and fictional and non-fictional creative narratives.

The panel underlined the considerable volume of work arguing that narratives (and non-narrative cultural forms) have great power to orient and shift perspectives on landscapes – and here we are especially interested in landscape narratives in the service of low *and* high carbon interests. Wind power was much discussed, in the context of residual and emergent perspectives on rural/natural land. These helped generate questions/perceptions of ownership of that territory and the *right* to develop it along energy lines and corridors. Ownership is, interestingly, entangled with aesthetic sensibility and subjective / collective feelings of belonging, notions of community, etc. It might be interesting for future research to ask whether in community ownership situations, *aesthetic* perceptions of renewables infrastructure change. Many examples of a ‘deeply pastoral landscape’ remain in play in this context, most notably in the argument over wind turbines and littoral windfarms. Here, a lack of awareness of other perspectives was significant, esp. in the perennially powerful narratives framing the ‘natural’, ‘agricultural’ landscape as somehow carbon-free, or un-produced, non-technological: as though farm fields had enclosed *themselves* over the centuries! (We discussed examples from Dumfries/Orkney/Stirling). The ‘landscape of the mind’ was very much in operation here, and clearly needs more study and elaboration in the context of the mediations of landscape amid ever increasing demands for energy supply, security and sustainability. Also significant, was the lack of forthright discussion from environmentalists on the carbon-hungry, anti-ecological elements of some *renewable* infrastructures – such as windfarms: which were not external to environmental and social justice issues. Some environmental/transition activists have not acknowledged the perceptive and sensorial problems with renewables enough. Questions of what, exactly, is ‘natural’ about *agricultural regions* in Scotland and beyond also needed restating. The potential for rural regeneration from windfarms was entangled with the imagined landscapes of Dumfries and other rural territories in Scotland and around the world (subject to site-specific terms). There is a strong, recalcitrant emotive and ideological ‘pull’ of the rural and pastoral as somehow out of the industrial loop (the common renewables objections being that windfarms cause unnecessary industrialisation of the rural sphere). Would an alternative aesthetic frame help depict things differently? The romanticised landscape remains a ‘live’ issue to consider in Transition narratives, in Scotland and elsewhere – and clearly the subject of tourism needs to come into this discussion.

The panel denoted issues of *ownership* as impinging on the way that such landscapes – and energy transitioned landscapes – are represented and ‘imagined’. Notions of ownership exerts a powerful symbolic influence on

perception and polity. Land ownership concerns are jolted by any changes to landscape which are visually perceptible, for example. When the view is changed on the natural landscape, there is a renewed interest in awareness of ownership of the territory. (We also noted, nonetheless, the huge complexity of turbine installation from place to place; the way in which ‘community-owned’ and ‘privately owned’ were powerful signifiers of alternative futures of transition and social (re)organisation.) Also key here is the manner in which communities are educated and socialised into accepting and/or rejecting Transition /Climate change mitigation and the infrastructure it requires. The communicative format and the mediation is crucial. See, for example, instances around the world – even in high carbon spaces such as Brunei and the Gulf States, of widening access programmes for renewable futures. In Orkney, for example, children design energy programmes for ‘alba island’ – and ‘wind’ is part of that future imagined landscape. How does this impinge on the general curriculum, nationally? The younger generation have grown up with windfarms, which are as ubiquitous for them as powerlines.

Thus, the carbon landscape is historicized – as temporal and dynamic in terms of generational shifts in perception. This faces powerful resistance elsewhere, of course. In Stirling, for example, the wind farm Braes of Doune has been a controversial project. Here we also find a ‘juxtaposition of ancient and modern’, which is not as potentially productive as we might propose it in our imagined futures. Here, local community benefit and *access* is a key thing for settled notions of locality and subjective or demotic forms of democratic control. We discussed whether people need to become part of the psychic landscapes of renewables as much as feel physically/socially part of them. What often emerges in debates over placement of renewables is the relative structures of feeling that emerge. The ‘natural landscapes’ is viewed as a general *public* debate. Yet the cultural history of energy landscapes – on and offshore – shows that it is not always a fully public domain – and has never been in the age of modernity. There are no “static” landscapes in energy transitions throughout modernity. ‘It’s always been like that’ types of response need more of a robust challenge, and historical image work can help do this (for example, the history of (de)forestation in Scotland, or the installation of powerlines in the early 20th century.) It might also require a shift in ideological awareness of energy ownership and the legal and cultural claims to energy as a right as the reorganisations of climate change begin. In climate change, this also becomes a planetary concern.

It is also clear that there is a powerful aesthetic quality that pervades the social and legal and political debate on land-based (but also visible offshore) energy infrastructures, and that this element needs much more critical attention from multiple disciplinary outlooks. Literary and cultural criticism can be a leading force here.

Research Questions

How does the landscape and seascape generate, embed, and convey 'narratives' of high/carbon/decarbonisation/climate change? How do we see place/space as key to environmental readings with low-carbon futures? How do certain 'cultural' landscapes and 'preserved spaces' get woven together with new geo-engineering projects and become sites of technological transformation? Does a 'low-carbon landscape' need to be 'technological'? How do social and natural categories and forms intersect in producing low carbon landscapes? Does narrative assist (and resist) the 'production' of various cultural and technological landscapes? How do these get interwoven without conflict and disagreement? What would adding 'salt water' do to the Scottish low-carbon narrative? How do we envision and storify the sea as a site of energy extraction? How do we represent and understand 'the offshore' as a literal and figurative low/high carbon site? How do we refashion the image and 'story' of turbines or wave machines as 'regenerative', as 'ecological'?

How do we engage with questions of values, disposals and entanglements when confronted with toxic worlds of waste and disposal that wash into our shores and consciousness from 'elsewhere'? There is an oceanic world system we are all enmeshed within – how do we tell the story of oceanic plastic for a low carbon future? The (in)visibility of carbonizing atmospheres/warming climates is also a key emergent theme – how can narratives/images/poetics bring the alienated / invisible carbon world (e.g. microplastics; imported fracked gas; food systems, etc.) into the view and consciousness of land-based high-carbon societies?

To what extent are embedded and refashioned stories and *perspectives* on landscapes such as Orkney or Dumfries and Galloway or Stirlingshire part of contested ideas about 'nature' and place and the carbon structures and components that are part of it? How can we, for example, get away from popular notions that a very high-carbon, inefficient industry (beef and dairy farming) is 'natural', when something is potentially more beneficial in a wider sense and longer run (e.g. windfarms)? How to reimagine and narrate the imagined landscapes of ostensibly 'natural' landscapes *as* carbon intensive, and 'techno-landscapes' as potentially 'ecological'? How do we understand that common

perceptions of the ‘natural’ world as being somehow ‘untouched’ or ‘unspoilt’ nature can be a matter of (mis)perception as we head into a renewables landscape? How do we preserve the *idea* and reality of a landscape of heritage and Deep Time alongside the super-technology of a landscape of turbines and wave generators as a landscape of the future?

What is, then, a ‘carbon’ landscape? What can we consider an energyscape? Is a ‘natural’ landscape one that is carbon-free/reduced? How do we ‘unfix’ the standard notion of wild or rural or even agricultural landscapes as somehow untouched by carbon living and producing? Where do *urban* landscapes – in Scotland and elsewhere – fit into this rethinking and reinterpretation of ‘carbonised/renewable landscapes and carbon-reduced territories? How does a cultural dynamic confront the idea of belonging to place and having access to low carbon space; accepting a changing landscape, a notion of commons that might not be actualised in reality? How does the issue of historical land ownership and reduced access to land impinge on the way we *frame* the landscapes in cultural production and dissemination? How are they best mediated to achieve a smoother and necessary form of Transition? Do we need to think more about the way we perceive/narrate/represent and *access* the gains and losses in historical and transitional low carbon landscapes?

4. Non-narrative cultural forms – embodying/performing low-carbon

The panel felt strongly that we consider – in lieu of the Network’s name and central objectives – that *non*-narrative forms and alternative styles of representation/address/practice be included in the research discussion, either as supplementary and related aspects of low carbon narrative modes *or* as effective alternatives. As alternatives (or complementary) to linguistic modes, these formats provide another way to engage with energy – perhaps through a more “bodily-present” form of representation and practice. For example, *walking* is a key theme in low carbon narratives, especially nature writing, but it also a mundane cultural practice offering a means of viewing and experiencing landscapes differently. It offers different subjective embodiments and alternative representations of space and place and notions of freedom, mobility, opportunity, scale and distance. A commitment to walking (or running/cycling) as a *cultural* (and therefore environmental) practice is also a commitment to a form of energy expenditure, as much as offering a certain “poetics”. Considered in this vein, it might force a rethinking of how to define and value this thing we call “energy” as something way more than simply fuel. Walking (or running or cycling) is an engaging and energetic low carbon act, but

what cultural form might best represent it? The panel considered theatre and performativity as a means to present us with a challenge to our ingrained sensibilities and to challenge what we understand to be our everyday / banal mobilities and expressive embodiments. Theatre is good at putting a “caesura under action” – provoking us to think about what the real world is and how that can be achieved in the real world. There is some theatre and performance activism that directly confronts issues of sustainability or high carbon culture at the explicit level of direct content. However, there is another important strain that might approach the issue of our excessive expenditures differently, with challenges to our senses and corporealities. There is a performativity of energy expenditure and consumption we enact many times in any given day. Some avant-garde forms of theatre we might understand as seeking to provoke and affect us corporeally and sensorially, presenting an alternative (anti)mimesis, challenging us with way to think about how to remake ourselves. We can perceive a theatre of radical energy, one that gestures towards the here and now and the consequences and causes of our actions.

Involving and engaging a variety of *audiences* is clearly a significant aspect of performance and cultural production generally. We discussed various ways and means of this – in terms of large scale events (such as The Edinburgh Festival) and more local, smaller scale festivals/street-level engagement. One particular example was a project run by Dr. David Borthwick and (artist and scientist) collaborators: ‘Flux Chamber’ part of the Environmental Arts Festival Scotland. This entailed a guided walk which tasked participants to ‘see and think about a carbon landscape’; to consider being enmeshed in a carbon site, especially in the dynamic carbon processes of a burn. The ‘field’ exercise sought to show how humans are involved in such cycles. The project emphasised our embodied relationship with the landscape, enhanced by other forms of knowledge about carbon and ecosystem. It encouraged sensory perception’ as much as forms of narrative, walking, illustrating, talking, note-taking, with different forms of discourse. All of this ‘to encourage people to think about the chains [of carbon] in which they are enmeshed’. It was also noted that the return of a ‘haptic’ relation (strong in Scottish literary culture) with knowledge and the physical world could be an important aspect in engaging the new ways of being and thinking and organising in a low carbon future (and somewhat against hegemonic forms of carbon power, from oil corporations to the ‘organic’ institutions of UK State.) How do we scale up, extend, proliferate these kinds of projects and events?

Research Questions

How might energy *embody* and how do we embody energy? How does that embodiment appear in artistic forms, particularly in theatrical texts and productions, or in dance, comedy, music? How do we touch/feel/negotiate/use energy in performance/performative situations? What happens when we move in the kinds of ways we expect an age of transition to allow? What visible differences with the present might we discern by this? How do we think about / relate our different forms of “low-carbon” movement / style / expression as a means to think differently about present and future energy expenditure?

How do we perceive our bodies within a particular energy regime (or in crossovers between multiple regimes): in physical / environmental contact; social gatherings; banal spatial negotiations; travel and mobility; in heating and cooling systems, labour, etc.? What would it take for us to think about alternative ways to expend/burn energy, in everyday human practices: sport, sex, artistic production, laughter, walking, etc.?

Is efficiency too predominant a theme/demand in low carbon narratives and plots? How does ‘low carbon narrative as a performance of efficiency’ meet with forms of excessive performance? Can we have a kind of ‘non-toxic’ notion of energy excess? A *positive* sense of excessive energy burning? What kind of radical shift in perception – and action – does this require and how does literature and theatre work to bring this about? Does it change our aesthetic sense of ‘speed’, ‘power’ ‘optimum performance’? (Think of a cycle event or a low-carbon Formula One race).

What is the role of theatre /performance in low carbon cultural production? How might Theatre and its infrastructural demands work as an ecological system? How does it work as an (alternative) energy system with influences on bodies and performers, with demands on audiences?

How would we find a Theatre of ‘expenditure’ that would make theatre and performance makers look to produce environments in which audiences are affected and engage physically in the here and now, with a sense of what Transition might bring/involve? Theatre that might gesture towards the creation of a post-carbon body/condition? We are asked to participate in an experience every time we enter a theatrical space - as spectators we participate in this circulation of energy. But is there only one kind of Theatre that is ‘energetic’, that gives us an apprenticeship in energy expenditure that we can use to realise a low carbon consciousness?

How do cultural events in Scotland allow us to participate in, think through and enact these issues in a different space? How do we scale up, extend, proliferate these kinds of projects and events?

5. The temporal possibilities of low-carbon imaginaries – future and historical narratives

To reiterate: it is clear that sf/speculative cultural forms are a key genre in ‘future-oriented’ projects. The Humanities are in a unique place to (re)present/narrate the future. ‘What endures?’ is an interesting theme and question, and as we continue to debate these issues this widens into other disciplines. Climate change discourse, for example, is dominated by future thinking, though calls for historical responses have emerged amidst the proliferation of material on the Anthropocene.

