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Measuring Just Transition

Indicators and scenarios for a Just Transition in Aberdeen and Aberdeenshire

Just Transition Lab, University of Aberdeen, October 2023

Daria Shapovalova, Tavis Potts, John Bone, Keith A. Bender

Executive Summary

The North East of Scotland is at the forefront of the global energy transition. With the transformation of the UK's energy sector over coming decades, the lives of communities and workers in the North East will be directly affected as we collectively transition to a Net Zero economy.

A Just Transition refers to a fair distribution of the burdens and benefits as society and the economy shifts to a sustainable low-carbon economy. It calls for action on providing decent green jobs, building community wealth, and embedding participation. While it is a well-established concept in the academic literature and in policy there is a notable lack of approaches and data on measuring progress towards a Just Transition. In Scotland, with Just Transition planning underway, there are calls for clarity by the Scottish Parliament, Just Transition Commission, and many stakeholders on how to evaluate progress in a place-based context.

The project *'Just Transition for Workers and Communities in Aberdeen and Aberdeenshire'* brought together an interdisciplinary team from the University of Aberdeen Just Transition Lab to identify and collate the relevant evidence, and engage with a range of local stakeholders to develop regional Just Transition indicators.

Previous work on this project produced a Rapid Evidence Assessment on how the oil and gas industry has shaped our region and what efforts and visions have emerged for a Just Transition. Based on the findings and a stakeholder knowledge-exchange event, we have developed a set of proposed indicators, supported by data and/or narrative, for a transition in Aberdeen and Aberdeenshire across four themes: 1) Employment and skills, 2) Equality and wellbeing, 3) Democratic participation, and 4) Community empowerment, revitalisation and Net Zero. Some of the indicators are compiled from national/local data sets, including data on jobs and skills, fuel poverty or greenhouse gas emissions. Other indicators require further data collection and elaboration, but nevertheless represent important aspects of Just Transition in the region. These include workers' rights protection, community ownership, participation and empowerment.

We propose four narrative scenarios as springboards for further dialogue, policy development, investment and participation on Just Transition in Aberdeen and Aberdeenshire. Indicators, as proxies for evaluating progress, can be used as decision support tools, a means of informing policy, and supporting stakeholder dialogue and action as we collectively progress a Just Transition in the North East.

There are no shortcuts on a way to a Just Transition. Progress towards achieving it will require a clear articulation of vision and objectives, co-developed with all stakeholders around the table. It will require collaboration, trust, difficult conversations, and compromise as we develop a collective vision for the region. Finally, it will require strong political will, substantive policy and legal reform, public and private investment, and building of social licence as we collectively build a Net Zero future in the North East.

Table of abbreviations

AREG	Aberdeen Renewable Energy Group
BEIS	Department for Business, Energy & Industrial Strategy (now – DESNZ)
DESNZ	Department of Energy Security and Net Zero
CCUS	Carbon capture, utilisation and storage
JT	Just Transition
NESCAN	North East Climate Action Network
NESDA	North East Scotland Development Authority
NSTA	North Sea Transition Authority (formerly – OGA)
NSTD	North Sea Transition Deal
NZTC	Net Zero Technology Centre (formerly – OGTC)
OEUK	Offshore Energies United Kingdom (formerly – OGUK)
OGA	Oil and Gas Authority (now – NSTA)
OGTC	Oil and Gas Technology Centre (now – NZTC)
OGUK	Oil and Gas United Kingdom (now – OEUK)
ONS	Office for National Statistics
REA	Rapid Evidence Assessment
RGU	Robert Gordon University
SIMD	Scottish Index of Multiple Deprivation
UC	Universal Credit
UKCS	United Kingdom Continental Shelf

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Key recommendations

Participation

- Strengthen transition dialogues and community assemblies; consider regional citizens assemblies as materially linked to policy.
- Build community capacities to enhance social innovation and community wealth building. Invest commensurate with industry Net Zero skills.
- Invest in reaching and empowering marginalised and under-represented groups to improve agency in key transition issues (e.g. fuel poverty, greenspace, transport).

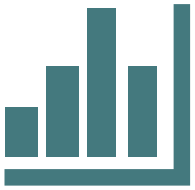
Workforce

- Support retraining/new skills development for energy transition jobs.
- Targeted outreach to female and underrepresented school students on career opportunities in a post-oil economy.
- Ensure a low-carbon and expanded transportation network so that workers and small firms can easily move and take advantage of new economic opportunities.

Decarbonisation

- Develop a unified cross-party and cross-nation energy strategy with a managed phase-out of fossil fuel production informed by climate science.
- Develop robust climate adaptation policies and actions with a view to support already deprived areas.
- Support the development of an integrated and sustainable travel network in the North East.

Data and Measurement



- Create a standardised classification of 'green' jobs since current industry and occupational classifications are not detailed enough.
- Cooperation between industry and governments on developing data sets on the workforce; make data more available to the public.
- Develop a place-based Just Transition data dashboard for tracking progress.

Policy

- Accelerate policy- and law-making on energy, climate, and Just Transition – including the Offshore Energy Skills Passport.
- Reform law and policy on public engagement in energy infrastructure projects in a way that is more conducive to empowering communities through early engagement and representation.
- Strengthen local content requirements in the low-carbon energy industry.

Part I: Background and methodology

1. Introduction and scope

Since oil was first discovered in the North Sea in 1969, over 46.4 billion boe of oil and gas has come from the UK continental shelf.[1] Aberdeen and its surrounding areas became the hub for the oil and gas industry when it first arrived at the UK shores. From the 'oil capital' of Europe, Aberdeen has now become an 'energy capital' – hub not only for oil and gas but also for offshore technologies in renewables and decommissioning. The production of oil and gas from the UK continental shelf peaked in 1999 and has been in decline since. In addition, commitments to Net Zero and the UK's legal obligations to mitigate climate change are reshaping the energy industry.

The North East of Scotland is at the forefront of the energy transition processes in the UK. With the transformation of the UK's energy sector and the integration of climate goals into the energy decision-making process, lives of communities and workers in Aberdeen and Aberdeenshire are directly affected by changes in the labour market and new energy and climate policies. In March 2022, the Aberdeen Net Zero Route Map 2045 was launched featuring 'Just Transition' as one of the desirable outcomes.[2] Energy transition and the North East feature extensively in the work of the Scottish Government's Just Transition Commission.[3]

Just Transition refers to a fair distribution of burden and benefits as we transition to a low-carbon economy. Precise definition and scope of Just Transition will vary depending on context. Often, a narrower definition of Just Transition is used, focusing on workers, owing to the term's origin from United States trade unions in the 1980s.[4] Over time, a wider approach emerged, particularly in academia, bringing together all elements of society in transition, and encompassing energy justice, climate justice, and environmental justice.[5] In our project we take a broader approach to Just Transition, focusing on the wider community while acknowledging the centrality of workers' rights in transition, particularly in the context of the North East of Scotland.

1 NSTA, UK Oil and Gas: Reserves and Resources (2022). Boe is barrel of oil equivalent - the amount of energy that is equivalent to the amount of energy found in a barrel of crude oil.

2 Aberdeen City Council, **Net Zero Aberdeen Route Map: Towards Becoming a Net Zero Emissions City by 2045** (2022).

3 In 2022, the Scottish Government established a £500 million **Just Transition Fund** for projects in the North East and Moray. See also, Just Transition Commission, **Making the Future: Initial Report of the 2nd Just Transition Commission** (2022).

4 P. Newell and D. Mulvaney, 'The Political Economy of the "Just Transition"', *The Geographical Journal* (2013), **https://doi.org/10.1111/geoj.12008**. See also, **Solidarity and Just Transition Silesia Declaration** (2018); UNFCCC, Just Transition of the Workforce , and the Creation of Decent Work and Quality Jobs (**UN** 2020).

5 R. Bray and R. Ford, 'Delivering a Just Transition to Net Zero: Whose Role is it Anyway?' (University of Strathclyde, 2021) **https://doi.org/10.17868/7836**; K.E.H. Jenkins et al., 'Politicising the Just Transition: Linking Global Climate Policy, Nationally Determined Contributions and Targeted Research Agendas', 115 *Geoforum* (2020), **https://doi.org/10.1016/j.geoforum.2020.05.012**.

This report is part of the University of Aberdeen Just Transition Lab's project on 'Just Transition for Workers and Communities in Aberdeen and Aberdeenshire'. This project will identify and analyse the relevant literature as well as socio-economic and demographic data; use participatory research to develop regional Just Transition indicators and scenarios; and test the existing policies against these indicators and scenarios. Researchers from social science, geography, law, and economics are engaging with the local stakeholders and civil society to deliver an impactful evidence base for defining and measuring Just Transition in Aberdeen and Aberdeenshire. This report covers the second and third phases of the project as outlined in the Figure 1 below. It builds on the **phase 1 report** featuring the Rapid Evidence Assessment (REA) and data sources review.[6]

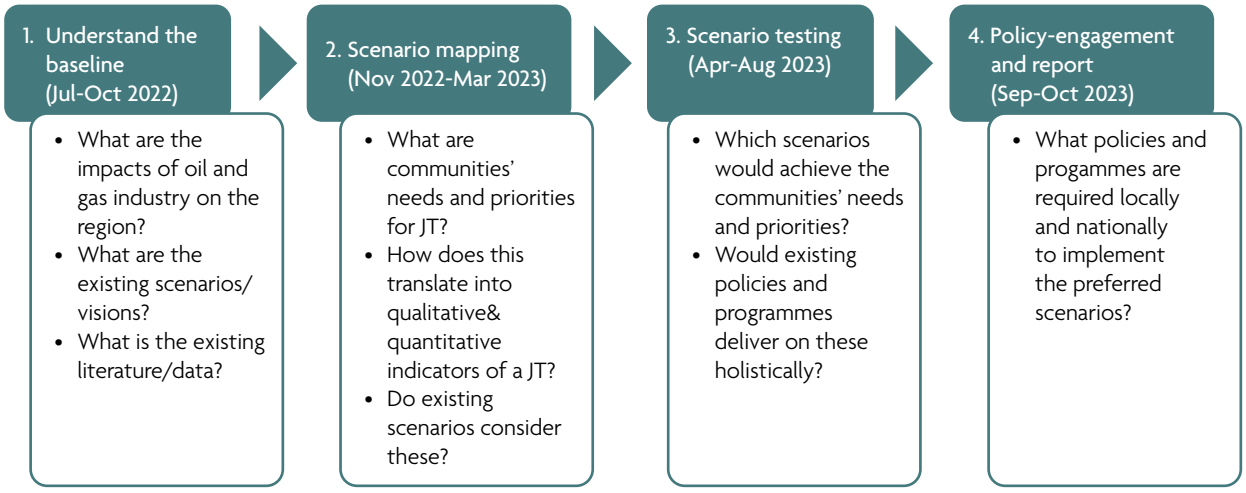


Figure 1: Project phases breakdown

The aim of this report is to develop a set of indicators and scenarios for Just Transition in Aberdeen and Aberdeenshire, using indicators developed in Phases 2 and 3.

The report addresses the following questions:

1) What are the current theories and approaches to measuring progress toward Just Transition?
2) What themes would be appropriate for measurement/analysis of place-based Just Transition indicators for Aberdeen and Aberdeenshire?
3) What specific indicators of Just Transition can be identified under those themes and is quantitative data available to support analysis for these indicators?
4) What do the chosen indicators tell us about the Just Transition in the region?
5) Based on the analysis above, what assumptions can we make about Just Transition in four narrative scenarios?
6) Does the current law and policy on Just Transition address challenges identified in the indicators and scenarios?

6. D. Shapovalova, T. Potts, J. Bone, and K. Bender, 'Just Transition for Workers and Communities in Aberdeen and Aberdeenshire: Rapid Evidence Review' (2023) **https://doi.org/10.57064/2164/19887**.

2. Background and policy context

2.1 UK oil and gas development policy and regulation in light of climate change[7]

The UK was the first country to adopt a legally binding climate change target through the Climate Change Act 2008.[8] The Act established the 2050 Net Zero target and places obligations on the Government to develop carbon budgets as well as the proposals and policies to meet these budgets.[9] It further establishes the Committee on Climate Change, an independent, non-departmental public body, to advise the UK and devolved Governments and Parliaments.[10]

While the oil and gas production from the UK continental shelf peaked in 1999, proven and probable reserves are estimated at 4.0 billion boe.[11] The maturity of the UK Continental Shelf makes for a more challenging operating environment, which prompted the Government to adopt a strategy to "maximise the economic recovery" from the North Sea, making it a legally binding objective for the regulator.[12]

The North Sea Transition Authority or NSTA (formerly – Oil and Gas Authority) is the government regulatory authority responsible for issuing licenses for offshore oil, gas, and carbon capture and storage activities. In their activities, they are responsible for the implementation of the Oil and Gas Authority Strategy[13] and the North Sea Transition Deal.[14] The Strategy is based on the "maximising economic recovery" objective but was updated in 2021 to incorporate the legally mandated Net Zero target albeit without a clear mechanism for climate assessment or procedural steps to follow in an event of a conflict between economic and climate interests.

The North Sea Transition Deal, announced in March 2021, details industry and government commitments to the decarbonisation of production, development of new industrial sectors (e.g. hydrogen), and support for the workforce.

The public and media discourse around the climate impacts of new oil and gas developments in the UK came to a head in 2021, when the decision on the new Cambo oil field was being awaited. Discovered in 2002, the field lies 25km North West of the Shetland Islands. It contains over 800 million barrels of oil and is majority-owned by Ithaca Energy. When the exploration licence was first awarded, the UK had no climate

7. This section is based on D. Shapovalova, 'Climate Change and Oil and Gas Production Regulation: An Impossible Reconciliation?' 26(4) Journal of International Economic Law (2023) **https://doi.org/10.1093/jiel/jgad032**.
8. For a comprehensive review of the Climate Change Act see Thomas L Muinzer, *Climate and Energy Governance for the UK Low Carbon Transition: The Climate Change Act 2008* (Springer 2019).
9. See sections 1, 4-10, and 12-15.
10. See sections 32-42.
11. Ibid.
12. Section 41 Infrastructure Act 2015, amending section 9A of the Petroleum Act 1998. See further G. Gordon, J. Paterson and U. Vass, 'The Wood Review and Maximising Economic Recovery upon the UKCS' in Greg Gordon, John Paterson and Emre Üşenmez (eds), *UK Oil and Gas Law: Current Practice and Emerging Trends : Volume I: Resource Management and Regulatory Law* (3rd edn, Edinburgh University Press 2018).
13. NSTA, **The OGA Strategy** (2021).
14. BEIS and OGUK, **North Sea Transition Deal** (2021).

change legislation and had not yet ratified the Kyoto Protocol. When the time came for the operators to apply for a field approval, just months before the UK hosted COP26,[15] this was met with resistance from environmental groups like Greenpeace and Friends of the Earth Scotland and ongoing public interest before, during and after COP26. Shell has pulled its 30% stake and the original owner, Siccar Point Energy (later bought out by Ithaca Energy), sold the field to the current owner after the NSTA awarded a two-year extension on the current license.[16] A similar narrative is developing around other new fields, e.g. Rosebank and Jackdaw.[17]

The Government and the industry associations have put forward arguments around the need to satisfy domestic demand with new oil and gas projects. The UK Government appears to "remain absolutely committed to maximising the vital production of UK oil and gas as the North Sea basin declines".[18] It plans to use the domestic reserves to minimise the reliance on overseas imports, particularly liquified natural gas which is reported to be more carbon intensive.[19] The Government is planning to develop a mechanism to accelerate new oil and gas projects to "cut the approval times for consents to potentially bring forward production dates, subject to environmental considerations".[20]

The industry, on the other hand, notes the increasing difficulty of operating on the UK Continental Shelf.[21] It advocates for a "long term approach to policy-making"[22] citing the challenges of "windfall taxes, uncertain political support, slow regulatory decision-making, high inflation and supply chain and workforce capacity pressures".[23] The focus instead is on cutting emissions from the oil and gas production processes, which are significant and require reductions in order to make progress towards meeting the UK's climate goals. The Committee on Climate Change urged that the Government, regulators, and industry "must take steps to strengthen ambition well beyond the 50% target set out in the North Sea Transition Deal (e.g. to reduce emissions by over 60% relative to 2018 levels by 2030) and cement delivery mechanisms, if fossil fuel supply emissions are to be minimised and increases in emissions avoided".[24] However, focusing only on emissions from production omits consideration of Scope 3 emissions which account for the vast majority of emissions generated from the oil and gas sector.

15. Greenpeace, Cambo Chaos: **The Oil Field Embarrassing the Government** (August 2021); .Friends of the Earth Scotland, **Taking the Stop Cambo campaign to Downing Street**. See also the '**Stop Cambo**'.
16. 'Cambo Oil Field off Shetland Granted Two-year Licence Extension' (BBC, 30 March 2022).
17. A. Garton-Crosbie, '**Activists Vow to Fight Permit Bid for Rosebank Oil Field off the Coast of Shetland**' (The National, 5 August 2022); 'Greenpeace Taking UK Government to Court over Jackdaw Gasfield Works', (The Guardian, 26 July 2022).
18. UK Government, **Powering Up Britain: Energy Security Plan** (March 2023).
19. Ibid, 13.
20. Ibid, 15.
21. See e.g. Offshore Energies UK, Business Outlook 2023, p.21.
22. Ibid.
23. Ibid.
24. Committee on Climate Change, Progress in Reducing Emissions: **2023 Report to Parliament**, p. 223.

The UK has been a net importer of oil and gas since 2004. Even in Net Zero-compliant scenarios, the UK will still require some oil and gas, but estimates vary. The Climate Change Committee's Balanced Net Zero Pathway sees demand falling significantly to 2050 for oil (-85%) and natural gas (-70%).[25] More ambitious scenarios, assuming "considerable success on both innovation and societal/behavioural change", provide for an even more dramatic drop in demand.[26] What is less clear is how the rates of domestic production will be managed with the falling demand. In 2022, the UK produced enough oil and gas to meet 67% and 44% of the domestic demand respectively.[27] It is also important to note that the UK does not have a nationalised oil industry and participates in the global oil and gas market. Thus, UK-produced crude does not always make its way through UK-based refineries to UK customers. In 2021, 30.3 million tonnes of crude oil and 18.2 million tonnes of petroleum products were exported to countries like the Netherlands, China, Korea, Belgium and Ireland.[28] In the same period, the UK imported 36.3 million tonnes of crude oil, and 26.6 million tonnes of petroleum products.[29]

The Committee on Climate Change expressed support for a "tighter limit on production, with stringent tests and a presumption against exploration."[30] However, so far it has not been able to "establish the net impact on global emissions of new UK oil and gas extraction".[31] They note the relatively low carbon footprint of the domestic oil and gas production and the UK's import dependency, "implying there may be emissions advantages to UK production replacing imports".[32] The Committee notes that an end to UK exploration "would send a clear signal to investors and consumers" about the UK's climate commitment and help the UK in its diplomatic efforts to strengthen climate ambition internationally. However, it also recognises that the considerations of energy security "extend beyond the statutory remit"[33] of the Committee.

The fragmentation of climate and energy regimes is clear in the ongoing debates around new oil and gas production in the UK. To reconcile the objectives of "maximising economic recovery" and pursuing Net Zero, the Government has developed a Climate Compatibility Checkpoint for the new oil and gas licenses, which has been put in place in time for the 33rd offshore licensing round which closed on January 2023.[34]

The work on the Checkpoint started in 2022 when the Government presented an ambitious six-point test for consultation.[35] The final Checkpoint contains three tests without an apparent threshold of what would be considered passing the test, or indeed any requirement to pass all three.[36] The Checkpoint, as presented, is a procedural rather than substantive requirement.

25. Committee on Climate Change, **Sixth Carbon Budget** (2020).
26. Ibid.
27. Offshore Energies UK, **Business Outlook** 2023, p.22.
28. Digest of UK Energy Statistics (DUKES): Petroleum, **Table 3.8**.
29. Ibid, Table 3.7.
30. **Letter from Lord Deben**, Chairman of the Climate Change Committee, to the Rt Hon Kwasi Kwarteng MP in Connection with the Ongoing Consultation on the Proposed Climate Compatibility Checkpoint for Oil and Gas Licensing in the North Sea (24 February 2022).
31. Ibid.
32. Ibid.
33. Ibid.

The first test is the operational emission reduction in the sector as outlined in the North Sea Transition Deal, which sets out the joint government and sector's commitment to achieving a 50% reduction in emissions by 2030 (against the 2018 baseline), as well as interim targets of 10% by 2025 and 25% by 2027. The test will consider the historical and the projected performance of the sector. The test thus essentially duplicates an already existing requirement under the Deal rather than increasing the ambition or creating a mechanism for accountability. The Committee on Climate Change considers the 50% target insufficient, stating it falls "well short of the 68%" they assessed as being feasible.[37]

The second test involves benchmarking operational emissions intensity internationally, separately for oil and gas. This is an important test as the UK industry placed at the end of the second quartile in global oil and gas production CO2 intensity.[38] The Checkpoint test, however, does not require any specific improvement of the situation for the test to be passed.

The third test considers the status of the UK as a net importer of oil and gas, but even if the UK becomes a net exporter (which is not expected), the Checkpoint allows the Government "to consider whether the fuel being exported is lower emission than that of other producers".[39]

The tests that have been omitted in the final text relate to the scope 3 emissions, investment in energy transition technologies, and the global production gap consideration.

In the draft Checkpoint, the Government asked stakeholders how scope 3 emissions could be measured and monitored in a comparable way. Despite a number of proposed methodologies, and the Government's acknowledgment that it would be possible to calculate UK's scope 3 emissions, the Checkpoint dismisses these as irrelevant.[40] The same fate meets the Global Production Gap considerations. The Government accepts that "producers globally will ultimately need to leave some oil and gas in the ground in order to meet global climate targets".[41] However, it is of the view that proactive curtailment of production is not as likely to reduce global carbon emissions as reductions in global consumption, thus presenting it as an "either-or" solution.

The Government further scrapped the test requiring the industry to invest in "energy transition technologies" such as hydrogen and carbon capture and storage, as it "does not intend to justify continued extraction of oil and gas on the basis of investment in clean energy".[42]

34. NSTA, **Licensing Rounds**.
35. BEIS, Designing a Climate Compatibility Checkpoint for Future Oil and Gas Licensing in the UK Continental Shelf: **Consultation Document** (December 2021). Discussion here is based on Daria Shapovalova and Tavis Potts, Climate Change: UK Test for New Oil and Gas Fields' Impact on Emissions Targets is not Fit for Purpose (13 October 2022, **the Conversation**).
36. BEIS, **Climate Compatibility Checkpoint Design** (September 2022).
37. Climate Change Committee, Progress in Reducing Emissions 2022: **Report to Parliament** (June 2022) p.30.
38. Oil and Gas Authority, **Emissions Monitoring Report** (October 2021) p.25.
39. BEIS, **Climate Compatibility Checkpoint Design** (September 2022) p.13.
40. BEIS, Designing a Climate Compatibility Checkpoint for Future Oil and Gas Licensing in the UK Continental Shelf: **Government Response to the Consultation** (September 2022) p.27-28.
41. Ibid, p.32.
42. Ibid, p.23.

Finally, the Checkpoint is a non-statutory procedural instrument intended to be an information-gathering exercise rather than impose any substantive requirements. As long as the Secretary of State has applied the Checkpoint, and decided that the Checkpoint tests have been passed, it will be extremely difficult to judicially review that decision or the NSTA's endorsement of a new licensing round (unless, for example, the high threshold of irrationality can be demonstrated). A judicial review of the 33rd licensing round, including the application of the Checkpoint and the reasons for finding that its tests had been passed, was unsuccessful at the High Court, but the claimants are seeking permission to appeal at the time of writing.[43] The Offshore Petroleum Licensing Bill, proposed on 8 November 2023, incorporates the Checkpoint tests.[44]

2.2 Just Transition governance in Scotland

The UK North Sea Transition Deal acknowledges that Scotland is "still significantly dependent on the oil and gas industry, with over 10% of workers in Aberdeen directly employed by the sector". The Deal contains a 'people and skills' section, emphasising the work of the Green Jobs Taskforce,[46] as well as restating the industry commitment to equality and diversity, as well as postgraduate training and development of cross-energy skills.

In Scotland, the Climate Change (Scotland) Act 2009 established the Just Transition principles [47] and places procedural requirements on the Scottish Ministers to "have regard" to these principles when preparing Climate Change Plans.[48] The Plans must explain how they would affect employment and further impact on different sectors of the Scottish economy and different regions in Scotland.[49]

The principles are defined as "the importance of taking action to reduce net Scottish emissions of greenhouse gases in a way which—

- *supports environmentally and socially sustainable jobs,*
- *supports low-carbon investment and infrastructure,*
- *develops and maintains social consensus through engagement with workers, trade unions, communities, non-governmental organisations, representatives of the interests of business and industry and such other persons as the Scottish Ministers consider appropriate,*
- *creates decent, fair, and high-value work in a way which does not negatively affect the current workforce and overall economy,*
- *contributes to resource efficient and sustainable economic approaches which help to address inequality and poverty."* [50]

43. Greenpeace and Uplift v SoS for Energy Security and Net Zero and the OGA [2023] EWHC 2608 (Admin).
44. Offshore Petroleum Licensing Bill (**8 November 2023**).
45. BEIS and OGUK, **North Sea Transition Deal** (2021) p. 40.
46. See more on UK Government, **Green Jobs Taskforce**.
47. Climate Change (Scotland) Act 2009, section 35c.
48. Ibid, section 35(22).
49. Ibid, section 35(20).
50. Ibid, section 35(20).

The independent Just Transition Commission supports the Scottish Government in the production of key Just Transition plans, in a way that is co-designed and co-delivered by communities, businesses, unions and workers, and all society".[51]

The Just Transition Planning framework in Scotland is conducted on a sectoral and regional basis. In early 2023, the Scottish Government published the first sectoral plan – the draft Energy Strategy and Just Transition Plan. It highlights the role of the North East as a *"global centre for the energy industry"* with *"more than 50 years of knowledge and experience in offshore energy exploration and production."*[52]

This Framework aims to "plan for an orderly managed transition", that supports the eight Just Transition Outcomes, namely:[53]

- *citizens, communities and place: empowering and invigorating communities and strengthening local economies,*
- *jobs, skills and education: equipping people with the skills, education and retraining required; providing access to green, fair and high-value work,*
- *fair distribution of costs and benefits,*
- *business and economy: supporting a strong, dynamic and productive economy, making Scotland a great place to do business.*
- *adaptation and resilience: identifying risks and planning for long-term resilience against climate risks*
- *environmental protection and restoration*
- *decarbonisation and efficiencies*
- *further equality and human rights implementation and preventing new inequalities from arising: for example, addressing fuel poverty and child poverty; furthering wider equality and human rights across protected characteristics.*[54]

51. Scottish Government, **Just Transition Commission** (2023).
52. Just Transmission Commission, **Making the future. Initial Report of the 2nd Just Transition Commission** (2021) p. 5.
53. Scottish Government. **What Are Scotland's Just Transition Outcomes** (2023)
54. Ibid.

3. Measuring Just Transition: approaches to indicators development

While Just Transition is a well-established concept in academic literature and policy-making, there is a lack of data and methods on data on how we can measure progress towards achieving a Just Transition.

3.1 Existing approaches to Just Transition indices

While there are well-established processes of measuring country-level progress in energy transition[55] or greenhouse gas emissions mitigation,[56] there is lack of experience with data-driven and place-based Just Transition measurement. This is consistent with the observation in literature regarding the "marginalisation of social dimensions, and a bias towards quantitative physical and environmental factors".[57]

A few studies critically reviewed the suitability of indicator methods measuring sustainability/Just Transitions.[58] Purvis and Genovese summarise the challenges of using indicators as follows in Table 1.

Table 1: Challenges of indicator-based approaches as identified from literature in B. Purvis and A. Genovese (2023)[59]

Step	Technical Issues	Episto-ontological Challenges
1) Selection	• Determining problem scope • Getting the right coverage • Different understanding of terms • Quality criteria • Which stakeholders? How can they input?	• Reductionism: can complex socio-environmental factors be reduced to a series of indicators? • Measuring the immeasurable: marginalisation of social / qualitative aspects
2)Theoretical framework	• Absence of theory • Handling complexity • Difficulty of comparing disparate factors • Weighting & normalisation	• Trade-offs as inherent? • The whole is bigger than the sum of its parts • Depoliticisation • Arbitrariness
3) Implementation & outcomes	• Data constraints • Limited resources • Lack of political will • Failure of consensus	• Lack of pluralism • Difficulty of observing and measuring outcomes

55. World Economic Forum **Fostering Effective Energy Transition 2021 edition** (2023)

56. See e.g. United Nations Framework Convention on Climate Change, **Reporting Requirements**.

57. B. Purvis and A. Genovese, 'Better or Different? A Reflection on the Suitability of Indicator Methods for a Just Transition to a Circular Economy', 212 *Ecological Economics* (2023), **https://doi.org/10.1016/j.ecolecon.2023.107938**. See also T. Calzolari et al., 'Circular Economy Indicators for Supply Chains: A Systematic Literature Review', 13 *Environmental Sustainability Indicators* (2022), **https://doi.org/10.1016/j.indic.2021.100160**.

58. B. Purvis and A. Genovese, ibid; P. Verma and A.S. Raghubanshi, 'Urban Sustainability Indicators: Challenges and Opportunities', 93 *Ecological Indicators* (2018), **https://doi.org/10.1016/j.ecolind.2018.05.007**.

59. B. Purvis and A. Genovese, ibid.

As seen in Table 1 above, challenges arise at all stages of the process, from indicator selection to developing and applying theoretical frameworks to the analysis, to difficulties in measuring and implementing the outcomes. Decisions on which indicators are relevant can be expert-led, "initiated primarily by governments and based on expert input; or from the 'bottom' (citizen-led) drawing on local expertise and networks, and involving the public".[60] In Just Transition measurement, the lack of common understanding between various communities, groups, and stakeholders on the precise definition of Just Transition may lead to challenges in selecting indicators spanning from concerns of reductionism to focusing only on narrow themes, such as jobs and training. The process usually starts with a literature review of the relevant backgrounds and facts, as well as theoretical approaches, followed by the "external input from stakeholders or 'experts' to refine a set of indicators".[61]

Developing a robust theoretical framework for indicators aims to depoliticise the process and remove bias and arbitrariness. As with any emerging concept, there is a question of whether the theoretical frameworks guide the choice of indicators, or whether the indicators themselves will inform the development and understanding of the concept of Just Transition. As an example, while the concept of 'sustainable development' existed for many years before the adoption of the Sustainable Development Goals in 2015, many today understand and define 'sustainable development' by using the targets and indicators from the SDG framework. For Just Transition, many frames exist through which the term can be viewed. It can be understood and framed around distributive, procedural, and restorative justice; or social, environmental, and climate justice. Alternatively, or in addition, one could frame Just Transition based on 'place' – micro-level local Just Transition, national, or international approaches.

The operationalisation of quantitative indicators is another challenge. Assigning weighting, compensability and aggregation to indicators allows for a more user-friendly approach but may lead to arbitrariness and oversimplification.[62] The supposed benefits of aggregated approaches are in relation to their reduction of complex and diverse phenomena into a singular metric, allowing for both simplicity in communication and easy benchmarking.[63] Typical examples of aggregated indicators are the 'Genuine Progress Indicator', which collapses 26 indicators across well-defined economic, environmental, and social categories into a single metric[64] and the Dow Jones Sustainability Indices which measure environmental, social, and economic factors to

60. C. Turku, 'Re-thinking Sustainability Indicators: Local Perspectives of Urban Sustainability', 56(5) *Journal of Environmental Planning and Management* (2013), **https://doi.org/10.1080/09640568.2012.698984**. See also B. Purvis and A. Genovese, ibid.

61. B. Purvis and A. Genovese, ibid. See also C.E. Nika et al., 'Validating Circular Performance Indicators: The Interface between Circular Economy and Stakeholders', 13(16) *Water* (2021), **https://doi.org/10.3390/w13162198**.

62. T. Luzzati and G. Gucciardi, 'A Non-simplistic Approach to Composite Indicators and Rankings: an Illustration by Comparing the Sustainability of the EU Countries', 113 *Ecological Economics* (2015), **http://dx.doi.org/10.1016/j.ecolecon.2015.02.018**; J. Valdés, 'Arbitrariness in Multidimensional Energy Security Indicators', 145 *Ecological Economics* (2018), **https://doi.org/10.1016/j.ecolecon.2017.09.002**.

63. OECD and Joint Research Centre-European Commission, **Handbook on Constructing Composite Indicators: Methodology and User Guide** (2008)

64. G. Berik, 'Measuring What Matters and Guiding Policy: An Evaluation of the Genuine Progress Indicator', 159 (1) *International Labour Review* (2020), **https://doi.org/10.1111/ilr.12153.**

rank companies according to their sustainability performance.[65] To overcome these challenges, some suggest using dashboard-based systems, which consist of curated selection of singular indicators, such as the 231 indicators utilised by the UN Sustainable Development Goals (SDGs) or the 26 indicators included in the OECD Green Growth framework.[66]

Finally, the implementation of the process itself, especially in a place-based context is complicated by data constraints. Soma data sets, e.g. on employment, earnings, and skills, are well standardised across micro and macro levels and are available across a number of years. For other topics, especially where data is needed from surveys, variations in questions asked across the years and inconsistency in data collection present challenges of painting a clear picture. For some indicators, only snapshots of data are available, not allowing the analysis of trends at present.

Many projects engage with data sets on sustainability and societal transition. For example, DG Regio Eurostat Database collects sub-national data sets on a number of categories of potential relevance for assessing vulnerability in relation to Just Resilience in Europe which include demographics, economic accounts, health, environment and energy etc.[67]

More specifically on Just Transition, the World Benchmarking Alliance has developed a methodology for assessing Just Transition in companies with 18 Core Social Indicators around human rights, provision and promotion of decent, work and acting ethically[68] Including specific indicators for auto, oil and gas and electric utilities[69] which builds on or works with 6 Just Transition indicators as follows:

- *Social dialogue and stakeholder engagement*
- *Just transition planning*
- *Creating and providing or supporting access to green and decent jobs*
- *Retaining and re-and/or up-skilling*
- *Social protection and social impact management*
- *Advocacy for policies and regulation*

Each Just Transition Indicator is be scored on a scale of 0 to 2 points based on publicly available information.[70] This Just Transition methodology offers a good start for companies to replicate but is more directed at private actors than for assessment of Just Transition at a place-based or regional levels.

