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**Power at the Edge: Energy Politics and the Periphery**

The Orkney Islands have been a site of renewable energy experimentation and testing since wind turbines were installed in the early 1950s; Dounreay, on the north Caithness coast of Scotland, was chosen by the UK Atomic Energy Authority as a site to develop early nuclear reactors; and the Shetland Islands have been transformed by their proximity to the North Sea Oil fields. Stormy Bank in the Orkneys and Mullwharchar in the Galloway Hills were considered as sites for nuclear waste storage in the 1970s and 80s.

These places are all on the periphery of the British Isles, and have been transformed in different ways by (variously) the presences, promises, and threats, of energy technologies, policies, and infrastructures. How has remoteness contributed to their development as potential and actual energy landscapes, and the development of energy history more broadly? How do energy geographies relate to energy politics? Does distance from (political) power aid or hinder the generation of (energetic) power? What traits and tropes emerge in discussions of energy in these places, and how were forms of activism or protest distinctive? In what ways do notions of landscape, community, and identity intersect on the edge? Our examples are all Scottish, and we will consider the historical prevalence and particularity of Scottish energy developments. But this does not preclude contributions that address peripheral places in England, Wales, Ireland, and their islands.

This workshop, organised by the Centre for Environmental Humanities (Bristol) and the Centre for the Humanities and Social Sciences of Health, Medicine and Technology (Liverpool), brings together researchers exploring aspects of energy, politics, and geography to probe the relationship between remoteness and power (energetic and political) in Britain. It recognises a recent rise in interest in these issues by scholars of history, literature, geography, and policy, but also identifies significant gaps in the scholarship that are there to fill. The workshop aims to facilitate conversations between and across disciplines, to develop conceptual thinking around remoteness and energy, share current research, and stimulate new work and future collaborations between participants.

**Schedule**

**Thursday 29 November**

Arthur West Room, 9 Abercromby Square, Liverpool L69 7WZ

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10.30 Arrivals, refreshments, introductions.

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11.00: Panel 1. **Nuclear power**

Jonathan Hogg, Linda Ross, Annie Gilfillan

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 12.30 - 1.30 Lunch

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1.30: Panel 2. **Oceans and Science**

 Alex Campbell, Sam Robinson, Greg Lynall

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 3.00 Coffee break

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3.30 **Alternative energies and policy-making**

Marianna Dudley, Sam Williamson, Glen O’Hara

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 5.00. Drinks, dinner: Pen Factory, Hope Street

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**Friday 30 November**

Arthur West Room, 9 Abercromby Square, Liverpool L69 7WZ

9.30 **Roundtable**

Participants will have the opportunity to reflect on the main themes that emerged during the three main panels, with a focus on critical issues and methodologies. How do we conceptualise and research the edge? This will be the place to tease out connections/disconnections between case studies in light of the previous day’s papers and to identify overarching concerns, challenges and points of interest.

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 11.00 Coffee break

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11.30 - 1pm

We will discuss ways forward, including publication plans, next steps, and funding opportunities’. Where to take this project?

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13.00 Finish

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\*Information for participants: if you have Powerpoint to accompany your paper presentation, please bring it on a memory stick to the workshop or save it in an accessible online place.

\* If you have dietary requirements, or any questions, please contact the organisers ahead of the workshop:

J.G.Hogg@liverpool.ac.uk and m.dudley@bristol.ac.uk

**List of Participants**

Conveners:

**Marianna Dudley** (History, University of Bristol)

[https://research-information.bristol.ac.uk/en/persons/marianna-r-dudley(a5e1808e-3980-40a9-8299-8f90541d66c6).html](https://research-information.bristol.ac.uk/en/persons/marianna-r-dudley%28a5e1808e-3980-40a9-8299-8f90541d66c6%29.html)

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Marianna Dudley is an environmental historian at the University of Bristol. Her doctoral work examined military landscapes and the rise of military environmentalism in the UK and was published as a monograph (*An Environmental History of the UK Defence Estate, 1945-present;* Continuum, 2012). Her work since has moved to focus on water, including the ways in which recreational use has forged cultures and identities that give new and alternative life to rivers. A study of the Severn Bore ignited an interest in waves as historical forces, to which she has added winds as transient, but powerful, agents of change. This ongoing work is the context for repeated visits to Orkney to explore the emergence of wind power and wave energy testing.