Work is now emerging trying to unite future-pointing work from the different disciplines. The connections between Computer models, scenario planners, systems modellers, technocrats, etc. and *fiction* writers are being explored in some areas. There are a number of ‘predictive fictions’ that tell a story about possible futures. (There is a claim to consider the Paris Agreement itself, for example, as a kind of speculative fiction). Multiple ‘mock’ futures can also be useful in ‘bringing us back’ to the present, to consider how a ‘fixed’ system might inevitably lead to an undesirable future. Narrative fictions are provocative, even in their most fantastic or incredible forms, and sf criticism can be redirected to the question of transition and climate in this context. The ‘futureshock/dystopian/eco-catastrophic narrative has numerous examples – the debate over the effectiveness of it as a genre with ‘pedagogic’ tendencies will continue. We noted that this is also a genre that has been monetized by the culture industry. It also offers different political visions of the future and can function as a block to Transition in places.

But what about utopia? Literary and creative disciplines may allow us to think more imaginatively about the different temporalities/different pleasures/emancipatory elements that might be available in post-high carbon societies – but then what? What to do with this assertion? The assumption of ‘Transition with gain’ needs to think about how it recuperates notions of pleasure and fulfilment – in work, wellbeing, lived environments, etc. – notions which may be *radically* different from the technocratic society of the previous forty years.

Speculative narrative visions also allow for a testable ‘future-oriented ethics’; for contemporary readers to consider the future-oriented weight of their actions in the present. We agreed there has been less focus on utopian representations of low carbon futures available in the speculative genres, but there has been even less on the ‘banal’ imagined future of transition, where the imagined low carbon lifeworld is not radically different than what preceded it. This might be a topic to pursue.

Research Questions

How (and where) do futures get imagined and made? Do imagined low carbon futures have different cultural geographies? (i.e. is there something exclusive about how a *Scottish* low carbon future is established, compared to, say, a Swedish one?) What stories can academics make to manifest different futures? (between ethnography/poetry, artistic practices, etc.)? What might be a non- or pro-technological sustainable future in the cultural imaginary? Are such visions incompatible? Are apocalyptic/dystopian visions of a climate-ravaged future effective as a means to ‘educate’ / ‘inform’ publics about the perils of life above 2 degrees? Are there non-didactic imaginaries / critical methods available that might suggest an alternative form of agency? What future do we create with a historiography tied to energy? Does the *past* offer one means to think through the future? i.e. can we *only* think of / represent the Anthropocene / climate change in terms of the future? Is there a case for recuperating/repurposing large scale utopian narratives/emancipatory projects? Do we require more expansive conceptions of future energy narratives / terraforming narratives / emancipatory stories / low carbon utopias? Do we dwell too much on the loss of the present in catastrophe narratives? Why are there less ‘banal’ stories of low carbon futures?

6. Representing Transition

The panel noted the different stories of Transition on offer: with/without gain; with/without Loss; from below; with/after capitalism; with localization; with state reform; after catastrophe. The panel discussed how the notion of a future with ‘less’ needs reconsidered. Transition is often presented as a kind of ‘powering down’ accompanied by a future of less viewed predominantly as scarcity. We considered emerging discourse that posits how a different conception of a renewable energy society might be represented and take hold. Would this involve ‘mourning’ the end of fossils fuels? Acknowledging their ironic mixture of unprecedented (and emancipatory) power with deep

environmental and social costs? We acknowledged there exists a fossil culture that is hard to de-naturalise, and Scotland was very much part of this 'petroculture' as it was in a position to acknowledge the short-termism of fossils. How to render an effective narrative of a world where we gain lots from transition might necessitate envisioning a world where transition is not the conventional stereotypical mode (slow, conservative, restrictive mobility, less power). We considered how to make 'less' pleasurable, appealing, but also a different envisioning of our energy philosophy, where it can be 'good' and 'natural' to 'waste' energy in a post-carbon world. In this view energy use is pleasurable and also 'excessive', without being destructive. This might entail reorienting Victorian work ethics and rethinking labour structures in a time of intensifying digital futures and widespread automation. Transition, it was also noted, did not automatically qualify as automatically or inherently ushering in a 'reformed' society. Large scale technological changes are often heralded as bringing concomitant large scale social shifts. Some caution about that occurring naturally was expressed – and in fact we have literary and historical evidence from previous large-scale transitions (such as in the shift to steam in the Industrial Revolution) or technological revolutions, such as the coming of the space age, that this is the case. The differences between on and off-grid forms of sustainable communities was also remarked upon. The symbolic prowess of renewable energy as 'clean' might not necessarily transfer into a transformed or equitable social contract in the renewables future (though geographies of power may shift, forms of ownership will remain crucial). Different geo-cultural formations might emerge in the era of renewables, evidenced in some speculative fictions – based around site and terrain, as well as the physical qualities of the energy form itself. This might precipitate a shift in a centralised conception of energy production – arguments often perceive localised forms of ownership, via small-scale, regional distribution, smart-scale technology. This might be seen as energy from the edge, where the periphery might alter movements around the UK/Nation as standing infrastructure permits. On the other hand, 'Wind democracy' may involve some of the same patterns as the age of 'Carbon democracy'. Uneven-ness and messiness are likely. Transition may not be the teleological movement – or the social / systemic transformation – it is often represented as being. Visions of the future in future-energy narratives tend to offer both sides of this argument.

Research Questions: Why do we often view a post-fossil / low carbon world as one with 'reduced' energy, or energy scarcity? How we reframe this? What would we do if we had more or restricted forms of energy? What gains are there for us in having more renewable energy but less powerful forms of combustion?

How do we task the genres of literature and theatre to present alternative questions to the ones presently posed in the context of a future of 'less'? What differences are there between predominant preconceptions and narratives of 'good and bad' energy? Is the narrative of a 'clean' and 'transformed' future mobilized by renewables advocates one to be believed? How do cultural representations manage the transition more effectively? Can they change perceptions with a material/enviro/subjective bent? Can they reassert *local* systems and subjective structures of energy's *social* position? Can they imagine new trans-national formations?

7. The specificity of *Scottish* literary and cultural production in its engagement with low-carbon themes and issues – and its relation to a wider, international and extra-national, world-ecological/low-carbon cultural framework

The question of the specifically Scottish elements and stories was asked in relation to each discussion topic. Scotland's exemplary status in some areas was discussed, with the agreement that in places this was under-evidenced and in others there was a case for Scotland/regions and places within Scotland being at the vanguard of low carbon issues. This required more public awareness but also more comparison with other initiatives and areas around the world. (The other panel reports note various caveats around this, and also the import of the devolved political structure framing any consideration of the topic – how this relates to readings of Scottish literature, etc. would be interesting to pursue further, and some members of the panel intend to take this forward).

Scotland has a notable place within the larger narrative of carbon modernity – the focus of some exemplary recent work in the field of Energy Transition and Sustainability. Such work demonstrates how new cultural practices emerge and social and economic organisation changes during periods of energy transition (most notably the shift to coal, then oil). (This can also shape the way that certain cultural practices might transform – and fade in new energy epochs). This is detectable in Scottish fictional and cultural output since the early nineteenth century, but is *not* at all readily evidenced in academic or critical work, nor in wider public consciousness. There would hopefully be new initiatives sparked from the Network – and this particular panel's wider constituency – that would help identify the 'carbon' element in Scottish cultural work throughout history to the present.

Scotland is also aiming to be a leading example of 'renewables culture', a fact, as some members pointed out, that is being noted at various academic

conferences internationally (Eigg and Orkney were prime examples recognized by the global sustainability community.) In Orkney, for example, some things that are seen as ‘futuristic’ in terms of low carbon smart technology are ‘already happening’ in some places and spaces of the archipelago – with Orkney’s growing identity as a hub of renewable power remarked upon. Transferring this to the urban /international sector is an interesting challenge – and the role of cultural work in managing this might be interesting to think through. How to approach the uneven-ness in Scottish energy constituencies is an equally interesting challenge – how/ can cultural work enable it? The connections between cities and rural spaces clearly needs more work done – especially in terms of the way we think about where we are in relation to state and capital, and our sense of place and region – and planet.

The different stories to tell between different spaces and sites within Scotland initiated a discussion of the concept of further *resonance*. There is, for example, lots of movement between renewable innovation territories and spaces in Orkney and the rest of the world – the Middle-East, for example. How do the narratives we tell about these innovations ‘resonate’ in and with other cultural spaces? How we frame the relationality between Scotland/Scottish experience in Low Carbon / Transition and other places and societies becomes important here, for research to advance on an interconnected – and inter-disciplinary level; especially in sites of similar resonance and friction. Scottish culture’s significance to the emergent field of Energy Humanities and contemporary Ecocriticism might need more focus and concentrated work to establish a presence. It would also be fascinating to track relational state/sub-national state spaces and places. Orkney/Scotland becomes a geographically-specific ‘energy site’ of low-carbon possibilities, aligning with similar sub-national sites and exerting ‘bottom-up’ pressure on larger polities with power to enable Transition on a large scale.

Scotland offers an interesting example of rapid production, depletion and transformation of energy modes (in terms of the ages and ‘peaks’ of fossil fuels). It’s cultural history bears examples of the juxtapositions of energy regimes and the causes, costs and opportunities of technological shifts. The ways in which these narratives might be reframed for low carbon narrative is interesting to think through. One prominent question in the discussion surrounding the relationship between literature and climate change/decarbonisation concerns the specificity of form. There is a general turn away from the realist novel in registrations of climate, for various reasons mentioned above. The speculative focus on the crisis of the future, the

empirical difficulty of phenomenal rendition in the contemporary sphere; the fact that realism is often not the best aesthetic mode to deal with the 'strangeness' and unexpected events in the natural world that are a feature of global warming; or to provoke radical newness/difference; or confront spatial dispersion and temporal uneven-ness. A precondition of conventional realist narrative maintains that the world is (relatively) stable, 'still there' and we have lost that security in climate threatened life. The Anthropocene challenges all of that, but recent critical discussion (see above) has sought to challenge this limited view of realist form, and has offered some rejoinders concerning the importance of documentary method, albeit via emergent realist modes that are *not* the orthodox forms of the past. Scotland/Scottish culture might offer the means to bridge this, with a history of interesting conjunctions between realist and experimental forms. Sf is also a mode with a rich history in Scottish literature. It was proposed that there was in 'Scotlit' opportunity to interpret the kinds of rupture to the stability of settled power and impasse causing inaction on the future; a rupture to the sense of continuity and timelessness managed and presented by the historical power of 'EngLit'/Empire/capital/British state. It was proposed that you don't have to be a nationalist to think that there is a specificity of vision that is a *narrative* vision that *is* decarbonizing (if it is against the assumed endless stability of the 'organic' and unchanging British state) *because* it is attempting to break through to a wholly different form of future-telling – and connect with other decarbonizing visions and forms in other cultural geographies. The condition of the state before and after Paris is interesting here. The panel considered the proposal that there is a constitutional specificity in the appeal to the organic/natural in the (timeless) world of the (unwritten) British Constitution, an appeal which paradoxically leads to more enclosure, more carbon extraction, *via* perpetuation of a vision of the natural as 'timeless' and 'evergreen'. This organic vision has a pervasive quality in aspects of 'British' cultural life – connected to a pastoral countryside, or a timeless wilderness (esp. in Scotland/the Highlands), presenting a vision of place that pretends not to be a place; that is a place represented as timeless, untouched by modernity, but in fact striated with modern ownership issues. Such a place has *always* been produced for energy and capital. ScotLit has a tendency to repeat the canonicity of 'organic' literature/literary analysis, yet the argument was put forward that in a decarbonizing Scotland (or anywhere) culture cannot be the same as that kind of canonicity of the carbonizing/organic state/culture (English Literature)/Empire that led us to high carbon life: it has to be somehow different from that Empire/Climate Change state (which was deeply energy intensive and fully energizing). That said, it might be the case that the transformed-future arguments made around the 2014 Independence

referendum might be somewhat stalled or even exhausted. How this impinges on the energy debate is yet to be seen.

It was also proposed that there *is* a specific kind of Scottish specificity through energy – especially energy history and new initiatives therein: hydro/coal/oil/wind/tidal. There is a vision of Scottish industrial and political culture wherein resources are often viewed as a national asset. Renewables are being viewed and framed as economic asset towards regeneration which might have political potential. The sense in which this is *culturally* framed and might be culturally empowering is interesting to debate. What is the *culture* around renewables in Scotland and elsewhere? There is another perspective that opens here, of Scotland as branch economy, given that scaled energy has to be gridded, moved around and exported. What this does for the energy security narrative will be interesting to discuss further. The image and culture of *the* grid might come alive here, as a future topic for a decarbonising narrative vision. The Stories of Change AHRC project had done some work on the sub-national areas of the UK where renewables infrastructure was building. Might Scottish experience be interconnected with these and other similar initiatives around the world?

Research Questions

How does Scottish Literature and Culture find itself within all of these debates? As conjoined to other ‘planetary/regional/nationally-constructed’ narratives? To what extent does the contemporary constitutional debate also seep in to every area of cultural interpretation and production focussed on low carbon narratives? Does it impinge on terms like ‘local’ ‘distribution spaces/extraction sites/production zones’? To what extent does Scotland/Scottish culture identify as ‘world-ecological’? To what extent is the site-specific element of Scotland and Scottish low carbon innovation *exportable* to other territories? Following this, to what extent is there an aesthetic/formal homology between Scottish eco-culture and other regions? Scottish cultural history has much more to inform us about the way we think through the Anthropocene – especially in the geological sense, but also in the specific geography of the concept (as evidenced in the work of some US based scholars working on Environmentalism and the Scottish Enlightenment) – what framing and organisation might continue and widen this important work?

What is the relation between British Constitutional Issues, Cultural Histories and Narratives of environment/decarbonisation? How are the *specifically* Scottish

narratives of decarbonisation connected to the former? Are there specifically Scottish narratives here? If literary culture is to be decarbonizing must it reject the values/formations/cultural forms of carbonizing literature and the kind of social and political structures that built high carbon society? Might Scottish literature/cultural theory offer something original and particular to the debate?