65. I. Knoepfel, 'Dow Jones Sustainability Group Index: A Global Benchmark for Corporate Sustainability', 8(1) *Corporate Environmental Strategy* (2001), **https://doi.org/10.1016/S1066-7938(00)00089-0**

66. B. Purvis and A. Genovese, ibid; P. Verma and A.S. Raghubanshi, 'Urban Sustainability Indicators: Challenges and Opportunities', 93 *Ecological Indicators* (2018), **https://doi.org/10.1016/j.ecolind.2018.05.007**; Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) **Resolution Adopted by the General Assembly on Work of the Statistical Commission Pertaining to the 2030 Agenda for Sustainable Development** (2017) (A/RES/71/313); OECD Green Growth Studies, **Green Growth Indicators** 2014.

67. European Union, **Eurostat Database** (2023).

68. World Benching marking Alliance **World Benchmarking Alliance Just Transition Methodology** (2021).

69. Ibid.

70. Ibid.

3.2 Measuring Just Transition in Scotland

With the Just Transition planning underway, there are increasing calls for clarity on measuring the progress to Just Transition. Just Transition principles under the Climate Change (Scotland) Act 2009 do not have any specific targets attached.

The second Just Transition Commission's new remit "calls for advice on how best to monitor and evaluate Scotland's progress towards a just transition".[71] One of its key messages to the Scottish Government is to "develop and rapidly deploy a robust monitoring and evaluation framework for assessing progress on Just Transition Outcomes".[72] Such a framework "should target clear deliverables and annual milestones through to 2045 to drive delivery".[73] The Commission recommends that the framework should be determined "by engagement with hard-to-reach groups likely to be significantly impacted, and other key stakeholders",[74] with possibility to adapt and refine over time.

The Commission advised "progress should be accessed in an accurate and timely manner, enabling success by locating areas of risk and helping to prevent unjust outcomes".[75]

Calls for clarifying the meaning of and indicators for a Just Transition in Scotland also come from the Scottish Parliament. In the inquiry into a Just Transition in Grangemouth, the parliamentary committee recommended that the Government "establish a clear and concise definition of what is meant by just transition" and "include clear and measurable targets for success".[76]

While the Scottish Government, already has experience in tracking performance across a number of indicators (e.g. under the National Performance Framework),[77] the measurement of Just Transition at a place-based, sectoral, and national level is a novel and challenging exercise with limited evidence and international practice.

There is further effort in Scotland underway to establish a national data set through a Climate Intelligence Service "to support local authorities to target, implement and improve delivery of actions for area-wide emissions reduction".[78] It is not clear at this stage if any social indicators will form part of this service.

71. Just Transmission Commission, **Making the Future. Initial Report of the 2nd Just Transition Commission** (2021), p. 7. See also Letter from Jim Skea (Chair of the Just Transition Commission) to Shona Robison MSP, '**Letter to Deputy First Minister**' (8 June 2023).
72. Just Transmission Commission ibid, p. 10, 37.
73. Ibid.
74. Ibid.
75. Just Transmission Commission, **Making the future. Initial Report of the 2nd Just Transition Commission** (2021), p. 5.
76. Sottish Parliament **Inquiry into a Just Transition to net zero for Grangemouth area to the Scottish Government** (2023) p.2.
77. The National Performance Framework tracks the performance of Scotland's National outcomes over 81 national indicators.
78. J. Brogan, G. Tarvit, and J. Kilgallon, **Establishing a National Climate Intelligence Service** (December 2022).

4. Developing Just Transition indicators for Aberdeen and Aberdeenshire

As mentioned above, in developing themes and indicators for Just Transition in Aberdeen and Aberdeenshire in this project, we relied on the wider definition of Just Transition focusing on the community as a whole while acknowledging the centrality of workers' rights in transition, particularly in the context of the North East of Scotland. We have worked primarily on the city and regional level, engaging with and benchmarking to national data where relevant. In order to develop a place-based approach, we worked closely with a diverse group of relevant organisations in the region to continuously review the research questions, methods, and outputs.

To develop a comprehensive background, we used the Rapid Evidence Assessment to determine and assess the evidence on historic and current regional impact of the energy industry in Aberdeen. We have further assessed the existing efforts/project/knowledge on how Just Transition is understood in the region. Finally, we held a knowledge exchange event to co-develop indicators.

In writing of the Rapid Evidence Assessment report, we worked with a diverse steering group to develop the appropriate search terms and processes. Close to 5000 sources were screened, with the final selection of 210 sources used for evidence extraction. Published between 1966 and 2022, the sources came from academic sources, third sector organisations, industry, local authorities and governmental reports.

The reviewed evidence identified some regional opportunities and benefits as well as challenges associated with being an oil and gas hub.

Benefits most commonly identified were:

- *employment/jobs brought by the industry,*
- *development of the regional economy,*
- *higher average earnings,*
- *improvement in local services and transport links,*
- *Aberdeen's status as a centre for excellence for the energy industry,*
- *population growth.*

The main challenges identified in the evidence were:

- *decline of traditional industries,*
- *vulnerability to oil price fluctuations,*
- *pressure on housing and local authorities,*
- *unequal distribution of benefits,*
- *removal of regional assistance,*
- *lack of local control.*

We have further identified and reviewed the ongoing/recently completed projects related to Just Transition of communities and workers in Aberdeen and Shire.[79] These were: 1) Scottish Government Just Transition/Just Transition Fund for North East and Moray; 2) Platform & Friends of the Earth Scotland, Greenpeace: Offshore Oil and Gas Workers' Views on Industry Conditions and the Energy Transition; and 3) University of

79. We have further engaged with Climate Strategies/SEI project **Oil and Gas Transitions** but did not list it here as it takes a wider North Sea/UK perspective.

Aberdeen/NESCAN/University of Strathclyde, Community Participation in a Just Transition in the North East: Regional Priorities. Since publication a further report emerged from the World Energy Council.[80]

Based on the analysis of benefits and challenges of Aberdeen and Aberdeenshire connections with the energy industry, as well as the existing work on Just Transition in the region, we have identified four main themes for subsequent analysis, as illustrated in Figure 2.

Following the identification of the four themes, the project team held a knowledge exchange event with a diverse stakeholder group in February 2023. The aims of the event were to communicate the Rapid Evidence Assessment report findings, and to co-develop research questions under the four themes for indicator development with a view to define and analyse measurable place-based Just Transition indicators and scenarios.

The event was attended by 26 representatives from various organisations across Aberdeen City and Shire. These included Aberdeen City and Aberdeenshire councils, Cyrenians, University of Aberdeen, RGU, North East Scotland Climate Action Network (NESCAN), Aberdeen Renewable Energy Group, James Hutton Institute, Grampian Regional Equality Council, RMT, Friends of the Earth Scotland, Net Zero Technology Centre, NHS, SCARF, and Aberdeen Foyer. The diversity of backgrounds and expertise allowed for a rich discussion bringing together perspectives from the region's third sector, industry, and local authorities.

After the Rapid Evidence Assessment report presentation and a Q&A session, attendees were divided into four groups, each led by a facilitator. The groups worked on four themes, rotating to a new theme every 30 minutes. The discussions in the group centred around sharing experience and expertise around the themes, discussing data sources for potential indicators, and identifying questions to raise for the future indicators.

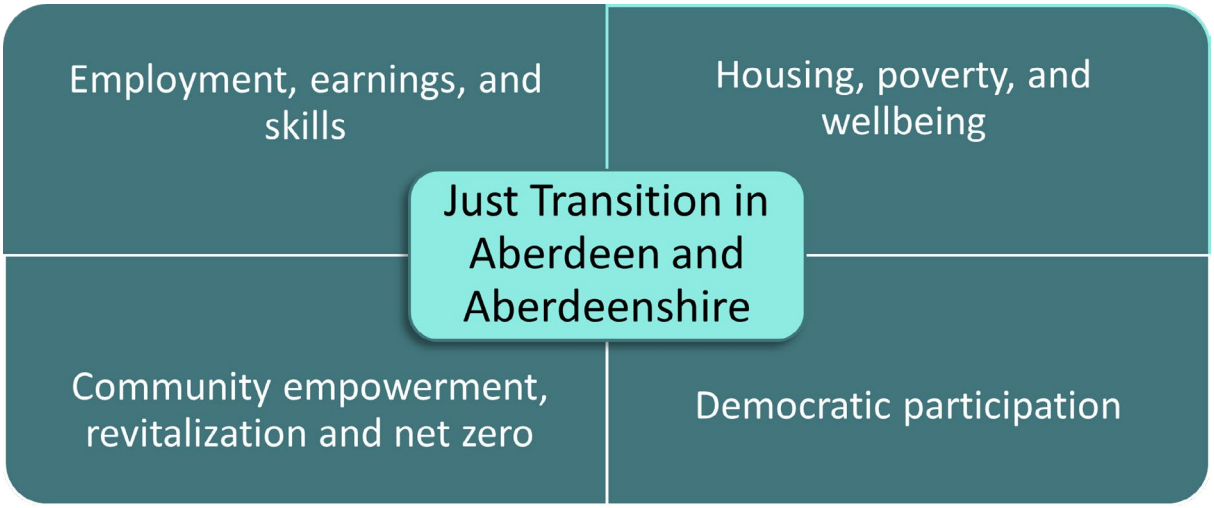


Figure 2: Four themes for measuring Just Transition in Aberdeen and Aberdeenshire

80. World Energy Council, **City Level Clean and Just Energy Transition: A Human-Centred Approach** (2023).

The first group, facilitated by Prof. Keith Bender, discussed the theme of 'Employment and Skills', focusing on employment trends in the energy sector, the need to develop new skills and training opportunities for workers in the transition to a low-carbon economy. They also discussed the importance of protecting workers' rights and ensuring a Just Transition for those who may lose their jobs due to the shift away from oil and gas.

The second group, facilitated by Dr. John Bone, focused on the 'Housing, poverty, and wellbeing' theme. Themes and potentials indicators in this theme included availability and affordability of housing, links between wellbeing, poverty, and food security, fuel poverty in the region, deprivation, and access to green spaces.

The third group, facilitated by Prof. Tavis Potts, discussed 'Democratic participation'. They discussed the need to address environmental injustices, such as the disproportionate impact of climate change on marginalised communities and the challenges of engaging these groups. They also discussed ways to evaluate trust in officials and measure the climate assembly's quality, coverage, and participation. Participants discussed the need for meaningful engagement with local communities in the transition process, including those who may be most affected by the shift away from oil and gas. They also talked about the importance of involving a diverse range of voices in decision-making and ensuring that communities have a say in the future of their region.

The fourth group focused on 'Community revitalisation and Net Zero'. The group, facilitated by Dr. Daria Shapovalova, discussed the connections between the energy transition and community empowerment, including critically analysing community renewables and local economy diversification. They further discussed the challenges of active travel and public transport, particularly in Aberdeenshire. Finally, they considered the greenhouse gas emissions and other environmental indicators in the region.

Based on these discussions, and valuable insights of stakeholders, the project team developed a set of indicators for data collection, which are laid out in Part II of this report.

Part II: Indicators and data for Just Transition in Aberdeen and Aberdeenshire

5. Jobs, skills and earnings

Perhaps the most straightforward set of indicators for a Just Transition involve labour market indicators such as jobs and skills. The Rapid Evidence Assessment report highlighted the positive contribution the oil and gas industry has historically made to the employment and earnings in the region. This contribution relies on an increased skill set of the local workforce, and preventing loss of these skilled jobs is high on the agenda for Just Transition.[81] The transition will cause certain jobs to disappear while also generating new jobs and opportunities. Skill acquisition and reskilling will be central, however, in making sure that those starting out in or transitioning to low carbon jobs and industries have the correct set of skills to take advantage of new job opportunities. However, just having a job is not the only indicator. For many in the North East, oil and gas related jobs provided relatively high standards of living, and it will be crucial that earnings remain as high as possible, while also helping to address the inequity in income that also was endemic in the North East over the last forty year.

This section will discuss a number of indicators around jobs, skills and income that will be relevant to tracking a Just Transition in the Aberdeen area. Specifically, we will examine the following indicators:

1. Employment patterns
2. Employment related to energy
3. Unemployment
4. Skills
5. Skills and jobs
6. Earnings

Because of potential sex differences in the indicators, we will also report data decomposing it by sex when available to examine the existence of any differences.

81. D. Shapovalova, T. Potts, J. Bone, K. Bender, Just Transition for Workers and Communities in Aberdeen and Aberdeenshire: **Rapid Evidence Review** (2023) sections 3 and 5.

5.1 Employment patterns

A key overarching indicator of a Just Transition is the pattern of employment in the North East. The inevitable change from carbon based to low carbon-based industries will cause significant turnover in the labour market, but a Just Transition would require that employment opportunities do remain. Data presented in Figure 3 suggests that the number of people in employment in Aberdeen and Aberdeenshire had been growing until 2013 when there was a significant oil price drop. Since then, employment numbers are much more variable with big dips during a second price drop in 2016 and in 2020 due to the Covid-19 pandemic. The dotted lines show the trend in employment adding in a break in quarter 1 of 2014 showing growth before 2014, and then a slight decline since that time. Although not shown here, the patterns of employment as a percentage of population are similar to the count data shown in Figure 3.

Interestingly, there are some differences by sex. Figure 4 has employment data and trends for females while Figure 5 has employment data and trends for men. Generally, for both sexes, we see the increase in employment up to 2013. However, the trends go in different directions in different regions for the two sexes. The trend is positive for females in Aberdeenshire and for males in Aberdeen while it is negative for males in Aberdeenshire and females in Aberdeen.

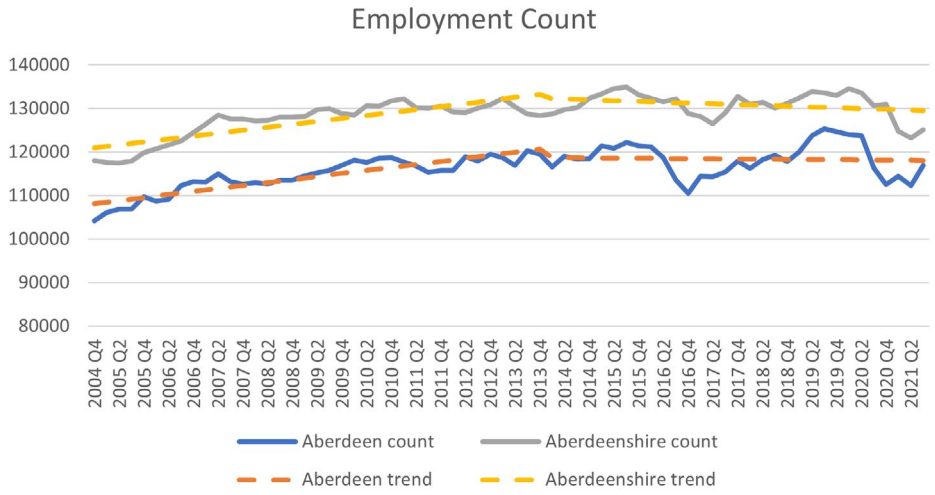


Figure 3: Number and trends of people in employment in Aberdeen and Aberdeenshire[82]

82. Source: **http://statistics.gov.scot**

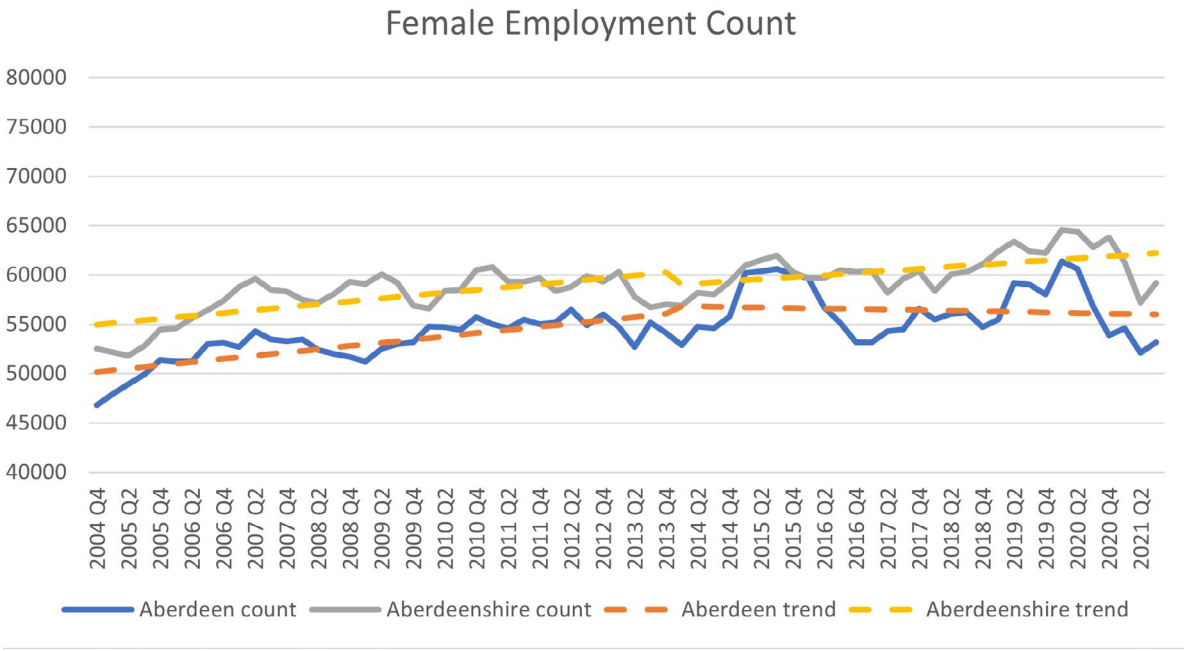


Figure 4: Number and trends of females in employment in Aberdeen and Aberdeenshire[83]

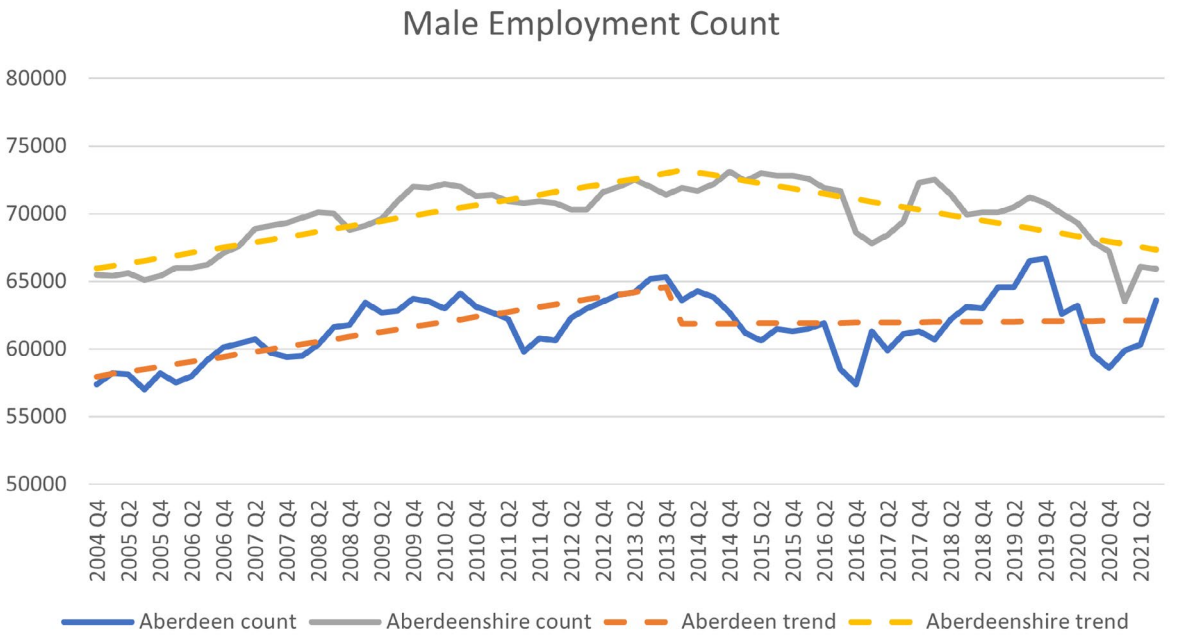


Figure 5: Number and trends of males in employment in Aberdeen and Aberdeenshire[84]

83. Source: **http://statistics.gov.scot**.

84. Source: **http://statistics.gov.scot**.

5.2 Oil and gas and energy employment

While the previous section suggests an aggregate indicator, energy transition in the North East will primarily affect oil and gas production jobs and those which are in the supply chain or in research and development for those areas. Regional governments and employers recognise the coming change transitioning from carbon-based to low carbon energy generation, which has been shown to increase employment.[85] Thus, two key indicators should look at changes in employment patterns in these two energy production industries as well as the industries which support them.

Researchers from Aberdeen City Council have reported data from the Business Register and Employment Survey 2021, which estimates the employment in the oil and gas sector.[86] Table 2 shows the data since 2015 indicating an unsurprising decline in direct oil and gas employment for all regions, but particularly in Aberdeen and Aberdeenshire. Compared to its height, 2021 employment is down by about a third in Aberdeen compared to 2015 and nearly by a half in Aberdeenshire compared to 2020.

Table 2: Direct Oil and Gas Employment by Region in the Business Register and Employment Survey 2021

	Aberdeen City	Aberdeenshire	North East Scotland	Scotland	Great Britain
2015	25,600	4,800	30,600	31,600	37,250
2016	21,010	5,200	26,010	27,025	34,600
2017	21,010	5,200	26,015	26,035	30,350
2018	19,015	5,260	25,020	25,050	30,500
2019	19,015	5,505	24,020	25,040	30,350
2020	19,030	6,010	25,035	25,050	30,300
2021	17,000	3,300	21,000	22,000	26,000

Total energy sector jobs, which include oil and gas and other energy and related industries (see Table 3), have been somewhat more robust over time though there has continued to be a decline here, no doubt dominated by the fall in oil and gas employment. Compared to its highest point, 2021 employment is 27% lower in Aberdeen and 29% lower in Aberdeenshire.

It should also be noted that as a proportion of Scottish overall energy related employment, Aberdeen and Aberdeenshire are only between 45-50% of employment. Taken together between the two tables, while the reductions in oil and gas employment have been substantial there has only been a partial mitigation in this fall by the relatively smaller increase in employment in related energy industries.[87]

85. Y. Fullemann, V. Moreau, M. Ville and F. Vuille, 'Hire Fast, Fire Slow: The Employment Benefits of Energy Transitions', 32(2) *Economic Systems Research* (2020), **https://doi.org/10.1080/09535314.2019.1695584**.

86. Unfortunately, it does not seem to be possible to get consistent data of indirect and induced jobs from the oil and gas sector at the local level, though there are estimates at the Scotland level reported from OEUK. At this level, there seems to be about 3.5 jobs indirectly related to or induced for every oil and gas job in Scotland since 2019. Given that Aberdeen and Aberdeenshire have about 92% of all oil and gas jobs in Scotland, the vast majority of the approximately 64,000 indirect or induced jobs will likely be in these regions as well.

Table 3: Energy Sector Employment by Region (source: Nomis and Scottish Government)[88]

	Aberdeen City	Aberdeenshire	North East Scotland	Scotland
2015	30,830	10,095	41,165	73,275
2016	25,900	9,670	36,425	68,450
2017	27,435	9,220	36,375	68,900
2018	24,735	9,115	34,575	66,350
2019	25,760	9,445	34,625	68,900
2020	23,815	10,080	34,405	69,450
2021	22,505	7,205	30,880	65,600

An important element of jobs in the area is through the examination of small businesses in the North East. While some will be directly involved in traditional oil and gas and associated supply chains, other small businesses will be involved in green energy development and projection while others (e.g. shops and restaurants) will be directly attributable to the economic activity generated by the various energy industries.

Data from the Scottish Government suggest that the number of small businesses (defined here as firms with less than 50 people), reported in Figure 6, increased from 2010 until 2015, but since then both the number of small firms and their total employment has dropped. It is possible that this is also attributable to the oil price downturn, as there would likely be a lag between the fall in oil prices and its effect on small business activity.

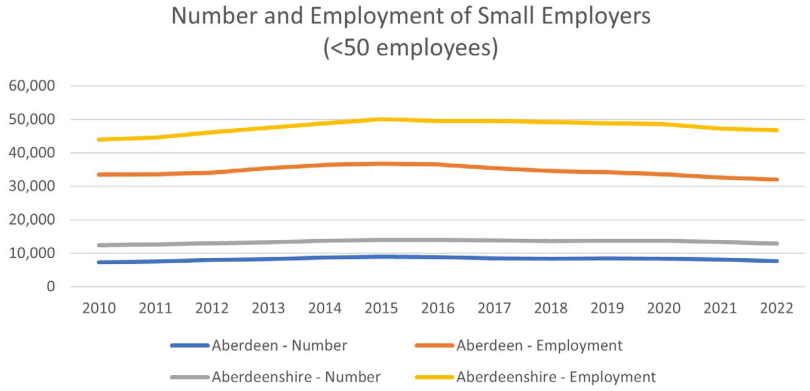


Figure 6: Number and employment of small employers[89]

87. It is important to note that it is very hard to estimate energy production jobs that are not from oil and gas since 'green' jobs are not typically listed in any industry coding. It is not clear how this misclassification biases the employment numbers – making them higher or lower than they should be. Clearly government data collection needs to do a better job in identifying these jobs and then collect and publish the data so it can be tracked. A new report by the RGU Energy Transition Institute suggests that there is significant opportunity for employment in renewable energy, particularly if supply chains can transition from oil and gas to noncarbon energy. There is no data reported for the North East, but the estimates for Scotland show a potential increase in offshore energy jobs by 25% for a well-managed energy transition, but a reduction by 40% if it is not managed well. Energy Transition Institute, '**Powering Up the Workforce**' (Robert Gordon University, 2023).

88. Includes employment from SIC: 05 (Mining of coal and lignite), 06 (Extraction of crude petroleum and natural gas), 09 (mining support service activities), 19 (manufacture of coke and refined petroleum products), 20.14 (manufacture of other organic based chemicals), 35 (electricity , gas, steam and air conditioning supply), 38.22 (treatment and disposal of hazardous waste), 71.12/2 (engineering-related scientific and technical consulting activities) and 27.90/1 (environmental consulting activities).

89. Source: Businesses in Scotland, 2022, Table 5.

5.3 Unemployment

Once the oil and gas sector was mature in Aberdeen and Aberdeenshire, unemployment rates in the regions were significantly lower than most other regions in Scotland and the UK, suggesting a tight labour market in the North East. Figure 7 shows unemployment data by region since 2007. Early in the series, both regions generally and Aberdeenshire specifically had significantly lower unemployment rates than Scotland or the UK. Interestingly even after the oil price shock of 2013, unemployment rates have not increased appreciably, though Scottish and UK unemployment rates have converged to the regional levels so that by 2016, the Aberdeen unemployment rate was similar to both the Scottish and national rate. The unemployment rate in Aberdeenshire has remained slightly below the unemployment rates of the other three areas even in the recent past, but the gap has fallen considerably.

5.4 Skills

Jobs in the oil and gas sector are characterised by high levels of education and skills and an energy transition to low carbon forms of energy production will require similarly high levels of education and skills. Because of the correlation between high skills and higher pay, the loss of high skill jobs without them being replaced by similarly skilled jobs could negatively affect the economic wellbeing of the region. Thus, understanding the skill distribution of the workforce is a central indicator of a Just Transition.

Figure 8 gives a time series of the proportion of the workforce with at least a NVQ4* qualification (equivalent to the first year of an undergraduate degree though can include high level vocational awards and diplomas) since the mid-2000s. For Aberdeen, Aberdeenshire and Scotland, there has been a steady increase in the proportion of the population with relatively high qualifications with Aberdeen having typically the highest proportion (which will also be driven by a college and two universities located in the city).

Conversely, one could look at the percentage of low qualification levels in the local population as a measure of the proportion of low skilled people who would be excluded from jobs requiring higher skills/education without significant training. Figure 9 shows that Aberdeen and Aberdeenshire have relatively low percentages of very low skilled population in comparison with the Scottish percentage. It has also been falling over time, though the rate of that decline has tapered off since around 2016. Taken together, these figures suggest that there is potential capacity in the region to have workers switch to high skilled green jobs.

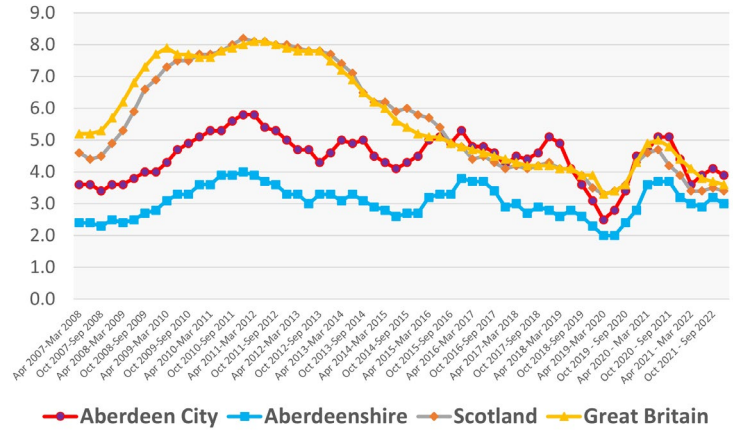


Figure 7: Unemployment rates by region[90]

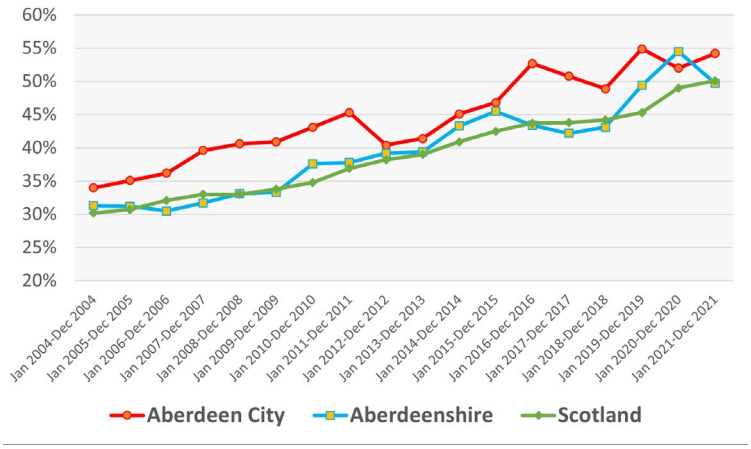


Figure 8: Working aged population with NVQ4 qualifications by region*[91]

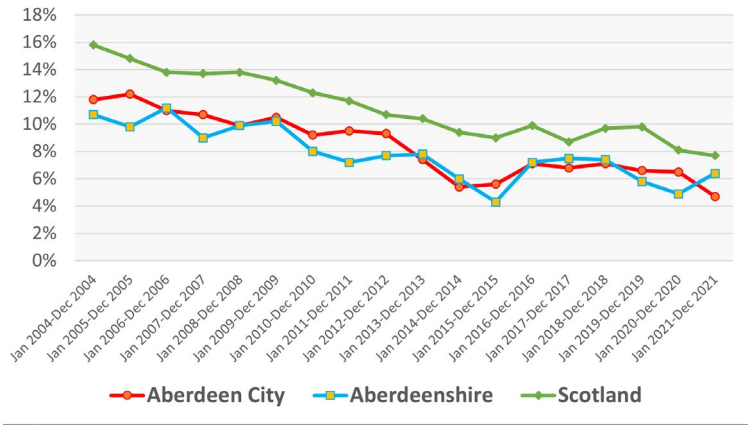


Figure 9: Percentage of working aged population with no NVQ qualifications by region[92]

90. Source: ONS and Annual Population Survey. Compiled by Aberdeen City Council.
91. Source: Nomis.
92. Source: Nomis.

5.5 Skills and jobs

While the previous section examined the potential education and skill base for the North East, whether highly educated people are employed in jobs that utilise these skills is a somewhat different question. Thus, tracking the proportion of jobs that are of high or low skill gives a sense of the skill distribution used by jobs in the North East.

Figure 10 shows the proportion of high-skilled occupations since 2011. As with the proportion of the population with high levels of education and skills increasing over time, the proportion of high-skilled occupations have also increased generally over time, except for the Covid-19 pandemic time in Aberdeenshire where there was a relatively large fall of nearly six percentage points in late 2019 and early 2020. As in Figure 10, Aberdeen has a consistently higher proportion of highly skilled occupations than the Scottish average, though the differences are relatively small.

As in the previous section, we can also look at the proportion of low-skilled occupations. Figure 11 reports this data for the North East and Scotland since 2012. Generally, there is little consistent difference in rates of low-skilled occupations between Aberdeen, Aberdeenshire and Scotland with 15-20% of occupations being classified as low-skilled across the time period.

5.6 Earnings

The final set of indicators correspond to the financial wellbeing of residents in the North East. As the oil and gas sector matured, the average level of earnings increased substantially in the region, even if the increase did not help all socio-economic groups, consistent with the increase in oil and gas related jobs and the generally high skill base of the workforce as presented above. With energy transition, maintaining these relatively high levels of financial wellbeing while potentially benefitting those at the bottom of the income distribution will be a challenge. Thus, earnings will be a key indicator of a Just Transition.

One way to examine the issue of financial wellbeing is to examine earnings. However, given the closeness of the two regions and the concentration of oil and gas jobs in Aberdeen compared to Aberdeenshire, there are interesting differences between where workers earn their pay and where they live. Figure 12 shows this difference. In the left-hand graph, which is based on where the workplace is based, Aberdeen consistently has the highest level of median real earnings. This makes sense given the concentration of highly skilled occupations in the city. Aberdeenshire, with a mixture of industries including agricultural industries has a lower level of median earnings – often lower than the national median earnings. Conversely, Aberdeenshire fares much better in the residence-based measures of median earnings (found in the right-hand side graph) which looks more similar to Aberdeen's median earnings.