This work on wind power focuses on experiments undertaken by the North of Scotland Hydro-Electric Board in Orkney in the 1950s. This was the first time wind powered a public electricity supply grid in the UK, and is situated in the postwar context of the nationalization of industry by the Labour government. But while the roll out of electricity provision for all was underpinned by mix of socialist ideology and industrial pragmatism, shortages of materials and the expense of laying cables to remote communities meant that the ‘national’ grid did not reach to all corners of the nation. In the far north and the Scottish islands, the North Scotland Hydro-Electric Board looked to alternative solutions to fill the energy ‘gaps’. Hydro-electricity suited the highlands, but islands like Orkney - with no major water courses - provided opportunity to test new wind-powered technology. The paper explores the emergence of wind power as a localized energy solution that, in addition to testing new technology, tapped into island traditions of living with the wind. It argues that the materiality of islandness created conditions for innovation and experimentation at the edges of the nation that had lasting legacies for renewable energy in Britain.

**Jonathan Hogg** (History, University of Liverpool)

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Jonathan Hogg is a historian of modern Britain based at The University of Liverpool. His book *British Nuclear Culture: Official and Unofficial Narratives in the Long Twentieth Century* (Bloomsbury Academic, 2016) explored the diverse nuclear cultures that developed in the Cold War era. Much of the book looked at the politics and representation of nuclear technologies, acknowledging both official government policy, unofficial narratives in literature, film and music, and everything else in between. His recent work moves away from this broad survey approach, and focuses on how localised and comparative histories of nuclear Britain fit into broader thematic approaches to the era.

Part of this new research direction has involved researching largely ‘untold’ stories of the nuclear age. In the 1960s and 70s, a series of geological surveys were conducted to assess the extent of uranium deposits in the UK. Interest in uranium prospecting and mining accelerated after the Oil Crisis of 1973-74, leading the South of Scotland Electricity Board (SSEB) to approach farmers on Orkney in an attempt to gain exclusive rights over land use, and mineral exploitation. Following this, in 1977 the ‘No Uranium’ (NU) activist movement on the island opposed attempts by the SSEB to gain planning permission to drill test bores, and then acted against the SSEB in an ‘Examination in Public’ called by the Secretary of State for Scotland in 1979. Throughout the campaign, notions of ‘islandness’, or island identity, were mobilised by the NU group, highlighting how ideas of loss, vulnerability and contamination could be used expertly to counter attempted industrialisation. While the many Scottish and UK government departments, and scientific institutions (some of which were funded by the EEC and NATO) seemed to have preconceived notions of remoteness in relation to Orkney, political representation on the islands proved to be strong. Indeed, the strength of both Orkney Island Council and UK Parliamentary representation on this issue suggests that ‘island’ status helped Orcadians control the future shape of their energy and industrial future. This paper will explore this story, while also acknowledging how global uranium supplies – entwined with the history of decolonisation – meant that uranium mining in the UK was deemed unnecessary by the end of the 1970s, and not in the ‘national interest’. Taking a broader view, the paper will also briefly look at Scottish debates around nuclear waste management in relation to Blowers’ concept of peripheralization, and the decision to construct Torness nuclear power station in the mid-1980s.

Participants:

**Alex Campbell** (English Literature, Edinburgh)

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Alexandra Campbell is an Early Career Fellow in English Literature at the University of Edinburgh. Her research emerges at the intersection of several critical discourses including critical ocean studies, the environmental humanities and world literature perspectives. She is particularly interested in ecologies and poetries of the sea and is currently working on her first monograph, provisionally titled ‘Hydropoetics: Atlantic Modernity, World Ecology and the Techno-Ocean’, which examines the cultural and historical parameters of oceanic resource exploitation in contemporary North Atlantic writing, focusing on discourses of extraction, disposal, and transmission at sea. She has published and forthcoming articles in *The Journal of Postcolonial Writing, Humanities, Études Écossaises* and *Anglistik*, and forthcoming book chapters in the Palgrave edited collection *The Politics of Space and Place in Scottish Literature*, and the Bloomsbury edited collection *John Burnside:*: *Contemporary Critical Perspectives.*