How to best publicize and generate further work on this?

How can the *story* of renewable culture, of community ownership, readiness to switch to low carbon alternatives be upscaled into larger centres of population and to what extent does cultural production play a role in percolating this as a *cultural* transition as much as a technological one into the energy consciousness of urban society? Might previous moments of 'energy transition' in Scottish narratives be recuperated for a decarbonising vision of the future?

Stories of individual streets/towns/ - how do they percolate up and through from the local to the larger space? How do the leads and tales and testimonies from the renewable *rural* zones become exemplary to the mainland/central areas? Could/should they? Does cultural work play any relevant role here? Orkney is an example: demonstrating uneven-ness across Scotland and Scottish regions in accordance with energy constituencies – so how can that story percolate across the higher-carbon regions and into other international ecocultural awareness?

There have been interesting examples of a technological sublime (see work of David Nye) in modern Scottish history. Might this be reproduced in the 'sublime' imagining of a reindustrialised, low-carbon Scotland? Is there an 'energy independence' narrative that will be threatened and closed down, even if mass roll out of renewables is a successful venture? Is there potential for mapping and forming new connections with other sub-national/regional areas – even in sub-national formations in the British Isles, where areas are attempting to become renewables hubs?

Politics and history panel report

Summary report of discussion and research questions

Participants: Dr Hannes Stephan (Stirling) (panel lead); Prof Gavin Little (Stirling) (minutes/report drafting); Professor Elizabeth Bomberg (Edinburgh); Dr Darren McCauley (St Andrews); Dr Antje Brown (St Andrews); Dr Catherine Mills (Stirling); Maria Pavlenko (St Andrews).

The report summarises key issues that emerged from wide-ranging and stimulating presentations and roundtable discussion: the overall objective of the panel session was to explore general themes in selected readings with a view to identifying ideas and research questions which can be taken forward in this and subsequent projects. The research questions which emerged over the course of the day are set out in bold.

1. Establishing the theoretical context to political narratives on low-carbon transition in Scotland

There is relatively little specifically Scottish-based politics literature on low-carbon transition. A key issue is therefore what a Politics agenda for Scotland would encompass. An important prerequisite to developing Scottish themed research questions and narratives which can contribute to interdisciplinary activity is to identify where Scottish scholarship is situated in the wider context of political research (bearing in mind that the discipline in the UK is mostly post-positivist). This requires a thorough literature review, which has not been done as yet. There was, however, a general sense in the panel that politics literature on Scotland may be dominated by constructivist or post-modernist approaches. This raises the question of whether there is a “gap” in the scholarship, which might usefully be explored. Specifically, is Scottish politics research missing a positivist perspective on energy? Could there be a greater focus on policy impact?

Research question: Where is Scottish political research on energy and low-carbon transition located in the context of theoretical approaches to contemporary politics scholarship? What are its assumptions and objectives? Once a full literature survey and mapping of the research activity has been completed, are there identifiable and significant “gaps” in the approaches taken? In this context, is there merit in exploring a more positivist approach, or focusing more specifically on public policy and on policy impact?

2. Identifying the core contribution that politics can make to developing interdisciplinary narratives on the Scottish low-carbon transition

There was wide discussion of how politics as a discipline can contribute to the wider RSE project, and how it can make a contribution to the process of building interdisciplinary narratives on the Scottish low-carbon transition. Debate focused on identifying the most important insights that politics can provide, which are accessible and useful in a wider interdisciplinary context. It was felt that doing so is not straightforward, as it is often difficult for experts to place their discipline and specialisms in a wider perspective. It was, however, agreed that viewing politics from a very broad standpoint was the most appropriate approach to take in order to facilitate interdisciplinary interaction. In this context, it was agreed that (as per Harold Laswell's definition of politics) the concept of power is at the core of politics: that is, who has it, who gets what, when and how, and how power is used.

Research question: Does the core concept of political power also resonate with the approaches taken by other humanities disciplines to the issue of Scottish low-carbon transition? In this context, does it provide a valuable interdisciplinary perspective for law, literature and theatre, media and visual art scholars?

3. Political narratives and how to facilitate low-carbon transitions: grand narratives versus personal narratives

The role of narratives in solving the collective action problem in environmental governance (and the low-carbon transition) was considered, in particular the advantages and disadvantages of using so-called grand (i.e. strategic) narratives or more focused, micro-level stories. The overarching aim would be to facilitate a low-carbon transition by influencing government, policy-makers and citizens (typically in the context of opposition by vested interests and public apathy). There was disagreement within the panel on the value of grand narratives. Some panel members felt that there was merit in government and/or civil society attempting to develop and proselytise grand narratives, particularly in the context of a relatively small and cohesive political unit such as Scotland, where they perhaps have a greater likelihood of becoming embedded in wider culture and social attitudes. Others felt that doing so faced all kinds of barriers and had deep-seated pathologies, and that strategies based on grand narratives may be politically naive. These latter panel members tended to favour the

development of tailored, more micro-level narratives. It was felt that - for example by combining self-interest and 'nudge' techniques – these may have a greater influence on peoples' behaviour than top-down, strategic narratives.

Research question – what is the relative value of grand/strategic and more tailored narratives in facilitating collective action in the context of Scottish low carbon transition?

4. Political issues arising from historical context

There is little dedicated academic literature on the history of Scottish energy transitions, suggesting a gap in historical scholarship. A possible reason for this is that transition scholarship is a relatively recent academic phenomenon. Previous examples of change (such as moving from steam to electrically powered factories, from coal-fired to electric gas/electric heating, or to smokeless fuel) were not viewed at the time as being what we would now frame as energy transitions.

In terms of primary sources, there are, however, more localised and personal energy narratives, often produced by local officials such as sanitary inspectors or medical officers of health who were concerned with the public health aspects of burning coal. These narratives were often challenged by those opposing smoke controls – for instance by the coal industry, factory owners and the public (who, of course, often worked in the factories and usually heated their own homes and cooked with coal until at least the 1950s). Historical experience suggests that major change in terms of energy transition on the grounds of public health considerations (e.g. the Clean Air Acts) requires strong top-down leadership by government and lawmakers. There was a remarkable 'unpolitics of pollution' and general apathy about the very serious public health consequences of fossil fuel use in particular, perhaps particularly in Scotland given the importance of coal in Scottish culture. This finds its expression today in the current apathy across the EU over the issue of air pollution (largely caused by diesel engines, which were, ironically, promoted for environmental reasons). This is remarkable, given that the EU has estimated that 15 – 20% of premature deaths in the EU are caused by environmental pollution.

Historical narratives on the development of clean air legislation provide interesting comparative material in relation to the framing of modern low-carbon transition narratives. For example, in the Victorian era and the first half of the 20th century, one of the dominant narratives is a moralistic one about the evil of dirt and the sanctity of cleanliness. In this context, burning coal leads to dirt which is perceived as bad, while using electricity or gas (still, of course,

requiring fossil fuel burning) is presented as clean and therefore more virtuous. That said, there was also a strong cultural belief that burning coal, and industrial and domestic smoke was a sign of industry and civilised, urban life and prosperity. Around the 1960s, however, this shifted and not burning coal in the home was presented as being modern and embodying progress/consumerism: the main targets for this sort of marketing message were women, rather than men. The idea of cleanliness, modernity and progress as an underlying narrative in historical and contemporary Scottish energy transitions is potentially significant, and could be explored further. For example, in the 1950s – 1970s nuclear energy was presented as embodying cleanliness, progress and modernity, as have wind turbines and other forms of renewable energy more recently.

Research questions – What can historical narratives on earlier Scottish energy transitions tell us about how best to facilitate change and anticipate barriers to it? How important are public health considerations (i.e. rather than environmental/climate change considerations) and strong top-down political leadership and law-making in effecting change? What is the historical and cultural significance of identifying transition with popular phenomena such as cleanliness, prosperity, modernity and progress? How important is gender in designing narratives to facilitate energy transitions?

5. Developing community narratives?

The panel considered the potential to shape Scottish low carbon narratives via bottom-up, community processes, which have some crossover with deliberative democratic models, rather than top-down Scottish/UK Government led processes. In this context, local authorities can possibly function as community enablers, rather than as the bodies responsible for imposing targets which have often been set in response to central government direction.

There are drawbacks with bottom-up approaches, which need to be acknowledged. They are often very context-specific and localised: it is difficult to generalise about them. Moreover, their overall long-term impact and success in terms of achieving strategic policy objectives is uncertain, and community initiatives may fall apart if key participants move away or leave the project. However, on the positive side, bottom-up community-based initiatives stress the importance of individuals and society in facilitating low carbon transition – they are not technocratic or science-based. Moreover, there is potential synergy with the Scottish Government's ambition to co-produce policy with societal stakeholders (and, since the meeting of the panel, its recently

presented policy objective of empowering local communities). Is there potential for developing a distinctively Scottish narrative on the sort of bottom-up decentralised approaches to energy transition which have been more successful in EU countries (e.g. Germany and Denmark)?

Research questions – What is the potential to shape Scottish low carbon narratives through the development of community based initiatives? What would the role of the Scottish Government and local authorities be in this context? What lessons can be learnt from Scotland’s experience of community-owned energy projects, and by comparison with the experience of successful community initiatives elsewhere in the EU?

6. Identifying the key political barriers to the Scottish low-carbon transition

The panel identified a number of key political barriers to the low-carbon transition in Scotland. There is a lack of political integration (e.g. between the Scottish and UK governments, central government and local authorities, and state institutions generally and citizens), and a complex multi-level governance structure. Key to this, it was felt, is the issue of political power. It is self-evident that constitutional politics play some part in the dynamic. The current Scottish government has sought to develop a low-carbon transition in part at least to present a compelling narrative of Scotland as an environmentally responsible, confident, modern and prosperous society. It is possible that the UK Government may seek to limit the Scottish Government’s activities in this and other policy areas in the aftermath of the independence referendum. In any case, there is now a clear policy disconnect between the Scottish and UK governments on how to achieve a low-carbon transition, and under current constitutional and governance arrangements the UK Government is able to control the strategic direction of travel. In this context, the Scottish Government lacks the formal powers and functional capacity to develop its aspirations for low-carbon transition effectively. Moreover, there is also, within the Scottish Government, potential tension between low-carbon transition objectives and securing economic growth (e.g. in relation to North Sea oil and gas, fracking/shale gas, air passenger duty reduction, etc.): this may be exacerbated by Brexit.

The panel also highlighted the importance of structural barriers to the low-carbon transition - i.e. access to the electricity grid, obtaining financing and delivering incentives and structures to facilitate buy-in from communities and individuals. There is also the related issue of technological lock-in to existing

physical infrastructures, and the inertia and cost inherent in the challenge of developing or replacing them. Further institutional factors which may provide barriers to (and ways of facilitating) a low-carbon transition would include political parties. The panel agreed that their significance should not be underestimated.

Taken together, these issues were felt to flag up an important overall issue. To what extent are political narratives on the Scottish low-carbon transition actually about the environment or climate change? Or are they, in fact, more concerned with the politics of power, identity, autonomy, and economic growth?

Research questions – What is the extent of the lack of integration on low-carbon transition policy between the Scottish and UK Governments, and what underlies it? Within the Scottish Government, how is the low-carbon transition agenda shaped by potentially competing policy objectives, principally economic growth? How significant are structural factors such as access to the electricity grid or funding as barriers to facilitating Scottish low-carbon transition? To what extent does technological lock-in to existing physical infrastructures limit Scottish low-carbon transition? What is the role of political parties in facilitating or obstructing Scottish low-carbon transition? To what extent are the dominant political narratives on the Scottish low-carbon transition concerned with climate change mitigation and environmental protection, as opposed to other objectives, such as political power, national identity and economic prosperity?

Law panel report

Participants: Prof Gavin MacLeod Little (Stirling) (panel lead and report drafting); Professor Aileen McHarg (Strathclyde); Professor Colin Reid (Dundee); Professor Andrea Ross (Dundee); Professor Raphael Heffron (QMUL); Dr Olivia Woolley (Aberdeen); Dr Annalisa Savaresi (Stirling); Dr Thomas Muinzer (Stirling); Dr Hannes Stephan (Stirling); Dr Graeme Macdonald (Warwick).

The report summarises key issues that emerged from wide-ranging and stimulating presentations and roundtable discussion: the overall objective of the panel session was to explore general themes in selected readings with a view to identifying ideas and research questions which can be taken forward in this and subsequent projects. The research questions which emerged over the course of the day are set out in bold.

1. The constitutional architecture of the Scottish devolution settlement, energy and low carbon transition

The panel discussed the implications of the overall design of the legal/governance structure for energy in Scotland (e.g. as set out in inter alia the Scotland Act 1998 and the Scotland Act 2016) and the consequences of the distribution of formal powers between Holyrood and Westminster for low carbon transition. In particular, consideration was given to the extent to which political “turf wars” between unionists, devolutionists and supporters of Scottish independence - and more recently between the Scottish and UK governments - have influenced the development of the constitutional “architecture” and therefore legislation, policy and regulation on low carbon transition in Scotland.