An important detail to note is the relative convergence of median earnings across the regions starting after the oil price fall in 2013. In the workplace-based measure, after being relatively constant for a number of years, since 2013, median earnings have fallen in Aberdeen while there has been a relative increase in median earnings in Aberdeenshire and Scotland. Likewise, in the residence-based median earnings, there has been a movement to convergence between the three regions.

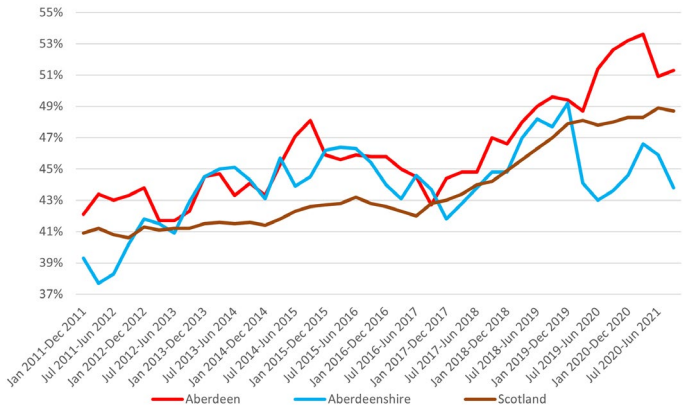


Figure 10: High-skilled occupations as a proportion of the workforce by region[93]

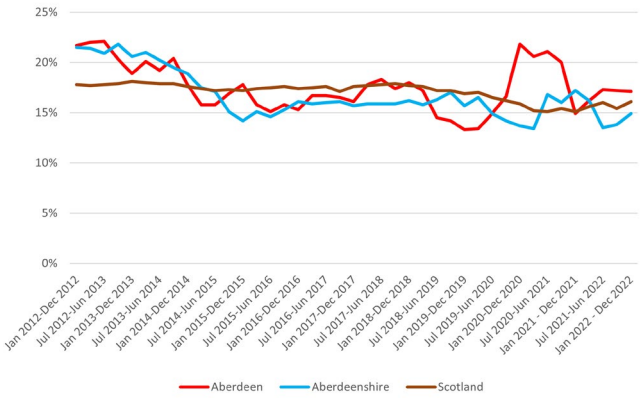


Figure 11: Low-skilled occupations as a proportion of the workforce by region[94]

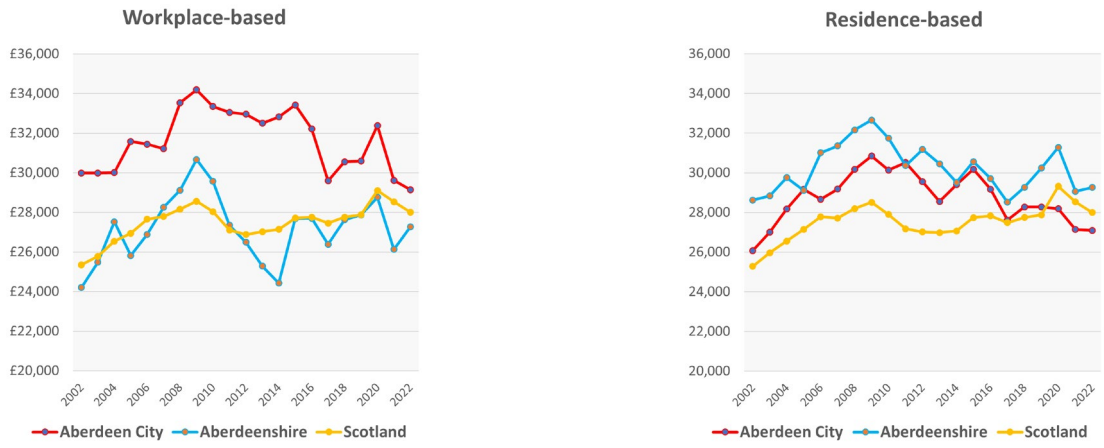


Figure 12: Workplace-based and residence-based real median annual earnings by region . Earnings in 2015 prices. ONS

93. Source: ONS. High-skilled occupations are classified in the SOC2010 categories 1 (managers, directors and senior officials), 2 (professional occupations) and 3 (associate professional and technical occupations).91.

94. Source: ONS. Low-skilled occupations are classified in SOC2010 categories 8 (process plant and machine operatives) and 9 (elementary occupations).

The final earnings-related indicator involves the relative earnings between women and men. A Just Transition should give more equal opportunities in terms of pay across genders if pay was unequal before. Figure 13 has the relative male-female ratio of median hourly earnings for the North East and Scotland since 1997. Unsurprisingly, there has been a steady decline in the ratio from a high of 25-35% to around 14% by 2022. Compared to Scotland, the ratio for Aberdeen is higher for each year, although the difference is generally not large. The male-female earnings ratio for Aberdeenshire is more variable, but like Aberdeen, it generally is higher than the Scottish ratio. The possible exception to this is 2017-2020 when it was lower than the Scottish ratio. There does not seem to be any significant change in the ratio after the oil price fall in 2013 that was different from the pattern of decline already observed in the data.

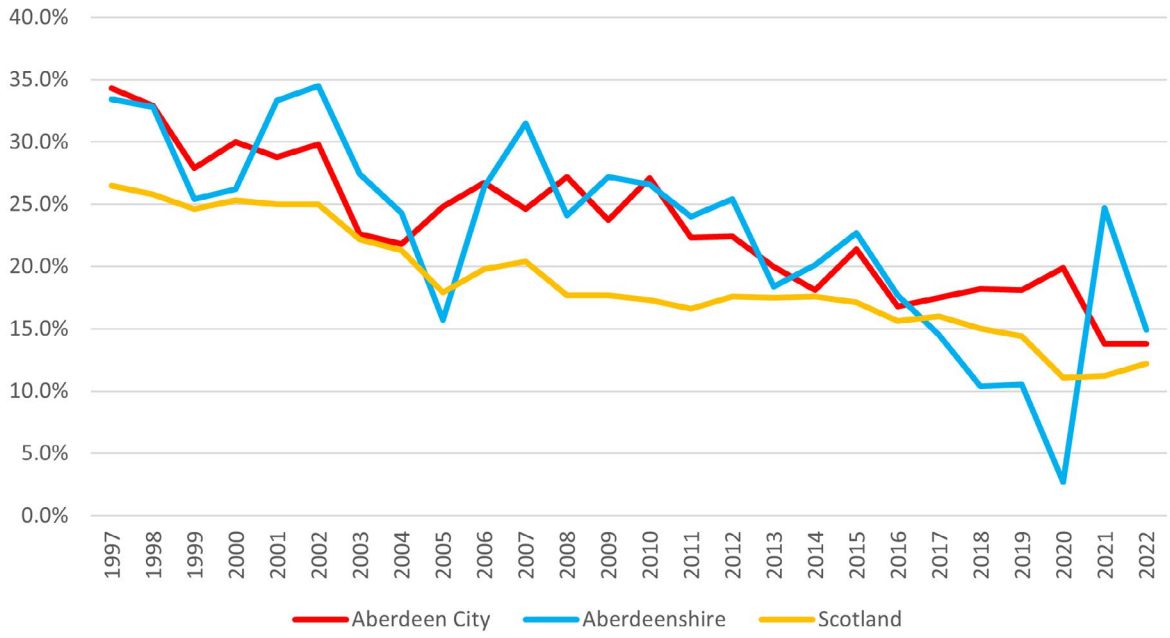


Figure 13: Male-female ratio of median hourly earnings by region.
Includes both full- and part-time workers and is workplace based average earnings.

5.7 Workers' rights during transition

Participatory research with workers unequivocally demonstrates that any Just Transition processed for the industry must be planned and implemented with direct involvement of workers and trade unions.[95] While there are no specifically proposed indicators in the existing reports, this could potentially be measured through reports on the inclusion of workers/union representatives in the companies' and governments Just Transition planning or even simply by tracking union membership, density and/or coverage of the local area where data suggests that union density (the proportion of workers in a union) is at about 21% for Aberdeen and Aberdeenshire and union coverage (the proportion of workers whose pay is negotiated by unions) is over 40% in 2022.[96] There are further calls to ensure universal rights and wage floor across the UK Continental Shelf regardless of the jurisdiction of territorial waters, including all those employed with some evidence indicating underpayment.[97]

There are demands for accessible pathways and training out of high-carbon jobs, as employment in the oil and gas sector is expected to fall by half between 2020 and 2035.[98] RGU 'Making the Switch' report finds that "readily accessible induction training will be needed for up to 30,000 people" and "cost effective and accessible upskilling training will be required for up to 10,000 people in the region who have medium or low transferability to adjacent energy sectors".[99]

There is acknowledgment that currently there is a "lack of robust and comparable workforce - and skills-related data across the offshore energy sectors",[100] as one of the priorities under the NSTD is to develop an integrated approach to people and skills data collection, including on training.

Workers and their representatives further call on governments to take steps to support local manufacturing and supply chain development for low-carbon industries, including through potential local content requirements. While there is no specific data collection in this area, there is potential to develop data sets on this in the future.

Overall, there is a need for stronger representation of workers and unions in transition planning at all levels, as well as development of comprehensive, transparent, and robust datasets to track progress towards a Just Transition for workers.

95. See e.g. Platform, **OFFSHORE: Oil and Gas Workers' Views on Industry Conditions and the Energy Transition** (2020); **Our Power: Offshore Workers' Demands for a Just Energy Transition** (2023).
96. R. Davies, A. Bryson and S. Jones, **Geographical Variations in Trade Union Membership: 2022 Edition**, WISERD, Cardiff University (2022) Annex Table 1, p. 27.
97. D. MacPhee, Contractor in Hot Water for 'Mistakenly' Underpaying Workers at Giant Scottish Wind Project (**Energy Voice**, 11 November 2019); **Our Power: Offshore Workers' Demands for a Just Energy Transition** (2023) p. 56-61.
98. Net Zero Technology Centre, **Closing the Gap**: Technology for a Net Zero North Sea (2020) p. 196.
99. RGU Energy Transition Institute, **Making the Switch**: The Future Shape of the Offshore Energy Workforce in the North-East of Scotland (2022).
100. North Sea Transition Deal, **Integrated People and Skills Strategy** (2022).

5.8 Reflections and conclusions

This section has examined key economic indicators of Just Transition, focusing on employment, unemployment, skills and earnings. Each plays a key role in understanding the economic effects on workers and residents of the region. Employment in both energy and non-energy jobs were generally strong until the oil price crash in the early 2010s and has at best seen growth level off and at worst, seen a gradual reduction, particularly in Aberdeenshire. Since unemployment rates have not increased appreciably, this suggests that jobs and workers have left the area. Thus, it is important that public policy target new jobs to help retain the high employment/low unemployment conditions enjoyed over the past 40 years.

Central to this is the skills base of the workforce. There is more positive evidence here of a pattern of increasing skills over time and a reduction in the low skilled population. Of course, these skills need to be utilised in jobs. Again, there has been an increase in the proportion of jobs needing high skills – but only in Aberdeen. In Aberdeenshire the numbers have fluctuated significantly over the recent years. For the transition to a low-carbon economy and new forms of energy that will no doubt need skilled workers, it will be important for policy to make sure that skill needs of employers match the high skills of the local labour force.

Finally, the financial wellbeing of residents and workers in the North East is a key economic measure of a Just Transition. It is unlikely that some of the workforce will continue to enjoy the substantial high pay that was generated in the oil and gas economy, but new energy transition jobs should still pay well given the high level of skills still required in these newly developing areas. Given the pattern of median earnings shown above where median earnings have started to fall in a region where earnings growth has been the norm, policy will need to focus efforts to try to maintain highly paid jobs to meet the demands of a Just Transition in the North East.

6. Equality and wellbeing

The Rapid Evidence Assessment Report highlighted the lack of research into the impact of the oil and gas industry fluctuations on the wellbeing, housing, and equality in Aberdeen and Aberdeenshire. At the same times, both communities in the region, and the local and national governments place high importance on addressing existing inequalities as part of Just Transition.[101] It is apparent that the move towards the energy transition, and turbulence in energy markets, has had a particularly significant impact on Aberdeen, given its position as the "oil capital of Europe". A number of indicators suggest that a combination of oil price falls and a more politically sensitive climate in terms of oil exploration have led to a contraction in the industry in recent years that has rendered Aberdeen increasingly vulnerable to general economic uncertainty. With respect to key indicators related to equality and wellbeing impacts of a Just Transition in region, the following are particularly important:

1. *Housing*
2. *Fuel poverty*
3. *Deprivation and food insecurity*
4. *Healthy life expectancy & wellbeing*
5. *Access to green space in deprived communities*

6.1 Housing

Housing has long been a problematic area for Aberdeen while also presenting itself as a key barometer of the health of the local economy. One of the key issues in relation to this has been that, until recently, Aberdeen's housing market has tended to be both very pricey and turbulent, with precipitous rises and falls occurring in line with the oil price and associated levels of investment and activity. This has also often led to the market operating semi-independently from the rest of the UK insulated to an extent from wider factors affecting the housing market, responding more to local conditions. House prices rose dramatically in the late 1970s, before suffering a deep fall with the oil price slump in the 1980s, and then rising again dramatically from the mid-2000s. The Aberdeen market was also less badly affected by the post-credit crunch house price correction, plateauing rather than falling before rising again. However, the local market has experienced a significant contraction in relation to other key regions in Scotland since the onset of the oil price slump, as indicated in Figures 14 and 15. That being said, while house prices have recovered or at least stabilised a little of late there are significant headwinds affecting the market going forward.

101. D. Shapovalova, T. Potts, J. Bone, K. Bender, Just Transition for Workers and Communities in Aberdeen and Aberdeenshire: **Rapid Evidence Review** (2023) sections 4 and 5.

Putting this in further context, price falls have been more marked in relation to flats in the city and shire as well as houses in the city to an extent, while family home prices in the more sought after areas of Aberdeenshire have been more resilient, as also indicated in Figures 14 and 15. Housebuilding in the region has continued apace, despite a slight population fall where growth was anticipated. Anecdotally, there is a view that housebuilders may be attempting to realise the potential from existing landbanks due to concerns over the future prospects for the region post-oil. Given the possibility of there being fewer high-paying jobs of a level equivalent to those in oil and gas emerging in future, as well as an anticipated demographic change in the region, the medium to longer term outlook for the owner-occupied market remains uncertain. More recently, the return of mortgage rates to something more consistent with their long-term trend, after a period of emergency low rates in response to the credit crisis, may simply compound the effect of local issues. Overall, without successful economic diversification a contracting job market and lower incomes would likely see a longer-term decline of house prices in the region, leaving current owners vulnerable to negative equity while having to fund larger mortgage payments in a higher interest rate environment.

Aberdeen's relatively high house prices has led to many people in the city, and particularly the young, being housed in an expanded private rented sector, as a scenario that also reflects the longer-term contraction of public housing via right to buy. This shift has reflected the trend in other areas since the 1980s council house sell-off and changes to the regulation and funding of the private rented sector in the 1990s, principally the deregulation of the sector and introduction of Buy to Let mortgages in 1996. These changes were consistent with the financialisaton of the UK housing market and the promotion of residential housing as an investment asset class.[102]

As above, while owner occupation is still predominant, the private rented sector accounts for around 20% of households, now approaching parity with the formerly predominant social tenures, reflecting the growth of the former and contraction of the latter. The number of homes being acquired by private landlords had been rising since the early to mid-2000s, many of which are homes that were removed from the socially rented sector via the right to buy. One issue with this is that private rented sector (PRS) tenures tend to be significantly more expensive than social renting, homes are more often of poorer quality than owner occupied or social rented housing, while having significantly less security of tenure, all of which can have a profound impact on tenants' wellbeing. Compounding this, the relatively high rents in the private rented sector present problems for those in receipt of Universal Credit (UC). As all benefits have now been rolled into one UC payment, with the housing benefit component (Local Housing Allowance) frozen since 2020, fewer properties can now be funded from the housing element of UC, meaning that tenants have to fund the shortfall themselves from already insufficient incomes. This is a scenario that has greatly exacerbated the cost of living crisis for poorer households in Aberdeen, as elsewhere.

102. J. Bone, 'Neoliberal Nomads: Housing Insecurity and the Revival of Private Renting in the UK', 19 (4) Social Research Online (2014), **https://journals.sagepub.com/doi/full/10.5153/sro.3491**

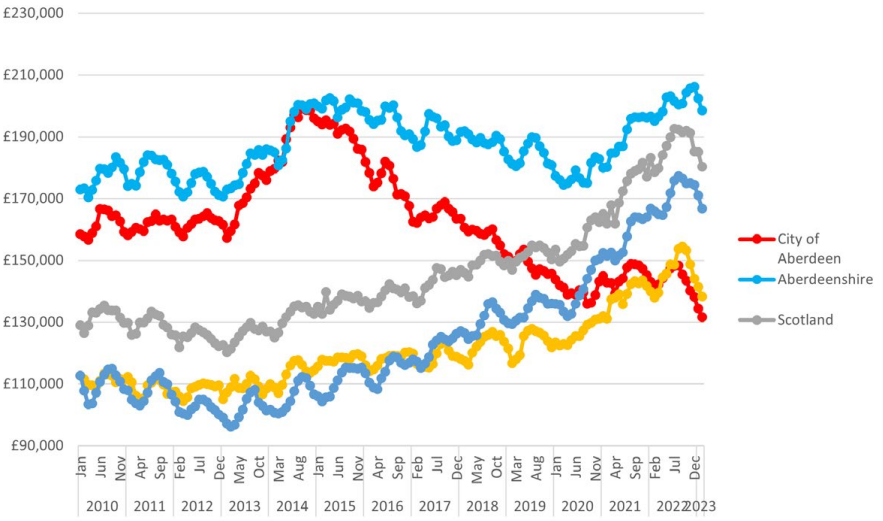


Figure 14: Average house prices (all types) in Aberdeen and Aberdeenshire 2010-2022[103]

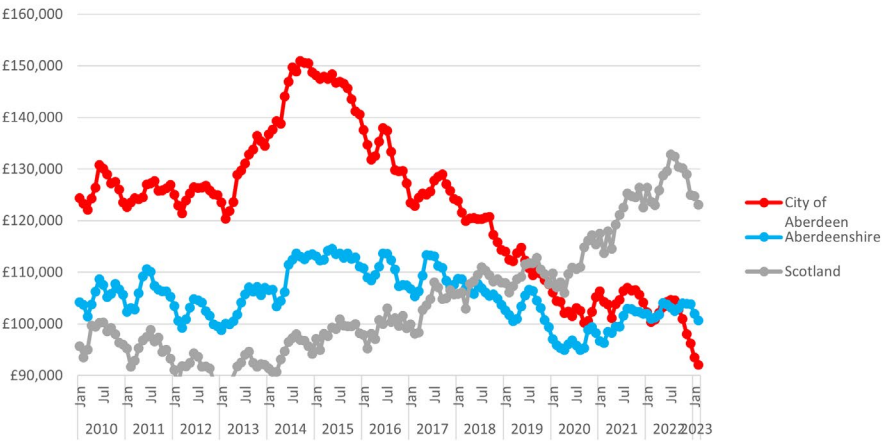


Figure 15: Average flat and maisonette prices in Aberdeen and Aberdeenshire 2010-2022[104]

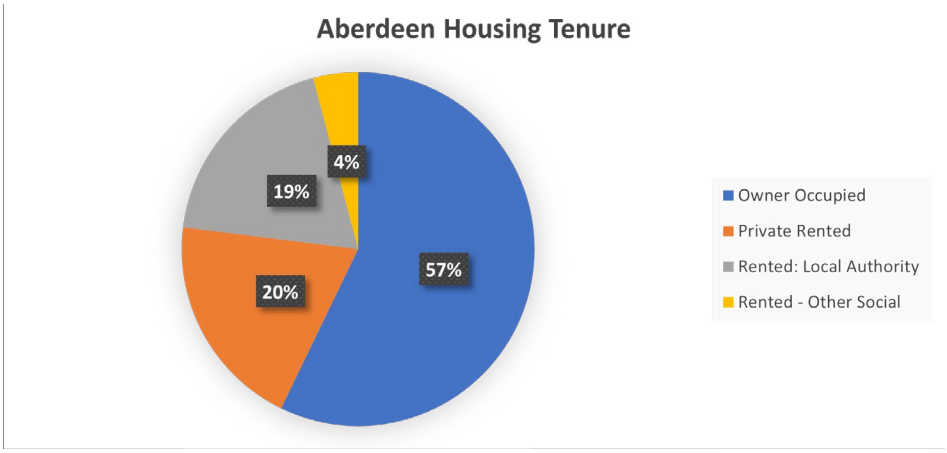


Figure 16: Housing tenure types in Aberdeen[105]

103. Source: UK Land Registry House Price Index via Aberdeen City Council 2023.
104. Source: UK Land Registry House Price Index via Aberdeen City Council 2023.
105. Source: Aberdeen City Council.

Pressure on housing in Aberdeen has declined a little since around 2015 as, contrary to previous population predictions, the city's population has contracted, likely due to a combination of reduced job prospects and Brexit as well as a movement away from the city towards rural Aberdeenshire in line with a trend that emerged with the Covid-19 pandemic. The latter has also been reflected in a significant increase in empty homes in the city, or extended vacancy periods, since 2015.[106] One consequence of this overall scenario, however, is that that there may well be a reduction for homes for private rent going forward as private landlords seek to curb potential equity losses in a falling market and as their yields come under pressure from higher interest rates. Signs that this may be already happening are reflected in the fact that price falls have been most marked in relation to city centre flats, as indicated in Figure 15 above.

As indicated, reduced pressure on the local housing sector is good news in terms of meeting the need for this essential resource, and while homelessness in Aberdeen (as per Figure 17 above) as elsewhere is much higher than it should be in a relatively wealthy society, in relative terms Aberdeen City (115 per 10k against Scotland average of 126) fares reasonably well in comparison to other areas in this regard, while Aberdeenshire (73 per 10k) has some of the lowest levels of homelessness in Scotland.

Overall, as is the case in Aberdeen and across Scotland, and even more so in many parts of the UK, housing is a critical social and, increasingly, political issue while a wholesale reassessment of the legislation, financing and provision at the national as well as local level will necessarily be an integral feature of a Just Transition. As to the specifics of the current scenario in Aberdeen, the ongoing downward correction

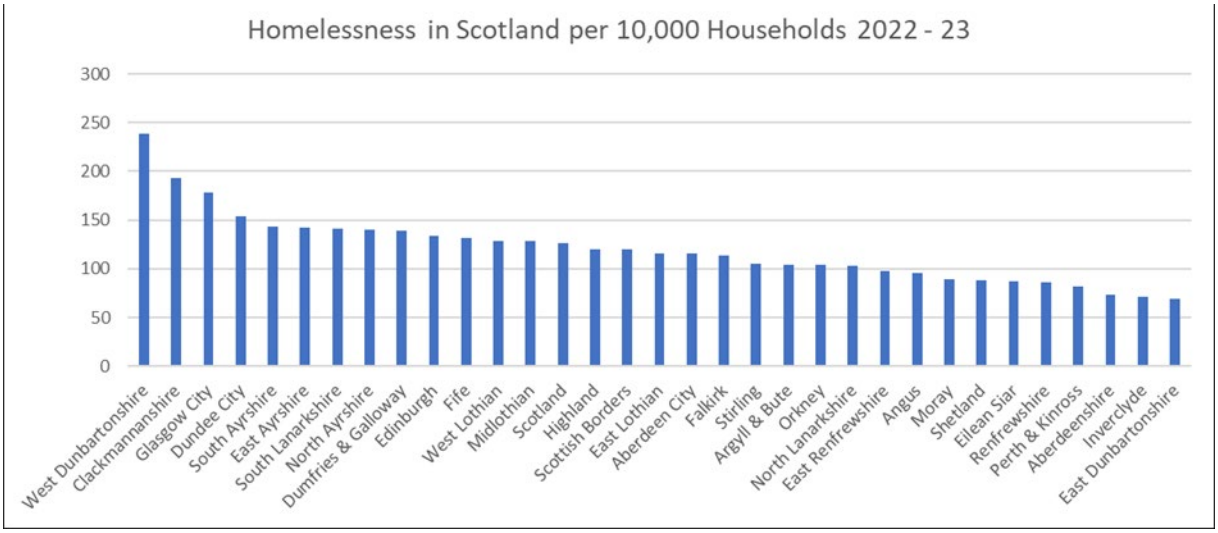


Figure 17: Local authority homeless households 2023 compared to all households (per 10,000)

106. Aberdeen City Council, **Local Housing Strategy 2018-2023**.

in the housing market may have benefits as well as costs. Landlords exiting the local market may well lead to a short-term shortage of privately rented housing, but potentially greater opportunities for those priced out to access owner occupation over the longer term should house prices continue to gradually fall more into line with a wider range of local incomes. Finally, Aberdeen City Council has been responding positively to the housing issues in the city by building more council homes, which is regarded by Shelter and many other organisations as the most viable solution to the current housing crisis. This is in contrast to a range of UK Government policies that have largely been aimed at providing various forms of mortgage assistance to first time buyers and that, paradoxically, have tended to increase house prices leaving home ownership further out of reach.[107] By contrast, council house building will be beneficial for those priced out of owner-occupation or who had been paying relatively high rents for relatively less secure accommodation in the private rented sector. Overall, housing policy and delivery, for a number of reasons, is a key element of delivering a Just Transition.

107. J. Bone, ibid.; National Audit Office, **Help to Buy: Equity Loan scheme – progress review**, 13th June (2019).

6.2 Fuel poverty

Perhaps ironically given its position as an energy centre, fuel poverty in Aberdeen has remained broadly level with other areas in Scotland, affecting around 23% of the population. As below, there had been some progress in this regard in the city until around the onset of the oil downturn in 2014. Subsequently, however, deteriorating economic conditions and the onset of the cost of living crisis has seen a reversal of this trend. As well as a hoped for a gradual easing of energy costs, the retrofitting of houses that do not meet with current insulation standards would clearly go some way to easing these pressures.

The impact of fuel poverty in the region was further highlighted during a knowledge exchange event that was held at the University of Aberdeen on 24th February 2023. Delegates familiar with retrofitting of housing noted the particular difficulties in this regard with respect to housing in the region. While the housing stock across Aberdeen and Aberdeenshire has an age profile very broadly consistent with other council areas in Scotland, the granite composition of older homes renders retrofitting more difficult and potentially more expensive. Nonetheless, in addition to considering new heating and fuel sources, this may be something that will have to be addressed in relation to the greening of the region as well as alleviating the high energy costs for households and businesses currently associated with fossil fuels.

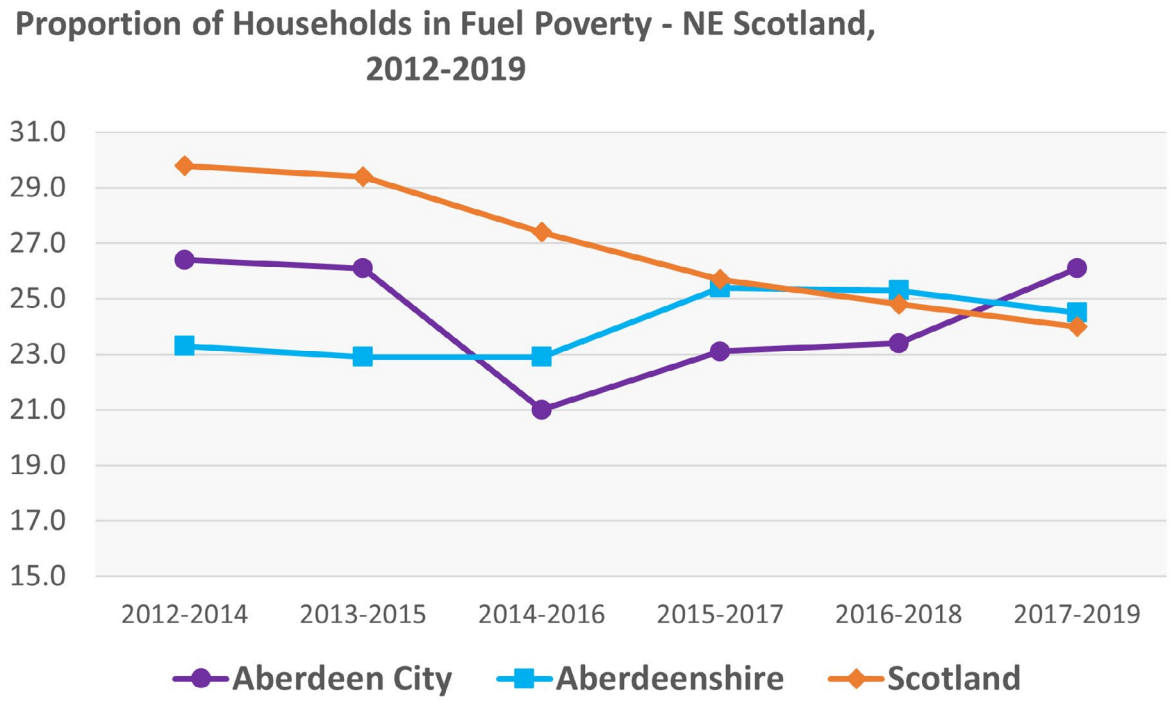


Figure 18: Proportion of households in fuel poverty – North East Scotland, 2012-2019[108]

108. Source: Scottish Government via Aberdeen City Council.

6.3. Deprivation and food insecurity

Aberdeen, at least since the advent of the oil industry, has as above been generally regarded as a very affluent city in comparison to others in Scotland and, indeed, the UK as a whole. However, this image of the city and wider region has tended to obscure profound economic inequality between those employed in the highly paid oil and oil-related sectors and those engaged in routine occupations. In 2010, this was reflected in the city having the highest economic inequality in terms of the Gini coefficient of any UK city outside of London, reflecting the fact that significant pockets of deprivation have existed alongside significant affluence.[109] According to Aberdeen City Council in 2016, "(b)ased on overall rankings of deprivation, Aberdeen City has 22 data zones in the most deprived 20% of all Scottish data zones. The 22 Aberdeen City data zones in the most deprived 20% have a population of 18,055, this accounts for 7.9% of the City's total population. Aberdeen City has no data zone in the most deprived 5% overall index of multiple deprivation in Scotland".[110]

In effect, while the oil boom brought many benefits to Aberdeen, as above it also raised the cost of housing and other essentials for those on modest incomes, leaving many worse off than they might have been elsewhere. The reliance on oil also led to a scenario where fluctuations in activity produced a range of economic problems and insecurities as well as social issues for those at the lower end of the socio-economic scale, a situation that is now also being experienced by former oil workers who have been made redundant after being accustomed to high incomes. Reflecting the fact that Aberdeen has been such a divided city, and also offering some indicators of the underlying tensions from this and the beginnings of the 2014 oil downturn, the Scottish Public Health Observatory in 2016 indicated that, while there were some positive health practices within the community (perhaps amongst the still economically secure) there were indications of social stress amongst the lifestyle practices of some Aberdonians, particularly in relation to substance abuse.[111]

In Aberdeen City, the prevalence of smoking in adults in 2014 was, at 24%, similar to that in Scotland (20%). The rate for smoking-attributable deaths in 2013–2014, at 373, was similar to Scotland (367). The rate for alcohol-related hospital stays in 2014/15 was 713, higher than the rate for Scotland (672). The rate for drug-related hospital stays in 2012/13–2014/15, at 149, was higher than Scotland's 122. In 2010–2014, the rate for alcohol-related deaths, at 22, was similar to the Scottish rate of 23. The percentage of adults walking or cycling to work in 2012/2013, at 24%, was higher than the 16% who did so in Scotland overall.[112] In short, the affluence of Aberdeen in overall terms proved of little benefit in terms of numerous social problems.

109. N. Lee et al., **Wage inequality and employment polarisation in British cities**, Work Foundation/Joseph Rowntree (2013).

110. Aberdeen City Council, **Deprivation in Aberdeen City** p. 6 (2016).

111. **Aberdeen City Health and Wellbeing Profiles – key indicators and overview**, Scottish Public Health Observatory (2016).

112. Scottish Public Health Observatory, ibid.

Further supporting this perspective, in 2016 Aberdeen City had one of the highest crime rates (4th) of council areas in Scotland which once again may be associated with its higher levels of inequality.[113] More recently, inequalities and insecurity in the city also appear to have been evidenced in growing ethnic tensions, where Grampian Regional Equality Council noted that, "(in) 2020, the number of reported prejudice and hate crime incidents in Grampian reached its highest level in the last six years, with the majority of these incidents related to race/ethnicity. The figures are likely to be much higher due to under-reporting. Covid-19 led to a rise in prejudice against Chinese and East Asian communities, along with an increase in gender-based abuse".[114]

While there was some complacency regarding this overall scenario previously, deprivation and economic insecurity appear to have risen significantly as the 2014 oil downturn has progressed in tandem with the impact of Covid-19 and the cost of living crisis.

As well as a fall in house price, rising fuel poverty and some social tensions, a further key indicator of the economic impact of Aberdeen's recent trajectory is reflected in emergency food bank use. Anecdotally, these services have increasingly been accessed by formerly affluent oil workers as well traditionally deprived communities in Aberdeen. According to some food bank providers in the city the cost of living crisis has generated greater demand for emergency food while donations are falling.[115] The latter represents a very significant issue given current food price inflation and stagnating incomes.