Following Patricia Yaeger’s recent call to ‘put the ocean’s agitation and historicity back onto our mental maps and into the study of literature’ (Yaeger 2010), recent portions of my work examine the histories and cultures of marine energy extraction in modern Scottish Literature. While the recent rise of the Energy Humanities at large has brought with it a renewed interest in Scottish literary culture, scholars have tended to render their analysis through purely ‘grounded’ terms. In focusing on the histories of North-Sea Oil and Gas production the work of energy critics have sought to juxtapose the long histories of land clearance in the Highlands and Islands alongside contemporary narratives of exile and exploitation experienced by Scotland’s coastal oil communities. The forms of spatial injustice incurred through the recent histories of what Derek Gladwin terms ‘Oil Clearance’ (2018) or Graeme MacDonald identifies as ‘petro-marginalisation’ (2015), is often solely registered through terrestrial environments. Working in tandem with these terrestrial perspectives, my work adopt an oceanic perspective, one which registers how the extractive politics of modern petroculture in Scotland not only presents major challenges for terrestrial environments and communities, but holds specific ramifications for the ways in which we currently imagine and interact with oceanic space. Indeed, as MacDonald has noted the North Sea is in many ways ‘wholly regraded as a productive environment of marine capitalism synonymous with oil’ (2015). What does it mean to read the ocean through oil? By adopting an oceanic perspective, my work considers the ways in which the exploitative dynamics of offshore petroculture in the 1970s coincides with an incredibly damaging and problematic cultural construction of the ocean. But as Scotland moves towards a new era of low-carbon energy production, how might this construction of the ocean change? How does contemporary literature resist and critique the extractivist histories and spatial injustices of petroculture by engaging with the supposedly ‘emancipatory’ and ‘democratic’ possibilities of new marine-based energy technologies? In examining a range of work from artists and poets such as Alec Finlay, Laura Watts, Hannah Tuulilki, Lila Matsumoto and Hannah Imlach, I am interested in how the recent turn towards marine renewables not only signals a new future for a low-carbon Scotland, but further allows contemporary poets to imagine new modes of community, power, and relation in an era of environmental change.

Beyond the parameters of my current interest in Scottish energy cultures I am interested in the relationships between world-ecology, world literature and the world ocean. I am currently in the process of preparing a chapter for inclusion in my aforementioned monograph, which will present a comparative reading of contemporary poetic responses to offshore-oil extraction and disaster in the Gulf of Mexico and the Gulf of Guinea.

**Annie Gilfillan** (History, University of Highlands and Islands)

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Annie Gilfillan is a European Social Fund PhD student at the University of the Highlands and Islands. Her thesis examines the opportunities of curating nuclear energy industry, in collaboration with Nucleus, the nuclear and Caithness archives. She is a professional archivist with experience of curation and collection management at local and national levels in museums, libraries and archives.

**Curating a nuclear past** -- Nucleus, the Nuclear and Caithness Archive was opened in 2017 as the repository to hold the national collection of the British civil nuclear industry, as well as the historical archives of the county of Caithness. In its formative stages, Nucleus poses a unique set of questions for the shaping of an archive as a national collection in a rural town. My research assesses the value of applying traditional Highland methods of collecting memory to the curation of a national archive of the nuclear energy industry, exploring how place can impact curatorial process.

**Greg Lynall** (English, University of Liverpool)

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Greg Lynall is Reader in English at UoL. His publications include *Swift and Science* (2012), and he is currently writing a cultural history of solar energy.

**'On the edge of heliophilia: Ballard's "The Ultimate City" as a solar energy narrative':** This paper will explore some fictional narratives of solar energy, concentrating on J. G. Ballard's 'The Ultimate City' (1976). This dystopian short fiction, set in a post-fossil fuel future, upends our current sense of the energy centre and periphery: conurbations have become abandoned wastelands, and rural eco-communities are the norm. Yet, to the story's protagonist, the visceral thrill of hydrocarbons and the urban environment they inhabit are irresistible. The paper will discuss Ballard's narrative in the context of 1970s environmentalism and alternative technology, as part of a tradition of solar energy-conscious literature, and as an exploration of the psychology of energy encounters (a kind of 'psycho-thermodynamics', if you will).