Research questions

What is the dominant narrative of the legal/governance architecture as set out in key legislation? To what extent is this narrative actually about regulating energy and facilitating energy transition, and to what extent is it a cipher for constitutional politics - that is, conflict over who holds, or should hold, political power in Scotland: Holyrood or Westminster? Are there also ideological differences (e.g. on issues such as public subsidy v. the market) between Holyrood and Westminster which influence their respective approaches to the exercise of legislative and regulatory powers, and which, given the division of legislative and executive competence in the overall constitutional architecture, impact upon low carbon transition in Scotland? Are there historical and/or cultural differences, which affect Scottish perceptions of how legal/governance

powers should be used? For example, in Scotland (and this may not be appreciated in Westminster) the issue of energy may be viewed in particular ways because of local factors such as the cultural, political and economic importance of the development of hydroelectricity in the Highlands, coalmining in the central belt, North Sea oil as a symbol of “energy nationalism”, and now Scotland’s considerable potential for renewable energy generation. In this context, it is worth noting that, at least until the privatisation of the electricity industry in the 1990s, Scotland had considerable regulatory autonomy – Scotland’s electricity industry was regulated by the pre-devolution Scottish Office (and not the Department of Energy) and it had its own electricity companies. Historically, therefore, there has been a separate Scottish electricity policy/regulatory community.

Taking these issues and questions together raises the following meta-question - to what extent is the narrative on the legal governance of energy as expressed in key legislation a narrative about Scottish identity and political/constitutional autonomy, and to what extent is it about the effective development of energy resources and the facilitation of low carbon transition? In general terms, it might be asked why it is a ‘good idea’ that extensive energy powers be devolved, and why it is a ‘good idea’ to maintain the current system of overall control at UK level.

2. The legal and political limits on the ability of the Scottish Government and Scottish Parliament to develop effective policies on low carbon transition

Following on from the discussion in section 1, the panel considered the functional limits on the ability of the Scottish Government to develop an effective policy on low carbon transition – that is, the extent to which its ability to control the legal/policy levers is restricted by the division of powers inherent in the devolution settlement.

The consensus was that while the Scottish Government had made real progress in achieving its highly ambitious renewable energy targets, it has only limited ability to set and implement strategic policy. It has control over local legal/policy levers, as defined and permitted by Westminster, rather than overall control of energy and low carbon transition. In terms of direct executive authority over the energy sector, the Scottish Government has intrinsically limited power under various provisions for executive devolution and a range of rights to be consulted on different issues. Beyond that, its room for action is restricted to worthwhile but marginal initiatives such as the Saltire Prize. The limitations of the Scottish Government’s formal power to set strategic energy policy in Scotland was exemplified clearly by its inability to influence the UK

Government's recent decisions to withdraw subsidy for onshore wind turbines; withdraw funding for CCS development; and to close the Longannet coal-fired power station. All of these ran directly contrary to the Scottish Government's desire to maintain and develop Scotland's energy independence and also to set the agenda on renewables development in Scotland.

The Scottish Parliament was felt to have only limited legislative competence in the energy field – this is unsurprising given that the Scotland Act 1998 (as amended by the Scotland Act 2016) makes it clear that the UK Parliament has overall responsibility for the regulation of the energy sector and related law-making.

The Scottish Parliament and the Scottish Government do, however, have significant powers under planning and environmental law (and now under the Scotland Act 2016 in relation to consents for fracking and the Crown Estate). In general, these enable the devolved authorities to *block* development, for example as in the case of new build nuclear power stations in Scotland, but do not empower them to be proactive in terms of *developing* renewables independently of Westminster (n.b. the Scottish Government has more scope for being proactive in the Scottish territorial sea over which it has jurisdiction, although it has only a devolved responsibility for determining permit applications in the Scottish EEZ: in both cases though, its remit is constrained by a lack of control over other matters of relevance to offshore development, particularly subsidies). This situation is potentially problematic in terms of Scotland achieving its enormous potential for renewable energy (i.e. in offshore wind and tidal power) and low carbon transition: political/constitutional gridlock could tend to maintain the status quo rather than facilitate fresh development, or lead to unforeseen/undesirable consequences and missed opportunities.

Moreover, it was noted that Northern Ireland, which has much greater formal constitutional and legal authority over energy under its devolution settlement, has achieved far less in relation to low carbon transition than Scotland has with very limited powers by comparison. Crucially, while the Northern Ireland Assembly and Executive have been politically reactive and conservative in relation to low carbon transition, the Scottish Government and Parliament have not. In this context, it is interesting to speculate on what the Scottish Government and Parliament could achieve if they had the formal executive and legislative powers of the Northern Irish devolved authorities.

Research questions

Mindful of the evolving dynamic of the distribution of powers (especially post-Brexit), can the formal powers of the Scottish Government and Scottish Parliament in relation to facilitating low carbon transition (which would include policy/law-making powers areas such as agriculture, environment, land use, marine planning, education, public health, tourism and economic development as well as renewables, etc.) be mapped, categorised and analysed? Does the current disposition of formal powers in the Scottish devolution settlement mean that the Scottish Government and Parliament are unable to develop and implement a strategic policy on low carbon transition without working in conjunction with Westminster? If so, how can/should this be addressed by both Holyrood and Westminster in order to maximise the potential for a successful low carbon transition for Scotland in ways which can also benefit the UK? In this context, does comparison with Northern Ireland in particular offer interesting perspectives? For example, can Scotland's success in developing renewables with only limited legislative and devolved competence provide an exemplar for Northern Ireland? And can Northern Ireland's much more extensive legal powers over its energy sector provide a model for a more effective devolution of power to Scotland, which would be advantageous to Scotland and also the UK? Finally, looming large over all of these questions is Brexit: does it provide the opportunity for a further reorganisation of devolved energy powers, or does it make further devolution of powers less likely?

3. The governance structure: international connections, local government and communities

A significant theme to emerge from the discussion was the extent to which Scotland's governance framework impacts on its ability to establish effective links with neighbouring sovereign states such as Norway and Ireland. Under different constitutional arrangements (not necessarily independence), Scotland could contribute to possible international developments such as a North Sea electricity grid, which, if established successfully, could represent a step change in renewable energy generation for both Scotland and the UK. It might also be of huge economic benefit as it could provide a market for Scotland's significant renewable energy generating potential (although whether people in Scotland would reap the rewards of this is unclear). The obvious point, however, is that it is currently the UK Government which, under the Scotland Act, is responsible for negotiating and agreeing arrangements with other sovereign states and the EU. There is no clear, formal mechanism by which the Scottish Government can

take the lead in developing international/EU cooperation on renewable energy and low carbon transition. Moreover, while the current Scottish Government might wish to do so in part for economic reasons and also to develop its narrative of Scottish "energy independence", the UK Government may see this sort of development as a low priority, or as undesirable politically.

The issue of the extent to which Scotland, or indeed any sub-national entity or individual nation-state, can make a significant contribution to low carbon transition is, of course, contested: ultimately, the process has to be supranational in order for it to have an overall effect in relation to global climate change. The bottom-up approach embedded in the Paris Agreement, which marked a shift in international climate governance towards greater emphasis on action by subnational entities and non-state actors may, however, be instructive. Conversely, there are questions over the extent to which Scotland can take an independent stance on electricity specifically due to the integration of Scottish Networks within the wider GB electricity system. That said, the Scandinavian experience, where low carbon transition has been implemented effectively at local levels, suggests that decentralisation of control over issues such as economic incentives– to cities and smaller communities – can be a significant driver of the process. Indeed, what has happened in Denmark and elsewhere in Scandinavia suggests that decentralisation of power to cities and even small communities can, through serendipity rather than top down design, culminate in significant progress towards overall low carbon transition at national and even regional levels. Note may also be made of the international (and national) partnerships between cities, local authorities and subnational governments such as Sustainable Cities under Local Agenda 21, and their potential to contribute to the process of transition.

Research questions

What authority – legal and political – does the Scottish Government have to work in conjunction with neighbouring states, subnational entities and the EU in connection with cross-border issues such as grid development? How, if at all, would the possession of such powers better enable both the pursuit of a low carbon energy transition in Scotland/the UK and implementation by the Scottish Government of its pro-renewable energy policies? Are there comparative governance/constitutional models which could be learnt from to facilitate this within the UK context, recognising that foreign affairs and strategic control of energy policy are currently reserved to the UK authorities under the Scotland Act 1998? What are the legal/structural issues involved in developing the governance structure within the UK in order to facilitate more effective cooperation on this

sort of issue between the Scottish and UK authorities to the benefit of all? What are the potential implications of Brexit in this context? Is there scope to carry out a broader comparative analysis of the international legal capacity of subnational governments in relation to low-carbon transition with scholars from other jurisdictions?

These questions raise the wider issue of what is meant by a specifically “Scottish” low energy transition. What form would such a transition take? How would it interact with a wider transition of energy systems in the UK? In connection with this, what structures for governance are in place for determining Scotland’s role in a low carbon energy transition, and are they adequate for this purpose? The focus is often on Holyrood's relationship with the UK authorities, but consideration should also be given to whether the legal/structural relationships between central government (i.e. in the energy context, both Westminster and Holyrood), local authorities and communities in Scotland encourage transition or act as barriers to it. Is, for example, the decentralisation of financial and other incentives for low carbon transition to local authorities and communities (of the sort that exists in Scandinavia) possible and/or desirable in the Scottish context, which is highly centralised and "top-down" by comparison? In this context, what are the key features of the legal/regulatory/structural interrelationships between central government, local authorities and local communities, and what comparative models might be instructive in terms of improving the design and operation of the Scottish system? Clearly, Holyrood has legislative and executive competence over local government, planning and environment, but what would be the role of the UK government in facilitating a process of decentralisation of low carbon transition in Scotland – as it controls the purse strings for financial incentives and the overall direction of travel for energy policy? Is meaningful decentralisation of power feasible in the Scottish context, given the reluctance on the part of the highly centralised UK authorities to devolve power to Scotland, and the reluctance of Holyrood to devolve power to local authorities and communities? How are low-carbon initiatives integrated with other programmes (rather than sectors) at all levels including community regeneration and land reform?

4. Legal narratives and public space for “big picture” discussions

Scottish legal narratives on low carbon transition in the form of case reports are narrow, specialised and technical documents focusing on legal issues. The outcomes of court decisions in connection with, for example, wind farm developments do, of course, have significant effects on the wider low carbon

transition debate. But the case reports themselves, inevitably, are restricted to legal technicalities – and legal actions are reactive to events rather than proactive. This reflects Lon Fuller’s arguments in his classic essay "The forms and limits of adjudication"³: court based adjudication works effectively when dealing with disputes over the clearly delineated legal rights of the individual parties involved – this is its "ideal type". It is, however, procedurally inefficient and therefore unsuitable as a decision taking process when attempting to determine highly polycentric issues, such as big picture, future-orientated social policy determinations.

Thinking about the form and nature of legal case study narratives does, however, raise an interesting - indeed potentially crucial - issue, which is interlinked with the contested and fragmented political/constitutional structures and decision taking processes discussed above. While individuated, technical legal disputes relating to low carbon transition can be considered and determined in the courts, and litigation may form part of the overall narrative for environmental/civil society campaign groups, it is far from clear that there is a forum or space for the public in Scotland to debate the big picture issues. No doubt parliamentarians in Westminster and Holyrood would think that this is what they provide, but it is perhaps more appropriate to view UK and devolved institutions of government as part of a highly politicised “top-down”, technocratic structure of governance, rather than a "bottom-up", open forum for citizens. This again raises the theme of decentralisation, and whether and how it might work in a Scottish low carbon transition context.

Research questions

Where are the fora for citizens to participate in wider debate on low carbon transition in Scotland? What is the role of litigation (e.g. by environmental campaign groups) in influencing debate and shaping policy in this field? Can restructuring statutory decision taking processes open up public engagement with transition? What comparative examples of more inclusive structures, systems and processes can be drawn on by legal scholars to facilitate a shift in locked-in attitudes to low carbon transition? Is there the possibility that planning law, which is devolved to the Scottish Parliament, could be used/developed in this context?

5. Learning from the community renewables experience

Using its powers under executive devolution, and with subsidy support from the UK Government, the Scottish Government has been successful and creative in

³ (1978) 92 Harv. L. Rev. 353.

facilitating community renewables, for example in island communities. In the course of this process, a number of issues have come to the fore, principally in relation to facilitating community involvement, who benefits directly from projects, communities' relationships with their landscapes and wildlife, linkage with land reform, capacity, and access to the Network. They have an obvious and direct relevance to the decentralisation theme.

Research questions

How can the experience of Scottish small-scale community renewable projects and how they are regulated improve our understanding of low carbon transition governance? What, in regulatory/governance terms, is Scotland doing in community renewables which is innovative or different, and how can it be improved further? In this context, is there scope for comparative analysis, for example with Denmark? Will community renewable schemes become more important because of the reduction in Renewables Obligations? How does governance for community-level development relate to system-wide governance of the UK energy system? Is this approach intrinsic to or separate from planning for a wider systemic transformation?