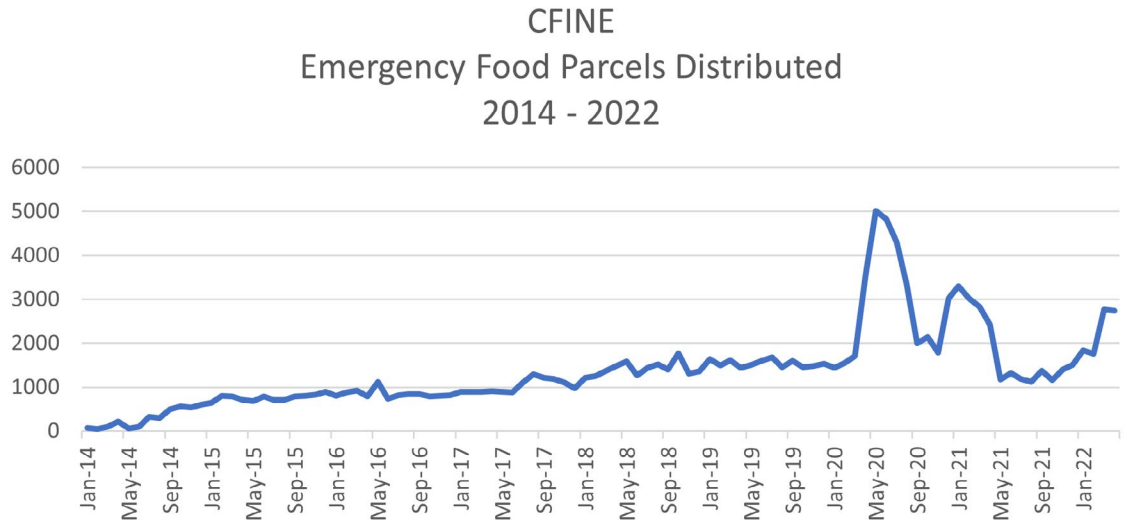


Figure 19: CFINE Emergency food parcels distributed 2014-2022[116]

113. Ibid.

114. Grampian Regional Equality Council, How Fair is North East Scotland? Integration & Community Cohesion in Aberdeen City, Aberdeenshire and Moray (**Integrate Grampian**, December 2021).

115. **North-east foodbank boss highlights 'massive feeling of fear and uncertainty' as inflation hits a new high**, Press and Journal (16 November 2022).

116. Source: CFine.

Council Area	Population	Outlets	Location Quotient	Rank
Aberdeen City	227,430	39	0.93	17
Aberdeenshire	262,690	14	0.29	29
Angus	116,120	23	1.08	13
Argyll and Bute	86,220	32	2.02	2
City of Edinburgh	526,470	100	1.03	14
Clackmannanshire	51,540	4	0.42	27
Dumfries and Galloway	148,790	33	1.21	11
Dundee City	147,720	52	1.91	3
East Ayrshire	122,020	38	1.69	4
East Dunbartonshire	108,900	9	0.45	26
East Lothian	109,580	22	1.09	12
East Renfrewshire	96,580	5	0.28	31
Falkirk	160,700	19	0.64	23
Fife	374,730	94	1.36	7
Glasgow City	635,130	175	1.50	6
Highland	238,060	32	0.73	19
Inverclyde	76,700	7	0.50	25
Midlothian	94,680	5	0.29	30
Moray	96,410	4	0.23	32
Na h-Eileanan Siar	26,640	14	2.86	1
North Ayrshire	134,220	37	1.50	5
North Lanarkshire	341,400	44	0.70	21
Orkney Islands	22,540	4	0.96	16
Perth and Kinross	153,810	35	1.24	9
Renfrewshire	179,940	12	0.36	28
Scottish Borders	116,020	27	1.27	8
Shetland Islands	22,940	3	0.71	20
South Ayrshire	112,450	20	0.97	15
South Lanarkshire	322,630	41	0.69	22
Stirling	93,470	10	0.58	24
West Dunbartonshire	87,790	12	0.74	18
West Lothian	185,580	42	1.23	10
Totals	5,479,900	1,008		

Figure 20: Scotland's foodbanks by Council Area 2023[117]

117. Source: Slater and Watts, 2023.

As Figures 19 and 20 indicate, amongst Scotland's council areas Aberdeen City is not one of the highest in terms of the number of emergency food outlets per head of population, while rural Aberdeenshire as expected has fewer still. In part this may be explained by the fact that widespread deprivation was less of an issue in the region as a whole during the oil boom years, despite there being significant poverty in specific areas. Nonetheless, emergency food provision has been rising steadily since the onset of the oil downturn in 2014, particularly in the city, rising markedly during the Covid-19 period while only experiencing a brief post pandemic lull until the onset of the current cost of living crisis. Depending on the trajectory of the energy transition and economic diversification going forward, this is a situation likely to worsen significantly in the event of an unsuccessful economic and occupational realignment, which will also likely be accompanied by further increases in some of the other symptoms of socio-economic stress indicated above in terms of crime, mental health problems, substance abuse and so on.

6.4 Healthy life expectancy and wellbeing

One other indicator of the impact of Aberdeen's current situation may be gleaned from recent figures on healthy life expectancy. While changes to the local economy have not been reflected in marked variations in overall life expectancy, they have been identified in health life expectancy figures, perhaps reflecting the fact that the latter precedes the former. Recent (2022) figures from National Records for Scotland indicated a sharp fall in healthy life expectancy in Aberdeen since 2013 in relation to the rest of Scotland, suggesting that this may likely have been in response to local economic conditions. The figures are as follows:

Years	Healthy Life Expectancy at Birth (Female)	Healthy Life Expectancy at Birth (Male)
2013-2015	68	64
2018-2020	61	58
2019-2021	61	60

Figure 21: Healthy life expectancy at birth, Aberdeen

In 2019-2021 Scotland: healthy life expectancy at birth for females was 61 years and for males was 60 years, which is consistent with the Aberdeen City figures.[118] Healthy Life Expectancy has fallen everywhere but only by 1-2 years in Scotland as a whole while, as above, it has fallen more significantly in Aberdeen City. This may reflect that the 'affluence effect' that Aberdeen enjoyed due to oil and gas that has diminished since the industry downturn. In part, some of this might be explained by the increase in substance abuse mentioned above. A hidden factor here may also be due to the effects on health of stressors generated by the rapid social change and economic decline being experienced by the city and some of its inhabitants, particularly in the poorer areas of the city. This is in line with other indicators above that may also be related to wellbeing. It is also the case, however, that there is a clear divide between the city and Aberdeenshire where Healthy Life Expectancy has fallen by only around 1 to 2 years for both women (68 to 67) and men (69 to 67) over this period, while also remaining significantly higher than the Aberdeen City and, indeed, the Scottish average. This can possibly be explained by a combination of continuity in terms of relatively higher affluence and higher incomes in the shire and, possibly, environmental and rural lifestyle factors, as discussed below.[119]

118. **Healthy Life Expectancy in Scotland: National Records of Scotland** (2022).
119. Ibid.

Regional Wellbeing Indicators[120]

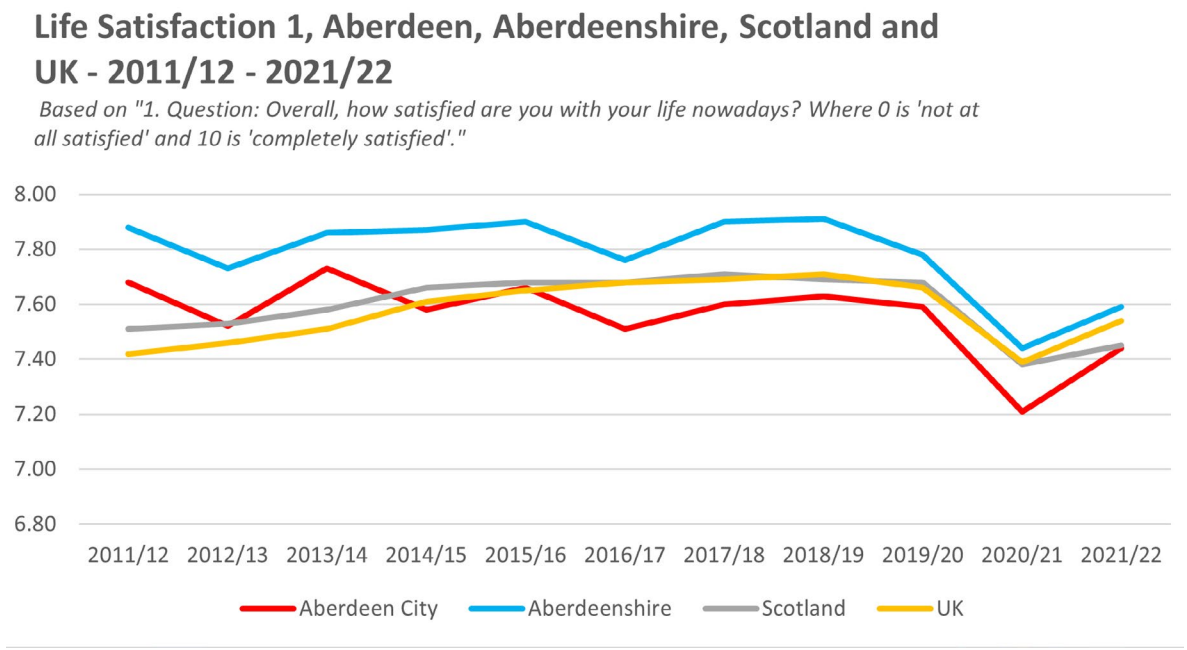


Figure 22: Life satisfaction 1 in Aberdeen, Aberdeenshire, Scotland and the UK (source: ONS, Personal well-being in UK, April 2020 to March 2021 via Aberdeen City Council)

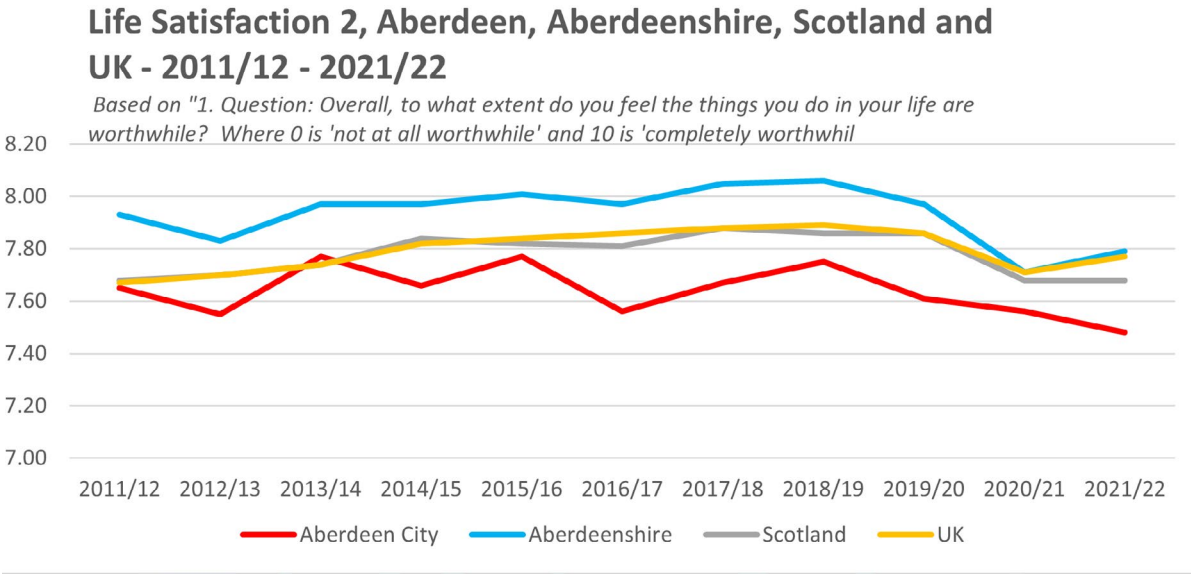


Figure 23: Life Satisfaction 2, Aberdeen, Aberdeenshire, Scotland and UK[121]

120. The responses provided here offer a general guide to levels of wellbeing associated with these indices. However, the ONS has also offered a word of caution, in that data broken down to localities may be impacted by uneven or small sample sizes.

121. Source: ONS, Personal well-being in UK, April 2020 to March 2021 via Aberdeen City Council.

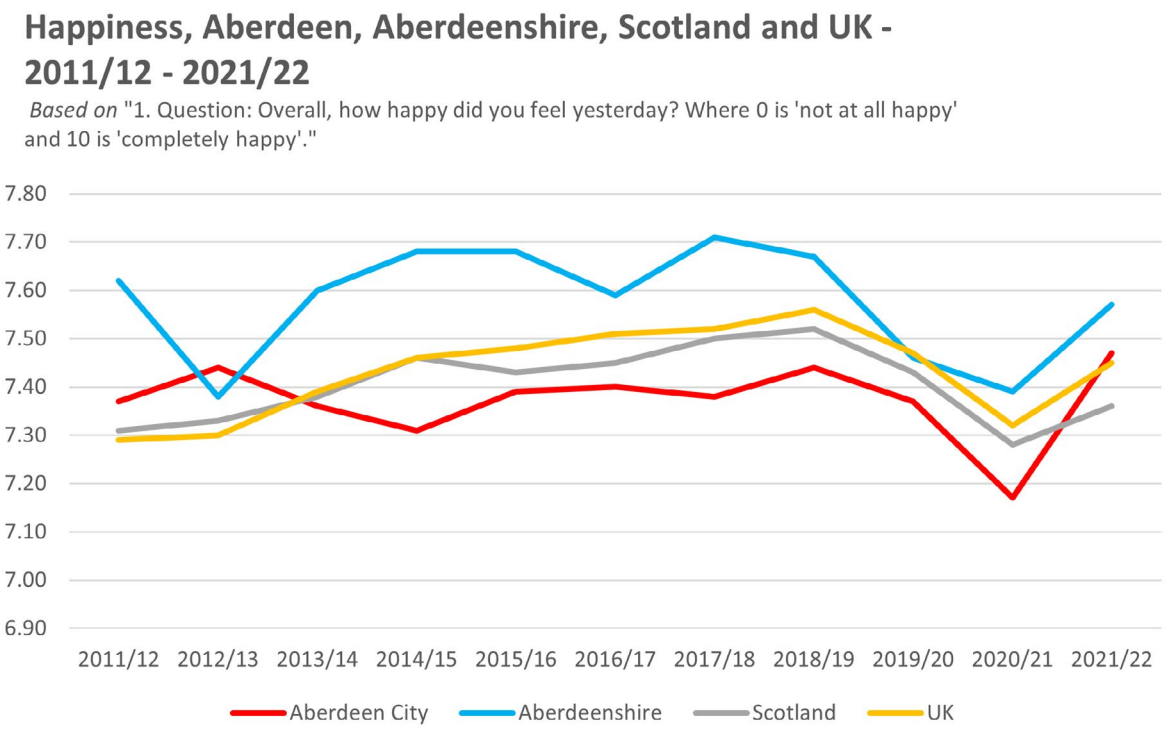


Figure 24: Happiness in Aberdeen, Aberdeenshire, Scotland and UK[122]

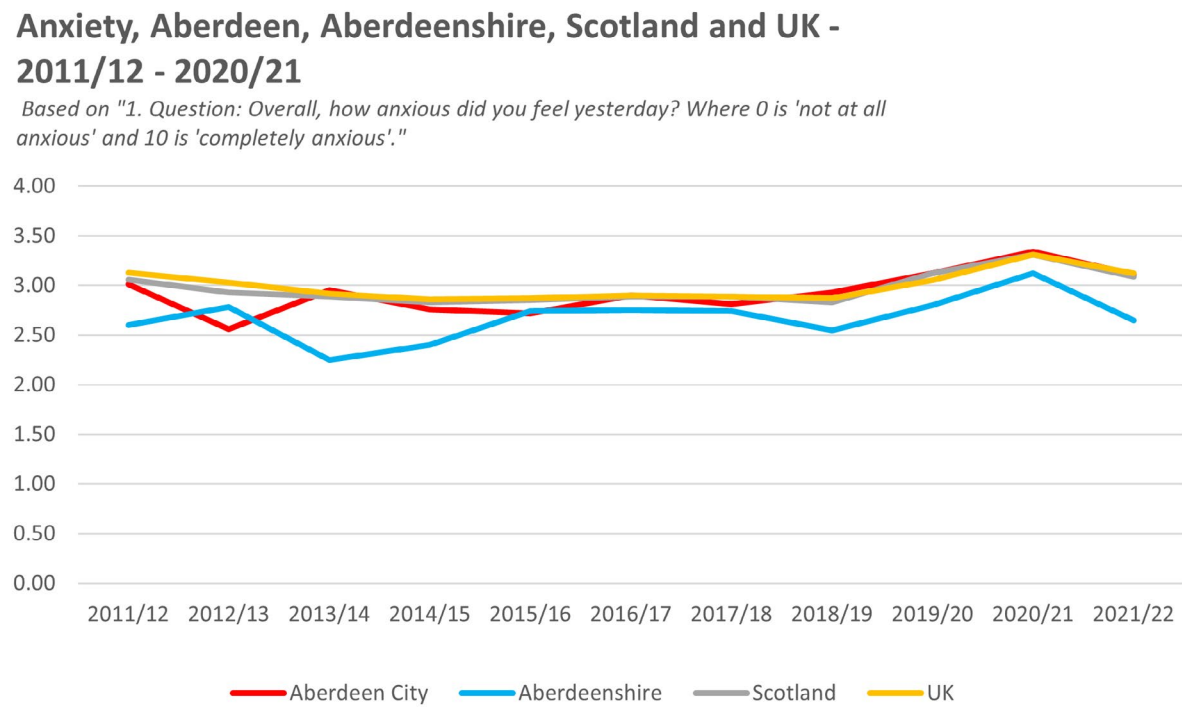


Figure 25: Anxiety in Aberdeen, Aberdeenshire, Scotland and UK[123]

122. Source: ONS, Personal well-being in UK, April 2020 to March 2021 via Aberdeen City Council.

123. Source: ONS, Personal well-being in UK, April 2020 to March 2021 via Aberdeen City Council.

As per Figure 22, given the previous observations it is perhaps unsurprising that there was an apparent dip in overall life satisfaction in Aberdeen City and Shire following the trajectory in Scotland and the UK, brought about by the onset of Covid-19 and subsequent lockdowns. Of note, however, the impact of the economic downturn in the region also seems apparent, where both city and shire levels of satisfaction had been higher than in Scotland and the UK in 2011/12 but trended lower thereafter. In line with what was discussed in relation to healthy life expectancy the fall in Aberdeen City is broadly consistent with the drop in the oil price, possibly as the impact on the region began to become apparent, to be followed by a slight recovery until the onset of the pandemic, while the post-Covid-19 recovery was likely still in progress by 2021/22. However, the trajectory of self-reported life satisfaction also identifies the consistent disparity between Aberdeen City and Aberdeenshire, where the latter has fallen but continues to track higher than the UK, Scottish or Aberdeen City level. This likely reflects the fact that, the lower Southwest area of the city aside, many of the region's more affluent workers reside in the more scenic rural and satellite towns of Aberdeenshire which may also offer some of the community benefits of small town living. Hence, for Aberdeen City as a whole, this measure may have been affected by the less appealing environment of the poorer areas of the city as well as, for a significant portion of city dwellers, fewer economic resources and, hence, less capacity for resilience in the face of declining economic opportunities.

The trajectory indicated in Figure 22 is replicated more starkly and negatively in relation to the question represented in Figure 23. This appears to suggest a general level of disaffection and lack of sense of purpose amongst respondents in Aberdeen City that does not replicate the post pandemic upswing identified in relation to Figure 24. It's also interesting to note that Aberdeenshire's relatively positive performance on this index decreased to align with the UK average and more closely with Aberdeen City at the onset of the pandemic, albeit that it would appear that the divide between the two is returning as we move forward from that point, as Aberdeenshire appears to exhibit greater resilience. There is also no doubt that this may have been aided by conditions experienced during lockdown, where rural settings likely provided more pleasant and readily accessible recreation at that time. This may highlight the importance of environment for wellbeing, while the movement away from the city to rural Aberdeenshire would tend to support this view, as a phenomenon that has been occurring nationally. Regarding Figure 24, self-reported 'happiness' appeared to dip in Aberdeen City in the Covid-19 period while rebounding strongly, a trajectory at odds with that indicated in Figures 22 and 23, albeit that this could be due to the nature of the specific question here, that seeks a snapshot of respondents' mood rather than their longer-term emotional tone. This caveat might also be applied to question Figure 25 where the measure appears to indicate a reduction in anxiety post-Covid-19. However, it might be suggested that the indicators asking respondents for more long-term reflections may be a better guide to what's occurring.

Anxiety	Ranks Worst to Best Out of 32 Local Authorities	Life Satisfaction	Ranks Worst to Best Out of 32 Local Authorities
Aberdeen City	10	**Aberdeen City**	6
Glasgow City	7	Glasgow City	7
Dundee City	4	Dundee City	5
City of Edinburgh	2	City of Edinburgh	20
Worthwhile	**Ranks Worst to Best Out of 32 Las**	**Happy**	**Ranks Worst to Best Out of 32 Las**
Aberdeen City	5	**Aberdeen City**	7
Glasgow City	1	Glasgow City	1
Dundee City	4	Dundee City	5
City of Edinburgh	16	City of Edinburgh	10

Figure 26: Wellbeing indicators (2020/21) ranking across Scotland's major cities[124]

Viewing a range of wellbeing indicators in relation to Scotland's major cities, Aberdeen City does not appear to rank particularly unfavourably by comparison despite the current economic downturn. On most measures Glasgow and Dundee rank poorly, perhaps unsurprisingly given that both contain a higher proportion of deprived areas. The exception is Life Satisfaction where this had declined in relation to the Scottish average since the onset of the 2014 oil downturn and here Aberdeen was placed between Dundee and Glasgow, as all were placed closely together as being near worst in terms of this measure.

The other noticeable outlier was in relation to self-reported Anxiety. Edinburgh ranked best by some margin on three of these indices but was ranked second worst of the 32 local authority areas, for reasons that are not readily explicable. Aberdeen fared reasonably better here in comparison to Glasgow and Dundee. This perhaps reflects the fact that Aberdeen is still at the beginning of its economic transition and that negative consequences associated with this continue to be experienced somewhat unevenly.

124. Source: ONS, Personal well-being in UK, April 2020 to March 2021 via Aberdeen City Council.

6.5 Access to green spaces and the built environment

Increasingly recognised contributors to wellbeing are both the built environment and access to pleasant green space. In terms of the built environment, over recent years, in line with the decline of the local economy, Aberdeen has seen a notable degradation of its city centre in terms of retail and other amenities, detracting from the attractiveness of the city. The so-called 'retail apocalypse' has, of course, also been experienced in numerous locations given the dual impact of Covid-19 and the move towards online shopping. Despite having a vibrant retail sector in the early 2000s, Aberdeen's situation has appeared acute given its particular economic difficulties with the loss of numerous household name outlets and major stores from the city centre. A Just Transition, therefore, will require attention to addressing these issues, including ways of revitalising the city centre in a context where in-person shopping continues to decline.

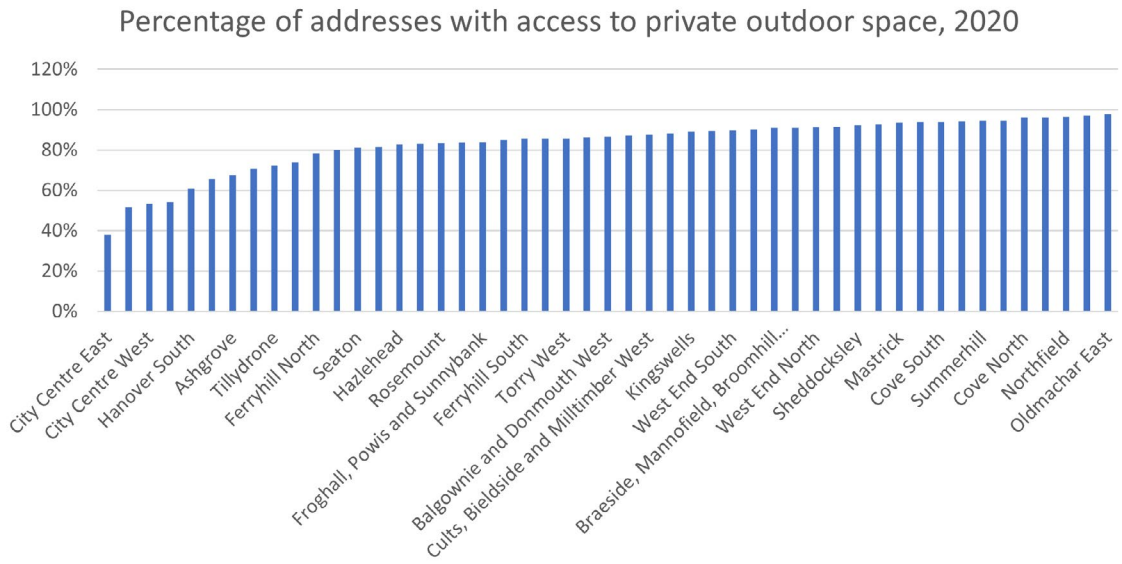


Figure 27: Aberdeen: Percentage of addresses with private outdoor space[125]

125. Source: ONS via Aberdeen City Council.

With respect to green spaces, awareness of their importance has become more evident since Covid-19, given a divide between those with access to pleasant green spaces within their own communities and those without. The City Council has been auditing green space in the city for some time and has recently produced a Tree and Woodland Strategic Implementation Plan.[126] The earlier, 2020 Open Space Audit focused on publicly accessible "open, usually green land within and on the edges of settlement".[127] The Audit measured access to open spaces by type (e.g. heritage park, natural space, neighbourhood park, golf course) and by ward. The data showed that Dyce, Bucksburn and Danestone and Lower Deeside had the most open space while Hilton and Stockethill and George Street and Harbour had the least (see Figure 28 below). The quality of open spaces was also measured taking into account accessibility, attractiveness, ability to support health and wellbeing, biodiversity, and community support. The report concludes that "the poorest quality parks and open spaces tend to be found within the regeneration priority areas". Northfield and Hilton and Stockethill were found to be lacking in provision of open space and the spaces that did exist in these wards were assessed as poor quality.

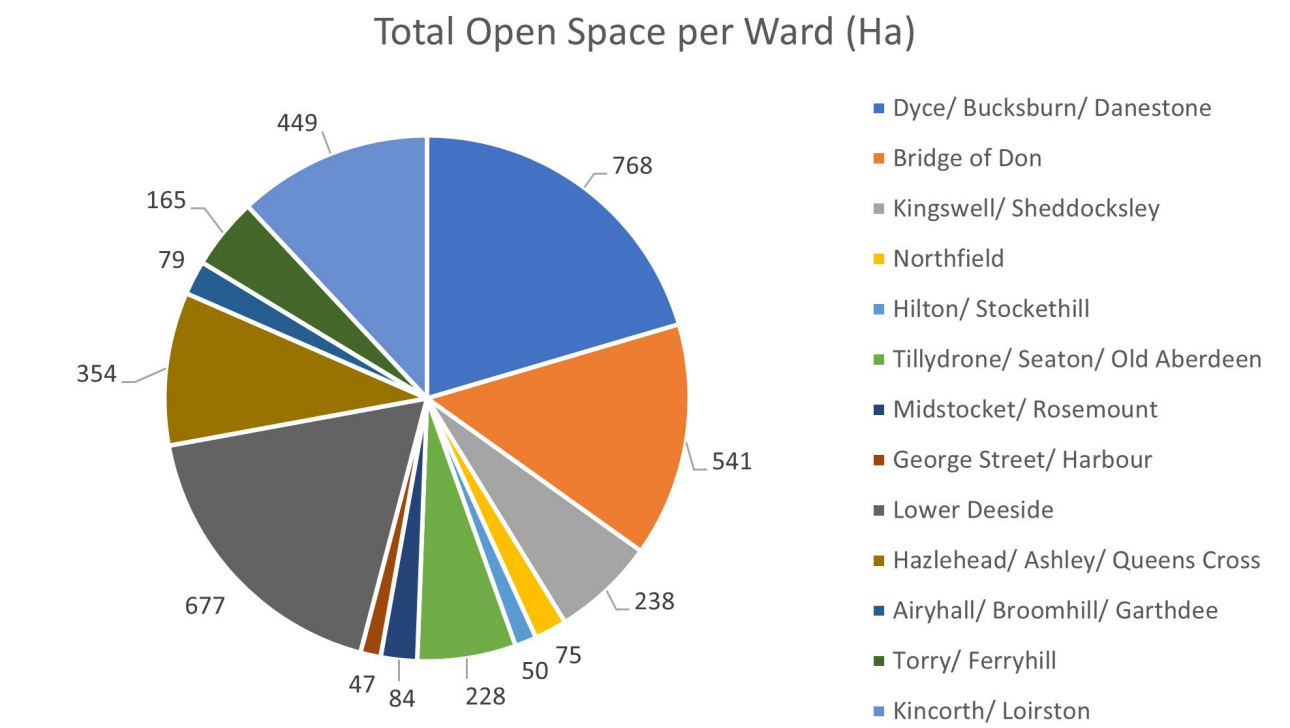


Figure 28: Total open space per ward in Aberdeen City (Ha)[128]

126. Aberdeen City Council, **Tree and Woodland Strategic Implementation Plan** 2022-2025 (2021).
127. Aberdeen City Council, **Open Space Audit** 2010.
128. Aberdeen City Council, **Open Space Audit** 2010.

The evident policy aim is to extend access to green space within the city. However, there are some issues in terms of differential a ccess t o this type of space. As per the figure above, as expected access to private green space is least available in the inner-city areas, while much of the city's public green space is confined to large Victorian parks with varying levels of access. In Aberdeen, as with most other UK cities, these overt measures only provide part of the story, however, in that while the more affluent areas of the city and suburbs may appear superficially similar the quality of the environment, in terms of pleasant tree lined, larger gardens and so on, may be substantially different. There is much less pleasant green space, particularly amongst the deprived areas around the city centre. This has been subject to tensions of late, particularly with respect to plans to turn over St Fittick's Park - one of the very few accessible green spaces in the relatively poorer Torry area - to industrial use as part of an Energy Transition Zone.[129] Overall, this latter scenario has become reflective of wider tensions in the city over how the energy transition is managed.

6.6 Reflections and conclusions

It seems clear that across the key indicators identified in relation to equality and wellbeing in Aberdeen the data reflects the slowdown in the regional economy together with a variety of negative implications that are being experienced, particularly for those living in the most deprived areas of Aberdeen City. Once considered to be one of the most affluent regions of the UK outside London, Aberdeen has been experiencing an ongoing decline in terms of its economy, built environment and infrastructure impacting on the wellbeing of many of its citizens. This has particularly impacted those in the deprived areas of the city who did not substantially benefit from the oil boom and who occupied low wage employment in an area where the incomes of a highly paid sector has tended to drive up the price of essentials. That being said, of late there has been an increase in financial insecurity amongst formerly well-paid oil industry workers whose circumstances have radically diminished with the industry's decline and the redundancies that have accompanied the oil downturn in 2014.

With respect to specific indicators, housing continues to be a major issue in terms of wellbeing, given the fundamental importance of having a secure and affordable home. Housing is also a key marker of social status, while the nature of the built environment, of itself, has an impact on emotional and physical health. High and fluctuating house prices, and difficulty accessing owner occupation, while a national issue, has been particularly acute in the region as high earnings in oil and gas pushed up house prices beyond the reach of those on more modest incomes. As elsewhere, there has also been a significant level of property investment via buy-to-let, partly fuelled by industry workers, expanding a sector that provides relatively high-cost, insecure rentals for those priced out of owner occupation. This scenario has been shifting, however, since the onset of the oil downturn in 2014, with house prices and rents in the city declining improving affordability and access. This has also been

129. **Torry campaigners still hopeful St Fittick's Park can be fully saved from ETZ – despite council being unable to change plans**, Press and Journal (29 May 2023); **Lawyers hint at court battle over St Fittick's Park**, Aberdeen and Grampian Chamber of Commerce (12 September 2023).

aided by the city council stepping up a new council house building programme that is currently ongoing. A caveat in terms of this overall scenario, however, is that the trajectory towards declining prices and greater affordability has impacted on the city and shire unevenly, with the overall more affluent areas of Aberdeenshire, where many of the still affluent workers who continue to be employed in oil and gas reside, yet to experience a level of price adjustments comparable to that seen in the city. This disparity in terms of income, house prices and financial wellbeing more generally seems apparent across a range of the key indicators identified in relation to Just Transition in the region, from house prices, homelessness, the numbers and demands on foodbanks and the third sector, access to green space, as well as self-reported measures of personal wellbeing. Across all of these indicators, Aberdeen City appears to be clearly experiencing decline - a fact recognised by the city council who are enacting a range of policy interventions to tackle existing inequalities and growing poverty and deprivation in the city – but with this being significantly more muted in the wider Aberdeenshire area as yet.

Finally, given that the decline of oil and gas has been a gradual if inexorable and highly observable phenomenon in Aberdeen that cannot be reversed, not least due to the imperative to mitigate and avert climate breakdown, it appears clear that what is currently being experienced in the city will inevitably worsen and extend throughout the region. A Just Transition will depend, not only on existing inequities and emerging social problems being assuaged in the short term, but on the recognition that the building blocks of a diversified regional economy and more equitable and environmentally sustainable future for the region must be developed now, before the decline becomes intractable. A key danger here, and one that has become more likely since the onset of the war in Ukraine raised oil prices and the UK government opted to abandon its climate commitments toback more oil and gas exploration in the North Sea, is that any shift in focus towards renewables and other new industries, ie a necessary and greener reinvention of the regional economy, may come too late. Hence, diversification needs to be planned for now to avoid an economic collapse that is relatively abrupt and potentially devastating for the region. Unfortunately, this has long been the experience of regions heavily reliant on specific and declining industries that once created significant affluence, as the temptation to enter a period of denial and to try to keep things going until too late is a strong impulse. A Just Transition for the North East will, therefore, be dependent on this impulse being resisted and steps being taken before the window of opportunity closes.

