

Going Dutch? Governance of heat transitions in the UK and the Netherlands

1. Introduction and context

Decarbonising heat remains a key energy policy and technology challenge in the UK ([BEIS 2020](#)) and indeed globally. This project will (i) assess current governance approaches to heat decarbonisation in the UK and the Netherlands; (ii) investigate how these approaches have been shaped by the two different national institutional contexts and (iii) ascertain what, if any useful lessons from NL, especially for the governance of heat transitions at a local level, may have value for the UK.

Heat decarbonisation involves major infrastructure transitions in buildings, conversion technologies, and infrastructures, and requires the right combination of governance at national, regional and local levels. This research will primarily focus on residential heat, which in the UK is largest single source of emissions from heat demand, but recognises links to industrial and other sources of waste heat. In the UK, the challenge of residential heat decarbonisation is dominated by high dependence on natural gas; in 2017, the share of gas in residential space heating demand was [75%](#). Moving away from natural gas to alternative low carbon energy vectors therefore lies at the heart of the challenge, along with major energy efficiency investments in the building stock ([CCC 2016](#)).

UK and NL similarities: The only other country in Europe with an even greater dependence on natural gas for heating is the Netherlands (NL) ([BEIS 2018](#)). The UK and NL are embarking on a transition away from natural gas from a similar starting point. Domestic gas production is declining in both countries and both have liberalised gas and electricity markets. They also both have a strong climate policy framework. In the UK heat falls under the overarching framework of the 2008 Climate Change Act, and with the net zero decision in 2019 the government now intends to publish a new low carbon heat roadmap this year ([BEIS 2020](#)). NL adopted a [Heat Vision](#) in 2015, within the context of a wider [Energy Agreement](#), and has now brokered a [Climate Agreement](#) specifying that energy sources should be made sustainable for 1.5 million houses (c. 20% of residential properties) by 2030. There are common expectations in both countries that lower heat demand, more district heat networks and a higher proportion of heat from renewable sources will form elements of the solution ([Lowes 2019](#)).

UK and NL Differences: However, the two countries are also doing things very differently. Following earthquakes in the Gröningen region linked to gas extraction in January 2018, the Dutch government moved decisively to ‘get rid of gas’ (*van loos gas*) by 2030, including for residential heating ([Beckman and van den Beukel 2019](#), [Tigchelaar et al 2019](#)). This has provided major momentum to heat decarbonisation policy in NL, which is currently moving ahead more quickly than that in the UK ([Policy Connect 2019](#)). Unlike the UK to date, NL’s strategy is also highly decentralised, with a major role for local and regional planning and coordination. Under the Climate Agreement, all Dutch municipalities (which often own gas and heat networks) are required to develop heat transition plans by 2021. These will be combined into 30 regional energy strategies by 2023, which will then feed into a national strategy, including a decision on the future of gas networks. By contrast, while there is a lot of activity in heat and energy planning in the UK, there is as yet no overall framework for the role of local actors ([Tingey and Webb 2020a](#)). There is also some divergence between Scotland, where Local Heat and Energy Efficiency Strategies (LHEES) feed into a new national strategy, *Energy Efficient Scotland* ([Wade et al 2019](#)), and England & Wales where there is a patchwork of pilots and demonstration of different planning tools and projects ([Tingey and Webb 2020b](#)).

Opportunities for learning: First, driven by the Gröningen earthquakes, the pace of change in the Netherlands offers an opportunity for the UK to learn from Dutch successes and challenges. This includes

current decisions about networks, technologies and energy vectors, and about the governance frameworks for who takes these decisions and on what basis. It also includes lessons from how the Dutch approach handles a range of key challenges, including establishing legitimacy for heat transitions, managing uncertainty and allocating risk; providing a clear framework for the future of gas networks; managing a mix of market and planning interventions; and reconciling heat transition strategies across different levels of governance. Second, while the Clean Growth Strategy ([BEIS 2017](#)) lays more emphasis on market approaches, the localised nature of heat decarbonisation means that some form of local planning for heat transition will almost inevitably play a role in the UK. However, at present, it remains unclear how local and national policy and governance will combine into a coherent strategy for UK heat decarbonisation. NL, therefore, provides an ideal opportunity to observe a particular model of governance in action, and to investigate potential transferable lessons from it.