6. Scottish low carbon transition – thinking about legal scholarship

As in the other subject panel discussions, the law panel found that addressing the issue of what it could "bring to the interdisciplinary table" on Scottish low carbon transition to be challenging and revealing. There was an awareness that, perhaps because legal scholarship can tend to "follow" legal practice and government policy activity, research was concentrated in particular substantive areas, and that scholars tend "frame" issues by making them fit their existing pigeon-holes rather than reflecting on what new relationships are needed. There are good reasons for this, up to a point, but the limitations and missed opportunities must be noted. For example, how far do existing legal structures obstruct things like district heating, where our concerns over individual rights hinder collective actions? Moreover, much current UK legal scholarship in the field appears focussed on the issue of renewable electricity generation. Other aspects of low carbon transition (such as energy efficiency, transport and heating) tend to receive less attention than electricity comparatively, and, within the context of renewable energy generation, relatively little consideration is given to nuclear power. It is perhaps the case that legal scholars need to reflect more on what a low-carbon Scotland might look like, what Scottish low-carbon transition is, how their research takes account of the current energy mix, and the limitations of new technologies and renewable energy. In addition, it was acknowledged that while energy law scholarship is

frequently thought of as an emerging area (perhaps particularly by those who are new to it), it does have a significant back history (i.e. in areas such as oil and gas law, territorial disputes under international law, law and economics, corporate governance and market regulation), which is not directly connected with the increasingly dominant low carbon/climate change agenda. In this context, however, it was also felt that analysis and understanding of laws adopted during a time of fossil fuel dominance and in the expectation that this would continue is essential both for identifying obstacles to or possible synergies with the shift to a system dominated by different energy sources (including fossil fuels with carbon capture) and for determining what legal reforms are required to bring this new system into being. There was a perception that energy law was in a sense being "colonised" by environmental lawyers, who bring a particular mind-set and agenda into the scholarship – this is, perhaps inevitably, particularly the case when the focus is low carbon transition/climate change related. It was also thought that there were two distinct groups of legal scholars in the field – commercial and environmental – who look at quite separate issues and do not really speak to each other nor engage with each others' concerns. The panel acknowledged that an important aspect of legal scholars being able to interact with colleagues from other disciplines is reflecting closely and self critically about what we do and why we do it.

Research questions

Can legal scholarship in the low carbon transition field be mapped and analysed? If it is focused on renewable electricity generation, why is this and what other substantive areas can and should be developed? Does focus on existing energy structures and their reform perhaps distract legal scholars from thinking about the other things that need to be done to achieve a low-carbon future (e.g. to reduce travel we need to address housing, employment and education so that families do not end up living miles away from where they spend their working/education lives)? How can legal scholarship and law help to ease the transformations needed? How do legal scholars interact with other humanities disciplines? How do legal scholars situate their research and specifically Scottish considerations in the broader interdisciplinary humanities context?

Media panel report

Participants: Dr Pietari Kaapa (Warwick University) (panel lead); Prof Gavin Little (Stirling University) (minutes); Professor Pat Brereton (Dublin City University); Dr Erin Despard (Glasgow University); Brenda McNally (PhD Student, Dublin City

University); Dr Dominic Hinde (Environmental journalist and Edinburgh University); Dr Graeme Macdonald (Warwick University); Dr Hannes Stephan (Stirling University).

Apologies: Dr Will Dinan (Edinburgh University).

The report summarises key issues that emerged from wide ranging and stimulating presentations and roundtable discussion: the overall objective of the panel session was to explore general themes with a view to identifying ideas and research questions which can be taken forward in this and subsequent projects. The research questions which emerged over the course of the day are set out in bold.

1. Film and TV

A fundamental issue is identifying specifically Scottish film and TV narratives relating to low carbon energy transitions. There are films such as *Local Hero*, *True North* and the TV documentaries on Donald Trump's golf courses in Aberdeenshire which have explicit, direct narratives dealing with ideas of transition and come from conventional, leftist/liberal perspectives (i.e. critiquing capitalism, globalisation, or the usurpation of local communities by big energy business). There are also narratives that are not specifically dealing with environmental/energy issues which come at the issue of transition from a more tangential angle. Films like *Under the Skin* and TV productions such as *Sunset Song* are clearly not environmental/energy narratives as such but they seek to deal with human transitions within the context of Scottish landscapes/urban environments – although whether or not they can be considered as being either distinctively “Scottish” in terms of their meta-themes and/or connected with the idea of transitioning to a low-carbon future is arguable.

So a fundamental research question is whether there really is a specifically Scottish cultural perspective on low carbon energy transitions that can be identified through film and TV narratives. Answering this question involves mapping different narratives, the development of a taxonomy of themes, and exploration of whether or not these are “Scottish”, or are transnational themes set in a Scottish context (one way to view this could be as a spectrum). More broadly, where does the Scottish experience, as mediated by film and TV (and whether explicitly about low carbon energy transition or implicitly so) sit in the context of the global experience of climate change and sustainable

development? (There is further discussion of research methods which might be used to explore these issues at para 5(a) below.)

2. Governance of film and media industry regulators

There is also the issue of how low carbon transition government policy and legal regulation influences the policies and practices of media and film industry bodies such as BFI, BAFTA and Creative Scotland, which then impact on the industry. Textual analysis can be used to evaluate the narratives presented by organisations in their websites and official documents, thereby providing insight into how sustainable development and low carbon transition are envisaged by the organisations and put across to their diverse publics. This can be revealing, and can, for example, suggest that economic imperatives (e.g. to save money) within the film and creative industries are being framed in environmental terms without really having a significant environmental impact – i.e. so-called greenwashing. This raises potentially important research questions in the Scottish context, as outlined below.

It is also clear that legal obligations are increasingly important and this is reflected in the narratives provided by cultural organisations and production companies. So, for example, British regulatory standards require measurement of the environmental impact of film productions, and the support available to productions depends on these standards being met. BFI and BAFTA have developed a carbon measuring system so that the environmental footprint of productions can be monitored (this has its origin in the US), with a view to transitioning to a low carbon future. Creative Scotland’s website and official documents are more explicitly environmental and focused on low carbon transition than that of the UK-wide organisations (which are more clearly concerned with economic and financial considerations). Potentially, Creative Scotland is influenced by the more explicitly pro-sustainable development position of the Scottish Government and the more ambitious legislative and regulatory ambitions for sustainable development and low carbon transition in Scotland. It is, however, unclear how specifically Scottish narratives in this sort of context are created, and the dynamics which influence them have not been explored.

A research question which therefore emerges is whether the position of a public body such as Creative Scotland has come about as a result of Scottish Government/Parliament-based policy, governance and legislative developments; or a “trickle-down” effect from UK-wide legislation/regulation or organisations such as BFI and BAFTA; or a combination of different identifiable factors.

A further, related question for consideration is why the Scottish Government/Parliament and cultural institutions such as Creative Scotland have not been more proactive in using the autonomy that they have to develop a distinctively Scottish approach to encouraging low carbon transition within the creative industries. Possible factors include whether economic development considerations have been prioritised over low carbon transition (explicitly or implicitly) by the Scottish Government and therefore public bodies such as Creative Scotland. There are significant economic benefits (e.g. for tourism connected with Scotland's green image) flowing from major film and TV productions such as *Braveheart* and *Outlander*: in this context, to what extent do these benefits affect the approach taken by public bodies to regulating the industry's transition to a lower carbon future?

3. Public service broadcasting and BBC Scotland

The role of broadcast media in building understanding of different perspectives on low carbon transition is important, and in particular that of BBC Scotland as a public service broadcaster. The nature and function of BBC Scotland, which in recent years have generated controversy within the BBC and politically within Scotland, may mean that it is not able to provide the Scottish public with considered, comprehensive coverage of low carbon transition (whether in news, documentaries or drama productions). Currently, on the face of the output to date, BBC Scotland does not appear to have the sort of institutional capacity and dynamism required to provide significant Scottish-focused explorations of the issues involved, which correspond to or reflect the significant political and legal autonomy of the Scottish Parliament and Government in relation to the environment and low carbon transition.

Two broad research questions flow from this. First, is the situation due to organisational or governance structures/policies within the BBC itself (e.g. the formal status of BBC Scotland as a sub-national unit / regional organisation within the wider BBC), constraints on editorial remit, a lack of resources, a shortage of specialist journalistic/research expertise, or a combination of identifiable factors? Second, can useful insights emerge on how to develop the broadcast agenda and improve documentary and other provision by BBC Scotland through comparison with the approaches taken to low-carbon transition by other public service broadcasters, such as RTE in Ireland?

There is also scope to explore and map the effect of the ongoing crisis in Scottish print journalism (i.e. catastrophic falls in newspaper circulation; scarce resources;

reduction in specialist and investigative journalism; and the the view that there has been a consequent decline in quality of Scottish newspapers) on how low carbon transition in Scotland is mediated, and to provide fresh perspectives on how Scottish environmental journalism can develop a more proactive and informative approach to the issue in what is a very challenging time.

4. Landscape as media

The project also provides the opportunity to develop and explore innovative ideas about the nature of media itself in the context of Scotland's low-carbon transition. For example, it is possible to view the Scottish landscape itself and the way it is represented in photographs, social media, TV and film as forms of media. Landscapes mediate our perceptions of our surroundings. When they are captured in photographs or other forms of media they also become potentially powerful mediums of social and cultural exchange. In this context, for example, community gardens in urban areas (such as the controversial Kelvinside Meadow in Glasgow or the Grove community garden in Edinburgh), which may be a precursor to further housing development and/or gentrification, constitute a narrative which is closely linked to the idea of transitioning to an urban low-carbon future. Interestingly and importantly, this narrative is interconnected with, and provides a way into, other key media narratives in broader low-carbon transition discourse: i.e. the aesthetics of the urban environment; the sometimes conflicted inter-relationships between citizens, local communities, political/planning authorities and developers/powerful business interests; and controversies over land/property rights and environmental justice. Similarly, rural landscapes which have been changed by the development of wind farms raise the issue of how low-carbon energy transition landscapes are mediated internally and in other forms of media and how this in turn affects our perceptions of the low carbon future and modernity. Low-carbon energy landscapes are also interconnected with media narratives on aesthetics, conflicts over development and competing rights.

In this context, a research issue for further exploration is to explore how Scottish landscapes (and specifically different types of low carbon landscapes), taken as a form of media, impact on the transition to a low-carbon future, and how they can connect with and bring together other important social and cultural media narratives.

5. Innovative research methods

Analysing and understanding media representations of low carbon transition in Scotland provides the opportunity to develop innovative research methods.

- a. For example, if it is possible to map a corpus of film/TV productions as suggested at para 1 above, there is the potential to develop audience research in relation to different productions in order to hypothesise, question and analyse how Scottish audiences are affected by them. **Focus group and Q methodology could be used to systematically explore how Scottish audiences approach and feel about issues around low carbon transition in different film/TV/media narratives (n.b. this method could also be used in a range of other contexts, such as literature and visual arts).** This again raises the issue of the extent to which there is a distinctively Scottish cultural identity in the context of the transnational event of climate change and the global imperative to transition to a lower carbon future. Moreover, within the Scottish context, would a breakdown of audience participants reveal significant differences in relation to social class, level of education, age, gender, etc? More generally, analysis of this sort could also provide valuable insights for policy makers on how Scottish audiences react to different narratives, thereby providing a clearer idea of the approaches which might encourage more effective facilitation of low carbon transition.
- b. Exploring and measuring these sorts of issues also opens up the opportunity to pursue a larger grant application at EU level (possibly Horizon 2020) to conduct audience research using this model in the nations and sub-nations of the EU. This could enable mapping, comparison and analysis of audience perceptions of different low carbon transition narratives throughout the EU, thereby deepening understanding of how narratives could be developed and presented in order to facilitate low carbon transition more effectively.

It is also possible to analyse how low carbon transition is presented in print media (principally newspapers) utilising linguistic repertoires, which can be run through digital media databases (e.g. LexisNexis). In a Scottish context, doing so could build up a dataset of newspaper coverage of low carbon transition in Scotland, which could then be analysed, coded and classified into different types of discourse. In turn, this could deepen understanding of how the print media presents transition and could also take forward thinking on how the issue can be approached by governments, environmental groups, etc, in order that the press might be more inclined to present it in ways which would facilitate transition.

Visual arts panel report

Panel members: Prof Janet Stewart (Durham) (panel lead); Prof Anne Douglas (Gray's School of Art); Sue Jane Taylor (independent artist); Alice Sharp (Invisible Dust); Gemma Laurence (Creative Scotland); Kooj Chuhan (creative producer); Ellie Harrison (independent artist); Prof Hayden Lorimer (Glasgow) (apologies presented but had participated in pre-panel work); Thomas Peutz (Tyneside Cinema); Michael Stumpf (independent artist); Prof Gavin Little (Stirling) (principal investigator); Dr Graeme Macdonald (Warwick) (co-investigator); Dr Hannes Stephan (Stirling) (co-investigator).

The report summarises key issues that emerged from a wide-ranging and stimulating roundtable discussion: the overall objective of the panel session was to explore general themes with a view to identifying ideas and research questions which can be taken forward in this and subsequent projects. The research questions which emerged over the course of the day are set out in bold.

Identification of key themes

Three thematic questions were identified:

- a. **How is visual art to be understood in the context of low-carbon transition? Is it helpful to think about the construction of a canon or should the focus be on effective and emergent practice?**
- b. **What is distinctive about low-carbon visual art in Scotland?**
- c. **What are the main issues inherent in the production of visual art on Scottish low-carbon transition and what issues remain unasked or unseen?**

The ensuing discussion sought to address these questions. Although it was recognised that it would be difficult (if not impossible) to always establish consensus, the objective was, where possible, to delineate useful parameters for future consideration.

1. **How is visual art to be understood in the context of low-carbon transition?**

It was felt at the outset that it was not appropriate to think in predominantly academic terms about a canon of Scottish low-carbon transition art. Visual art is much more than an academic discipline – indeed, it is primarily an artistic, social, and everyday practice. Focusing on the idea of a canon therefore might run the risk of skewing discussion too far in an academic direction, which could mean that valuable perspectives on the broader significance of visual art could be lost. In this context, the panel felt on balance that, rather than viewing things in terms of an academic canon, emphasising the issues of understanding artists' practice and the effectiveness of their work was more appropriate. That said, it was acknowledged that there needs to be a systematic identification of the artworks which address the theme of Scottish low-carbon transition in order to be able to evaluate how such art works and associated conceptual frameworks facilitate and/or curtail political thinking and doing.

