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Citizen Co-Design for a Just Transition to Net Zero in Glasgow

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Executive Summary

Glasgow has committed to delivering a just transition to net zero whilst building climate resilience. The move to a low carbon city will require adopting an approach and processes that collaboratively works with those who will be impacted by the transition, or risk an unfair distribution of benefits and burdens, and poor implementation. Essentially, transition to net-zero policies need to be designed in a socially just manner that respects and recognises the needs and values of communities whilst building resilience.

As a concept, 'just transition' is an approach which is not understandable or relatable to most citizens. Therefore, it is crucial that the focus is on making the concept less abstract by relating it to issues that people are currently facing in Glasgow, such as the cost of living and energy crises.

This report presents the findings of a desk-based review that was undertaken to provide deeper insights on just transition and how to achieve this through a critique of published peer-reviewed and grey literature. The review aimed to establish what we know and understand of the 'common practices' used to describe just transition, what remains unknown in terms of evidence, knowledge gaps and further research that is required to take forward the Just Transition agenda.

The contents of this report provide insights on the barriers faced by communities in shaping a citizen co-designed just transition framework and how these can be overcome in the context of climate policy in the housing, energy, transport and land use sectors. The review was ultimately used to provide recommendations on the enhancement of just transition initiatives in Glasgow City (and beyond).

Key Findings

The concept of just transition as evidenced through the literature review is enacted and enabled through a number of mechanisms. These are generally through the lens of *a) public involvement and b) co-design and co-creation*. Although there are sector specific nuances, these are generally common across the sectors examined.

- Public involvement approaches include information sessions, community/public engagement, participation, training, public forums, public consultations and outreach.

- Co-design and co-creation approaches include energy efficiency programming, planning processes, co-benefits of interventions, cultural connections, community wellbeing, art, visioning social development, eco-developments and co-housing schemes.

These approaches are not new in themselves but have been adapted and applied to supporting and achieving a just transition. These approaches are generally considered 'good practices' and utilised by practitioners, academics, and policymakers. However, on deeper scrutiny, policies aimed at achieving a just transition can often seem 'macro' in nature, i.e. high-level and targeting overall economic activity. Consequently, the people that should benefit from such policies face a number of challenges at the 'micro' level of implementation. We considered these as challenges.

The challenges being faced by communities are bottlenecks to shaping just transition policy and implementation, and they fall into 3 categories: i) procedural justice, ii) transparency and trust, and iii) financial burden.

On refection, overall, *a systems change* is needed to shift governance aims to prioritise the needs of local communities over managerial efficiency and control. As such, considerable care and attention must be afforded by stakeholders who are designing, developing, initiating and implementing interventions on the ground to conduct due diligence into understanding and recognising these challenges. This will drive change with the premise that by overcoming the challenges will influence how interventions are 'received' by communities. Generally, participants are more likely to engage meaningfully if they see that their input is valued and leads to concrete outcomes.

With this in mind, what is required is the ability to stocktake, identify and recognise critical issues that may not always be apparent prior to public involvement and co-design/co-creation efforts. Respect for local values, seeking genuine collaboration, and embracing 'meaningful engagement' at all levels are critical to success. This approach may take a bit longer to establish an understanding of the most critical barriers for communities undertaking the transition to a low carbon city, but can lead to more successful and sustainable outcomes for building resilience and a just transition.

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1. Introduction

Like many cities across Europe involved in the European Green Deal, Glasgow has committed to delivering a just transition to net zero whilst building climate resilience, and has embedded this in a variety of its strategies and plans, including the Glasgow Green Deal, Climate Plan, Strategic Plan, Climate Adaptation Plan and Economic Strategy. A just transition refers to both the outcome, achieving a fairer, greener future for all, and the processes that must be undertaken collaboratively with those who will be impacted by the transition. In order to deliver benefits to citizens during the move to a low carbon city, it is essential that those who are likely to be affected most are given the opportunity to shape the development of the policies, programmes and projects that will be required to transform Glasgow.

Public participation is crucial to ensuring that policies are designed in a socially just manner that respects and recognises the needs of communities whilst building resilience, and is a means of empowering people to fully participate in, learn about and jointly own their net zero futures. However, the current model for delivering public services is rooted in underlying assumptions which prevents the voices of citizens from being heard. As a city, Glasgow needs to find new, creative and innovative ways to solve our challenges. We also acknowledge that the 'just transition' is a political concept which is not understandable or relatable to most citizens. Therefore, it is crucial that we focus on making the concept less abstract by relating it to issues that people are currently facing in Glasgow, such as the cost of living and energy crises. To do this requires a deep understanding of how the concept of Just Transition is understood and the obstacles that are being faced in relation to citizen participation with reference to climate policy decision making and ultimately climate action. This report presents the findings of a desk-based review that was undertaken to provide these deeper insights through a critique of extant peer-reviewed published literature which documents what we know and understand of the 'common practices used to describe just transition', what remains unknown in terms of evidence, knowledge gaps and further research that is required. The initial premise of this review was to establish common language used to describe just transition, however on examining the literature establishing common practices seemed more appropriate. The general purpose of this review is to provide recommendations on the enhancement of just transition initiatives in Glasgow

City (and beyond) by putting into context the barriers faced by communities to shaping a citizen co-designed just transition framework.