7. Democratic participation

The Rapid Evidence Assessment report[130] and participatory work in regional Just Transition[131] highlighted the importance that communities in Aberdeen and Aberdeenshire place on meaningful participation in local decision-making, especially against the background of the lack of control over how oil and gas were developed, and the benefits distributed. The SUII research identified that communities understand there are substantial skills and capacity from oil and gas that should be harnessed to build a new Net Zero economy. There exist genuine concerns over future jobs and there is a desire for a more diverse regional economy, including high employment sectors such as retrofit and community energy. Communities have described how they have felt 'left out' of strategic planning processes, particularly marginalised groups, and desire a stronger voice in determining the future of the North East in a Just Transition. The governmental Just Transition principles feature the need to develop and maintain social consensus (and trust) through engagement and regional place making. Aberdeen City Council has established the Empowerment Strategy[132] as a part of the Net Zero Roadmap and highlights that transition planning should embed "fairness, inclusion and transparency" as a key part of the process.

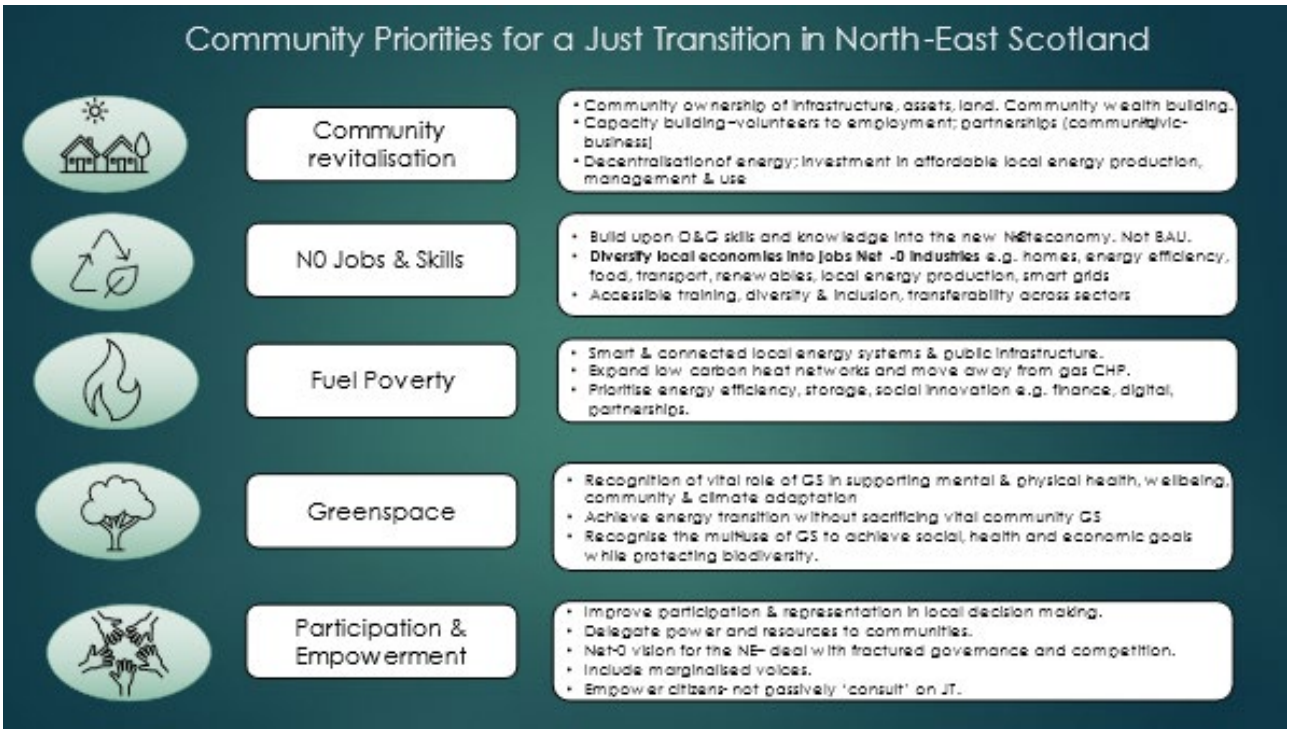


Figure 29: Participation as a core complement of a Just Transition in the North East of Scotland

130. D. Shapovalova, T. Potts, J. Bone, K. Bender, Just Transition for Workers and Communities in Aberdeen and Aberdeenshire: **Rapid Evidence Review** (2023).

131. T. Potts et al., Community Participation in a Just Transition to Net Zero in the North-East of Scotland (**SUII, 2022**).

132. See: Aberdeen City Council. Net Zero Aberdeen Empowerment Strategy: **https://www.aberdeencity.gov.uk/sites/default/files/2022-11/Empowerment%20Strategy.pdf**

7.1 Participation as a measure of a Just Transition

Participation in the process of determining the objectives, direction and the implementation of a Just Transition in Aberdeen is arguably the least developed of the metrics and indicators. The participatory and empowerment elements of a Just Transition are strongly reinforced in the policy and academic literature[133] and increasingly in civil society declarations concerning transition.[134] However, despite participation widely recognised as a 'tier' of transition, specific indicators that can evaluate the quality and efficacy of place-based deliberative approaches are limited. Arguably, this could be seen as a result of local, community and city-based deliberative processes emerging into mainstream practice, particularly in the third sector and in civil society.[135] Deliberative processes such as community and climate assemblies are increasing in practice, but are not necessarily widespread or connected into more formal decision-making frameworks. There are diverse practices emerging around citizen engagement,[136] and part of the challenge faced by practitioners is how to effectively understand the contribution at a project scale (i.e. a locality) and at a place based scale (i.e. a city or region). The empowerment aspect of engagement is further challenging to capture in traditional indicators, and as is increasingly argued, this complex societal issue may be better evaluated by a mix of different methods.[137] Fundamentally we connect the notion of *empowerment to agency* – the ability of individuals, citizens and communities to determine and shape the direction of a Just Transition that is fundamentally to their benefit and address their concerns.

Given the challenge and paucity of indicators for participation, we have identified three proxy indicators for assessing place-based participation in a Just Transition. We also present original data on the development and response to climate assemblies in the North East of Scotland.

7.2 Trust and participation in local institutions and decision-making

How citizens, and the communities they form, trust their local authority to represent their concerns and participate in local planning and policy making is an overarching measure of democratic participation. Broadly speaking, if a person does not trust their local authority, or the processes behind it, this could impact engagement in local initiatives, undermine the ability of communities to input into local planning changes or have their needs and concerns met. While local authorities are a key implementer of local changes around transition, there remain concerns over appropriate resources[138] for initiatives and the capacity for addressing at scale the needs for building engagement and trust, addressing fuel poverty

133. See for example: R. Bray and R. Ford, Enabling a Just Transition to Net Zero: A Manifesto for Change (**University of Strathclyde Publishing**, 2022).
134. See Participation as a core complement of a Just Transition in the North-East of Scotland (source: T. Potts et al., Community Participation in a Just Transition to Net Zero in the North-East of Scotland (SUII, 2022)).
135. The NESCAN **community project map** highlights the mix of community climate action activities currently underway in the North East.
136. Community, citizen and climate assemblies, participatory budgeting, education and youth engagement, creative and arts-based approaches and direct action.
137. For example, drawing upon literature in natural capital evaluation, D. Burdon et al. argue that social and cultural values can be evaluated using participatory mapping, community voice, visual / arts methods and survey techniques. 'Linking Natural Capital, Benefits and Beneficiaries: The Role of Participatory Mapping and Logic Chains for Community Engagement', 134 *Environmental Science & Policy* (2022), **https://doi.org/10.1016/j.envsci.2022.04.003**.
138. **Local Government Association UK**.

and energy efficiency across very large and diverse estates.

Drawing upon the statistics from the Scottish Household Survey 2021 we observe that in the North East of Scotland, trust in local government is broadly similar across Aberdeenshire (62%) Moray (65%) and Scotland (64%). Trust is slightly lower in Aberdeen with 55% who trust the local authority and 35% who do not and 10% who do not know. With approximately 1 in 3 citizens not trusting the local authority, this would substantially hinder democratic processes.

In Figure 31 below, the Scottish Household survey identifies the perception of citizens who believe their local authority is listening to their concerns. Across Scotland, and broadly similar against Aberdeenshire, there has been a gentle decline in perceptions from 2014-2019 with a slight increase in 2021 to 25%. In Moray, perceptions of listening have been variable, but below the Scottish scores. In Aberdeen, there is a notable decline in the view that the local authority is listening to citizens, with positive views declining from 25% in 2017 to 16% in 2021. While in Scotland, Aberdeenshire and Moray there is an increase in the values from 2019 to 2021, Aberdeen displays a consistent decline. It is notable and concerning that overall, the data suggests that a maximum of 25% of citizens feel the local council is good at listening to their concerns, and this is more pronounced in Aberdeen at 16%.

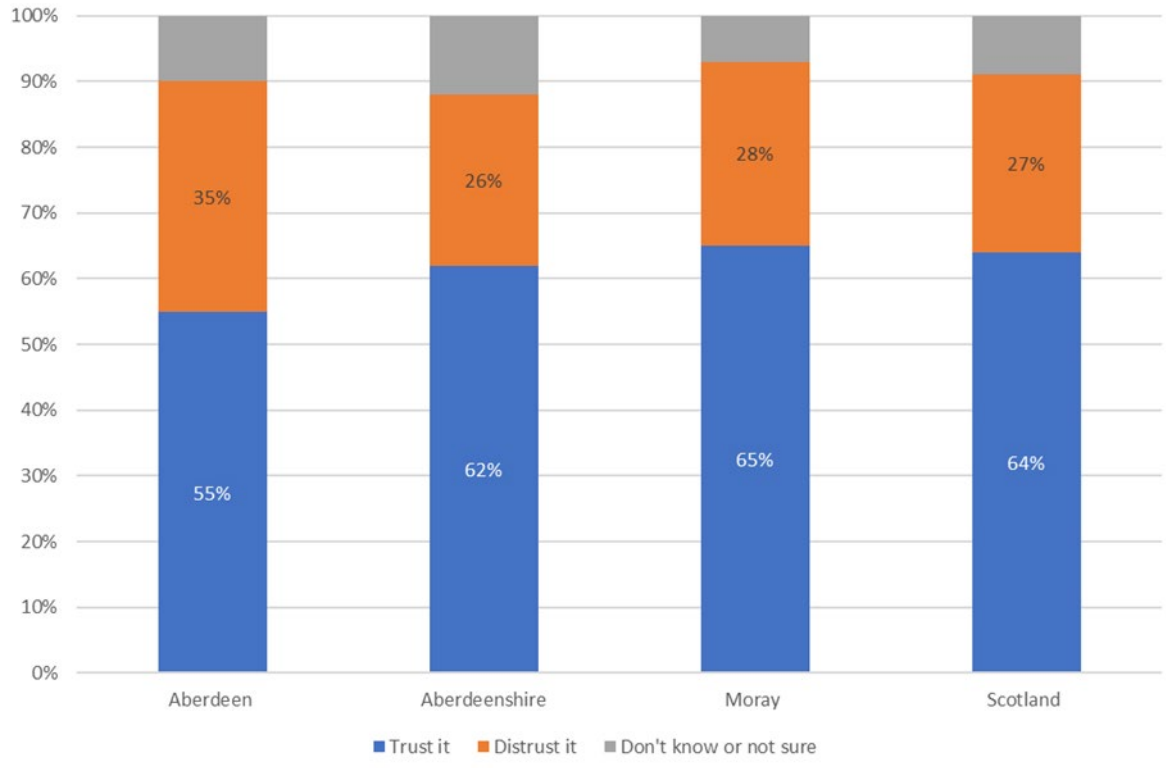


Figure 30: Trust in Local Government[139]

139. Source: Scottish Household Survey 2021.

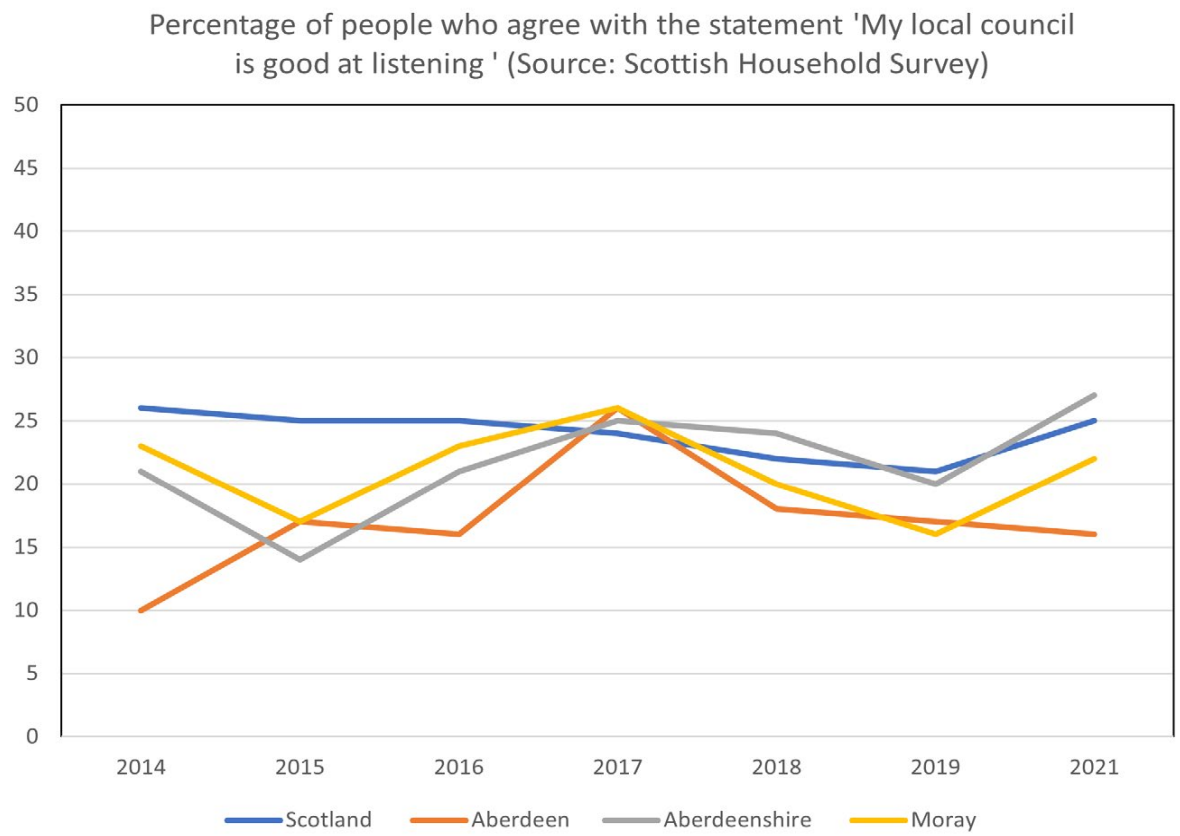


Figure 31: Data on how local councils are listening to citizens[140]

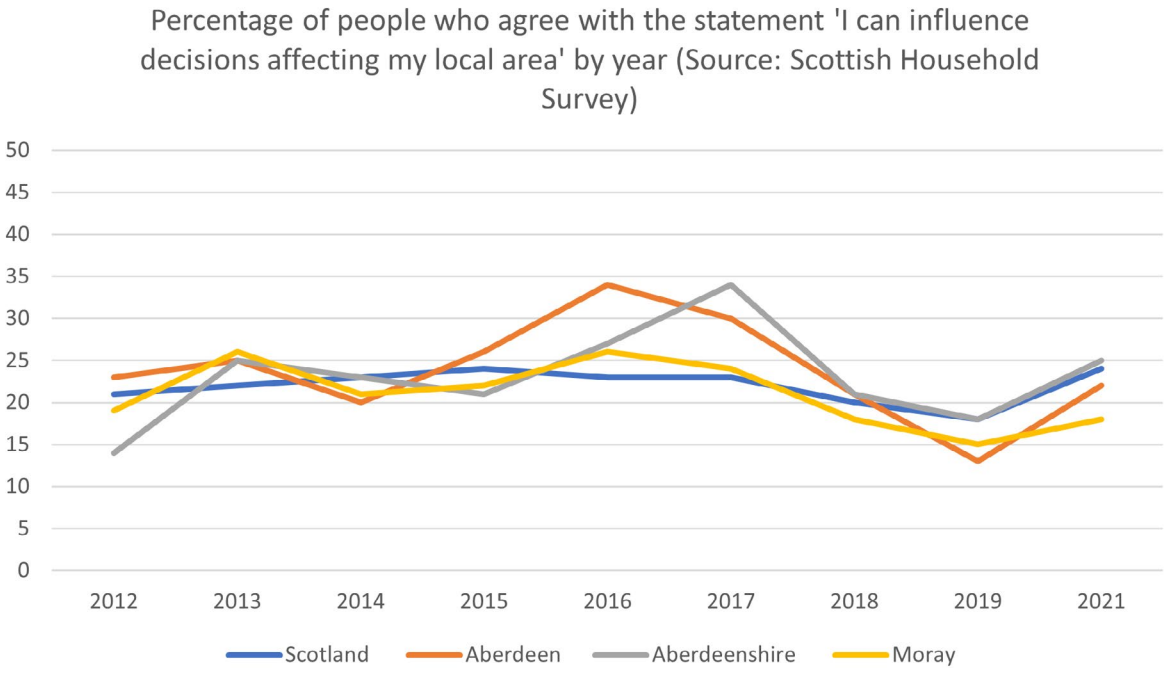


Figure 32: Data on citizens views on influencing local decisions[141]

140. Source: Scottish Household Survey 2021. Note that in the SHS survey data in 2020 did not cover all questions or local authorities due to a change in survey technique from the Covid-19 lockdown.

141. Source: Scottish Household Survey 2021.

If the data on listening represents the ability to understand and capture key concerns, the data in figure 32 below represents the perception of agency in being able to influence decisions at the local level. The trends across the local authority and Scotland are broadly similar. Across Scotland, between 20-25% of respondents felt they could influence local decisions from 2014-2021. Aberdeenshire peaked in 2017 with 34%, declining to its lowest point in 2019 and recovering to 25% on par with the Scottish trends. Aberdeen rose consistently from 2014 peaking in 2017 at 35%, followed by steady decline to 13% in 2019 and an upswing of 22% in 2021. Overall, in the region, this data point to concerns that a maximum of 23% of citizens (and 18% in Moray) felt that they could influence decisions.

Aberdeen City Council publish an annual citizen survey[142] 'City Voice' that explores a variety of civic perspectives. The survey has been conducted over 20 years in different formats allowing citizens to express their views and is published annually. With the lag from the Scottish data, we can examine participation issues from 2020 to the 2023. The data indicates in 2020, 60% of respondents felt there was 'lots of room for improvement' (a score of 1 or 2 out of 7 with 1 the lowest and 7 the highest) in the question "Do you feel able to participate in decisions and help change things for the better?". From 2021-2023, this grew slightly more positive with 50% of the sample giving a score of 3 or less (room for improvement) and inflation of more positive scores (scores of 5-7 indicating less room for improvement and therefore more satisfaction). However, it is important to note that the average score across the sample is 3.3 out of 7 indicating that overall, while there has been an improvement since 2020, there is further scope for improvement of engagement capacity.

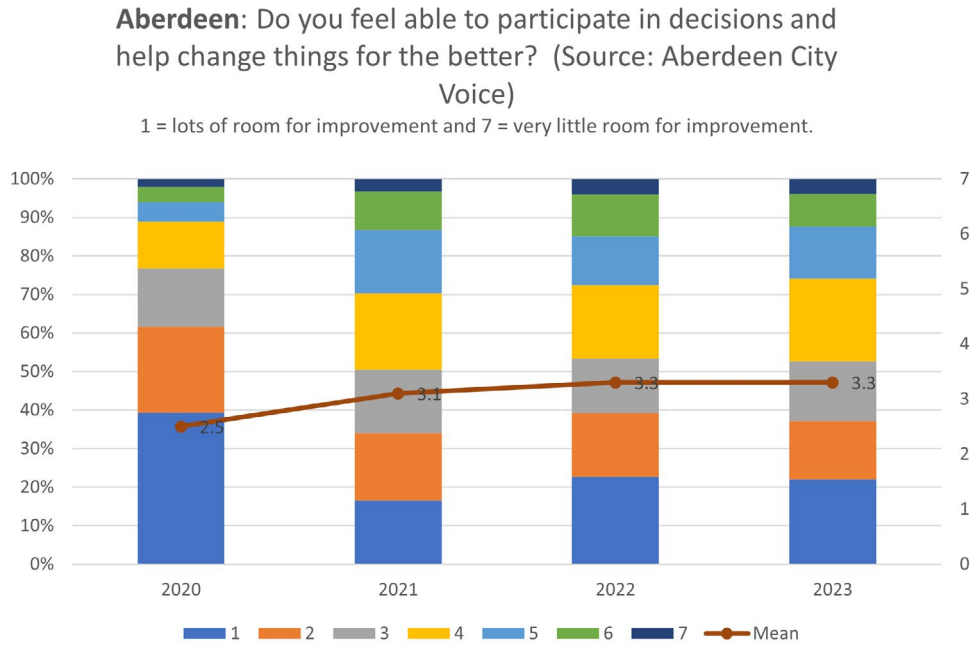


Figure 33: Data on citizens views on participation in Aberdeen[143]

142. **Aberdeen City Voice Survey**.

143. Source: City Voice, Aberdeen.

Corresponding with the data reflecting the perception of a lack of involvement in decision making, we present further SHS data on citizens wanting deeper involvement in decision making. Based on the above trends where a majority of citizens feel not listened to or unable to influence decisions, it is relatively unsurprising that there is a strong increase from respondents in Scotland, Aberdeen and Aberdeenshire calling for greater involvement. Note the 50% figure in Aberdeen and the slight drop in Moray to 29%.

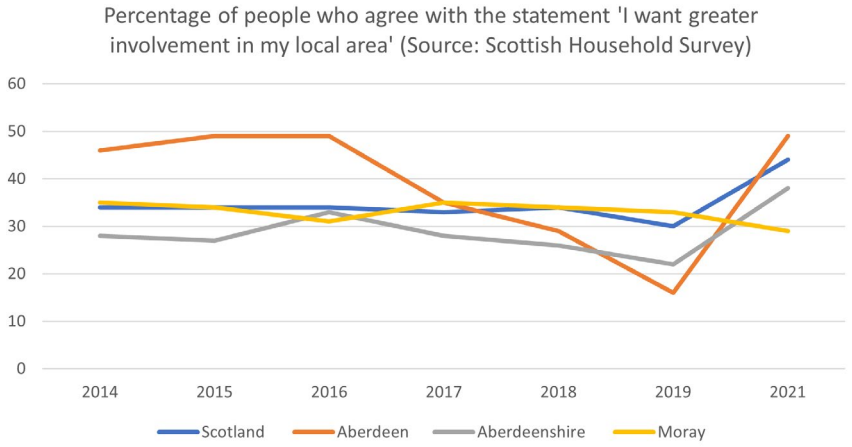


Figure 34: Data on citizens views on wanting involvement in decision making[144]

7.3 Social values on climate change

Understanding the societal values on climate change can support the evaluation of participation in three ways. First, citizens who are aware and engaged in climate change and recognise that it is an existential and urgent problem are more likely to be engaged in actions to resolve it – whether this is individual or societal. Second, climate awareness in the local context is a useful lens to hold up against the activities of a region in order to compare the policy approach against the desires of citizens. Third, with increasing local climate action and awareness raising of environmental issues, we would expect an increase in perception of climate as a problem.

Figure 35 below highlights a similar trend across Scoland, Aberdeen, Moray and Aberdeenshire. From 2013 to 2018 there was a plateauing of perceptions of climate change as a problem. These levels sat at around the 50% range of the sampled population seeing climate change as an urgent and immediate problem. The data highlights that since 2018 to 2021 this has increased across the board. Interestingly, Aberdeen saw a rapid rise in perceptions, peaking at 83%, the highest recorded since 2013 and similar levels to the Moray and Scotland sample. Aberdeenshire was below the Scottish average and the other authorities at 71%. In the North East more sceptical views have slowly declined over time. In Aberdeen those who thought climate was a future problem or not a problem at all were 14%, in Moray 19% and in Aberdeenshire 25%. Despite the overwhelming majority indicating that climate change is an immediate problem, 1 in 4 people still hold to sceptical views of immediate climate action, with Aberdeenshire above the national average.

144. Source: Scottish Household Survey.

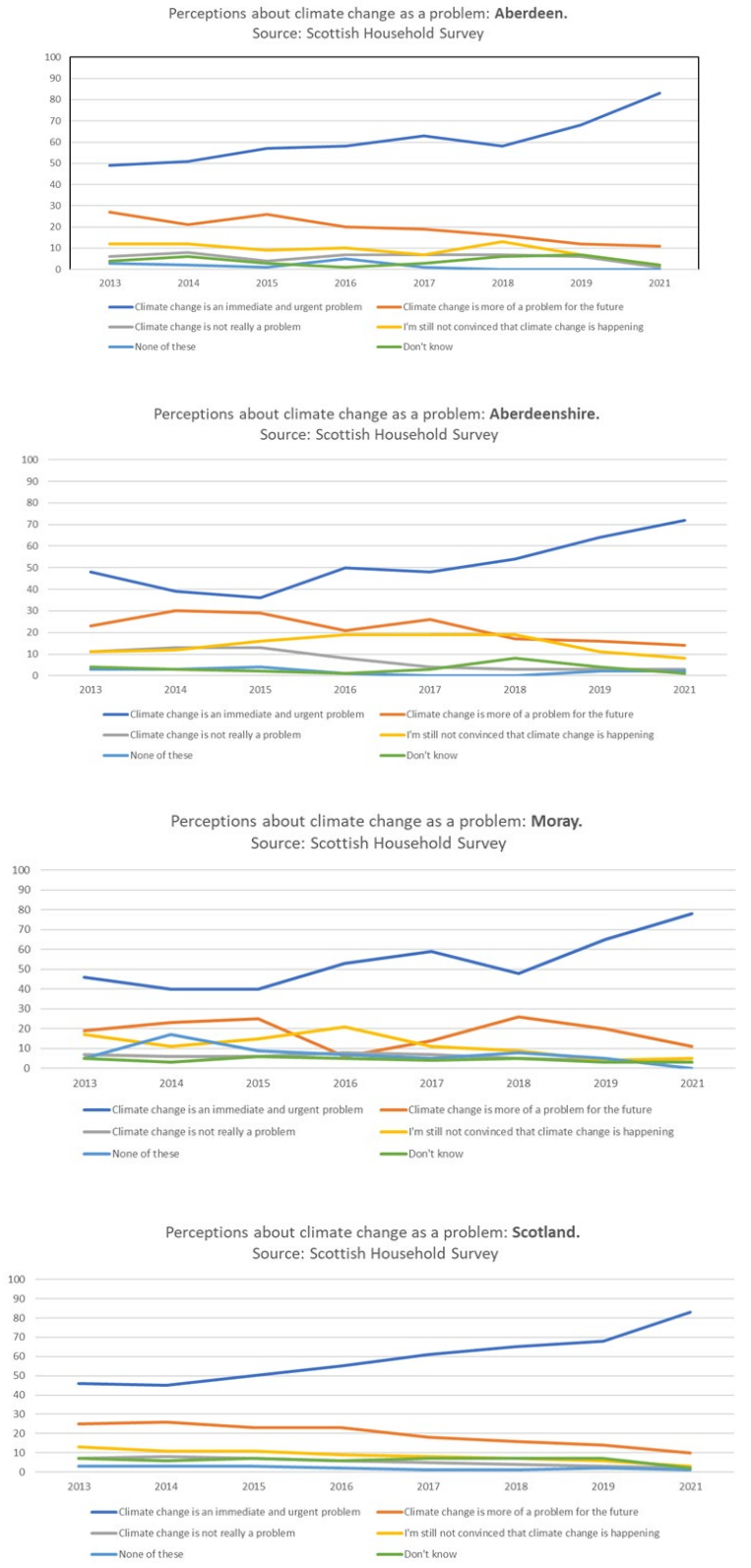


Figure 35: Data on citizens perception of climate change as a problem[145]

145. Source: Scottish Household Survey.

7.4 Deliberative process – climate assemblies in the North East of Scotland

In response to the trends of poor engagement in decision making processes, significant levels of mistrust and rising awareness of the climate emergency, the North East has seen a notable increase in civil society initiatives through projects such as the Community Participation in a Just Transition[146] and the Scottish Government funded North East Community Climate Assembly Pilot led by NESCAN.[147] These projects are addressing the 'democratic deficit' in local climate action by partnering with communities, civil society and the public sector to collectively develop a vision and shape Just Transition planning in the region by delivering climate assemblies. With many of these projects live, there is little current data on the effectiveness of these approaches, how they shape individual and regional awareness and their penetration into decision making and business planning. As a part of the NESCAN project, the University of Aberdeen delivered the North East's (and the UK's) first survey of local decision-maker awareness of climate assemblies and the response to them.

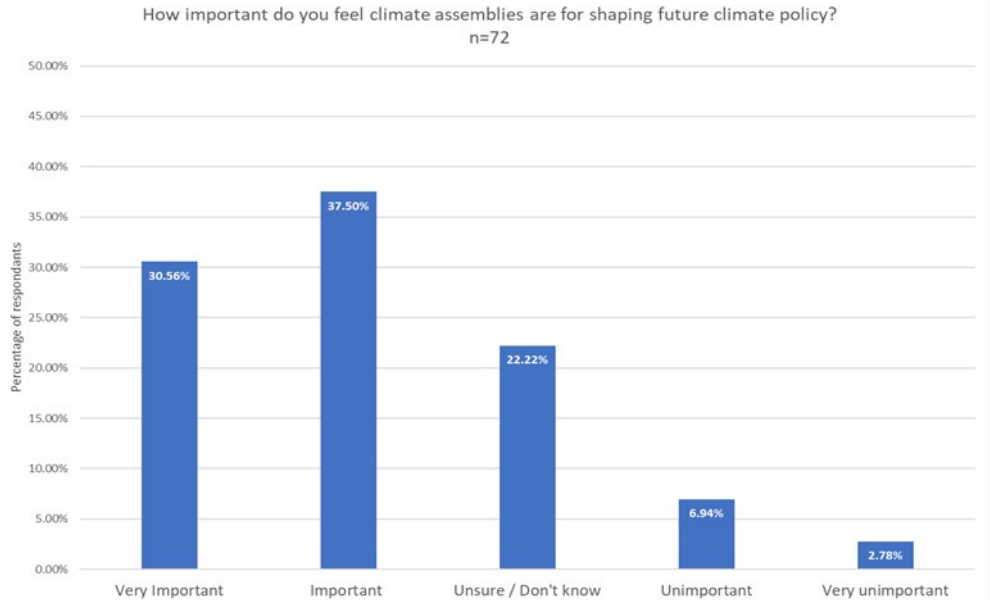
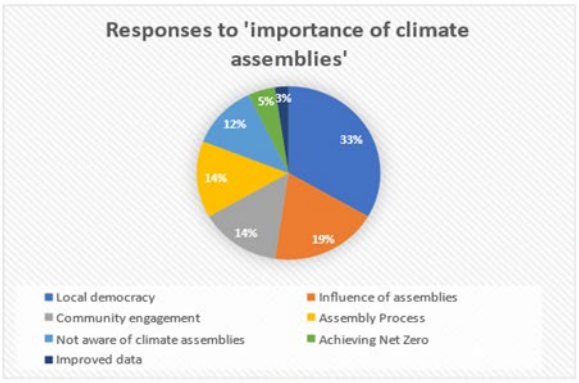


Figure 36: Importance of climate assemblies[148]

146. T. Potts et al., Community Participation in a Just Transition to Net Zero in the North-East of Scotland (**SUII**, 2022).
147. Scottish Government, Just Transition Fund: **Year One Projects** and **NESCAN**.
148. Source: University of Aberdeen survey 2023.

In Figure 36 above 68% of respondents indicated that climate assemblies were important for shaping future climate policy. There were significant levels of uncertainty about assemblies given they are relatively new approaches and the links back to policy and planning are unclear. Just under 10% felt that assemblies were unimportant. In examining the range of values around the importance of assemblies, the main function (33% of responses) aligned to local democratic participation, citing that communities must be openly and fairly engaged in the transition of the region. The influence of assemblies was an issue noted, with many uncertainties on how assembly outputs would influence decision makers and how assemblies can be representative. Other viewpoints included the importance of good process in assemblies, citing concerns over the design and the legitimacy of the assembly and its outputs. The importance of meaningful engagement as opposed to more tokenistic and top-down engagement with communities was noted as a key consideration.



Local democracy (33% of responses)
"People who are going to be affected should have a voice."
"It will give an insight into the generalpublics views as opposed to politicians and scientists."
"This is vital to ensure that all communities are represented fairly in thedecision making process."
"Decisions taken should be taken with the people and not done to the people".

Influence of Assemblies (19%)
"Importance depends on how the views of climate assembly is taken by politicians."
"Climate assemblies would just end up in talking shops with negligible influence."
"Sceptical over whether they will be listened to."
"Not sure how they feed into policy at any level. Feels quite sporadic & not sure of evenness of coverage."

Community Engagement (14%)
"Some of the best examples of climate projects come from small community led initiatives."
"To support inclusion, dialogue and knowledge exchange."

Process (14%)
"It depends on how the assemblies are run and if there are actions - and if they are listened to."
"The climate assembly process is fundamentally flawed and undemocratic."
"They have great potential but a lot depends on how they are conducted."

Figure 37: Importance of climate assembly's qualitative values[149]

149. Source: University of Aberdeen survey 2023.

The survey data presented in Figure 38 below identified that over 60% of respondents from the North East identified that climate assemblies, and by extension other civic forms of participation, were important in increasing community empowerment. While at present we lack the data on what form of empowerment is improved and the extent of its reach or practical delivery, there appears to be strong recognition in this regard coupled with some uncertainty.

What is clear is that decision makers, including local authorities and community councils are not yet configured to respond, at least formally, to the outputs of climate assemblies with 45% of organisations unsure and 40% with no policy in place. This is in parallel to recent data from the Grampian Chamber of Commerce Energy Transition survey 2023[150] that highlights that 67% of companies in Aberdeen have no Net-Zero strategy (33%) or a strategy with no deadline (34%). As participatory climate assemblies and similar initiatives mature, so too will mechanisms needed to ensure that the outputs do not fall by the wayside and are wired into policy and partnerships across societal actors and partnerships.