It was also recognised that thinking about practice could itself result in putting undue focus on the experience and intentions of individual artists themselves, rather than the extent to which, and the ways in which, their art impacts on different publics. In this context, the panel felt that while art and artists are extremely diverse, they have in common the ability to lay things bare for others by being innovative, individualistic and difficult. It is inherent in visual art that there are many different ways of trying to create meaning and reverberations not only for the artist but for their publics. What makes art significant beyond the experience of the individual artist - or "effective" - is when its meaning and effect is able, at a powerful, existential level, to connect with a large number of people, thereby influencing their perspectives, and ways of thinking. This was felt to be a very important point, because not all art is good work, or intended for a wider audience (although it was also recognised that good art was not necessarily popular and vice-versa). It was therefore agreed that in order to get to the bottom of this dynamic and to try to ascertain how effective visual art is in relation to a theme such as low-carbon transition, requires deeper consideration of how artists *operate* and develop their practice.

It was understood that it takes a long time and a great deal of effort to develop artistic metaphors for particular places and concepts. The artist has to be skilled in asking simple but profound questions and - rather than pretending to be a scientist or an expert in ecology - to bring the "wide-eyed wonder" of the artist to bear to create high quality artworks which resonate with the public. In this context, the work and practice histories of leading international eco-artists such as the Harrisons (<http://theharrisonstudio.net/>) is relevant. Works such as these

form part of an emergent canon of low-carbon visual art and provide evocative examples of the work that art does. The Harrisons develop public discussion on particular cultures and/or ecologies to build up a deep understanding of key issues, which are used to develop culturally specific poetic and visual expressions of particular themes. Over the years, their work has had a significant wider impact and has influenced governments and policy-makers.

Research questions: What are the Scottish examples of visual art being transformative in relation to climate change and low carbon transition? What is it that Scottish low-carbon visual artists are doing when putting their work together? What identifies a 'low carbon' visual artist in Scotland? How does their art impact on their publics? How can artists in Scotland learn from the practice histories and experience of eco-artists from elsewhere in order to maximise the wider influence of their own work? (And how have they learnt from such histories and experiences?)

2. What is distinctive about low-carbon visual arts in Scotland?

The panel agreed that there is nothing necessarily distinctively Scottish about the idea of low-carbon transition in itself. That said, there was a consensus that there are distinctively Scottish artistic perspectives on and experiences of low-carbon transition, which stem from political and socio-cultural factors.

It was felt that much of what is distinctive flows from the political and legal structures and processes of the Scottish Government and Parliament. Together with the UK authorities, they have created one of the world's most ambitious low-carbon transition policies and legislation. This institutional and political direction of travel and context has influenced arts organisations and funding bodies such as Creative Scotland and facilitated the development of initiatives and projects. A useful issue to explore, therefore, is how this process operates and what can be done in order to make it work more effectively. There was the sense that the nature of the Scottish context was such that there was real potential for projects/best practice elsewhere to be scaled up or down effectively by organisations such as Creative Carbon Scotland, and for this to be done in a structured way.

A related issue which was thought distinctive (i.e. in a UK context) is that Scotland is a relatively small and cohesive society and culture. Taken in conjunction with its powerful and culturally attuned devolved government and

parliament, it can therefore be easier for institutions (public and private) and individuals in Scotland to connect and make things happen. Over the years, there has also been strategic direction of funding which has had a very significant effect in other areas of the arts. In the context of low-carbon transition, Creative Carbon Scotland, operating within its distinctively Scottish political/legal context, has been building working relationships between artists and environmental organisations in order to facilitate collaboration.

Scotland's significant energy sector and leading part in both the fossil fuel and renewables industries also provide distinctive opportunities for visual artists. For example, they can interact with people in the energy industries (e.g. former coal miners, North Sea workers or those working in renewables) and produce art on different aspects of low-carbon transition. This can provide interesting, thought-provoking juxtapositions. For example, ultra-modern windfarms are often located in remote, rural places (such as the Highlands, the Borders or Orkney) and the depictions of renewable energy infrastructures and plant in this context can provide powerful metaphors of transition. Work depicting decarbonisation, such as the decommissioning of North Sea oil rigs, can also provide cultural records and insights into the process of energy transition.

There was lengthy discussion of the relationship between communities and environmental art in Scotland. Members of the panel who were based in Scotland had a strong sense that the nature of this relationship was distinctive and important. It was also recognised, however, that there was little or no empirical backing for the views which were expressed. Despite (and indeed because of) their subjective nature, this is perhaps an area that would benefit from further exploration.

For example, it was suggested that, in general terms, visual art is much less culturally powerful in Scotland than elsewhere in the UK: in turn, this impacted on the ability of eco-art to have a significant cultural influence. It was unclear to the panel why this was felt to be the case, but it could possibly reflect powerful historic factors. There was speculation about whether the Presbyterian heritage continues to have an influence on how visual art is thought about, and whether in some more remote parts of the country (e.g. the rural north-east) it still has even pagan connotations. There was a sense that, in rural areas, artists often seemed to be more embedded in, or accepted by, local communities. In Glasgow specifically, however, perhaps because of large-scale population shifts and greater levels of poverty and social deprivation, it was thought that the relationship between the wider community and artists (who

have often moved to the city from elsewhere) was less strong, and sometimes potentially antagonistic.

That said, Glasgow was also felt to be of particular importance to artists. The city has a strong and relatively established artistic community. To those not from west central Scotland, Glasgow can seem like a “remote metropolis” in the UK, in that it is a major city that is not London (Glasgow is one of the five largest UK conurbations). This is not unique, but there was thought to be a particularly strong cultural identity where artists want to achieve things locally, and that this is supported by generally accessible, locally-focussed organisations such as Creative Scotland, the Scottish Government and Glasgow City Council. Moreover, unusually for a city which is not a capital, there is a very significant infrastructure of major galleries and museums (i.e. the Kelvingrove, Glasgow Museum of Modern Art and the Burrell Collection) which are free, extremely accessible and have huge visitor numbers. There are also important Scottish cultural institutions based in the city (e.g. the Glasgow School of Art, the Royal Conservatoire of Scotland, Scottish Opera, the National Theatre of Scotland, BBC Scotland and the Royal Scottish National Orchestra), together with three of the UK’s largest universities. So, there is a vibrant cultural and intellectual life in the city, together with – very importantly – relatively inexpensive accommodation, studio space, good transport links and a low cost of living. This combination of factors was felt to encourage artists, including eco-artists, to stay in the city, innovate, collaborate and develop their practice in a distinctive, communal way.

More generally, it was felt that there was often a strongly communal approach among visual artists throughout Scotland, for example in printmaking. There was a perception that in Scotland the arts generally may be perhaps less class-bound than is perhaps the case elsewhere in the UK: that is, that fewer artists come from middle/upper class backgrounds and that artistic and cultural communities are less elitist socially. That said, it was recognised that these were subjective and personal impressions, which were without empirical support.

Finally, it was felt that the combination of these different factors, notwithstanding that they are unmeasured and perhaps unmeasurable, are such that Scotland has the potential to be a world leader and exemplar in terms of artistic representations of low-carbon transition. Interestingly, the panellists who were originally from other countries felt that this was something that was

not always recognised by those from Scotland - although it was also acknowledged by the panel that it is important to be realistic rather than overly-idealistic and that there are no grounds for complacency.

Research questions: How can the interactions between visual artists, the Scottish Government and Parliament and bodies such as Creative Carbon Scotland be developed further to maximise the potential for the creation of high quality low-carbon transition themed art in Scotland? What additional structures and processes can be established to facilitate connections between visual artists, the energy sector and communities in order to encourage the creation of high quality low-carbon transition themed art in Scotland? What impact is art that takes up the question of low-carbon transition actually having in Scotland? What additional structures and processes can be developed to add further strength and depth to Glasgow's and Scotland's potential to be a leading centre for low-carbon transition themed art?

3. What are the issues inherent in the production of visual art on Scottish low-carbon transition and what are the issues which remain unasked or unseen?

Visual art was felt to be able to single out particular issues and create works which can have an impact and communicate powerfully on the theme of low-carbon transition in Scotland. Artists and artworks can challenge and shake up public and political attitudes. As artists may be outsiders, they can bring local issues to the fore, contextualise and highlight them and help communities think about or confront their attitudes to low-carbon transition. There was a consensus that art brings about socio-cultural change in ways that differ from more technocratic humanities subjects such as politics or law. In the context of low-carbon transition, claims that art can effect changes in behaviours, attitudes, values and ideas must be investigated. A related issue is whether individual pieces of artwork have a significant impact on the public consciousness, or whether broader, more collective artistic responses to climate change are likely to have a greater effect overall: that is, whether the emphasis should be on exploring the potential of collective groups / movements of artists and art to make a substantial and unique contribution to the transition to a low-carbon Scotland.

The panel formed the view that the implicit focus of practice and discourse among visual artists was often about reaching out to the environmental sciences in different ways. At least initially in the discussion, it was felt that the

core issue for consideration is the nature of visual art as a medium for translating environmental science and technology (i.e. in relation to low carbon transition) into other forms. It was thought that science is not necessarily well-equipped to translate its findings into cultural forms for public consumption, and that visual art has a potentially significant role in this context. Thus, environmental science is often the default first port of call for visual artists when trying to think about themes on climate change, fossil fuel use and low-carbon transition.

Interestingly, however, none of the other arts and humanities subjects in the project have this focus – for them, the science is taken as a given and they tend to be concerned with changing the relationships between individuals and political power and the issue of governance.

In this context, and after further discussion, the panel therefore arrived at the view that the emphasis within the visual arts on translating science and technology may actually be a distraction from the key issues in low-carbon transition. Indeed, as a result, so-called “climate art”, whether Scottish-themed or not, was thought often to consist of somewhat one-dimensional, unsophisticated portrayals of spoiled landscapes, smog, melting ice caps and so on, obscuring the fact that what is most important in low-carbon transition is influencing human perception and power/economic relationships. It was recognised that this crucial theme is often missing from explicitly climate-focussed art. In consequence, it can sometimes appear somewhat simplistic, pompous and patronising: relative to other disciplines and art forms, it was felt that there can be a lack of a sophisticated dialectical relationship with the audience. The panel therefore recommended that, as cultural workers, visual artists need to be encouraged to continue to think deeply about how to deconstruct, explore and present the powerful cultural and social themes inherent in environmental and consequent social change for their publics, while those whose role it is to interpret visual art works should continue to develop approaches and methods that enable these perspectives to be brought to the fore. Effective climate art may be less conventionally documentary, and have a greater focus on reflecting *human* responses to the challenges of environmental issues such as low-carbon transition.

It was appreciated that the issue of funding (both public and private) is of great importance in terms of the direction that visual art takes. Financial support for particular art forms controls the amount and nature of the images which the public are exposed to. In order to get funding, artists typically need to have pre-

planned, targeted outcomes. So, if funding is available for work on a low-carbon transition theme, artists may opt to produce outputs which are perhaps relatively simplistic/documentary in order to put it beyond doubt that they have fulfilled their brief. The answer to the question of in whose service is art employed appeared seemed to be that the consumer is king. Moreover, artists will be unlikely to get funding to create more speculative, open-textured and complex/critical images, or to display them in a gallery. In general, there was a sense that the power of visual art to create a sense of wonder, or to be unsettling/challenging/dangerous/provocative/free-thinking, is being side-tracked by the way in which art is funded and developed – it was felt that increasingly, art, including eco-art, is being seen as something which should basically look attractive and/or be visually striking for a large audience.

With these points in mind, the panel felt that the issue of how visual artists speak to power needs to be addressed. Artists are still engaged in producing work for the powerful (whether individuals or organisations, or publicly or privately funded), but the nature of that relationship is particularly complex in the context of an issue such as climate change and low-carbon transition which affects all of us at an existential level. There are therefore needs to be more developed thinking about the relationship between visual art and power in relation to the issue of low-carbon transition.

It was agreed that the focus of discourse on low-carbon transition art in the Scottish context need not necessarily be on contemporary artworks – it was also possible to derive valuable perspectives on low-carbon transition through the reinterpretation of historic art (which may have been addressing very different themes or subjects) in today's context. Nor need visual art which has an impact in the context of Scotland's low-carbon transition necessarily be about specifically Scottish issues/landscapes/culture. This raises some interesting and difficult issues. For example, how far and in what ways can one read environmental themes into historic art? In the case of low-carbon transition, it might be argued that a huge body of Western visual art from the industrial revolution onwards is potentially open to re-interpretation. Ultimately, of course, the question is how far this sort of process can be taken – and the answer is subjective – but the key to the issue is perhaps the extent to which re-interpretation is effective in terms of influencing public perceptions.

Research questions: In what ways can low-carbon transition themed visual art change peoples' behaviour and affect peoples' perceptions and thoughts significantly? What specific forms of knowledge and ways of understanding low-carbon transition are facilitated by visual art? In this context, are collective artistic groups/movements more likely to have an impact than high profile individual artists? How can low-carbon themed Scottish art be encouraged to be less conventionally documentary and more focussed on human responses to climate change and the public health risks posed by atmospheric pollution? What structures, processes and funding arrangements might facilitate this shift? Who commissions, shows and buys low-carbon themed art in Scotland and how does this affect artists' practice? What historic and / or not specifically Scottish visual art, which was not originally intended to address environmental issues, can be re-interpreted to create new knowledge and forms of engaging with Scotland's low-carbon transition?