**Glen O’Hara** (History, Oxford Brookes)

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Britain’s very long and complex coastline has usually been thought of as a source of wealth and opportunity – its ports critical to the country’s trade, its estuaries the home of a very large shipbuilding sector, its very existence a barrier against invasion. But in the years following the Second World War, the question of its inherent worth, and the economic cost of any requirement for physical and environmental protection, rose steadily up the political agenda. The East Coast flood disaster of 1953 showed how poorly organized Britain’s defences against the ocean really were; increased agitation about the dangerous polluted state of her rivers, estuaries and beaches among a population increasingly insisting on clean leisure and access to amenities put pressure on successive governments to act on that front, and to plan for the future development of such areas, which were often far from urban centres where investment might appear more straightforwardly ‘efficient’. Constant at-sea dumping and accidents, including the wreck of the oil tanker *Torrey Canyon* off the coast of Cornwall in 1967, directed attention at the potentially catastrophic effects of any accident near Britain’s coasts. Against this backdrop, and in the context of episodic public sector spending austerity, UK governments had increasingly to struggle to account for the costs of new preparedness against flood, pollution and wreck, and then decide how to pay for it. They had to grapple not just with budgeting for these unexpected needs, but with the basic work of calculating how important they may be – both presently, and in the future. Fundamental questions of the cost of pollution, the monetary value or otherwise of human lives at risk from drowning, the worth of the travel and tourism industries, and the insurance risks involved in shipping oil and other potential pollutants, all proved extremely challenging: methodological and theoretical challenges that this talk will track. In a warming world, and given the near-inevitably of rising oceans, this paper will also suggest some of the more and less successful ways of mobilizing public support for just such acts of governance.

**Sam Robinson** (Sociology, University of York & Aberystwyth University)

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Historian of Science, and the Cold War. Author of *Ocean Science and the British Cold War State* (Palgrave, 2018)

*Research Interests*

· **Ocean Science**: in particular the relationship between science, militaries, and political entities in the Cold War. Subject of PhD and subsequent monograph. Also written articles on ocean surveillance and Gibraltar (2014 & 2016).

· **Science Diplomacy:** member of the H2020 project ‘Insscide: Inventing a shared diplomacy for Europe’. Member of the ISCU commission on the history of science, technology and diplomacy. Currently undertaking a second book-length project on the history of the global history of the UN Law of the Seas. [more here: www.insscide.eu]

· **Past Futures: Sociotechnical Imaginaries:** Since 2016 member of the AHRC project, unsettling scientific stories. This project seeks to understand the role playing in the past by visions of the sociotechnical future. [more here:<http://unsettlingscientificstories.co.uk/>]

**The Ocean as Periphery**: The sea is a place, an experienced social arena, a site of labour, a resource, an environment, or simply as Hester Blum (2010) remarks: ‘The ocean is not a metaphor’. The seas surrounding the British Isles are amongst the most developed in the world. Yet, despite being an ‘island nation’, the local ocean, and the liminal coastal regions have seldom been central to the historiography of political discourse in 20th century Britain. Whilst the history of offshore oil and gas exploitation has begun to be told, the history of renewables has, thus far, been neglected.

In 2017, after 25 years of operation, DONG energy decided to retire the North Sea’s first offshore wind farm, Vindeby. 2018 marks the 40th anniversary of the founding of the British Wind Energy Association (BWEA) at the Rutherford Laboratories (Oxfordshire) on the 17th November 1978. However, wind-generated electrical power as a technology sited *in* the periphery has a much longer history. During the 1940s and 1950s, the Ministry of Agriculture, Fisheries, and Food (MAFF) in conjunction with the Electrical Research Association station on Orkney conducted experiments in the use of wind generation for remote farms, and in the early 1970s these experiments transferred to Harwell (the Medical Research Council’s scientific establishment).

This paper will argue that offshore wind energy is a useful case study to analyse debates surrounding the centre and periphery of the UK energy industry, in addition to the wider relationship between the British State and the ocean economy. In these largely ‘unseen’ offshore regions a new use for ocean space has emerged: one that limits other traditional coastal activities including fishing (economic), sailing (leisure) and marine navigation (shipping). Thereby, creating a new socio-technical imaginary of British coastal waters as a site for ‘clean’ energy production.