Lessons must be drawn in an informed and careful way, because the NL institutional context for heat decarbonisation and wider energy policy differs significantly from the UK (which itself varies, especially between Scotland and elsewhere). These differences range from electoral systems, and political institutions and cultures ([Musch 2019](#)) to the degree of fiscal and administrative decentralisation and regionalisation, ([Bos 2013](#), [Groenleer and Hendriks 2020](#), [NAO 2019](#)), ownership of energy networks, the nature of wider economic institutions ([Sluyterman 2015](#)), and resulting ecologies of public engagement with and participation in energy ([Smith and Kern 2009](#), [Chilvers et al 2018](#)).

Relation to existing research: Synergies with the UKERC 4 programme are described in a separate statement. This research will also usefully complement and build on the considerable amount of current research activity on UK heat decarbonisation outside UKERC, including [CREDS](#) and EPSRC's [Decarbonising Heat](#), and projects focused on the organisation of local heat transitions in the UK,¹ since the focus of much of this work on technical aspects rather than governance and institutions. There has also been some mapping of policy approaches that include limited discussion of NL ([Hanna et al 2016](#), [Vivid Economics & Imperial College, 2017](#), [Stabler and Foulds 2020](#)). However, deeper comparative analysis remains relatively rare (see [Hawkey and Webb 2014](#) for an exception), especially since 2018 and the acceleration of heat decarbonisation policy in NL. In-depth social science analysis is now required for successful lesson learning.

2. Project objectives

The objectives of the project are:

- (i) to compare governance arrangements for heat decarbonisation and natural gas phase-out in the UK and NL;
- (ii) to investigate how these arrangements have been shaped by different political and institutional contexts, and
- (iii) to assess what useful lessons the NL may have for the UK, especially for the governance of heat transitions at a local level.

Throughout, the UK part of the study will include consideration of devolved administrations, especially Scotland as a distinctive case.

¹ e.g. the [Energy REV](#) programme, especially the Institutions theme; Catherine Bale's [EPSRC fellowship](#) on visions and pathways for integrated heat systems; the [NEUPA project](#) on local network headroom; the [SHIFT project](#) on sustainable heating at Exeter University, and the gas incumbents work being done under the [ENSYSTRA programme](#).

3. Analytical approach

Governance for heat transitions, as in any policy area, is the outcome of formal and informal institutional arrangements. These 'rules of the game' ([North 1990](#)) structure how governance unfolds. Governance almost inevitably involves multiple public sector, private sector and civil society participants. This often occurs in networked form ([Levi-Faur 2012](#)) and is multi-level, and therefore polycentric in nature ([Golthau 2014](#)). These aspects of governance emphasise the usefulness of institutionalist approaches which aim to account for how these 'rules' affect different actors, and how they shape policy outcomes ([Andrews-Speed 2016](#), [Lockwood 2017](#)). This project will use a number of key interconnected insights from a broad institutionalist approach.

First, **historical institutionalism** provides a framework for analysing how institutional constraints shape action, including through the structure of veto points and the material, social and political resources available to actors ([Peters, 2012](#)). It also examines how institutions shape the ways in which actors and groups identify and pursue their interests ([Steinmo and Thelen 1992](#), [Thelen 2002](#)), and create incentives. These factors are crucial given the political nature of energy transitions ([Meadowcroft 2011](#)). For example, they are necessary for analysing how the activities of important lobbies, especially the gas lobby, are shaped differently in UK and NL institutional contexts.

Second, we want to understand how institutional choices for the governance of heat transitions are arrived at and why. One view is that such choices are heavily shaped by the existing wider **system of institutions**, or institutional context, in which they are made. We will draw on a body of research on inter-related systems of economic institutions ('varieties of capitalism') ([Hall and Soskice 2001](#)), electoral and political institutions ([Cusack et al. 2007](#)), and administrative decentralisation ([Lijphart 2012](#)), to explore the hypothesis that different approaches to governing heat transitions in the UK and NL are driven by contrasts in systems between the two countries (see also [Hawkey and Webb 2014](#)).