Interdisciplinary report

Key issues and recommendations⁴

1. *Humanities research and low-carbon transition: ethical dimensions*

Energy use and low-carbon transition are social and therefore cultural phenomena as much as they are scientific, biophysical and technocratic ones. And, since the turn of the century, they have been interwoven with humanity's attempts to respond to the existential threats posed by climate change. As a result, and particularly given the challenges highlighted at the 2015 Paris Conference on Climate Change, it can be argued that there is a broad *ethical* obligation on the part of humanities scholarship to meet the challenges posed by low-carbon transition in Scotland and elsewhere. In the specifically Scottish context, public sector organisations have legal obligations under Section 44 of the Climate Change (Scotland) Act 2009 to contribute to carbon emissions reduction targets and climate change adaptation; and to act sustainably. Academics in Scotland may not be legally bound by this provision as universities are not public sector organisations (although they do receive significant amounts of public funds), and individual academics also have academic freedom. Nonetheless, the creation of a legal duty for public sector organisations is a powerful expression of a clear ethical position by the Scottish Parliament. Viewed from this perspective, Scottish-based energy humanities scholars in particular need to consider whether their approach to deepening understanding of the cultural factors which can both facilitate and hinder low-carbon transition is *an explicitly ethical undertaking*. This is not an abstract issue. Thinking through the ethical underpinnings and implications of scholarship has the potential to clarify its objectives and methods, and emphasises the importance of working in ways which are relevant and accessible to policy-makers in order to make a positive and useful contribution to society.

Recommendation: We propose collaboration between energy humanities scholars to explore the ethical dimensions which underpin humanities

⁴ For further discussion of the academic context to the Network and its methods, see G. Little 'Connecting Environmental Humanities: Developing Interdisciplinary Collaborative Method', *Humanities* 2017, 6(4), 91; doi:10.3390/h6040091. Available at: <http://www.mdpi.com/2076-0787/6/4/91> (Accessed 22 November 2017).

research into low-carbon transition, with a view to clarifying the objectives and maximising the relevance and significance of the scholarship.

2. Developing collaborative interdisciplinary research methods

Increasingly, scholars in the environmental and energy humanities are developing their profiles in interdisciplinary collaborative working, and a number of projects and organisations have been established recently to take this forward: the *Connecting with a low-carbon Scotland* Network is part of this broader academic movement. Interdisciplinary collaboration is, however, often challenging for humanities scholars, as the tradition of the lone scholar producing sole-authored work is still dominant in many humanities disciplines. Arguably, in Scotland and throughout the UK, this tradition has been entrenched by successive REFs/RAEs which have tended to favour silo-based, sole-authored research. Moving beyond this is therefore challenging, but there is now a clear consensus among many in the environmental humanities - and certainly within the Network - that the existential nature of climate change and creating a low-carbon society requires collaborative working, both at disciplinary levels and by using interdisciplinary collaboration within and beyond the humanities as an intellectual 'force multiplier'.

In this context, working on developing structured, robust collaborative research methods which are appropriate for a range of different humanities research topics and themes is important. As indicated above, the Network focused on the exploration of different types of narrative, or story, as the most accessible common intellectual denominator for humanities disciplines. In the particular area of Scottish low-carbon transition, however, although there was a wide range of narratives, there was relatively little developed scholarship on them. As a result, before engaging in interdisciplinary collaboration, the first stage had to be the creation of a discipline-level platform from which to build discussion. Depending on the topic, this sort of approach would not, of course, always be appropriate. But it is argued that humanities scholars should explore imaginative, novel approaches to collaborative research methods in order to maximise the wider relevance and influence of their knowledge, particularly in emerging and relatively under-researched areas such as Scottish cultural perspectives on the environment. If they do not do so, the humanities may struggle to interact effectively among themselves, and to connect with policymakers and colleagues in social science and science on what is possibly the most crucial issue facing society today – low-carbon transition to mitigate climate change.

Different humanities disciplines often have their own methods of analysis, which draw on internal debates and theoretical perspectives. In this context, one way of facilitating connections between the humanities and with policymakers and other disciplines is for the humanities to make more use of social science methods to explore cultural themes. It is perhaps inevitable that humanities researchers would be more likely to be drawn to using qualitative techniques rather than quantitative ones, and then to interweave the empirically-derived data with insights from humanities scholarship – and much would depend, inevitably, on the scale and nature of individual projects. That said, for example, focus groups could be used where projects are based around group discussions of broad themes or attitudes. In areas which are policy-driven or technocratic in nature, semi-structured interviews and/or consultations could be conducted with key stakeholders such as civil servants, policy advisers or politicians. Large-scale projects could explore differing perceptions of and attitudes towards cultural issues using variations on Delphi method and surveys. In transdisciplinary⁵ projects involving policymakers or practitioners, there is potential to use different types of scenarios to develop collaboration and understanding.

It is, of course, hardly original to point out that there is a wide range of different social science methods which can be blended with insights and perspectives derived from humanities scholarship. That said, using social science in this way has the potential to create connections between the humanities by providing structured and translatable empirical methods to open up and draw on discourse and to articulate and address key interdisciplinary issues collectively. It can also serve as a unifying methodological and intellectual "bridge" between the humanities and policy-making, science and social science. To be clear, it is not suggested that humanities scholars should be compelled in any prescriptive sense to engage with social science methods. Rather, it is argued that the humanities collectively need to be proactive in exploring how collaborative, interdisciplinary method can be developed in relation to cultural phenomena such as low-carbon transition in order to maximise their value, and that one way to do this is to think about how to draw on established, qualitatively-focused empirical methods in social science, and how to incorporate them within the broad range of humanities scholarship.

⁵ The key distinction between interdisciplinary and transdisciplinary collaboration is that the former involves only academics working together, while the latter also involves expert non-academic practitioners and is focussed on real-world problems.

Recommendation: We propose that energy humanities scholars work together to debate and create innovative methods for effective interdisciplinary collaboration to maximize the potential of humanities-based narrative analysis. This could include the development of staged structures and processes to build discipline-level understanding before engaging in interdisciplinarity and the proactive use of social science methods as an intellectual “bridge” between humanities disciplines, policy-makers, the sciences and social science.

3. Mapping the low-carbon transition humanities

Different cultural narratives, including literature, theatre, film, media, visual art and politico-legal discourses, provide a very wide range of cultural resources on the global and local threats of climate change and on energy transitions. Despite (or possibly because of) this wealth of primary material, scholarship across the humanities is extremely diverse and often lacks a common focus, notwithstanding that it has some broad, often inter-relatable themes - principally political power and governance, different concepts of justice, gender, race, class, inter-generational relations, aesthetics, nationalism, post-colonialism and contested histories and philosophical values. Moreover, the scholarship is spread unevenly between and within disciplines, institutions and in terms of geographical location.

Nonetheless, two core humanities questions emerged from Network discussions: how do we become *informed about* and how do we *imagine* energy transition through the humanities? These two concepts - becoming informed and imagining - help to get to the core of what the humanities have to offer specifically; the focus on communication of facts, experiences and ideas and the potential to work generatively, to create propositions and to reflect critically. Some forms of representation of low-carbon transition in the humanities can take us to relatively descriptive and one-dimensional places, by simply mirroring or reporting what is there, or what is happening. But at a more profound level, the humanities can also represent transition by bringing experiences of injustice, prejudice and so on into consciousness, creating a public, intellectual commons through which individuals can 'become informed' by feeling as well as grasping the issues intellectually and, through this process, come to 'imagine' differently.

There are also a number of complex practical issues which have to be contended with. The first is that the discussion of different narratives quickly brings to the fore the fact that there is often a wide range of opinion and perspectives within disciplines, which grows exponentially in the course of interdisciplinary collaboration. Individual participants, even if they share a disciplinary background, may often have different areas of expertise or methodological approaches, and the more people and disciplines that are involved, the more polycentric and complex the relationships become.

As a result, one of the issues to emerge from the Network was the importance of developing a clear understanding of what individual disciplines can do in the context of inter-humanities collaborative projects, and the potential gaps in their scholarship and approaches. For example, disciplines such as visual arts or literature and theatre, while often very effective in terms of relating to individual experiences and feelings about cultural issues in artworks, fiction and drama, may struggle to link their insights with policy-making. Disciplines such as law or politics, which focus on official, non-fictional narratives, often tend to be the other way around. But, importantly, the development of a better understanding of how people relate to cultural narratives both individually and collectively is what the humanities can offer policymakers and those in the sciences and social sciences. It is therefore necessary for humanities scholars to think hard about how best they can articulate their disciplinary expertise in inter-humanities and also wider interdisciplinary collaborations.

Inter-humanities collaboration will often be what can be called "moderate" interdisciplinarity, in that cognate disciplines – for example, law and politics – are often able to interact relatively easily around generic cultural themes, such as transition, human rights or justice. Similarly, disciplines such as literature, theatre, visual art and media have significant intellectual connections, making collaborative discussions reasonably easy to initiate.

That said, the experience of the Network is that it is important not to exaggerate the degree of inter-humanities contiguity, or to gloss over the challenges in developing truly integrated collaborative practice. Self-evidently, a discipline such as law is very different from, say, visual art – as a result, collaboration between lawyers and visual artists can be viewed as being "radical" interdisciplinarity (although, given the shared focus on narrative forms, perhaps not quite as radical as collaboration between a visual artist and a quantitative climate scientist). Making any form of radical interdisciplinarity

work successfully is, however, always going to be difficult – and while this is self-evident, it is worth stressing the point.

With this in mind, an idea which was discussed in the plenary session of the Network conference, and which requires further exploration, is the development of an inter-humanities disciplinary model, which seeks to map the ways in which, and the degree to which, energy humanities disciplines connect with each other across a radical/moderate spectrum. This could have a range of variables (e.g. shared subject matters, themes, narratives, literature, methods, funders) and systematize the broad interrelationships between disciplines. The objective would be to develop a better understanding of how energy humanities disciplines can interact and work together most effectively, which could then guide the planning and development of cross-disciplinary projects and maximise the potential for successful collaboration. One way of constructing the model would be by collating the views of participants from a range of different disciplines using questionnaires with closed and open-ended questions, which could measure perceptions of how the disciplines are able to interact effectively. The data could then be modelled and set out a number of different ways, including in diagrammatic form, which may be the most accessible way of doing so. This sort of technique could provide useful indicators when planning collaboration between energy humanities disciplines, and also with policy-making, science and social science.

Recommendation: We propose that energy humanities scholars collaborate to debate and “map”: (1.) how people are informed by and imagine transition through the humanities; and (2.) the inter-relationships between humanities disciplines and their individual and collective attributes and potential in relation to developing interdisciplinary understanding of low-carbon transition. Mapping these issues can facilitate and maximise the potential of future interdisciplinary collaborations between the humanities and other disciplines.

4. Framing low-carbon narratives

An important issue when thinking about low-carbon transition narratives – whether Scottish or otherwise – is their inherent "stretchiness" in historical and conceptual terms. Energy transition has been an important (if often unarticulated) theme throughout history and, notwithstanding the Network's inevitable focus on Scottish experiences of fossil fuels and renewables rather than the issue of what energy transition is, it was clear from all the disciplines

involved in the Network that we can learn much about the cultural and social aspects of ongoing transitions by studying earlier ones, while recognising that the main driver of modern low-carbon transition – man-made climate change – is unprecedented.

This opens up a vast range of energy narratives and texts. They come from different sources, periods and eras, and are explicit or subsumed in different forms and types of cultural practice and styles. Moreover, while in all humanities disciplines there are narratives which deal specifically with the issue of energy (with some disciplines having more than others), probably the main body of source material in the humanities generally is not directly or specifically concerned with energy *per se* – rather, energy (and energy transitions) are important themes and or events / issues within them. So, an important issue for the humanities to address is how best to “frame” what we think is at the nub of what a low-carbon narrative is, while recognising that being overly prescriptive runs the risk of being counter-productive in terms of developing new and transformational inter-humanities ways of thinking.

With that caveat, low-carbon transition narratives might be thought of as having the following general features:

- (i) they address or raise (whether directly or indirectly), the issue of humanity’s inter-relationship with energy generation or use; and
- (ii) they connect, or enable connections to be made, between individual and/or collective energy use as the main cause of climate change; and
- (iii) they enable individuals, and/or society, to engage with the difficult moral, cultural and socio-economic implications of de-carbonising our energy use and lifestyles in order to mitigate climate change and protect current and future generations from the catastrophic and even existential consequences which may flow from it.

A definition of this sort can provide a broad thematic framework for energy humanities scholars from a wide range of disciplines when analysing different types of cultural outputs (whether in the context of interdisciplinary collaboration or not). It can also facilitate the generation of research questions which are also likely to be relevant to policymakers and public debate. Opinions may, of course, differ on whether or not this particular definition is the most appropriate one, but it is felt that for the humanities to be able to engage with the issue of low carbon transition effectively, it is necessary for there to be an humanities–based position (i.e. rather than one taken from

science or policy-making) which provides a degree of overall coherence on what cultural narratives on low-carbon transition actually are, and a starting point for debate.

Recommendation: We propose that further work should be conducted on a collaborative, inter-humanities basis to develop the definition of low-carbon transition narratives, which can then “frame” key issues and research questions. One way of identifying what scholars from different disciplines can collaborate on might be to explore key aspects of what energy transitions are and how they are they driven, shaped and recognised - this could raise issues to which a range of humanities disciplines could contribute.

5. What is distinctively Scottish about low-carbon transition?

Responding to climate change caused by humankind's use of fossil fuels and the pressing need to move to a low-carbon society is a global, universal issue. What, then, is distinctively Scottish about it?

Scottish cultural narratives on low-carbon transition can perhaps best be thought of as those which connect with, reflect and articulate the experiences of individuals in Scotland and Scottish society around the inter-related issues of energy use, potentially catastrophic climate change and the resulting need to transition to a low-carbon future. There is, in this context, much which is distinctive about the Scottish experience. What, then, did the Network identify as the main themes and areas for future exploration?