**Linda Ross** (History, University of the Highlands and Islands) <https://www.uhi.ac.uk/en/research-enterprise/cultural/centre-for-history/research/mlitt-by-research-mphil-phd/>

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Linda Ross is undertaking an AHRC-funded collaborative doctorate with UHI and Historic Environment Scotland. Prior to this she received a MA (hons) in History of Art / English Literature from the University of Glasgow and a PGDip in Museum & Gallery Studies from the University of St Andrews. Following this she spent nine years working as Curator at the Scottish Maritime Museum in Irvine. Linda brings her love for industrial heritage and the built environment to this PhD studentship, which focuses on the impact of Dounreay Nuclear Research Establishment on the far north of Scotland. Her research will explore its impact on the built environment, the community and the north, all aspects which are interlinked and which had a particularly significant effect on the town of Thurso.

**Dounreay: the nuclear north, 1954-1966:** The nuclear age sits outside traditional twentieth century discourses relating to the Scottish Highlands and Islands, which put focus on the area’s depopulation and employment problems. As a counter to this, modernity was catalysed by the government’s 1954 decision to site the country’s first fast breeder reactor establishment at Dounreay in Caithness. This brought pioneering nuclear science to a rural landscape with a predominantly agricultural skills base, a region geographically distant from major population centres. Consequently, the population of the nearby town of Thurso trebled, with the United Kingdom Atomic Energy Authority (UKAEA) ‘importing’ skilled workers into the county to ensure the safe running of the establishment. To accommodate this influx the town underwent an extensive, quick, period of planning, bringing with it the dominant modernist principles of the period. 1007 houses were built to house the young, modern citizens who were termed ‘the atomics’. This incoming population did not ‘graft naturally on to the sociological formation of Caithness at any point’, being ‘fifty per cent non-Scottish and instinctively urban in its outlook’ ('Viability of Dounreay Report', 1959). With the choice of Caithness came a range of location-specific circumstances which did not fit with the template of nuclear planning. As a new project this in itself is not unusual, but complications resulting from place rather than the development of new technology caused ‘considerable additional strain’ which required a suite of social measures designed to facilitate the effective operation of the reactor site (TNA, AB16/1104 E62, C. Hinton to D. Sandys, 23 June 1953). These were developed specifically for the Dounreay site, and this paper will link the burgeoning national nuclear energy programme with the local specificities of Caithness. Drawing on sources including official UKAEA correspondence, newspapers, and oral history testimonies, it will show that what resulted was an experiment which was as much social as it was technical, bringing the latest in architectural practice, community development, and nuclear technology to the region: a history which is all the more significant now that Dounreay is being decommissioned.

**Sam Williamson** (Electrical Engineering, University of Bristol)

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Energy has many different forms which use to deliver services to us, such as lighting, heating, transport. Often, the energy source and consumption point are in different locations, often requiring large infrastructure to deliver the energy medium to the consumer. Although there are several different energy forms, electricity will be used here as an example.

The first electrical generation stations in the UK were co‑located with the loads, minimising transmission distance and energy loss in the system. The electrical power grid we know today grew from a large number of fragmented co-located systems into a large, highly centralised system. This change allowed energy to be generated in one area of the country and transferred to another – in the UK often from the northern regions to the south. This transfer of power increases transmission losses, currently standing at around 8.2%, and separates consumers from how electricity is generated leading to a lack of public comprehension.

This structure has enabled large renewable resources, such as hydropower, on- and offshore wind power and solar farms to supply the grid and increase the low carbon generation share. It has also enabled large power stations to be placed closer to their fuel source and environmental requirements and away from large population centres for safety or public acceptance reasons. Whatever the motives behind location decisions, there are several significant engineering challenges associated with bring electrical power from the edge to us.

· **Materials and Skills:** Often the materials and capacity to construct, maintain and operate the generation stations are not available locally, and so are sourced from outside the region.

· **Infrastructure:** Infrastructure to supply the electricity to the grid is often required, alongside transport links to bring in construction materials and equipment.

· **Local Impact:** With additional workers and infrastructure in the area, this can have significant social and environmental impact on small rural communities.

So, what would happen if the paradigm were to shift back, with generation and load co-located again? Small communities at the edge could generate and consume their own loads sustainably without the need for large scale infrastructure programs, reducing the amount of energy transferred from a community. Large population centres generate, manage and consume their own power. The knowledge and capacity for energy systems would be shared around the country rather than be held in a small number of locations. However, if we attempted to follow this route, would we still be able to achieve our carbon targets as a country? And what effect would it have on the rural communities where the large energy projects lie?

Yelena Popova (artist) [www.yelenapopova.co.uk](http://www.yelenapopova.co.uk)