Another view is that, especially under conditions of uncertainty, institutional choices will be particularly influenced by ideas, or discourses, deployed by coalitions of actors i.e. **discursive institutionalism** ([Blyth 2002](#), [Hajer and Versteeg 2005](#)). Because of uncertainty about technologies and costs in many areas, and unprecedented nature of challenges in relation to networks, heat transitions represent such a situation. Detailed study of how ideas are currently being used in debates on heat transition to influence governance approaches is therefore essential.

A final issue concerns the lesson-learning phase of the project. Lesson learning is one aspect of **policy transfer** ([Dolowitz and Marsh 1996](#), [Benson and Jordan 2011](#)) (related to policy diffusion or learning). A key theme in policy transfer literature is that particular institutions or policies may not 'travel well', especially where institutional contexts are incongruent (e.g. [Lodge 2003](#)). However, there are in practice multiple examples of successful policy and institutional transplants (de Jong et al 2002) (in the energy sector an example is the Green Investment Bank as an adaptation of Germany's KfW). Such examples suggest, that 'bricolage', i.e. adapting and experimenting with institutional forms in transfer, is likely to be more successful than directly copying or prescribing institutional forms. What matters is the underlying functions and characteristics of governance, such as how it shapes incentives the allocation of resources, powers and constraints, and organisational capabilities. How far governance shapes these functions effectively will depend on a range characteristics, from the more traditional qualities of legitimacy, transparency, predictability and accountability (e.g. [Baldwin et al 2012](#)), to the more recently identified desirability of adaptive governance ([Duit et al 2010](#)).

In summary, our analytical approach suggests that to meet its objectives, the project will have to provide an analysis of:

- (i) the details of how UK and NL heat transition governance has been constructed by relevant institutions and discourse coalitions,
- (ii) how these institutions fit into wider political economy systems or contexts, and
- (iii) the implications for lesson learning and policy transfer.

4. Research questions

Given the project objectives and analytical framework, the research questions are framed as follows (applying to the UK (including devolved nations) and NL):

1. What are the relevant governance arrangements for heat decarbonisation and natural gas-phase out at and between national, local and other levels?
2. How are these governance arrangements influenced by underlying institutions in each country, (including ‘varieties of capitalism’ and electoral and political systems) and by competing ideas put forward by different discourse coalitions for heat transition and its governance?
3. What are the resulting activities and outcomes in areas of interest (identified through discussions with BEIS, Scottish Government, Association for Decentralised Energy, Energy Systems Catapult and local level actors), potentially including:
 - Public engagement with and legitimacy of heat transition and gas phase out
 - How the social and technical are brought together in local energy planning
 - How local actors can access information and data on energy
 - Possibilities for local authorities to coordinate infrastructure investment
 - Managing uncertainty about technology options and costs; allocating risk
 - Managing inter-relationships between heat transition governance and planning, building control, housing policy etc.
 - The potential need for and role of a heat transition delivery body
 - Providing a framework for the future of gas networks
 - Managing the mix of (national) market instruments aimed at households as consumers and regulation vs (local and regional) planning treating households as residents
 - Reconciling heat transition strategies across different levels of governance?
4. What functions is governance playing (i.e. in shaping incentives, the allocation of resources etc.) and how far does governance meet commonly prescribed characteristics (i.e. transparency, predictability, accountability etc.)?
5. What lessons can be learned from more or less successful elements of governance in NL, and how can successful elements be transferred to the UK institutional context?

5. Proposed research methods

5.1 Methodology

The project will adopt a methodological approach of **comparative qualitative case study**. This approach is justified on the basis that the objectives of the project are to assess a number of relationships within complex, multi-dimensional processes, in specific contexts, i.e. it is ‘case-oriented’ rather than ‘variable-oriented’ ([Landman 2002](#), [Yin 2018](#)). A qualitative approach is appropriate for analysing how actors both shape and

are constrained by institutions ([Pierson 2007](#)). In addition, given the objective of lesson learning across contexts, an intensive case study approach is more appropriate than a quantitative analysis.