(i) Historical influences

An overarching issue is that Scotland has a long and developed history of large-scale energy generation and consumption. Central Scotland was one of the first parts of the world to industrialise, and was one of the key industrial and economic centres of the British Empire in the 19th and 20th centuries. Cultural development in Central Scotland (by far the most heavily populated part of the country) has therefore been influenced strongly by large-scale urbanisation and the rise and fall of internationally significant heavy industries such as shipbuilding, chemicals, steel and engineering - and the processes of urbanization and industrialization are, of course, necessarily underpinned by massive energy infrastructures. At the same time, there are still strong cultural identifications with ideals of historic, rural Scotland – highland and lowland, inland and coastal, mainland and island – perhaps reflecting the fact that Scotland’s urban population is largely comprised of the descendants of those who migrated from landward areas to the cities over the past 150 years. In this

complex historical, demographic and cultural context, Scotland was until recently a major centre for coal mining, still has a large offshore oil industry, and remains one of the most heavily nuclearised parts of the world. It also has a large hydroelectric industry and, given its location, a high proportion of Europe's renewable energy generating potential from wind and wave power.

Since at least the 19th century, people's emotional and aesthetic attachments to Scotland's varied and often beautiful natural and urban landscapes have also exerted powerful cultural influences, and this is often interlinked with the issues of climate change and energy transition, as in, for example, visual art and media relating to the development of onshore wind farms, related overland power lines, or fracking in rural and iconic locations.

This rich historical mix raises some interesting themes. The first is that, because of its past and present experiences of high-carbon industrialisation from the steam engine to the oil rig, Scotland offers valuable insights into the larger narrative of lower-carbon modernity. Scotland's energy story over the past 150 years is such that it can provide a deeper understanding of how cultural practices develop and of how politico-legal structures can change during energy transitions. For example, understanding how Scottish culture and society changed during the shift away from its coal industry, or the development of North Sea oil, can provide useful parallels and insights into how best to think about our ongoing low-carbon transition. A better appreciation of how cultural practices can change or even disappear during energy transitions has the potential to inform policy-making and public debate, not only in Scotland but also elsewhere - especially as we are in an era of digital transfer and high speed global communication, where energy policy and social projects can be easily viewed and exchanged between cities and regions around the world.

An important point for scholars to acknowledge, however, is that while there are many fictional and nonfictional Scottish cultural outputs to draw on, there is often, as already touched upon, little academic work on them, and also very limited public consciousness of the interconnections between carbon-based energy use and culture. Thus, there is considerable potential for humanities scholars to work on identifying the significance of carbon in Scottish cultural work throughout history to the present day: Scotland's cultural history exemplifies and has much to tell about the juxtapositions and ebbs and flows of different energy regimes, along with the causes, costs and benefits of technological and socio-cultural changes.

For example, in terms of recent history, Scotland can claim to be a world-leading example of rural renewables culture. The remarkable development over the past decade of community-based renewables in Orkney and Eigg in particular is internationally known. The experience of these rural and relatively remote island communities raises interesting issues for Scottish low-carbon transition, which have wider resonance. Thus, in Orkney, low-carbon, “smart” technologies which are not commonplace elsewhere are already in use: what can the cultural experiences of islanders transitioning to these new technologies tell the rest of us? Humanities researchers can investigate how cultural work can contribute to transferring and improving the experiences of low-carbon transition in rural islands like Orkney to those living in cities, in Scotland and elsewhere - and perhaps particularly to different communities in Denmark and Norway and Sweden, which are embarking on similar transitions.

Recommendation: We propose that, given Scotland’s deep history and experience of energy transitions over the past 150 years, there is a pressing need for energy humanities scholars to identify and understand the significance of carbon in Scottish cultural work throughout history to the present day. Doing so has the potential to inform society’s approach to the cultural barriers and opportunities presented by low-carbon transition, in Scotland and beyond. In particular, work needs to be done to create an interdisciplinary time-line of artworks, films, books, critical texts, official documents and legal instruments, etc., as a research resource. It would then be possible to select key examples across time that in some sense crystallize major shifts in thinking and perception: for example, what works can we identify that brought into consciousness how we depend upon oil as a substrate of everything we do, the habits we adopt, and what works help us to imagine the future?

(ii) Political power, constitutional politics and law

Scotland's political and legal systems are key and distinctive influences on cultural development in relation to low-carbon transition. The existence since 1999 of the Scottish Parliament as a powerful sub-national legislature within the UK, and the long history of the separate Scottish legal system, are themselves embodiments of a distinctively Scottish politico-legal culture, which has an effect on wider cultural practice and perspectives. At one level, there is a background narrative of political controversy which is reflected in politics, law, media coverage and public debate, as the majority within the Scottish Parliament supports independence from the UK (there was a

referendum on Scottish independence in 2014, which saw a clear but modest majority of 5% in favour of Scotland remaining within the UK). In terms of the division of legislative and policy powers between the Scottish and UK authorities, while the former has extensive powers in relation to environmental governance and planning, and some powers over renewable electricity generation and fracking, the latter has overall strategic control of energy, transport and taxation – the main levers of energy policy and law. At another level, however, both the Scottish Government and the UK Government are (currently) both strongly committed to low-carbon transition. Although there have been occasional cross-border political disagreements on issues such as the subsidising of onshore wind farms, or the construction of new nuclear power stations, the two governments and legislatures for the most part have worked reasonably well together on developing and implementing energy policy in Scotland. Both the Scottish and UK authorities have ambitious targets for low-carbon transition in order to mitigate climate change, and one of the distinctive features of the politico-legal narrative is that the Scottish Parliament and Government have sought to go faster and further than Westminster by committing Scotland to an even more extensive process of de-carbonisation than the rest of the UK.

This political dynamic has had significant effects in Scotland. It has, for example, led to the rapid and large-scale development of onshore wind farms in largely rural areas and interconnector power lines to transmit the electricity generated by them to urban centres. Public and political opposition to fracking and new-build nuclear power stations, largely driven by environmental and public health concerns, have resulted in them being banned in Scotland for the foreseeable future. Both the Scottish and UK Governments are now increasingly looking to facilitate significant changes to energy policy by shifting the narrative away from electricity generation (which is now effectively low-carbon in Scotland) and onto the use of energy by individuals and businesses for heating and transport, and energy efficiency.

These developments have given rise to a number of interesting and distinctive cultural themes, which are also often connected with politico-legal issues. The overarching one is, however, *political power* - that is, who has it, who wants it, and how it is exercised.

For example, the constitutional and legal relationship between the Scottish and UK Parliaments and Governments over energy and low-carbon transition speaks to the political and public discourse on how Scotland should be

governed - an issue on which opinions differ in the aftermath of the 2014 independence referendum, and are often strongly held. In the context of energy generation, low-carbon transition has arguably become, to some extent, a cipher for the "national question" of independence versus the union. Thus, for supporters of independence, the Scottish Government's more enthusiastic development of onshore wind farms and proactive decarbonisation can serve as a leitmotif of the sort of society an independent Scotland could be. It provides a generic, if not necessarily clearly defined, ideal of a small, modern, green, sustainable, non-nuclear and renewable Northern European independent country, similar to Denmark or Norway. This narrative can be juxtaposed with that of government by Westminster, which may by comparison seem distant, conservative, out-of-touch with Scottish concerns, pro-nuclear, pro-fracking, pro-big business, and lukewarm about renewables. Advocates for the union, by contrast, can point to the Scottish Government's rapid development of renewables as being an effective and distinctively Scottish approach to climate change and low-carbon transition within the supportive context of the UK, which has been underpinned and facilitated by financial subsidy from the UK Government and the strategic regulation by it of the UK's energy security and single energy market and grid.

Clearly, given the political differences that exist in the country, many may not be able to arrive at a consensus on the issue. From a humanities perspective, however, it is important to understand the implications of these constitutional/political narratives as *cultural* phenomena, as they may have a significant effect on the success or otherwise of low-carbon transition in Scotland. They frame an important Scottish specificity on transition, while at the same time reminding us that Scottish renewable energy is grid-connected, transported, marketed and exported on a UK and indeed European basis: that is, that the process of low-carbon transition is at once both local, national and global.

In this context, it may be asked how this national-level framing of low-carbon transition impacts on local communities and individuals in Scotland, and what, in turn, this can tell us about the Scottish experience of transition.

Again, the overarching theme is that of political power. For example, local communities in the Highlands and Islands have been encouraged by the Scottish Government to develop community owned wind turbines, often successfully. Developments of this sort combine the narratives of low-carbon transition with those of building stronger sustainable communities,

regeneration, modernisation, local resilience and communal ownership and responsibility. These are self-evidently powerful and positive narratives, which are often emphasised by government, but the reality may be more nuanced, and needs exploration and research by humanities researchers. For ostensibly “successful” projects such as small crofting communities developing their own wind turbines can also cause controversy, social division and even the breakdown of personal relationships. There is also the possibility that government may, whether consciously or not, be taking advantage of the tradition of volunteering in rural communities to develop energy infrastructures at lower cost, rather than taking on the responsibility for doing so itself.

Large scale development of renewables infrastructures also raises the issue of political power. In parts of the country such as Dumfries and Galloway, there has been massive development of major commercial wind farms by landowners and large utilities companies. In terms of low-carbon transition, this is to be welcomed, but there is a complex socio-cultural dynamic in play which involves ownership rights, the role of government, perceptive aesthetics, and the status of local people. Developers will typically have received significant subsidy from government in order to facilitate decarbonisation, and they can also expect a high financial return on their investment. On the one hand, it can be said that they should be entitled to profit from their property and business activities and that they should be supported by government as a matter of public policy, provided the requirements of the statutory planning process are met. On the other hand, however, although communities will receive some (limited) financial benefit, it is often local people who are most affected by wind farm developments, which may be aesthetically unattractive, intrusive in their landscape, and damaging to local businesses such as tourism. Thus, while rural communities have to live with a newly ‘industrialised’ environment, the low-carbon energy that is generated is transmitted via the grid to distant cities, with the profit going to often absentee landowners or utility company investors. This clearly raises significant questions about aesthetics, rights, justice and democracy, and it is argued that humanities scholars have a key part to play in developing understanding of how they are approached culturally.

The narrative focus on the Holyrood/Westminster power axis in political, media and academic narratives has also meant that Scottish local government has had a limited part to play in the low-carbon transition. The powers and duties of local government are, however, provided for under statute by the

Scottish Parliament, which also provides most of its funding. Hence, there is the potential for local government to be given a much greater remit by the Scottish Parliament in relation to matters such as, for example, community owned energy projects, district heating systems or electric transport Networks, and the historical experience of municipal gas and electricity supply suggests that local government can play a significant role in developing and running localised energy infrastructures (which may become important again as new low-carbon technologies are developed, e.g. district heating Networks). In this context, there is scope for humanities scholars to explore why the dominant political narrative in Scotland has (so far) been predominantly top-down rather than bottom-up, and the cultural factors which underpin this. Certainly, it is interesting to note that in Denmark, which is a world leader in decarbonisation and in exploiting the economic opportunities that can flow from it, transition has often been initiated and implemented by effective and powerful local authorities, rather than national government.

Recommendation: Political power in its different manifestations is a key theme in the representation, implementation and mediation of Scottish low-carbon transition. Energy humanities scholars therefore have an important part to play in developing understanding of the cultural factors involved in this dynamic in a range of contexts. The key issues identified by the Network are: Scottish constitutional politics; and the power relationships between different parts of the state, powerful stakeholders (such as landowners and power companies), local communities and individual citizens. These power dynamics have the potential to have a significant effect on the Scottish low-carbon transition, and humanities disciplines can make a significant contribution to policy-making and wider debate by exploring their cultural features and implications.

(iii) Scottish cultural institutions

In addition to the Scottish Government and Parliament, Scottish cultural and broadcast institutions such as Creative Scotland, BBC Scotland, STV, museums, art galleries, old and new forms of media and local authorities have a significant role in representing, developing and mediating distinctively Scottish cultural approaches to low-carbon transition.

Thus, for example, Creative Scotland - as a public body funded by the Scottish Government and the National Lottery - is under a statutory obligation to promote low-carbon transition, and this is impacting increasingly on the different cultural outputs and activities in film, theatre, literature, poetry and

visual arts that it supports and subsidises. It is, with Edinburgh City Council, a funder of Creative Carbon Scotland, which works with artists and cultural practitioners across the country to promote the essential role that arts and culture have in achieving the transformational change to a sustainable future. BBC Scotland also has an important role as the public service broadcaster in building understanding of different perspectives on low-carbon transition. Currently, however, on the face of its output, it would appear that it does not have the sort of institutional capacity and dynamism required to provide significant explorations of Scotland's transition. The ongoing crisis in Scottish print journalism, with catastrophic falls in newspaper circulation and the consequent declining output quality of Scottish newspapers, also impacts on the ability of Scottish environmental journalists to be proactive and creative when approaching the mediation of low-carbon transition in Scotland.

These are important issues, and it is argued that humanities researchers should investigate how the interactions between artists and cultural practitioners, the Scottish Government and Parliament, and bodies such as Creative Scotland, Creative Carbon Scotland, the various cultural festivals, local authorities and BBC Scotland, can be developed strategically to maximise the potential for the creation of high-quality low-carbon transition themed artistic, cultural and media productions in Scotland, which resonate with and inform the public. There is a need to explore what additional structures and processes can be developed to add further strength and depth to Scotland's potential to be a world-leading centre for low-carbon transition themed culture and art.

Recommendation: We propose that energy humanities scholars work in collaboration with Scottish cultural institutions, practitioners and artists to develop understanding of how to further improve the effectiveness of cultural and institutional structures and processes in Scotland, with the objective of facilitating low-carbon transition and maximising Scotland's potential as an international centre of excellence for low-carbon transition themed culture and art.

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