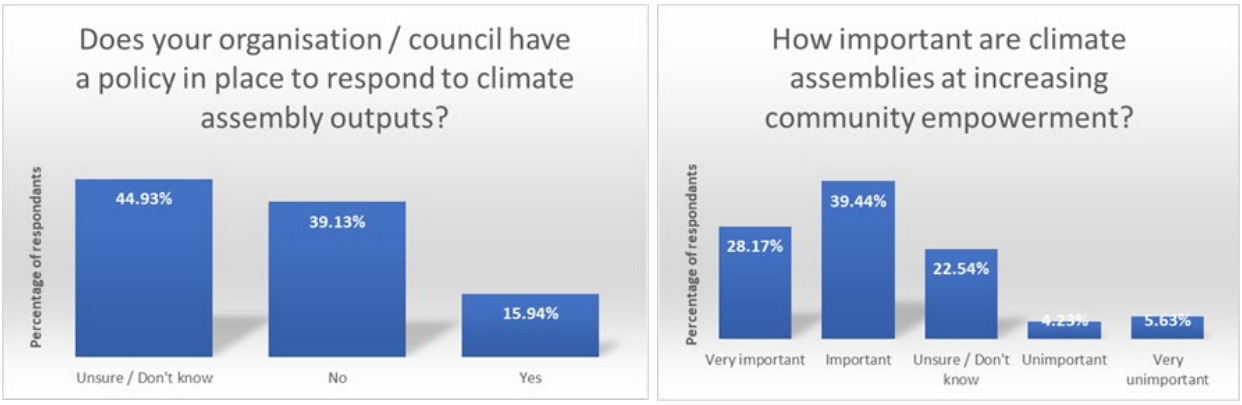


Figure 38: Assembly outputs and effectiveness[151]

150. See Aberdeen and Grampian Chamber of Commerce, Energy Transition 37th Survey (**2023**).

151. Source: University of Aberdeen survey 2023.

There is emerging practice and evidence of an increase of local climate and citizen assemblies in the North East. Supported by an active and growing civil society network including the NESCAN Hub,[152] several assemblies have been run in Aberdeen and Aberdeenshire. In early 2023, citizen assemblies were run in Tillydrone, Woodside and Seaton and Linksfield[153] and a People Assembly[154] run in Torry. In the Tillydrone assembly, the community identified a range of priorities including more communal green spaces and outdoor education; more spaces to grow food; addressing fuel poverty and housing; mental health and wellbeing; community infrastructure and sustainable transport among many more. The Torry Assembly, largely framed around community opposition to the proposed ETZ in St Fittick's Community Park, powerfully highlighted:

"We are in favour of useful change on brownfield sites, but not change that is damaging to the environment and the community. We need to create good, skilled, rewarding jobs and livelihoods here in Torry. We propose a community-owned project that could retrofit all the homes here." (Torry Peoples Assembly 2023).[155]

As the number of assemblies grow and become more diverse and inclusive of communities and localities, further evidence on linking outcomes with practical action and investment that supports community aspirations will be required.

Photo from KV, Flickr

152. **https://www.nescan.org/**
153. See NESCAN Hub Community Assemblies: **https://www.nescan.org/community-assemblies**
154. See Assembly and the Declaration: **https://www.grassroots2global.org/torry-peoples-assemblies**
155. Ibid.

8. Community empowerment, revitalisation and Net Zero

Interconnected with other indicators, the theme on community empowerment, revitalisation and Net Zero places communities at the heart of the transition. Despite the wealth of literature on the general role of communities in the energy transition, there is "little evidence on how to cultivate community empowerment in energy transformations".[156] The Rapid Evidence Assessment report has explored the lack of local control over how the energy resources have been developed, insufficient flow of profits into the local area, and economy dependent on oil price fluctuations.[157]

Community empowerment in the context of energy transition is closely interconnected with democratic participation but includes further steps to develop agency, autonomy, and power-shift (Figure 39 below). For the energy transition to bring a societal transformation, especially in places closely linked to the energy industry, communities need to be empowered to play an active role.[158] Empowerment can be defined as "the process of an individual, group or community increasing their capacity and contextual power to meet their own goals, leading to their transformative action".[159]

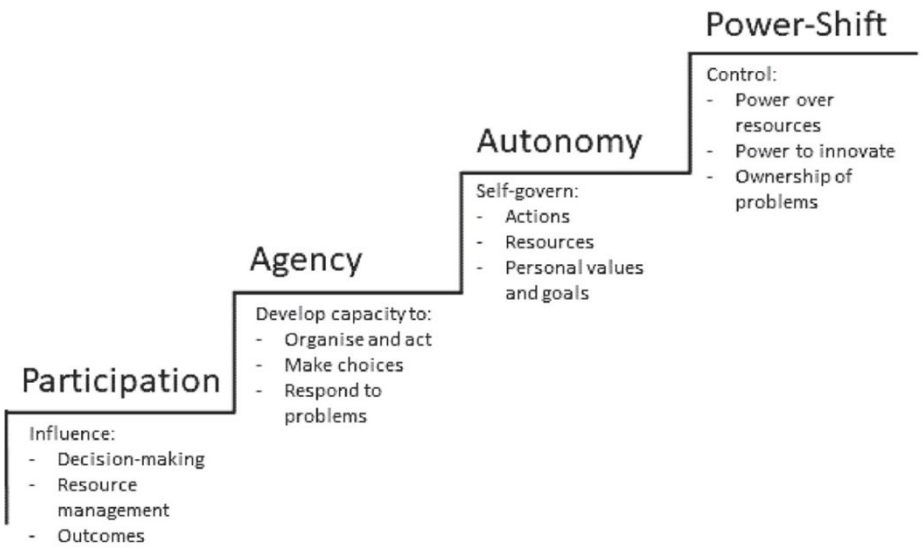


Figure 39: Ladder depiction of outcomes of empowerment[160]

156. D. Coy, S. Malekpour, A. K. Saeri, 'From Little Things, Big Things Grow: Facilitating Community Empowerment in the Energy Transformation', 84 *Energy Research & Social Science* (2022), **https://doi.org/10.1016/j.erss.2021.102353**.

157. D. Shapovalova, T. Potts, J. Bone, K. Bender, Just Transition for Workers and Communities in Aberdeen and Aberdeenshire: **Rapid Evidence Review** (2023) section 4.

158. D. Coy, S. Malekpour, A. K. Saeri, 'From Little Things, Big Things Grow: Facilitating Community Empowerment in the Energy Transformation', 84 *Energy Research & Social Science* (2022), **https://doi.org/10.1016/j.erss.2021.102353**.

159. D. Coy et al., 'Rethinking Community Empowerment in the Energy Transformation: A Critical Review of the Definitions, Drivers and Outcomes', 72 *Energy Research & Social Science* (2021), **https://doi.org/10.1016/j.erss.2020.101871**.

160. D. Coy et al., 'Rethinking Community Empowerment in the Energy Transformation: A Critical Review of the Definitions, Drivers and Outcomes', ibid.

Evaluating community empowerment requires a place-based and critical approach. To this end, any indicators need to be seen in their specific context. For example, it could be reasonable to assume that the more community-owned renewable energy is – the more empowered the community is, and the more progress is made towards Just Transition. However, both literature and discussions during our knowledge exchange event on Aberdeen and Aberdeenshire specifically, indicate challenges in such assessments. Do locally owned energy projects always empower communities or are the relevant community members already in positions of power and privilege?[161]

In Scotland, community empowerment is high on the political agenda. In 2015, the Community Empowerment (Scotland) Act was adopted "to empower community bodies through the ownership or control of land and buildings, and by strengthening their voices in decisions about public services".[162]

Finally, in discussion of Net Zero and other environmental targets, there is a clear rationale for considering only emissions that occurred in the Aberdeen City and Aberdeenshire. Emissions from the oil and gas industry in the North Sea are not counted towards the local authority reporting and are not included under the indicator for this section. Nevertheless, it is important to note that emissions from the oil and gas industry in the UK are significant and their mitigation is imperative for the achievement of the legal climate change targets nation-wide.[163] Based on the findings of the Rapid Evidence Assessment report and the knowledge exchange event, for this theme, five indicators are explored:

1. *Community ownership*
2. *Community-owned energy*
3. *Diverse economy*
4. *Sustainable and active travel*
5. *Progress towards Net Zero.*

A combination of quantitative and qualitative approaches is taken in this section as less data is available on these indicators and context is required for its interpretation.

8.1 Community ownership

The Scottish Government is measuring community ownership under the auspices of the National Performance Framework.[164] In this context, community assets include any land, buildings and any other property of substantial value that a community group may own. Community groups, in turn are defined as those within a specific geographical community, with open membership, locally-led and controlled, non-profit, aiming to further sustainable development in the local area, and demonstrating a sufficient level of support/ community buy-in.[165] As there is no definitive single source of data on assets in community ownership, the Scottish Government is inviting community groups to self-report, and collates the information from direct contact with

161. J. Radtke 'A Closer Look Inside Collaborative Action: Civic Engagement and Participation in Community Energy Initiatives', 8(3) *People, Place and Policy* (2014), **https://doi.org/10.3351/ppp.0008.0003.0008**; A. Shreuer, 'The Establishment of Citizen Power Plants in Austria: A Process of Empowerment?', 13 *Energy Research & Social Science* (2016), **https://doi.org/10.1016/j.erss.2015.12.003**.

162. Scottish Government, Community Empowerment Act: **A Summary** (2017).

163. **See section 2.1 above**.

164. See Scottish Government, National Performance Framework, **Community Ownership**.

165. Ibid

community groups, organisations providing funding for community ownership schemes, and public sector organisations subject to asset transfer requests from community groups under the Community Empowerment (Scotland) Act 2015.[166] There is an "increased focus" on community ownership in Scotland with the Government asking the Scottish Land Commission to "review existing community right to buy mechanisms and recommend how best to enable community ownership".[167] The detailed methodology for data collection is set out in the User Guide and suggests that the statistics presented is an "underestimate of the true extent of community ownership in Scotland".[168] The data available places 4 community assets in Aberdeen City, and 30 – in Aberdeenshire (Figure 40 below).

UK Parliamentary Constituency	Number of Assets	Number of Community Groups	Area of Assets (hectares)
Aberdeen Central	4	4	2.21
Aberdeen Donside	0	0	0
Aberdeen South and North Kincardine	2	2	67.02
Aberdeenshire East	11	9	29.22
Aberdeenshire West	16	4	475.48

Figure 40: Community ownership in Aberdeen and Aberdeenshire[169]

Data has been collected since 2019 with the latest data publicly available for 2021.[170] Compared to other cities in Scotland, Aberdeen City has less community owned assets than Edinburgh, Glasgow, Inverness, and Stirling.

Local Authority	Number of Assets	Number of Community Groups	Area of Assets (hectares)
Aberdeen City	4	4	2.21
Dundee City	1	1	0.23
City of Edinburgh	8	8	1.39
Glasgow City	19	15	6.41
Inverness and Nairn*	9	6	409.36
Stirling	15	11	106.66

* Inverness belongs to Highland Council, which covers a large area, so the data for Inverness and Nairn was taken from breakdown of community owned assets by Parliamentary Constituency instead.

Figure 41: Community owned assets in Scottish cities[171]

166. ibid.
167. Scottish Government, **Community Ownership in Scotland 2021** (2022).
168. Scottish Government, Community Ownership in Scotland 2021, **User Guide**.
169. Scottish Government, Community Ownership in Scotland, 2021, **Tables and Maps**.
170. For 2017, an estimate community owned land, rather than assets is available via the **Scottish Government**.
171. Source: Scottish Government, 2021.

8.2 Community-owned energy

Data is being collected by the Scottish Government, and Local Energy Scotland on locally and community owned energy, defined as "technologies producing heat and/or electricity from a renewable source" owned by 1) a community group, 2) local Scottish business, 3) a farm or estate, 4) local authority, 5) a public sector or charitable organisation, or 6) social housing where it is not possible to identify if the owner is a local authority or housing association.[172]

There are two community-owned renewable energy projects in Aberdeen City (Figure 42 below) and five in Aberdeenshire (Figure 44 below). Other Scottish cities have similarly low amount of community owned renewables, with one each in Edinburgh and Glasgow and none in Dundee.

Title	Technology	Capacity	Ownership	Budget	Status
Donside Community Hydro Scheme	Hydroelectricity	0.1 MW	Community-owned	£94,000	Approved & Processing*
Bank O' Dee PV & Battery	Solar PV	0.1 MW	Community-owned	n/a	Operating

* Data might be outdated for this project. Although listed as processing, this project has been operating since 2016.

Figure 42: Community-owned energy in Aberdeen City[173]

The Donside Community Hydro Scheme is run by Aberdeen Community Energy, which is a Community Benefit Society set up in 2015 by the Donside Community Association. When launched in 2016, the project was named as the best community renewables project in Scotland.[174] In 2021, Aberdeen Community Energy reported its fifth full year in operation, and 2,000,000 kWh produced.[175] The project is located in Tillydrone, which is one of the most deprived areas in Aberdeen, according to the SIMD.[176]

172. Energy Saving Trust, **Community and Locally Owned Energy in Scotland 2021** (May 2022).
173. Local Energy Scotland, **Map of Community and Local Energy Projects**.
174. Aberdeen Community Energy, **Scotland's First Urban Community Hydro Brings Home Scottish Green Energy Award** (2 December 2016).
175. Aberdeen Community Energy, **Annual Report 2021**.
176. Scottish Index of Multiple Deprivation, **Map**.

Figure 43: Donside Hydro

Title	Technology	Capacity	Ownership	Budget	Status
Fetterangus Community Association wind	Wind	0.8 MW	Community-owned	n/a	operating
Udny Community Wind Turbine / Tillymaud Farm	Wind	0.8 MW	Community-owned	n/a	operating
Rothienorman Community Bowling Biomass	Biomass	0.06 MW	Community-owned	n/a	operating
Greenmyres PCL	Wind	0.5 MW	Community-owned	£100,000	approved & processing
Corriemulzie hydroelectricity scheme	Hydroelectricity	0.1 MW	Community-owned	£95,725	operating

Figure 44: Community-owned renewable energy Aberdeenshire[177]

177. Source: Local Energy Scotland.

For Aberdeenshire, the numbers are significantly higher if locally owned energy is taken into account in addition to community-owned projects. The area hosts by far the highest locally-owned capacity in Scotland, largely owing to farm and estate capacity (see Figure 45).[178]

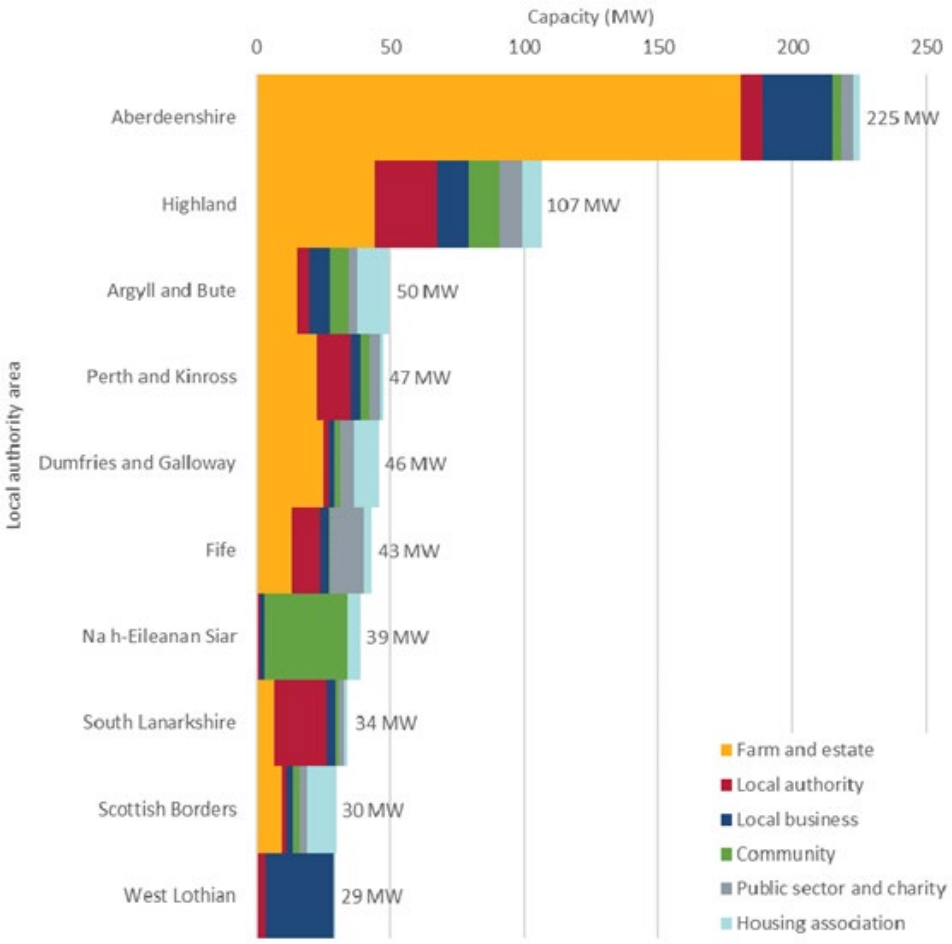


Figure 45: Energy Saving Trust, Community and locally owned energy in Scotland 2021[179]

178. Energy Saving Trust, **Community and Locally Owned Energy in Scotland 2021** (May 2022).

179. Source: Energy Savings Trust, May 2022

8.3 Economic revitalisation and diversification

The need to diversify the local economy, significantly dependent on the oil and gas industry, was stressed both in the Rapid Evidence Assessment and during the knowledge exchange event.

The Regional Economic Strategy defines a 2035 vision and five objectives, with clear indicators and measures of success.[180] These are set out in Figure 46 below. Although the Strategy places great focus on Just Transition aiming to ensure that "North East communities in particular are protected and benefit from the new opportunities",[181] this does not come through in the indicators. This is particularly important as one of the flagship projects under this framework is the Energy Transition Zone, which threatens access to St. Fittick's Park for the community of Torry (see section 6.4 above).

Objective	How success will be measured	Most recent baseline	Target by mid-point review (2029)
1) To establish the North East as a pioneer of the energy transition, by delivering an 80% reduction in carbon emissions per head.	• CO2 emissions/capita • Renewables jobs (work required to establish these data at regional level)	4.8 tCO2e per person North East: 2020	3 tCO2e per person
2) Maintain regional GVA as a share of Scotland's overall GVA while increasing the share of regional GVA from region's growth sectors.	• Regional GVA as a percentage of Scottish GVA • Increase share of region's GV from region's growth sectors (energy, food and drink, tourism, life sciences)	11.3% North East: 2020 tbc	≥11.3% tbc
3) Maintain a healthy, sustainable, working age population through increasing economic participation rates.	• Economic Activity Rate 16-64 and 16-24 • Economic Activity Absolute 50+	16-64 Rate: 78.7% 16-24 Rate: 64.1% 50+ Absolute: 86,900 North East July21-June22	16-64 Rate: 80.1% 16-24 Rate: 66.5% 50+ Absolute: 90,376
4) Become a Real Living Wage region with 95% of overall employment offering a real living wage or higher.	• % of employees earning above the real living wage • Relative income measure (either Gini or Palma)	84% tbc	≥ 90% tbc
5) Protect and enhance the natural capital of the region by aligning to national ambitions to manage 30% of the region and nature by 2030.	• % of region's area benefitting from nature related designations • % of regions area managed for people and nature (work required to establish this data)	tbc tbc	tbc tbc

Figure 46: Objectives and measures of success in Regional Economic Strategy 2023[182]

180. **Regional Economic Strategy: A Sustainable Economic Future for the North East of Scotland** (May 2023 draft).

181. ibid.

182. Reproduced from R**egional Economic Strategy: A Sustainable Economic Future for the North East of Scotland** (May 2023 draft) p.24.

In 2017, Aberdeen City Council convened the Economic Policy Panel "to provide independent commentary on the state of the Aberdeen economy", including both Aberdeen City and Aberdeenshire in the assessment.[183] The focus on diversification is highlighted in every annual report produced by the Panel so far. The first report states that while the oil and gas has been "the cornerstone of the North East economy in recent decades", the region "cannot rely on the oil and gas industry to deliver the same scale of benefits into the future, as UK oil production is expected to enter a period of decline in the 2020s".[184] The latest Panel report provides data on growth sector employment (Figure 47) demonstrating the dominate position the energy sector plays in the North East economy.

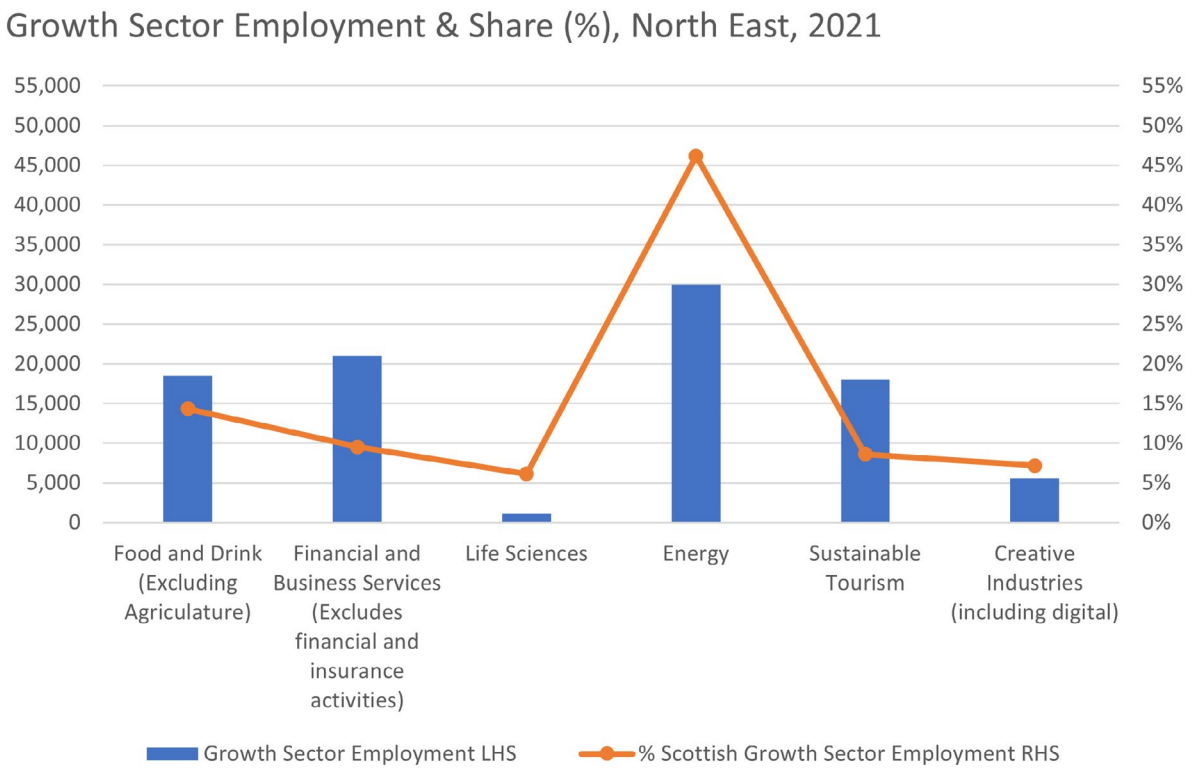


Figure 47: Growth sector employment and share in the North East[185]

183. **Aberdeen Economic Policy Panel Report - 2018**.
184. ibid.
185. **Aberdeen Economic Panel Report – 2022, p.12**.

The report further highlights the issue that has been brought up in the knowledge exchange event and is featured in the updated Strategy – the high rates of retail unit vacancy or the decline of Aberdeen's high street.[186] While the Covid-19 pandemic hit the retail sector in all Scottish cities, Aberdeen's decline started at the end of 2018, before the pandemic, and appears to be particularly acute (Figure 48). A number of initiatives are put in place to regenerate the city centre, some with a strong focus on co-development and community involvement.[187] For example, Our Union Street, founded by local industry and Aberdeen City Council, identified 17 key themes for the Union Street regeneration after a consultation gathering around 10,000 ideas from members of the public.[188]

Retail market vacancy rates: Aberdeen City, Dundee City, Edinburgh City and Glasgow City - 2012 - 2023

Source: CoStar

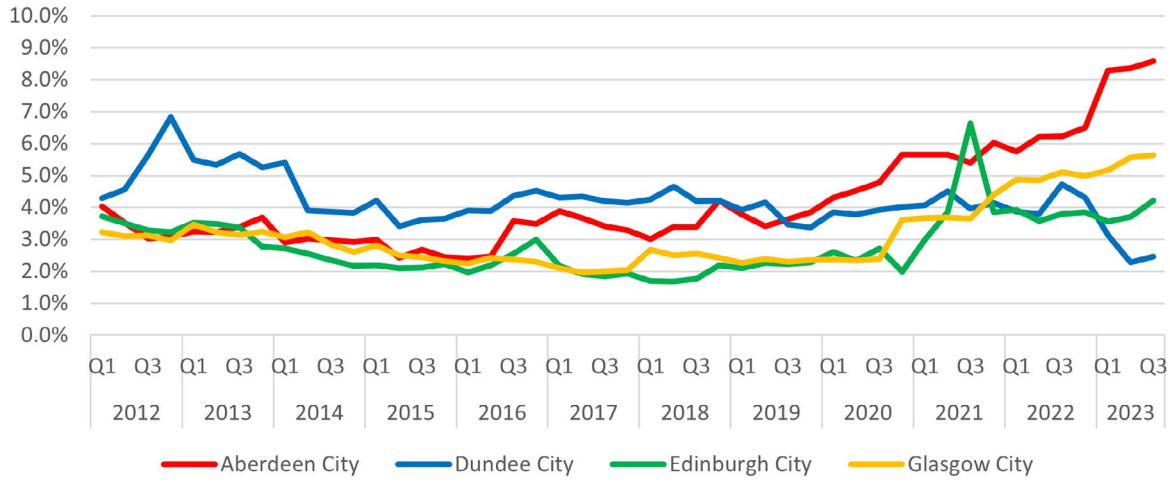


Figure 48: Retail market vacancy rates: Aberdeen City, Dundee City, Edinburgh City, and Glasgow City 2012-2023[189]

186. **Aberdeen Economic Panel Report – 2022**.
187. 2022 City Centre and Beach Masterplan, see **Aberdeen City Council**.
188. See **Our Union Street** website.
189. Source: CoStar via Aberdeen City Council.

8.4 Sustainable and active travel

While the Rapid Evidence Assessment report did not point to any historic issues around transport, the importance of this topic came through strongly in the knowledge exchange event, especially for Aberdeenshire.

Nestrans is the Regional Transport Partnership for Aberdeen and Aberdeenshire. Their aim is to "develop and deliver a long-term regional transport strategy and take forward strategic transport improvements that support and improve the economy, environment and quality of life across Aberdeen City and Shire".[190]

Nestrans monitors and publishes data on various aspects of travel in the city and shire.

In 2021, Scotland's Minister for Transport approved Nestrans Regional Transport Strategy, Nestrans 2040. The Nestrans Board agreed that a Monitoring framework be introduced, which will set baselines for key indicators and targets (Figure 49), which will be reported annually to the Board so that policies can be tracked and if necessary, adjusted towards achieving the targets. In 2023, the first Annual Report was published presenting some data on these key indicators.

Priority	Supporting indicators
Improved journey efficiencies to enhance connectivity	Journey times by rail to the central belt and Inverness.
	Journey times by road on key routes across the region, south to the motorway network at Perth and to Inverness.
	Delays on the road network due to congestion.
	Bus punctuality and reliability.
	Bus journey times.
Zero fatalities on the road network	Number and severity of all casualties.
	Proportion of vulnerable users involved in road traffic collisions.
Air quality that is cleaner than World Health Organisation standards for emissions from transport	Nitrogen dioxide and particulates (PM10) emissions from transport.
Significantly reduced carbon emissions from transport to supply net-zero nationally by 2045	Proportion of ultra-low emission vehicles as part of the overall vehicle fleet.
	Proportion of the region's bus network run with low emission vehicles.
Accessibility for all	Areas at increased risk of transport poverty across the region.
	Railway stations, buses, bus stops and interchanges meeting desired accessibility standards.
	Accessibility to key destinations, including employment, health (including, but not limited to Foresterhill), education and leisure.
A step change in public transport and active travel enabling a 50:50 mode split between car driver and sustainable modes	Number of journeys undertaken by bus, rail, cycling, walking and car share.
	Proportion of journeys undertaken by bus, rail, cycling, walking and car share compared to single occupancy car use.

Figure 49: Nestrans 2040, key priorities and supporting indicators[191]

190. See Nestrans website.

191. **Nestrans 2040**: Regional Transport Strategy for the North East of Scotland (November 2021).

Nestrans adopts ambitious targets on transport decarbonisation, highlighting that around 9.6% of the transport emissions in Scotland were generated in the North East. 2023 data shows that carbon emissions from surface transport in the North East reduced by over 20% in 2020 compared to the previous year, but the result is partly attributed to reduced traffic during the Covid-19 pandemic (Figure 50).

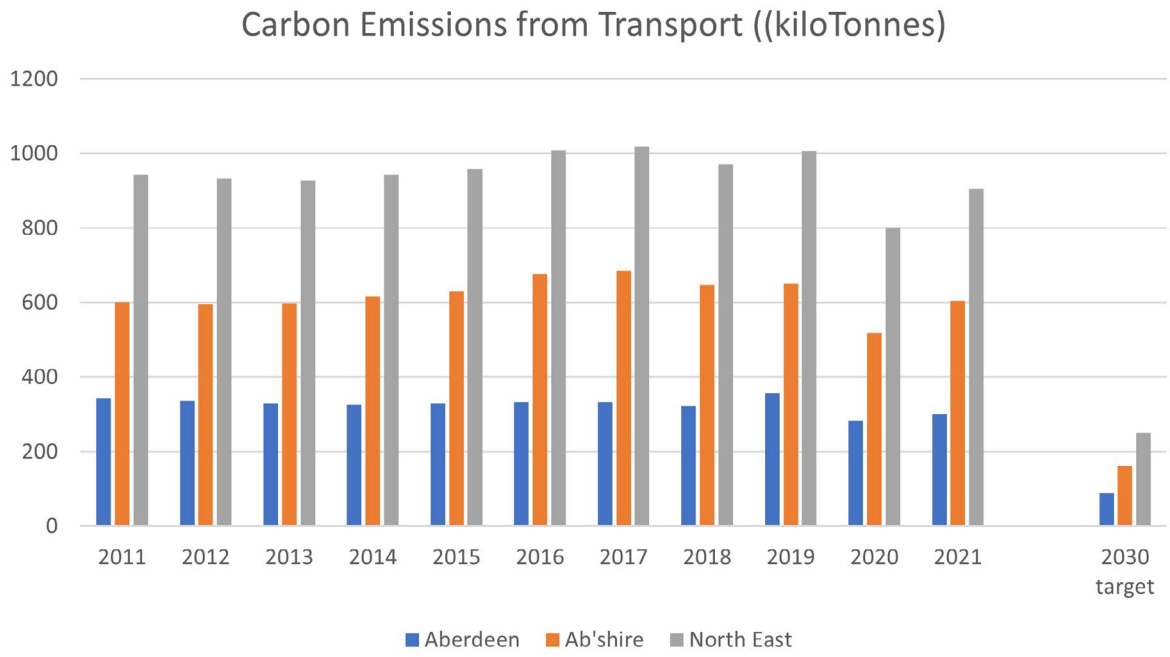


Figure 50: Carbon emissions from surface transport, North East 2011 to 2020 and 2030 target[192]

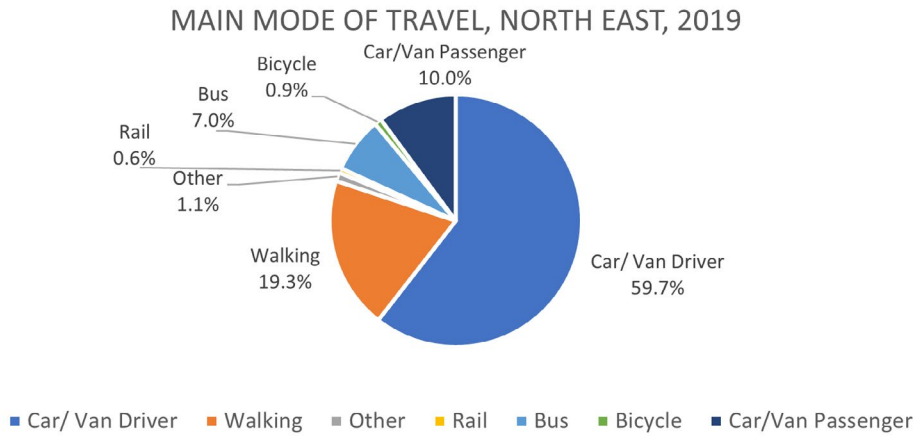


Figure 51: Main mode of travel, North East 2019[193]

192. Nestrans, 2040 Regional Transport Strategy: **Monitoring Report** (February 2023).

193. Source: source: Scottish Household Survey Travel Diary via Nestrans. Nestrans, **2040 Regional Transport Strategy** (February 2023).

A particular challenge in the North East relates to the poor perceptions of public transport with it "seen as an unattractive option due to long and unreliable journey times compared to the car and lack of quality interchanges".[194] Mode share for travel to work by bus in Aberdeen in 2019 was reportedly "lower than other cities in Scotland at 7% compared to Glasgow 17%, Edinburgh 28% and Dundee at 14%".[195]

Journey	2022	
	Car	Public Transport
Fraserburgh to St Cyrus	01:32	02:51
Peterhead to Banchory	01:05	02:50
Banff to Foresterhill	01:08	01:50
Turriff to RGU	00:58	02:26
Bridge of Don, Ellon Road @ N Donside to Dyce	00:12	00:50
Stonehaven to Airport	00:28	01:23
Braemar to Woodhill House	01:21	02:30
Huntly to Union Street, St Nicholas Kirk	00:57	01:03
Seaton to Altens	00:15	00:42
Portlethen to Kirkhill	00:22	01:21
Tillydrone to East Tullos	00:17	00:43
Cults to Menie House (AB23 8YE)	00:30	01:20
Total Journey Time	09:05	19.49
Average Journey Speed	40.3	18.5
*shortest journey time starting between 08:00 and 09:30 weekday	Source AA Route Planner and Traveline Scotland	

Figure 52: Average journey times for travel across the North East[196]

194. ibid.
195. Travel to work and other purposes, Scottish Government Statistics via Nestrans.
196. Source: AA Route Planner and Traveline Scotland via Nestrans 2023 Monitoring report.