5.2 Methods and sources

The research will be organised in five substantive work packages (i.e. WP 2-6), which relate to the research questions as shown below:

Work packages	RQs
WP 1 – Project management	-
WP 2 – Governance mapping	1
WP 3 – Institutional context and discourse coalition mapping and analysis	2
WP 4a – NL local activities and outcomes tracking	3
WP 4b – UK case study tracking	3
WP 5 – Assessment of governance functions, characteristics and outcomes	3, 4
WP 6 – Lesson learning/policy transfer recommendations	5
WP 7 – Dissemination, inc. joint policy/governance workshops	-

WP2 – Governance mapping:

This work package addresses RQ1 and will involving the mapping of:

- relevant energy, climate and other frameworks, both formal (policy, legislation, regulation) and informal (common practice), at multiple levels of government, other bodies and networks.
- wider formal and informal frameworks for regional and local government, including powers and practice in areas such as finance, planning, housing, zoning etc.
- wider energy market and network governance.

Sources of evidence will include grey literature, policy documentation and legislation, and secondary research, in both English and Dutch, and semi-structured interviews with participants in and close observers of governance of heat transition and gas phase out at national, regional and local levels (protocols for interviews are described below). WP2 will also involve a comparison of technical dimensions of UK and NL heat transitions, especially where these impose constraints on the workings of governance.

WP3 – Institutional context and discourse coalition mapping and analysis:

This work package addresses RQ2 and builds on WP1. It involves three stages. First, we will establish the nature of wider systems of institutions, including economic institutions (varieties of capitalism), electoral systems and political institutions, and decentralisation of government in the UK and NL. Second, the key discourse coalitions in heat transitions will be identified. Given recent research in the UK (e.g. [Lowes et al. 2020](#)) it is anticipated that the main gaps will be on the Dutch side. These steps will draw on policy documentation, legislation, secondary literature and interviews with relevant national and local participants and observers. In addition, to assess the extent and depth of influence of different ideas we will undertake a context analysis of a sample of sources, including official documents, reports from NGOs and think-tanks, specialist media publications and industry association reports. Third, the evidence collected in these steps will be analysed to determine where and how aspects of the wider context of institutions and ideas identifiably influence specific elements of the governance of heat transitions.

WP4 – Tracking local activities and outcomes:

This work package focuses in detail on the local and regional levels and addresses RQ3 on activities and outcomes. We will track activities generated by governance frameworks for heat transition in the UK and

NL over a period of approximately 12 months. At the national level this will involve tracking policy and other initiatives, At the local level, we propose to approach this as follows:

- In NL, track activities and outcomes through the [Aardgasvrije Wijken](#) front-runners programme of 27 municipalities, and in two case studies taken from those front runners. The programme is supported by PBL and the research institute TNO and we will seek to work with both these institutions.
- In the UK, there is a large range of initiatives at local and regional level.² The project will map these. and select and follow two case studies, one in Scotland and one in England or Wales, in more detail. We are in discussions with Edinburgh and Coventry (see letter of support) as possible case studies.

The detailed case studies will involve tracking how local planning actors approach and make decisions on: strategy; mode of energy planning; technology and infrastructure decisions; investments; commercial organisation, where relevant; use of local powers and resources; engagement/support and resistance, and outcomes so far. Sources of evidence will be regular semi-structured interviews with participants in and observers of local heat transition planning processes, email updates, attending events and monitoring project websites, monitoring local media etc.

WP5 – Assessment of governance functions, characteristics and outcomes:

This work package addresses RQs 3 and 4 on governance functions, characteristics and outcomes in areas of interest. It will build on the evidence gathered in WPs 2 and 4, and proceed in three stages. First, the project will first identify the main actors/groups (e.g. residents, technology companies, network operators etc.) subject to heat transition governance, and for each establish how that governance affects their incentives, resources (including ownership of energy networks), powers and capabilities. Second, to analyse the characteristics of the frameworks for heat transition in each country, we will assess these against indicative criteria for effective governance in heat decarbonisation. Third, to address the question of how far resulting activities and outcomes succeed in key areas of interest listed in RQ3.