The mode of travel split in 2023 indicates (Figure 51) that 59.7% of survey respondents use car as their main mode of travel.

Furthermore, while the average car journey on 12 sample routes has decreased since 2008 by 35%, public transport journey times have increased by an average of 13% (journey time changes vary from 26% reduction to an increase of 48%).[197] In 2022, public transport journey times averaged twice as long as comparable car journey times (Figure 52).[198]

There is movement towards decarbonising and improving connectivity of the rail service in the North East. This includes a target to decarbonise passenger rail services between Aberdeen and Central Belt and Inverness by 2030.[199] One of the projects funded by the Just Transition Fund for North East and Moray was a feasibility study for the Campaign for North East Rail, which would see Peterhead and Fraserburgh connected by rail, and old Deeside railway restored.

In 2022, the Aberdeen City Council introduced a Low Emissions Zone (LEZ) to be enforced from June 2024. The scheme will see certain vehicles prohibited from entering the city centre, based on their emission standards.[200] In 2023, the Council introduced new bus gates in the city centre, causing public anguish.[201]

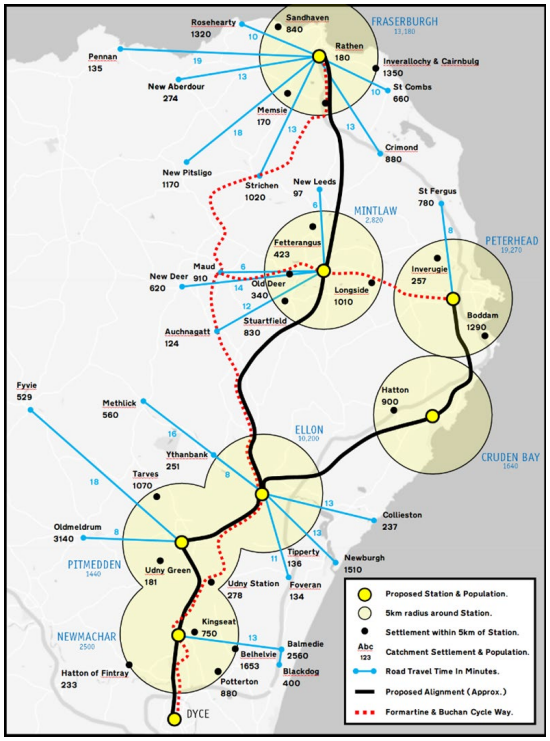


Figure 53: Campaign for North East rail proposal to 2040[202]

197. Nestrans, 2040 Regional Transport Strategy: **Monitoring Report** (February 2023).
198. ibid.
199. Transport Scotland, **Rail Services Decarbonisation Action Plan** (2020).
200. Aberdeen City Council, **Low Emissions Zone**.
201. J. Saunderson, 'Controversial Aberdeen Bus Gates to Go Live Today Despite Motorist Outcry', **Aberdeen Live** (22 August 2023); Alastair Gossip, 'Last-ditch Plea to Pause Aberdeen Bus Gates Rejected Despite Mass Protest', Press&Journal (23 August 2023).
202. Campaign for North East Rail, **Aberdeenshire Back on Track, Detailed Case Report** (July 2021). Image, on file with authors.

8.5 Progress towards Net Zero and climate adaptation

Scotland's legal targets for greenhouse gas emissions reduction envisage Net Zero by 2045.[203] The Net Zero Aberdeen Route Map sets out a pathway towards Aberdeen becoming Net Zero by 2045.[204] Adopted in 2022, it is accompanied by enabling strategies, each developed by a different organisation within the Net Zero Delivery Unit, namely:

1) Mobility Strategy
2) Buildings and Heat Strategy
3) Circular Economy Strategy
4) Energy Supply Strategy
5) Natural Environment Strategy
6) Empowerment Strategy.

While the usual baseline for emissions reduction is 1990, area-based emissions in Scotland, such as those for the City of Aberdeen, are calculated from 2005 at the earliest (Figure 54).

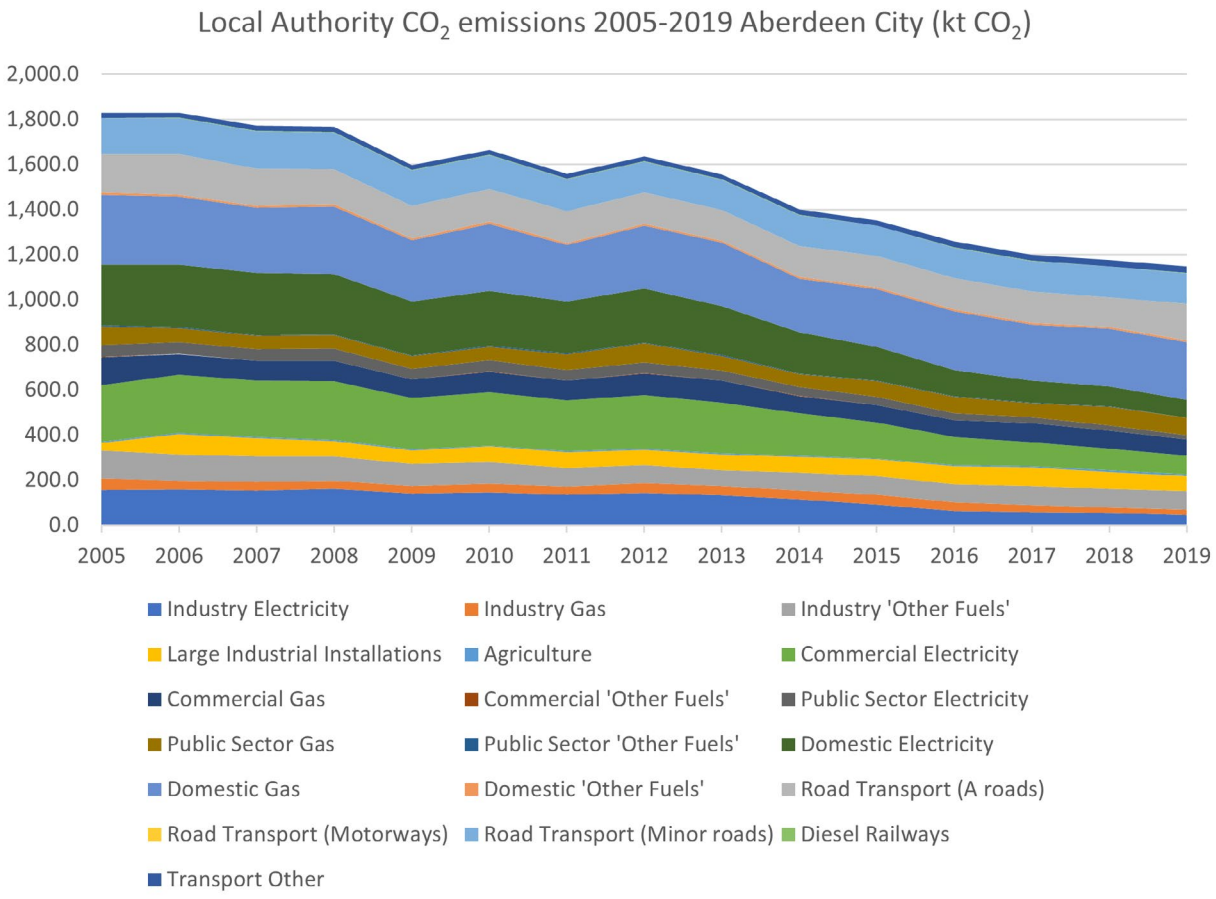


Figure 54: UK Government, local authority CO_2 emissions 2005-2019, Aberdeen City

203. The Climate Change (Scotland) Act 2009, as amended.
204. **Aberdeen Net Zero Route Map 2045**.

The biggest reductions between 2005 and 2019 were seen in the industrial (-54.6%), commercial (-58.8%), and domestic (-41.8%) sectors, while the transport sector emissions decreased only by 7%.[205] This is consistent with the trend in Scotland, where energy supply emissions have seen a reduction of 71.8% between 1990 and 2019.[206]

On the road to Net Zero, the Route map established some indicative targets, namely 57.5% reduction by 2025, 75% by 2030, and 90% by 2040.

Per capita emissions in Aberdeen are reported to be lower than the Scottish and UK average, and significantly lower than in Aberdeenshire (Figure 55).

A further aspect of climate change planning is climate resilience and adaptation. In Aberdeen and Aberdeenshire, it is expected that the changing climate will bring drier summers, wetter autumns and winters, and a rise in sea level.[208] There are, among others, increased risks of flooding, changes to coastline, damage of buildings, quality of water, transport infrastructure, risks to human health and environment.[209]

Aberdeen City Council, in partnership with the University of Aberdeen, Adaptation Scotland and local organisations, developed Aberdeen Adapts, a city-wide climate adaptation framework. The Framework was updated in 2022 to integrate with the Net Zero Aberdeen Route Map. There is a number of objectives and measures outlines in the Framework, some associated with measurable goals. For example, there is a Local Outcome Improvement Group project on the development of community resilience plans across all areas of Aberdeen by 2026, with a specific focus on areas vulnerable to flooding.[210]

The Framework outlines a set of measures/ indicators for monitoring (Figure 57 below).

Relevant measures/ indicators	Source
Building condition and disrepair (Aberdeen)	Scottish House Condition Survey
Uptake of property level protection measure Aberdeen	Aberdeen City Council
Evidence of flood management measures	
No. recorded flooding incidents Aberdeen	
Changes in the extent to flooding	SEPA Flood Mapping
% increase in city tree canopy cover	
Number of days River Dee falls below Q95	SEPA
% increase blue-green infrastructure	
Number of SFRS hours responding to wildfire	Scottish Fire & Rescue Service
Number of community resilience plans	LOIP
Number of business resilience plans	
Number of community food growing sites	Granite City Growing

Figure 57: Relevant measures and indicators in Aberdeen Adapts Framework.

There is further work to be done in Scotland and the wider UK to help measure climate adaptation, including a monitoring and evaluation framework by ClimateXChange[211] and a mapping tool for climate change vulnerability by the Joseph Rowntree Foundation.[212]

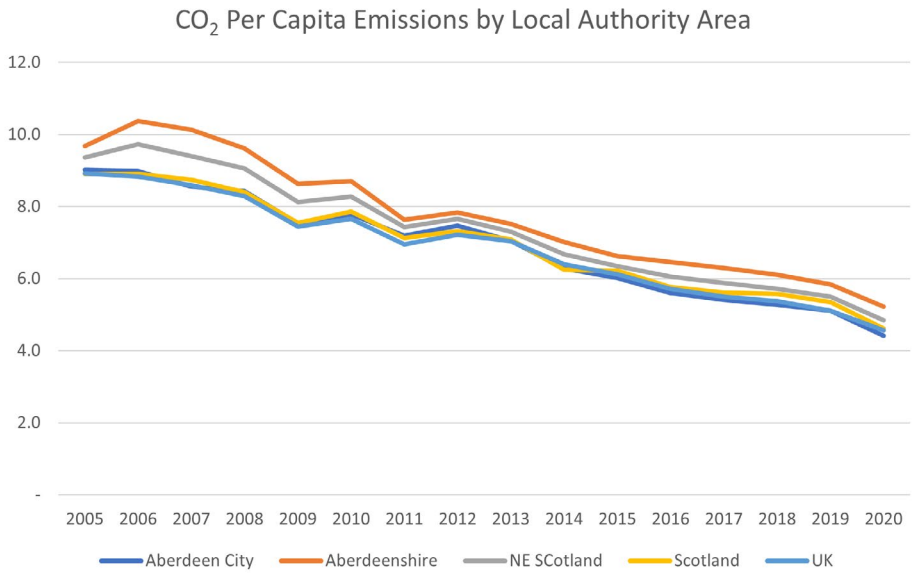


Figure 55: CO2 per capita emissions by local authority area[207]

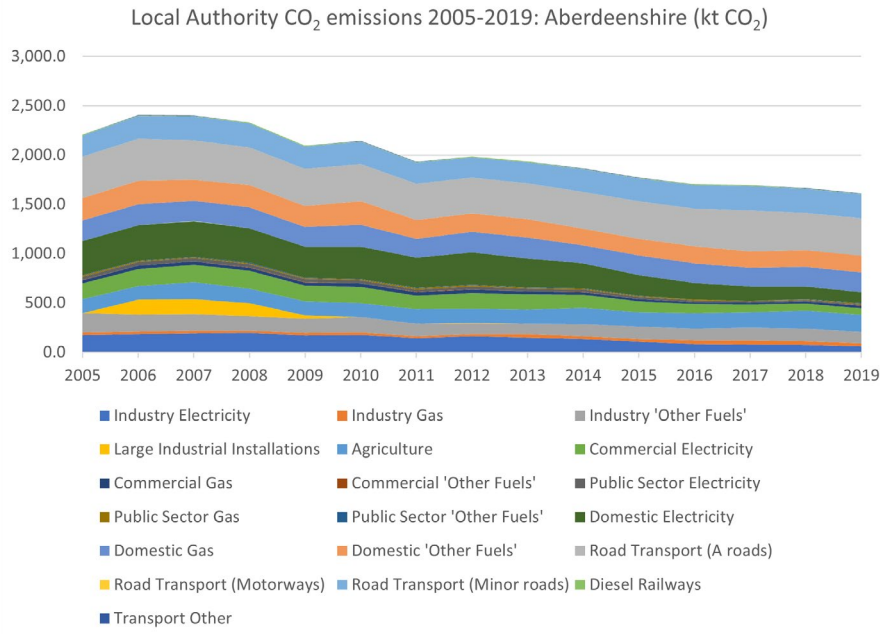


Figure 56: UK Government, local authority CO2 emissions 2005-2019, Aberdeenshire

205. ibid.
206. Scottish Government, **Scottish Greenhouse Gas Emissions 2019**.
207. Source: Department of Energy Security and Net Zero via Aberdeen City Council.
208. Aberdeen City Council, **Aberdeen Adapts: Climate Adaptation Framework 2022**.
209. Ibid; Aberdeen Adapts, **Evidence Base** (January 2022).
210. Community Planning Aberdeen, LOIP 13.3 **Community Led Resilience Plans**.
211. ClimateXChange, **The Role of Monitoring and Evaluation in Adaptation Policy**.
212. Joseph Rowntree Foundation, University of Manchester, ClimateUK, Environment Agency, **Map Tool**.

Part III: Scenarios and policy assessment

9. Building scenarios – approaches

Scenario-building is an established tool aiding policy-making. It differs from forecasting as it does not present a projection. Nor is it a 'vision' as it does not present a desired future.[213] Instead, scenario-building is an attempt to answer the question of 'What can conceivably happen?' Or: 'What would happen if. . . ?'[214] Scenarios are a heuristic device, a means of learning about the diversity of future options and responses, how a system and stakeholders may respond and identifying potential interventions in a system.

Given the diversity of themes and indicators that we have considered in this report, we have opted for a descriptive and qualitative scenario design – one that will be tested by stakeholders. Not all indicators are directly attributable to the performance of the energy industry but rather to actions by local authorities, Scottish and UK Governments and to society itself. The indicator data exists at different scales, has different drivers and represents a diversity of transition issues that cannot be boiled down to a simple modelled output. Further, not all indicators have enough quantitative data to conduct any longitudinal analysis suitable for forecasting or causal links.

The main objectives of scenario-building in this project were to identify possible risks, inform policy analysis and contribute to stakeholder learning about how a transition could affect the North East of Scotland. Narrative scenarios have emerged as the more appropriate option to achieve that. The scenarios were built using a 2x2 matrix approach, with Net Zero and Just Transition chosen as two key drivers which are likely to have a high impact over the course of transition in the region.[215] As a result, four narrative scenarios are produced: 1) Just (non) transition, 2) Minimal change, 3) Just decarbonization, and 4) Unjust decarbonization.

The timeline for chosen scenarios was up to 2035, allowing for a view into short- to medium-term planning, halfway to 2050 Net Zero target. This choice is also close enough in proximity to capture the impacts of policy and economic decisions made today. We have constructed these around projections on oil and gas production, deployment of renewables, CCUS, and hydrogen in the region, ability to build a local supply chain/manufacturing centre, public and private investment, positive action on deprivation, Just Transition policy and action, and reform of public participation with advancement of deliberative democracy tools.

The scenarios presented below are not models or predictions, but are intended as evidence-based 'conversation-starters' for a more informed discussion on a Just Transition in the region.

213. M. Lindgren and H. Bandhold, Scenario Planning: The Link Between Future and Strategy (Springer 2003) p. 21.

214. ibid.

215. E. Ramirez and A. Wilkinson, 'Rethinking the 2 × 2 Scenario Method: Grid or Frames?', 86 Technological Forecasting and Social Change (2014), **https://doi.org/10.1016/j.techfore.2013.10.020**. See this approach applied in C. Copeland et al., 'Regional Energy Futures as Decision Support in the Transition to Net Zero Emissions: North of Tyne Case Study', 27(6) Local Environment (2022) **https://doi.org/10.1080/13549839.2022.2075841**.

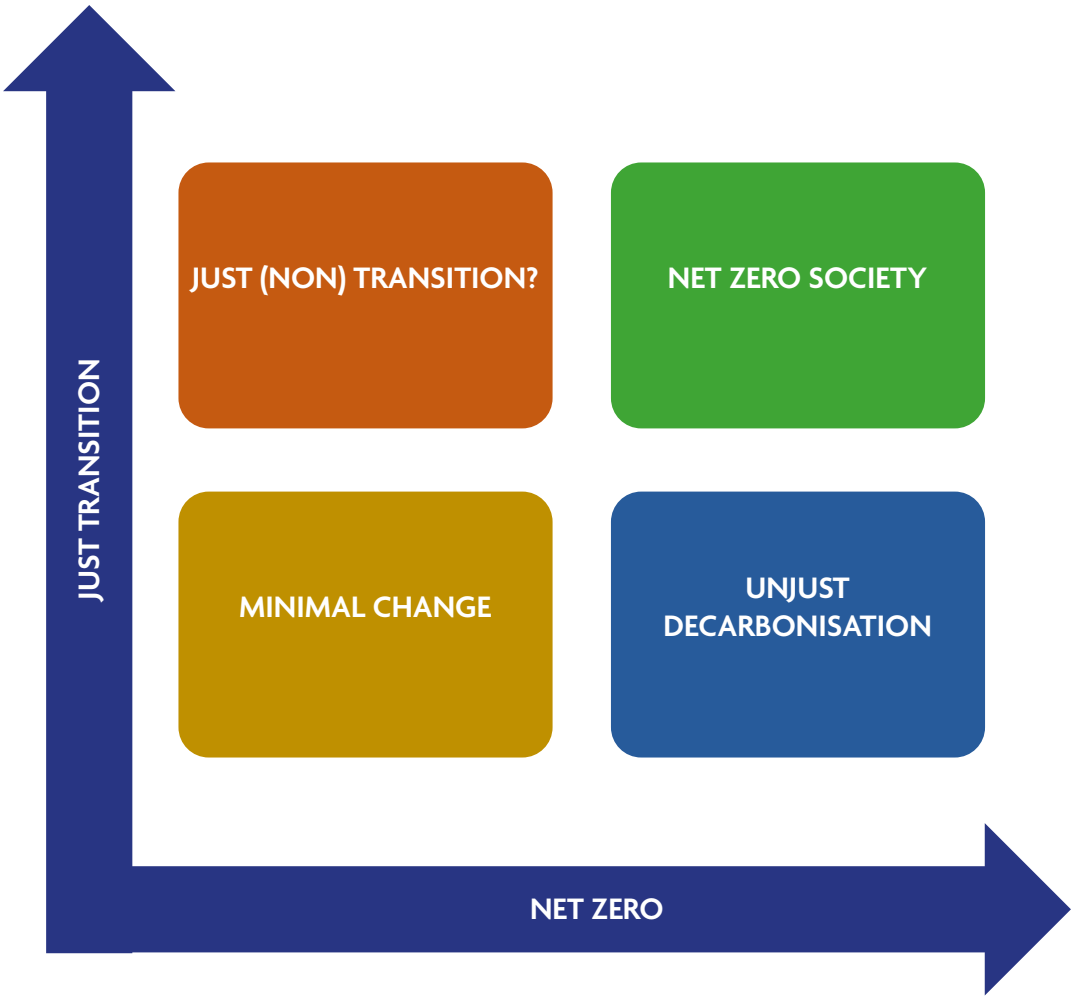


Figure 58: Four scenarios for low carbon transition in the North East Scotland

10.1 Just (Non) Transition?

This scenario ends with a question mark as it is clear that a non-transition scenario could not be just. Apart from difficulty in achieving a range of identified indicators, limiting progress towards Net Zero would have far-reaching justice consequences around the world. With that, we decided to keep it in with this caveat to explore what this would mean for Aberdeen and Aberdeenshire.

Under this scenario, we expect increased production of oil and gas in the UK Continental Shelf. The current trajectory for oil and gas matches that in the UK Energy Security Strategy with production maximised against remaining reserves in the context of a long-term decline. NSTA expects that by 2035, the production would be about half of what it is in 2023.[216] The development of renewable energy plateaus and falls short of the level required to achieve the policy targets. Investment into renewables levels off or declines and policy and planning do not facilitate rapid deployment of renewables (e.g. long consent times in offshore, conflicting arrangements in onshore, conflict over solar and land use, lack of increase in CfD baseline price). Deployment of renewables continues but not at pace to meet UK and Scottish climate targets. The development of hydrogen and CCUS is not done rapidly enough to meet existing climate targets or to develop a strong domestic supply chain. At the same time, while oil and gas production is ongoing, there is a strong focus on workers' rights, wages and wellbeing. Some workers' demands are implemented but employment inevitably declines. The economy continues to diversify into new areas but there is no central commitment to Net Zero as a fundamental pillar of the future economy. Substantial public investment is required to realise the required policies and supplement lack of income from the energy sector.

216. NSTA, Production and Expenditure Projections.

217. NSTA, **Production and Expenditure Projections**. (on page 85)

Theme	2035
Jobs, skills and earnings	• Stabilisation of decline in employment in the region. Oil and gas job loss continues as new field developments are relatively small. However, for a JT (but no decarbonisation) there needs to be job growth in nongreen sectors– e.g. international tourism, growth in traditional manufacturing and services etc. • Unemployment rates continue to track national levels. • Median earnings stay relatively constant and track national trends. • Constant levels skills base of labour force as prospects for employment in renewables and other high skilled employment is limited.
Equality and wellbeing	• Housebuilding, both private and public, more in line with affordable, secure housing becoming more accessible. • There may be less demand in terms of emergency food provision. • Fuel Poverty is mitigated to an extent. • Health and wellbeing improves as the economic downturn in the region moderates. A more gradual contraction of oil and gas related employment supports ongoing employment opportunities in entry-level and routine occupations. Existing inequities ameliorated for a time with gradual shift to a less 'two-tier' economy. Healthy Life Expectancy stabilises. • A slowing of the energy transition may place less immediate pressure on green space earmarked for the Energy Transition Zone.
Democratic participation	• There is continued focus on improving civic engagement in local authorities via place-based planning partnerships and community planning initiatives. • Public awareness of climate issues remains high but a lack of movement towards climate targets raises civil concerns. • Protest and action groups continue to demand action on climate and polarised positions dominate the public discourse. • Climate assemblies lack a policy framework, are *ad hoc*, poorly resourced and do not connect to decision making. • Some community priorities are addressed in diversified employment, greenspace and revitalisation.
Community empowerment, revitalisation and Net Zero	• Scottish and UK climate targets are not achieved. • Lack of progress on climate adaptation. • Lack of delivery of locally owned community renewable energy infrastructure, unless strong intervention. • Local economy revitalisation with high investment into the region, but lack of transport decarbonisation.

10.2 Net Zero Society

Under this scenario we see accelerated phase out of oil and gas production, with no new fields being developed after 2024. There is still some production in 2035, from existing fields, as expected by the NSTA.[217] There is successful roll out of renewables at scale, building on local skills, investing in local supply chains and growing a diversified workforce. There is further successful and timely CCUS and hydrogen projects. New opportunities and innovation in non-traditional sectors increase employment opportunities (e.g. in decentralised energy or demand side technology) in addition to industrial energy production. Just Transition remains high on the political agenda in Scotland, and there is increased employment in green jobs including an efficient and just shift for oil and gas workers into new industries. Aberdeen becomes a Net Zero capital attracting investment. This scenario would see the achievement of progress across all indicators but would require strong political intervention, considerable public and private investment and a building of consensus across all regional stakeholders and political actors.

Theme	2035
Jobs, skills and earnings	• Growth in renewable energy production and energy transition jobs gradually replace lost O&G jobs. • Increase in the number of small businesses and related employment as new supply chains are established. • Skills base remains high and possibly grows as R&D in new forms of energy generation and investment in generative capacity puts premium on skills. • Earnings remain high and if a JT, then reduced overall earnings inequality and male-female earnings differences and more diverse employment practices.
Equality and wellbeing	• Housing market has higher composition of owner occupation as prices moderate and, together with increased provision of social housing, meets the needs of the majority. Lower element of speculative property investment in the private rented sector. Reduced and regulated private rented sector remains that is sufficient to meet the needs of students and workers in transition. • Food insecurity reduces as 'cash first' support fills the gap together with more secure incomes for those at the lower end of the job market. • Greater assistance with energy costs for low-income households mitigates fuel price rises. • Wellbeing enhanced by sense of continuity and future job and income security. Renewables and ancillary sectors provide solid incomes but with lower levels of inequality associated with oil and gas. • Local infrastructure is revitalised; buildings and Green space is maintained and augmented for public use. repurposed to meet the needs of communities.
Democratic participation	• There is continued focus on improving civic engagement in local authorities via place-based planning. Addressing Net Zero plays a central part in the civic discourse. • Community concerns on a Just Transition are systematically addressed. The economy grows and jobs are diversified, but in a way that address climate targets and respects civic space (including greenspace). • The high levels of community awareness and concern on climate issues are reflected by a new civic discourse and sense of empowerment. Localities are the focus for action and the locus for decision making with practical enhancements that improve quality of life and energy security. Trust metrics increase over time. • The is less polarisation in climate debates with a mix of industrial and community owned infrastructure and communities actively involved in planning and spending. • Citizen and climate assemblies play a formal role in shaping local decision making. A formal regional assembly is established that feeds into planning and policy. All wards and localities are represented in assemblies with funding that ensures continual community stakeholder input.
Community empowerment, revitalisation and Net Zero	• Aberdeen and Scotland are on track to achieving their respective climate targets. • There is strong climate adaptation action in the region to minimise impacts of adverse weather events. • The regional economy is diversified with strong growth in alternative economic sectors. • Community-owned assets and renewable energy projects show strong growth. • Transport system in the region is enhanced with improved public transportation links, including bus services and rail links.

10.3 Unjust decarbonisation

Under this scenario, we see an accelerated phase out of oil and gas production, with no new fields being developed after 2024. There is still some production in 2035, from existing fields, as expected by the NSTA.[218] There is accelerated roll out of renewables but little involvement in local supply chains and workforce with minimal growth in employment. A similar picture is seen in CCUS and hydrogen projects. There is little investment in diversifying the local economy. Just Transition policy is symbolic but not operationalised or supported through concrete actions. There is little progress across Just Transition indicators.

Theme	2035
Jobs, skills and earnings	• Significant reduction in energy related employment. • Significantly lower earnings, especially low skilled workers. • Further contraction of small business firms and related employment. • High skills base eroded to follow high skilled energy transition jobs go elsewhere.
Equality and wellbeing	• Housing market experiences a more severe, ongoing correction as highly skilled and highly paid workers and skilled and educated young seek opportunities elsewhere. • Rising unemployment sees increase in existing levels of poverty and deprivation with increasing calls on local authority budgets, greater reliance on third sector and charities, including food and clothing banks. Calls on emergency food and other essentials may outstrip capacity of third sector and local authority support. • Fuel poverty increases, compounding the effects of food insecurity and affecting wellbeing. • Healthy Life Expectancy and Life Expectancy decline. More rapid demographic shift to an ageing and dependent population. Potential for rise in crime, substance abuse, social and family breakdown, mental and physical ill health. • Deterioration of infrastructure and public space, including green space may arise due to a combination of public misuse and neglect due to diminished local authority budgets.
Democratic participation	• Local discontent as the benefits of Net Zero do not accrue to local industries or communities. The public support for Net Zero likely wanes as community wealth benefits are not realised and the workforce shifts away from Aberdeen. Emphasis on services sees green employment concentrated in central belt or financial centres of London. • Communities increasingly see Net Zero as being 'done to them' and do not have a role or voice in the changes that are occurring. This could potentially impact household measures and overall support. • Climate assemblies are seen increasingly as 'talking shops' and not relevant to the needs of communities. • Overall decline in community participation in Net Zero as the population changes
Community empowerment, revitalisation and Net Zero	• Emphasis on international market led approach to transition with minimal direct investment into communities. • Energy prices likely stay much higher leading to fuel poverty shifting from gas to electrification. • Social justice issues are unresolved as society shifts to a greener economy, but does not address underlying structural issues.

218. NSTA, **Production and Expenditure Projections**.

10.4 Minimal change

Under this scenario, we expect enhanced production of oil and gas in the UK Continental Shelf as per the current trajectory with production maximised against remaining reserves but in the context of a long-term decline.[219] The development of renewable energy sources plateaus and is short of the level required to achieve the policy targets. Investment into renewables would level off or decline and policy and planning does not facilitate rapid deployment of renewables (e.g. long consent times in offshore, conflicting arrangements in onshore, conflict over solar and use, lack of increase in CfD baseline price). Deployment of renewables continues but not at pace to meet UK and Scottish targets. The development of hydrogen and CCUS is not done rapidly enough to meet the climate targets or develop a strong supply chain domestically. There is little focus on workers' rights and wellbeing. There is little diversification of the regional economy. There is little progress in Just Transition across all themes. There is little policy intervention or new public or private investment.

Theme	2035
Jobs, skills and earnings	• Maintaining gradual reduction or perhaps stabilisation in short run in O&G employment and supply chains. • Maintaining relatively high earnings and skills. • Unemployment at best follows national trends. • Little substitution into energy transition jobs.
Equality and wellbeing .	• Socio-economic status quo sustained for longer but with increasing apprehension amid gradual onset of economic, social and environmental deterioration. • Cliff edge is likely to initiate the conditions outlined in 10.3, potentially exacerbated by rapid onset and dissonance in terms of unrealised expectations.
Democratic participation	• Increased public pressure to act falls on local institutions and policy makers. • A narrative emerges that Aberdeen and the North East is potentially seen as a part of the problem rather than a part of the solution. May impact local institutions and investment. • Local assemblies remain ad hoc and informal and lack input into formal policy. Results in a lack of consistency across communities and lower levels of trust in government. • Communities change as skilled workers depart and a lack of local green industries to replace them. • Communities become more polarised over lack of climate action and falling behind particularly in context of EU and US moves to embed Net Zero magnify.
Community empowerment, revitalisation and net zero	• Without policy intervention, the regional economy fails to diversify. • The community ownership of renewable energy developments remains low, with existing support schemes running out of funds. • There is some community wealth building due to existing policy priority but this does not often occur in deprived areas. • There is some progress to decarbonising the transport sector but off the required trajectory. The average bus journey times continue to rise, while existing ULEZ provisions make it difficult to use cars in the city. • There is some progress towards achievement of Net Zero targets and climate change adaptation, but without additional measures and investment the targets are not on the indicative trajectory.

219. NSTA, **Production and Expenditure Projections**.

11. Policy assessment

Inclusion of Just Transition principles into climate change legislation is an important first step, but it must be followed up with substantive legal and policy reforms to enable the achievement of the principles. The governance of Just Transition in Scotland is outlined in section 2.2. This section provides a more comprehensive assessment of priority policy needs in the areas of Just Transition in light of the discussed indicators and scenarios.

11.1 Unified and timely energy policy

The aim of the Scottish Government Just Transition Outcome Framework is to "plan for an orderly managed transition", which is challenging considering there is no clear understanding over the future and pace of developments in the energy sector, oil and gas or renewables. The Scottish Government does not have powers to make decisions on offshore petroleum development. In the UK, views on the North Sea oil and gas production differ significantly between the two main political parties, causing further concerns in addition to existing policy instability in this area. This approach is not consistent with an "orderly managed" transition aspiration. Furthermore, the UK Government is responsible for the renewable energy subsidy scheme, Contracts for Difference, which in its fifth round in summer 2023 did not attract any bids from offshore wind operators and is in clear need of reform.[220]

The Scottish Government does have powers in renewable energy authorisation, but adoption of the Draft Energy and Just Transition Strategy has been delayed by over two years,[221] prompting criticism from the industry body, Scottish Renewables.[222]

To pursue an orderly and managed Just Transition, and its significance for the North East, the development of a clear and consistent policy approach towards energy sector development needs to be prioritised by both the UK and the Scottish Governments. A unified approach on energy is indispensable to the achievement of legally binding climate targets. It is required urgently and needs to be facilitated through cross-party and cross-nation dialogue and agreement. The absence of a strategic direction in this area is not beneficial for the businesses, nor for the workers or communities in the North East of Scotland and beyond.

The production of oil and gas on the UK Continental Shelf is estimated to decline consistently over the next two decades.[223] The rate of the estimated decline is marginally slower if production is be authorised from undeveloped and future discoveries. As noted above and in sections 2.1, views in society and among political parties differ on authorisation of new production and the rate of decline with contrasting views presented in current policy debates. While a lack of consensus exists on the rate of fossil fuel phase out (and will likely stay that way) a stronger consensus exists on the rapid deployment of renewable energy in the UK and Scotland to meet climate targets.