WP6 - Lesson learning/policy transfer recommendations:

This work package addresses RQ6 and draws on the evidence and analysis from WPs 2-5. First, we focus on successful elements of NL heat transition/gas phase out governance, drawing on WPs 2, 4 and especially 5. In addition to the particular institutional design of governance in each case, we also establish core functions and characteristics. We will then draw on WP3 to assess how these elements interact with the wider institutional context in NL. Next, drawing on evidence from addressing RQ3 for the UK, including relevant experience in other sectors such as transport planning, we will produce initial recommendations for how these elements might be transferred to the UK. A further round of analysis will focus on elements that have **not** been successful, and what lessons these might hold for the UK. These recommendations will then form the basis for engagement with UK stakeholders in WP6.

Interviews:

An important source of evidence for WPs 2, 3 and 4 will be semi-structured interviews. Interviewees will be identified through existing networks of team and the Advisory Group, and through snowballing. They will

² e.g. Coventry's [RESO](#) project; the Leeds [PIPES scheme](#); Edinburgh/Glasgow, working on [LHEES](#); Islington's [Bunhill heat and power scheme](#); the [London Heat Map](#) through [THERMOS](#); West Midlands Combined Authority and Energy Capital, with the [Energy Innovation Zones](#); [Prospering from the Energy Revolution](#) demonstrators pilots in Orkney, Oxfordshire, West Sussex, Oxford; the [Energetik](#) heat network partnership in North London; Bridgend, Bury and Newcastle with the ESC [Local Energy Area Planning](#) programme,; Bristol's [net zero by 2030](#).

include: national and local officials and politicians; regulators; relevant industry participants (e.g. Vattenfall, SSE, Ramboll), and associations; national and local civil society organisations; research institutes etc. Interviews will be recorded wherever possible, and transcribed, and analysed using qualitative data analysis software (e.g. Nvivo). Audio data and transcripts will be stored securely in line with University of Sussex [guidelines](#). A data management plan will be developed and followed. Subject to permissions, interview audio and transcripts will also be made available in the UK Data Archive, as prescribed in the ESRC Research Data Policy.

6. Expected outputs and dissemination and impact plan

Expected **outputs** from the project are as follows:

- 2-3 peer-reviewed papers, topics might include: Explaining heat transition governance approaches through their institutional and discursive contexts; Strengths and weaknesses of NL and UK approaches, and lessons from the UK from NL
- 1 x project report
- 1 x policy brief
- Slide packs on lesson learning for targeted policy audiences

Dissemination and impact plan:

The project will disseminate findings, and achieve impact with policy makers (especially in the UK) through a number of pathways. A guiding principle will be to include key target audiences in discussion of findings and recommendations at different stages:

- On-going dissemination of findings through a simple project website, including blogs and podcasts, and e-mail updates, with recipients identified with the help of the advisory group
- A mini-conference in early autumn 2021, in order to help inform UK policy debates on live issues, likely to include the role of hydrogen, the future of the gas networks, and trade-offs between energy efficiency and low carbon heat supply.
- Smaller workshops with invited participants focusing on lesson learning for the UK from NL (London or Birmingham) and Scotland (Edinburgh) at 16-17 months (spring 2022)
- Follow-up bilateral meetings with policy makers in UK (BEIS, MHCLG etc.) and Scottish governments, MPs/MSPs/Select Committees, Ofgem, Committee on Climate Change to present key messages

7. Project organisation

The people working on the project are:

- Dr Matthew Lockwood, Senior Lecturer in Energy Policy, Science Policy Research Unit, University of Sussex - Principal Investigator
- Dr Niall Kerr, Research Fellow, School of Social and Political Science, University of Edinburgh – Co-Investigator
- Dr Anna Devenish, Science Policy Research Unit, University of Sussex – Research Fellow

The project will also be partnering with the Energy Systems Catapult (ESC) through a team led by George Day (Head of Markets, Policy and Regulation). This will draw on the expertise of the ESC in whole systems analysis, combining technical and institutional approaches. George will also contribute in-kind resources through inputs to the project analysis and dissemination.

Finally, the project has also established an **advisory group**, meeting twice during the project. Members of the group are

Dr David Hawkey, Scottish Government
Dr Casper Tigchelaar, TNO
Dr Richard Lowes, Exeter University/Regulatory Assistance Project
Prof Janette Webb, Edinburgh University
Lucy Padfield, ADE/Ramboll
Emily Morris/Holly Jeffers, BEIS
Prof Geert Verboong, Eindhoven University of Technology