220. Offshore Renewable Energy Catapult, '**Renewable Energy Auction Results in No Bids for Offshore Wind**' (8 September 2023).
221. H. Morrison, 'Scottish Government Energy Strategy to Be Delivered Two Years Late', **The National** (28 September 2023).
222. Scottish Renewables, '**Scotland's Energy Strategy Will be Published More Than Two Years Later Than Anticipated**'.
223. NSTA, **Production and Expenditure Projections**.

In the international context, establishing clear timelines for a fossil fuel phase-out would be beneficial for the States and communities dependent on fossil fuel rent. As is addressed in multiple international fora (including most recently the Energy Transition Commission)[224] that not all fossil fuel resources can be developed globally if we are to limit warming to 1.5 degrees,[225] a planned managed reduction in supply can help achieve a Just Transition for States and their citizens.[226] Unpredictability and sudden crashes in the fossil fuel industry where it plays a central role in revenue generation and employment, can bring about devastating consequences on the host communities.[227] A managed decline in fossil-fuel production, as opposed to unexpected downturns caused by an oil price crash or a global pandemic, would help diversify economies, making them more resilient and decrease the social costs of the transition process.[228] Our earlier report demonstrated the vulnerability of the economy and communities in Aberdeen and Aberdeenshire to sudden oil price shocks.[229]

A managed and predictable decline in the rate of production of oil and gas, informed by climate targets and scientific evidence[230] and supported by a rapid transition to and growth in renewables would facilitate a stable legal and political framework conducive to a Just Transition for the region.

224. Energy Transitions Commission, **Fossil Fuels in Transition: Committing to the Phase-Down of All Fossil Fuels** (November 2023).

225. IPCC, Climate Change 2023: Synthesis Report, **doi.10.59327/IPCC/AR6-9789291691647**.

226. S. Kartha et al., 'Whose Carbon Is Burnable? Equity Considerations in the Allocation of a "Right to Extract"' 150 Climatic Change (2018); G. Muttitt, 'The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production' (**Oil Change International** 2016).

227. P. Le Billon and E. Good, 'Responding to the Commodity Bust: Downturns, Policies and Poverty in Extractive Sector Dependent Countries', 3 The Extractive Industries and Society (2016); G. Muttitt and S. Kartha, 'Equity, Climate Justice and Fossil Fuel Extraction: Principles for a Managed Phase Out', 20 Climate Policy (2020).

228. G. Muttitt, 'The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production' (**Oil Change International** 2016).

229. D. Shapovalova, T. Potts, J. Bone, and K. Bender, 'Just Transition for Workers and Communities in Aberdeen and Aberdeenshire: Rapid Evidence Review' (2023) **https://doi.org/10.57064/2164/19887,** section 4.5.

230. P. Achakulwisut, P. Erickson, C. Guivarch et al., 'Global Fossil Fuel Reduction Pathways under Different Climate Mitigation Strategies and Ambitions' 14 *Nature Communications* (2023), **https://doi.org/10.1038/s41467-023-41105-z**.

11.2 Worker-led transition and retaining the skill base.

Supporting the labour market is a central objective of any Just Transition framework. In Scotland, the Just Transition principles include specifically: i) supporting environmentally and socially sustainable jobs and ii) creating decent, fair, and high-value work in a way which does not negatively affect the current workforce and overall economy.

Protecting jobs

Although Just Transition is a multidimensional concept,[231] job protection is often its most referenced element partially because it is the key indicator of economic wellbeing for a nation or region and because data tends to be readily available. Job protection and creation in the energy transition also gets prioritised in Just Transition policy-making. In Canada, the Sustainable Jobs Act was proposed in 2023, aiming to provide for "accountability, transparency and engagement to support the creation of sustainable jobs for workers and economic growth in a net-zero economy".[232] The Act would see the establishment of a Sustainable Jobs Partnership Council to provide the government with independent advice; preparation of a Sustainable Jobs Action Plan outlining the relevant plans and measures; and the establishment of a Sustainable Jobs Secretariat as an administrative and policy support.[233]

In the North East of Scotland, a key element of a Just Transition will be the need to avoid deindustrialisation that has happened in other regions when a significant regional industry declines or moves away.[234] That said, as argued above there are deeper indicators that go beyond simply the employment of workers. Thus, we have reported indicators around education and skills, median earnings and gender differences in earnings. Government policy that focuses on supporting jobs by growing new and diverse Net Zero aligned industries while supporting small businesses to maintain the high skills base in the region will go a long way to supporting a Just Transition.

Maintaining skilled workforce

There are some projects supporting skills development already financed by the Scottish Government Just Transition Fund,[235] including the Energy Transition Skills Hub at the North East Scotland College set to open in 2024. The provision of training needs to be expanded beyond the energy sector to include construction (e.g. retrofit and energy efficiency), transport, manufacturing, and land use management in line with the CESAP.[236] It is also important to look beyond the supply side energy industries that Aberdeen has a long historical and industrial association with. While CCUS, hydrogen and offshore wind will be critically important sectors for the region supporting jobs and skills, there will also be opportunities in diversifying into employment rich demand side industries, including energy

231. X. Wang and K. Lo, 'Just Transition: A Conceptual Review', 82 *Energy Research and Social Science* (2021), **https://doi.org/10.1016/j.erss.2021.102291**.
232. Government of Canada, **Backgrounder on the Sustainable Jobs Act** (2023).
233. House of Commons of Canada, Bill C-50 'An Act Respecting Accountability, Transparency and Engagement to Support the Creation of Sustainable Jobs for Workers and Economic Growth in a Net-Zero Economy' (**15 June 2023**).
234. V. Pop, 'Europe's Energy Crisis Increases Risk of Deindustrialisation', FT.com (17 November 2022).
235. Just Transition Fund, **Year One Projects**.
236. Skills Development Scotland 'Climate Emergency Skills Action Plan 2020-2025: **Key Issues and Priority Actions**'.

efficiency and retrofit, 'behind the meter' technologies, smart grids and energy systems, services and data and AI. There is significant scope to increase awareness and engagement across SMEs in the region in preparedness for the Net Zero economy, from mechanics to school teachers, increasing climate literacy and boosting innovation and entrepreneurship.

Trade unions and workers have been calling for the adoption of the Offshore Energy Skills Passport, which would facilitate the OPITO (Offshore Petroleum Industry Training Organisation) and the GWO (Global Wind Organisation) aligning their training standards.[237] The Passport would allow workers to transition between industries without incurring substantial retraining fees. The Just Transition Fund allocated £5 million to the OPITO for the delivery of the Passport.[238] Despite some progress with designing the prototype,[239] the delivery of the Passport was postponed, reportedly due to the resistance from the GWO.[240] The Offshore Energy Skills Passport should be delivered as a matter of priority.

To keep jobs and a skilled workforce in the North East, there will need to be increased support of development for new low-carbon energy generation industries and supply chains, including manufacturing as well as repurposing current energy generation industries to enable low-carbon energy generation.[241]

Local supply chains

There are some efforts in the current policy and regulations aimed at developing local supply chains. The Crown Estate Scotland requires ScotWinds applicants to submit Supply Chain Development Statements (SCDS) detailing commitments and ambitions for where spending across development, manufacturing, installation, and operation will occur (Scotland rUK, EU, or elsewhere).[242] The selection of successful applications to ScotWind Leasing by the Crown Estate Scotland is not influenced by the level of commitment or ambition provided in the initial SCDS. There are no specific minimum requirements for expenditure levels or the proportion that needs to be locally produced.[243] The applicants' performance will be tested against these commitments, and the Crown Estate Scotland option agreement provides for contractual remedies where commitments have not been met. However, the penalty structure potentially weakens incentivises to meeting commitments due to capped fines and high thresholds for revoking the license.[244]

At the UK level, in order to qualify for a Contract for Difference (CfD) allocation round, the applicants for a generating station with generation capacity of 300MW or more and all Floating Offshore Wind generating stations, are required to provide a Supply Chain Plan approved by the Secretary of State for Energy

237. Our Power: Offshore Workers' Demands for a Just Energy Transition (2023), p. 33-39.
238. OPITO, '**OPITO Awarded £5 Million Through Just Transition Fund to Deliver Energy Skills Passport**' (12 October 2022).
239. Scottish Parliament, **Meeting of the Parliament** (3 May 2023).
240. A. Thomas, ' Outcry as Wind Body Creates 'Roadblock' to Oil Worker Skills Passport', **Energy Voice** (1 May 2023).
241. **Our Power: Offshore Workers' Demands for a Just Energy Transition** (2023), p. 41-46.
242. Crown Estate Scotland, Supply Chain Development Statement – Summary.
243. Ibid.
244. Common Weal Policy, **Scotwind: One Year On** (2023).

Security and Net Zero.[245] Successful Applicants will also need to pass their Supply Chain Plan Implementation confirming the delivery of, or progress against, the activities and outcomes committed to in the scored sections of the Supply Chain Plan.[246]

The supply chain commitment schemes in the licensing and subsidy scheme should be assessed for effectiveness. Introducing minimum requirements as a pre-condition, and revising penalties to remove non-compliance incentives would contribute to a greater positive impact on supply chains in Scotland, and the North East.

Data collection and workforce diversity

While general data on workforce diversity is available, there needs to be more comprehensive data gathering on the labour market for the energy transition. There has been little agreement over what constitutes 'green' jobs and the current common classifications of industries and occupations are not detailed enough to identify these jobs. While government surveys of businesses and workers should develop such indices, working with industries or even data mining of job advertisements[247] might give a better idea of the emerging jobs in the energy transition.

Demographic diversity in the energy workforce has been historically challenging, and the concern is that this spills over into the low-carbon energy industry as well, though in order to monitor this, a better classification of low-carbon energy jobs is needed. Regardless, more targeted outreach to female and underrepresented school students on career opportunities in a post-oil economy are essential to address the existing inequalities in the workforce.

11.3 Democratic participation in decision-making

The Scottish Just Transition principles include development and maintenance of social consensus through engagement with workers, trade unions, communities, non-governmental organisations, representatives of the interests of business and industry and others.

Public participation in decision-making

The planning of a just energy transition needs to bring host communities and workers 'on board' building a strong consensual narrative across all stakeholders and opening space for civic innovation. Public opposition to new projects is a significant challenge in this, but something not unique to the North East of Scotland. The legal framework and practice on public engagement in renewable energy projects often exacerbates rather than address this challenge as these processes are not always conducive to deliberation and wider participation.

245. Department of Energy Security and Net Zero, **Supply Chain Plan Guidance, Allocation Round 6** (July 2023).

246. Ibid.

247. E.M. Curtis and I. Marinescu, **Green Energy Jobs in the US: What Are They, and Where Are They**, National Bureau of Economic Research Working Paper 30332 (2022).

The NPF4 states that

> "*throughout the planning system, opportunities are available to engage in development planning and decisions about future development. Such engagement, undertaken in line with statutory requirements, should be early, collaborative, meaningful and proportionate. Support or concern expressed on matters material to planning must be given careful consideration in the determination of development proposals*".[248]

The current approach to public engagement in Scotland is not conducive to achieving these objectives. The Government-commissioned report on barriers to public participation outlines the following:

- *there is a lack of trust, respect and confidence in the system*
- *the system is not considered to be fair and equitable*
- *there is a gap between the rhetoric of community empowerment and communities' experience of trying to influence the planning system*
- *there is a lack of clarity about the purpose of engagement*
- *experience suggests that engagement rarely changes planning outcomes*
- *planning is complex and some tensions are inevitable*
- *the planning system should recognise the rights of all parties but also their responsibilities.*[249]

A comprehensive review of community engagement in wind farm projects found that "wider community engagement is typically reserved for when many of the key decisions regarding the design and location of the wind farm have been made".[250] While it might not always be possible to secure universal support for specific projects, early and meaningful public engagement is more likely to reduce opposition.[251] Indeed the review found that the wind farms which encountered least public opposition were those in which "more dialogical forms of engagement were used and where there was feedback to community members on how consultation responses had been addressed".[252]

Engagement is often more focused more on awareness raising and consultation rather than genuine empowerment. Measures such as resourced community liaison groups or a community spokesperson which could "build capacity within the community and increase the representation of local interests in decision-making processes" are needed to improve participation.[253] Further innovation in what constitutes community benefit is needed to empower local stakeholders.

248. Scottish Government, **National Planning Framework 4** (2023) p. 13.
249. Yellow Book ltd, **Barriers to Community Engagement in Planning: A Research Study** (May 2017) p.2.
250. M. Aitken, C. Haggett, D. Rudolph, **Wind Farms Community Engagement Good Practice Review** (University of Edinburgh 2016) p.26.
251. O. Woolley, Renewable Energy Law (Hart Publishing 2023), p. 176-177.
252. M. Aitken, C. Haggett, D. Rudolph, **Wind Farms Community Engagement Good Practice Review** (University of Edinburgh 2016) p.27.
253. Ibid, p. 28.

The legal requirements for public participation in energy project approval are rather vague, leaving a lot to policy and guidance. The Planning (Scotland) Act 2019 and the Town and Country Planning (Scotland) Act 1997 have established the power of the Scottish Ministers to prepare guidance on effective community engagement in local development planning;[254] The Government consulted on the new guidance for effective community engagement in local development planning in summer 2023.[255]

Local development planning can be complex to navigate for a lay person, let alone engage with, particularly when marginalised or under-represented groups are considered. Even where citizens are informed and attempting to engage, the lack of influence they have over the final decision can deter further participation. The case of St Fittick's park and the Energy Transition Zone in Aberdeen is an unfortunate example of the failure of our existing processes to build consensus or recognise broader sustainable values and incorporate these into planning for transition. St Fittick's Park was rezoned in the Local Development Plan 2022 despite the local communities ongoing opposition and articulation of the wellbeing, cultural and environmental benefits of the park.[256] Greenspace has been recognised as a key principle underpinning a Just Transition by North East communities,[257] underpinned by the national strategy for economic transformation that highlights "a society that is thriving across economic, social and environmental dimensions".[258] The Govan Law Centre has now lodged a petition for a judicial review of a decision by Aberdeen City Council to lease and develop the park for industrial purposes at the Court of Session.[259] The City Council agreed to prevent any lease or development of St Fittick's Park during the litigation period.

Greater voice for local authorities and communities

In Scotland, projects over 50 MW capacity require the approval of the Scottish Government, rather than the local authority, which arguably causes lack of local influence on decision-making.[260] This is in contrast to England and Wales, where the Energy Act 2016 removed the need for the Secretary of State's consent for large onshore wind farms (over 50 MW) under the Electricity Act 1989, and effectively transferred the consenting of onshore wind farms to local authorities through the planning regime in the Town and Country Planning Act 1990.[261] It would be useful to consider providing more powers to local authorities in decision-making over renewable energy development.

There is a clear interest in establishing more deliberative and participatory processes for citizens in the North East. The region has seen in recent months the emergence of regular climate and citizen assemblies, and research has identified that there is need for more formal

254. The Planning (Scotland) Act 2019 section 7; Town and Country Planning (Scotland) Act 1997 section 16(c).
255. Scottish Government, **Effective Community Engagement in Local Development Planning Consultation** (May 2023).
256. A. Gossip, Torry Campaigners Feel 'Physically Sick' as Council Told to Earmark St Fittick's Park for Energy Transition Zone, **Press& Journal** (22 September 2022).
257. T. Potts et al., Community Participation in a Just Transition to Net Zero in the North-East of Scotland (**SUII, 2022**).
258. Scottish Government, **National Strategy for Economic Transformation: Delivering Economic Prosperity** (2022).
259. Govan Law Centre, **GLC Instructed in an Environmental Justice Petition for Judicial Review** (6 October 2023).
260. Electricity Act 1989 section 36.
261. Energy Act 2016 section 78.

integration to policy-making to strengthen public participation. A number of models exist for participatory governance, including more diverse and localised assemblies, a larger regional assembly and strengthening other civil mechanisms such as the focus on participatory budgeting and community representation in the regional transition dialogue. Such approaches should be supported with stronger representation in planning and regional governance, including material considerations produced to be considered by the local authority.

Overall, the current processes in project and plans approvals rely on very well-informed, politically active members of the public with enough spare time and trust in the local and national governments to take their comments into account. Capacity building is a key consideration in a Just Transition, including strengthening the voices of marginalised and under-represented communities across the North East.

11.4 Empowering communities and addressing existing inequalities

In addition to the consensus-building principle mentioned in the section above, the Scottish Just Transition principles also include "contributing to resource efficient and sustainable economic approaches which help to address inequality and poverty". Empowering communities, diversifying the economy, and tacking existing inequalities in the North East of Scotland are key to operationalising this principle.

There is some legislation and policy aiming to empower communities in Scotland, in a broader sense, through the Community Empowerment (Scotland) Act 2015. The Act introduced a number of new opportunities for the communities to participate and acquire assets, such as through community right to buy and asset transfer requests.[262] There are some positive examples of community asset transfer in Aberdeen, including the Seaton Community Church but challenges still remain in implementing the transfers, especially in the urban areas.[263]

For community and local ownership of renewable energy, the Scottish Government has a 2GW target for 2030. While locally owned energy is performing well (with Aberdeenshire leading in installed capacity) community ownership represents only 11% of installed capacity and 2% of the installations.[264] There is institutional and financial support available to help communities in developing and participating in shared ownership for renewables, including the Community and Renewable Energy Scheme (CARES).[265] It is important that schemes like this are operational in the long-term and steps are taken to reach particularly underrepresented communities in urban settings and in more economically deprived areas. The example of Aberdeen Community Hydro (discussed in section 8.2) demonstrated the difference such projects can bring to communities with appropriate support and leadership.

262. Community Empowerment (Scotland) Act 2015 parts 4 and 5.
263. Scottish Parliament Debate, **Asset Transfers and Community Empowerment** (15 December 2022).
264. Energy Saving Trust, Community and Locally Owned Energy in Scotland **2022 Report** (31 March 2023) p. 8.
265. See **Local Energy Scotland**.

Community wealth building (CWB) is the approach adopted by the Scottish Government in its National Strategy for Economic Transformation. It aims to "use public and private investment through procurement and other means to create new employment opportunities, help local businesses to expand, and place more assets in the hands of local people and communities".[266] There are plans to introduce legislation on CWB. While the bill has not been tabled yet, the consultation documents indicate that it would include duties requiring Scottish Ministers and prescribed public sector bodies to embed the CWB model of economic development into their corporate plans and wider strategies. It could further include new rules on procurement and public contracts, fair work, further land reform, and inclusive ownership (eg co-operatives and development trusts).[267]

Diversifying the local economy is key to revitalisation. Following the 2014 downturn in the oil and gas sector, the Aberdeen City Council, Aberdeenshire Council, and Opportunity North East (an industry group) approved the Regional Economic Strategy for the North East of Scotland.[268] This led to the agreement on the Aberdeen City Regional Deal with the UK and Scottish Governments with an overarching £826 million funding package for both Aberdeen city and Aberdeenshire.[269]

The Strategy identified the key sectors for economy diversification, namely:

1) *oil and gas – focusing on developing smaller fields, decommissioning, and renewables*
2) *food, drink, and primary industries*
3) *tourism*
4) *life sciences.*

In May 2023, the draft of the new economic strategy for the North East was unveiled, highlighting the challenges of Brexit, Covid-19 and the war in Ukraine; as well as noting the region's "responsibility to rapidly decarbonise and play a leading role in a Just Transition to Net Zero".[270] The updated Strategy also identified further key sectors for economic diversification, namely:

1) *digital tech*
2) *creative industries*
3) *financial and business.*

The updated Strategy defines a 2035 vision and five objectives, with clear indicators and measures of success (as presented in section 8.3). It is important that Just Transition is included in the outcomes, and that timely monitoring of the implementation is conducted.

266. Scottish Government, **National Strategy for Economic Transformation: Delivering Economic Prosperity** (2022).
267. Scottish Government, **Building Community Wealth in Scotland: Analysis of Responses to the Consultation Exercise** (October 2023).
268. **Regional Economic Strategy: Securing The Future of the North East Economy** (2016).
269. **Aberdeen City Region Deal**.
270. **Regional Economic Strategy: A Sustainable Economic Future for the North East of Scotland** (May 2023 draft).

The housing sector policy, regulations, and funding must be approached from a context that recognises the profound impact on housing for health, social justice and economic well-being. Housing is evidently a critical source of stability and security for individuals and families. However, the current high cost of market housing eats into family budgets, greatly reducing disposable income, while private rented tenancies are also insecure and the provision is generally of lower quality than with other tenures. Expanding social housing as a key policy objective, however, would help address a number of the issues in this market. Evidently, this would lower costs and potentially enhance security of tenure while going some way to addressing the high levels of housing benefit and other support currently going to the private sector. In addition, the availability of decent quality, secure and affordable housing would bear down on housing costs and raise quality in the private sector by virtue of having a viable and accessible alternative. Current issues and inequities around access to green space could also be mitigated to an extent by design of new social housing, leaning to towards Howard (garden city style developments) rather than failed Le Corbusier 'brutalist' developments while taking account of a Jacob's style approach to urban planning.[271] This is type of policy is being pursued within the limits of available funding by Aberdeen City Council, particularly with their 'Gold Standard' council housing initiative.

In addition to existing regulations of the private sector, further regulation is needed to raise standards and control costs, given the large share of private rent in Aberdeen. The Housing (Scotland) Act 2001 requires local authorities to develop local housing strategies.[272] The Aberdeen City and Aberdeenshire Councils adopted the 2018-2023 Local Housing Strategies, which will need to be revised in the near future.[273] The Strategies highlight the local priorities and objectives, including the need to address homelessness, shortage of affordable h ousing, fuel poverty, and the state of the private rented sector. There is specific acknowledgment of the impact the downturn of the oil and gas sector is having on the private rented sector and house prices.

Increasing the quality of housing as well as community ownership of renewable energy would go a long way in addressing the problem of fuel poverty in the region. The statutory fuel poverty target requires no more than 5% of households in Scotland to be in fuel poverty by 2040.[274] There is a policy push both at Scotland and regional levels to ensure that new buildings "use zero direct emissions heating and high levels of fabric energy efficiency to reduce overall heat demand and avoid future retrofit".[275] This does not, however, address the financial and capacity risks for existing homes with low energy efficiency in terms of retrofit.

271. M. Gottdiener, R. Hohle, and C. King, C. *The New Urban Sociology* (Routledge 2019).
272. Housing (Scotland) Act 2001 section 89.
273. Aberdeen City Council, **Local Housing Strategy**; Aberdeenshire Council, **Aberdeenshire Local Housing Strategy 2018-2023**.
274. The Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act (2019) section 1.
275. Aberdeen City Council, **Buildings and Heat Strategy**; Scottish Government, **Heat in Buildings Strategy** (2021).

11.5 Net Zero and sustainable active travel

Commitment to Net Zero in Scotland is outlined in the legally binding target for Net Zero emissions of all greenhouse gases by 2045.[276] Similarly to the rest of the UK, Scotland's legislation sets out a statutory role for the Climate Change Committee, which produces annual progress and report, advice, and assessment. In Aberdeen, the Net Zero Route Map adopted the 2045 Net Zero goal and develops local policy priorities across different sectors, as well as interim targets and a monitoring framework. Achievement of the national and local targets will require robust sectoral planning, and the incorporation of Just Transition in a meaningful and not placating way. This is already proving to be a challenge, however. Provision of evidence and wide stakeholder engagement is continuously required to make progress in this area.

Travel is an important part of Just Transition and economic development for the region. As discussed in section 5 above, there was a movement of people working in Aberdeen to Aberdeenshire especially after the covid-19 pandemic. The region needs an integrated public transport policy that serves its residents and businesses well in terms of utility and cost. Sustainable and active travel not only contributes to the achievement of climate targets, it also positively impacts physical and mental health and wellbeing. There are communities in both Aberdeen City and Aberdeenshire which experience "high levels of deprivation, often linked to poor levels of connectivity and a lack of access to opportunities including education, employment and leisure".[277] The bus tickets in Aberdeen over the past 15 years have been, as a rule, more expensive than in other Scottish cities.[278]

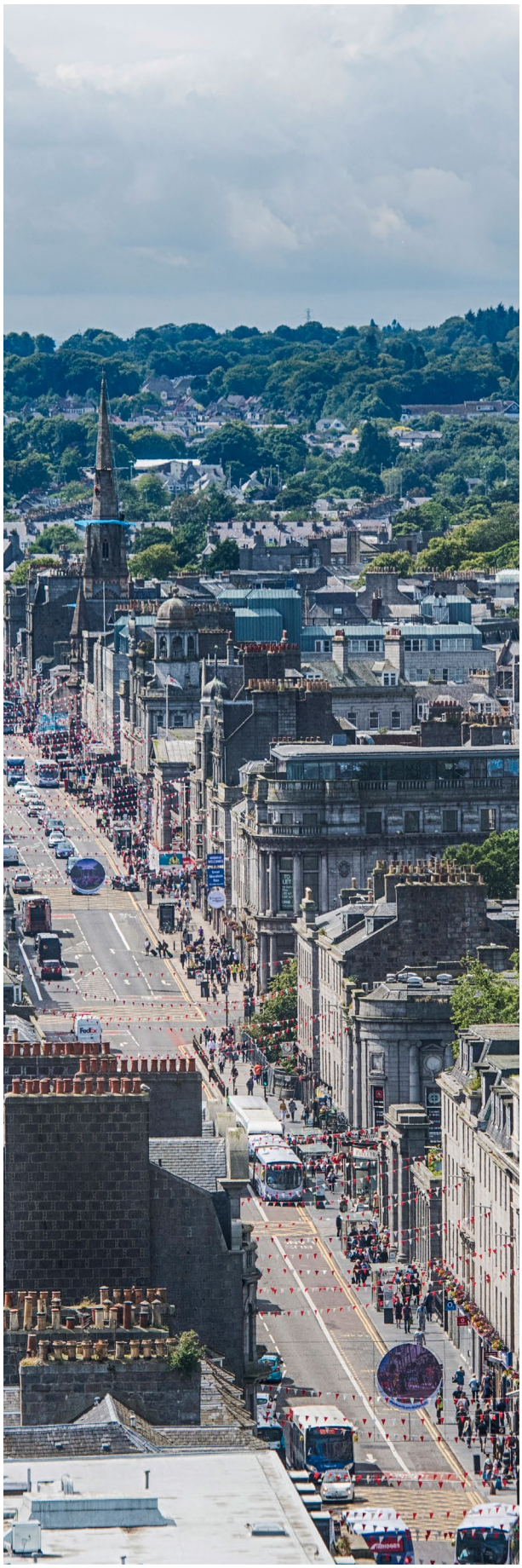
Transport is an important component of the Regional Economic Strategy with a focus on active travel, accessibility, and decarbonisation.

The Local Outcome Improvement Plan contains stretch outcomes on increasing the share of people walking and cycling to work and as their main mode of travel. Aberdeen Net Zero Route Map Mobility Strategy recognises that transport and connectivity are "critical to sustainable economic development and a fairer Aberdeen" and acknowledges that "the current mode split with over 63% of trips being made by car cannot continue".[279]

The Nestrans Regional Transport Strategy, Nestrans 2040, is discussed in section 8.4 above. It outlines the current challenges and creates a vision, and key priorities for the transport sector in the region. The objectives of the strategy will require significant public and private investment as well the shift in public attitude to travel to be realised. While it is a long-term document, it will need to be flexible and adaptable to changing circumstances in the region.

276. Climate Change (Emission Reduction Targets) (Scotland) Act 2019.
277. Nestrans, **Regional Transport Strategy 2040**, p. 20.
278. North East Bus Alliance, **Assessing the State of the Bus Network in Aberdeen and Aberdeenshire** (2019) p. 31.
279. Aberdeen City Council, **Mobility Strategy**.

As to more general interventions in terms of addressing existing inequalities, food insecurity remains a key area of concern, as is the case in many other areas of Scotland and the UK. This is recognised by the local authorities in the region who are attempting to augment and support local charities and third sector organisations who now often fill the gap left by low wages and more conditional and less generous welfare provision, as in recent reports from the Joseph Rowntree Foundation and by comments made by the Olivier De Schutter, the UN's special rapporteur on extreme poverty and human rights, on a recent visit to the UK, it appears clear that a Just Transition for the region cannot be achieved in isolation given the role of state support in reducing entrenched inequalities.



Conclusions

The project '*Just Transition for Workers and Communities in Aberdeen and Aberdeenshire*' brought together an interdisciplinary team from the University of Aberdeen Just Transition Lab to identify and collate the relevant evidence, and engage with a range of local stakeholders to develop regional Just Transition indicators.

There is a lot of work ongoing in different sectors for decarbonisation in Aberdeen City and Aberdeenshire. This report allows readers to view some of this work from a comprehensive perspective, presenting both the big picture on Just Transition in the region and a deep-dive into data and evidence-driven narratives in specific themes. By bringing together themes, data, and analysis often used separately, it allows readers to get a holistic picture of the vision, experience, and evidence of the transition for communities and workers in the region. While we usually see academic focus narrow down over time, in this project, the scope and focus of the work widened in response to the demand and effort many stakeholders contributed to in the development of themes, indicators, and data-gathering.

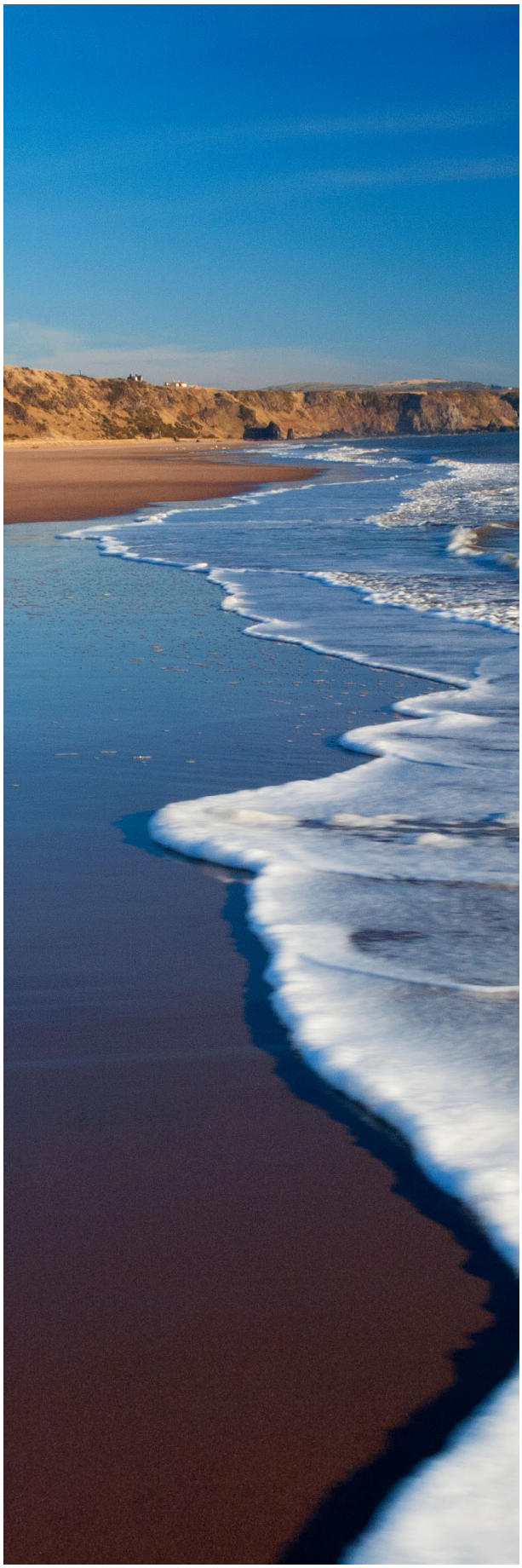
Although Just Transition is a well-established concept in academic literature and policy-making, there is a lack of data and methods on data on how we can measure progress towards achieving a Just Transition. We found that there is limited experience and best practice in measuring place-based Just Transition. Challenges exist with defining the scope of such measurements, participatory approaches to research questions' development, and data gathering. This is particularly a challenge for data at the local level and data related to social dimensions. In Scotland, there appears to be growing demand for Just Transition monitoring and evaluation from a variety of policy-makers and stakeholders.

Previous work on this project produced a Rapid Evidence Assessment on how the oil and gas industry has shaped our region and what efforts and visions have emerged for a Just Transition. Based on the findings and a stakeholder knowledge-exchange event, we have developed a set of proposed indicators, supported by data and/or narrative, for a transition in Aberdeen and Aberdeenshire across four themes: 1) Employment and skills, 2) Equality and wellbeing, 3) Democratic participation, 4) Community empowerment, revitalisation and Net Zero. Some of the indicators are compiled from national/local data sets, including data on jobs and skills, fuel poverty or greenhouse gas emissions. Other indicators require further data collection and elaboration, but nevertheless represent important aspects of Just Transition in the region. These include workers' protection, community ownership, participation and empowerment.

We propose four narrative scenarios as springboards for further dialogue, policy development, investment and participation on Just Transition in Aberdeen. Indicators, as proxies for evaluating progress, can be used as decision support tools, a means of informing policy, and supporting stakeholder dialogue and action as we collectively progress a Just Transition in the North East. They can be further used to develop dashboards for tracking progress towards Just Transition and developing measurement and evaluation frameworks. This report can also be used as a methodological case study for others who want to do a regional based Just Transition

indicator study. Insight in this report and the Rapid Evidence Assessment report will be particularly relevant for studies of energy cities.

The findings of the report can be used as a guide for future planning and policy. We provide an initial outline of policy and regulation related to the themes and indicators in the report. Further development and reform of policies and regulations across public participation, workforce support, and community empowerment would facilitate the implementation of the Just Transition principles. Importantly, a climate targets driven, unified approach to comprehensive energy sector planning as well as strong public-private partnerships will be indispensable to a Just Transition in Aberdeen and Aberdeenshire.



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Measuring Just Transition

Indicators and scenarios for a Just Transition in Aberdeen and Aberdeenshire

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