2. Review of Extant Literature

2.1 Methodology

A review of published literature was conducted utilising 3 main search engines; Web of Science, Google Scholar, and Google. A combination of key search terms were identified as relevant to the scope and parameters of the research:

- Identify obstacles to citizen participation
- Identify common practices used to describe just transition
- Identify key elements of a citizen just transition framework

To position 'just transition' into context, the literature search focussed on a range of sectors that are pertinent to the concept of a just transition in Glasgow. These were housing, transport, land use, energy. Within each sector the review aimed to draw out insights on the extent of community engagement in policymaking in order to get a sense of the opportunity for citizen participation, and common practices to represent 'groups of special interest' i.e. those considered to be socially vulnerable or there are known limitations to their capacity to contribute to shaping policymaking. This is explained in further details in Section 2.3. Key words in relation to behavioural change were used to develop an understanding of how barriers to community engagement have been tackled and lessons that can be drawn from that. The literature search was limited to material published between 2013 and 2024. The key words used for the search is provided in Table 1.

Table 1 Key words used during the literature search

Search domain	Key words
Location	“Scotland”, "Glasgow ", "Lanarkshire"
Sector	**Energy**: “energy”, “energy transition”, “fuel poverty”, “renewable energy” **Housing**: “housing”, “energy efficiency”, “green design”, “energy performance certificate” **Transport**: “transport”, “fuel efficiency”, “electric vehicles”, “low emission zones”, “public transport”, “active travel” **Land use**: “land use", "agriculture", "green space", “urban”, “rural”
Climate	“climate change”, "climate policy”, “climate policymaking”, “climate action”
Justice	"community engagement”, "citizen participation", "procedural justice", “just transition”
Behaviour Change	“behaviour change”, "behavioural patterns", “green behaviour”

A total of 78 articles were identified as relevant to the scope of the research, and were specifically focused on Scotland and/or Glasgow. A further 23 articles were identified which were relevant to the scope but focused on the rest of the UK (rUK). These were taken into account to provide a sense of scale of what has been done locally, regionally and nationally.

2.2 Anomalies

During the literature review it was noted that i) there was overlap between the housing and energy sectors with many results focusing on fuel poverty, ii) a significant portion of the results were ‘energy’ focused and these results tended to be peer-reviewed academic journal articles, iii) whereas, the most relevant and/or detailed results for community engagement were grey literature (NGO reports) or recent academic, but not peer-reviewed, studies (e.g. Master and PhD theses), iv) there were very few relevant results on behaviour patterns, and

iv) the majority of relevant results that included a key word for community engagement tended to only note its importance without explanation of how it can be achieved.

2.3 Groups of Special Interest

For the purposes of this review, 'groups of special interest' are considered people or communities who are socially vulnerable, or have a known limitations on their capacity to engage in or contribute to shaping policy and initiatives aimed at the transition to Net-Zero. These groups of special interest have been identified during this review as requiring prioritisation for interventions to facilitate their participation in climate policymaking.

In terms of 'social vulnerability' of these groups they are categorised by having certain characteristics and/or possessing a metric of deprivation. These are listed below:

- Age
- Ethnicity
- Disability
- Gender
- Faith/religion
- Residency in a deprived area
- Fuel impoverished
- Unemployed
- Low income
- Limited education

Additionally, the following groups have common social vulnerabilities that create barriers to their participation, but they are not always explicitly described as 'vulnerable' in reviewed literature. Rather, these groups face specific barriers to their participation in climate policymaking that are indicative of social vulnerability:

- Tenants
- Workers
- Digitally excluded people
- People with caring responsibilities
- Non-native English speakers

3. Findings

To achieve a just transition in Scotland requires that both socially vulnerable and otherwise disengaged groups be involved in the shaping of what should be considered 'just' and the way it is achieved (Potts and Ford, 2022; Malcolm et al., 2024). The principal argument being that understanding who will be most affected by a climate policy, and building trust among those affected, is necessary for its successful implementation and any intended outcomes. This principle is echoed by the Scottish Government (2021a, p.33) report on just transition; "Empowering people to shape their future is essential in maintaining a strong social consensus for change".

The following section provides an overview of the common practices used to describe a just transition in the context of climate policy on housing, energy, transport and land use. This is followed by an overview of the literature on barriers faced by communities to shaping a citizen co-designed just transition framework and how they can be overcome.

3.1 Co-design and ownership

A review by Abram et al. (2022) underscores the challenge of designing a just transition; participatory approaches add complexity to governance and decision-making, but are essential for legitimacy and societal buy-in. However, the urgency of decarbonisation necessitates rapid structural change which risks sidelining meaningful participation unless procedural justice (i.e. inclusive decision-making that gives affected communities a voice) is embedded as a governance principle, rather than simply a policy tool for securing public acceptance of predetermined policies (*ibid*). The authors conclude that flexible approaches based on observation, experimentation, and experience are necessary to navigate the complexities of a just transition.

Additionally, the Scottish Government (2021a)'s view is the co-design of policies and actions for decarbonisation promotes diversity and inclusion by ensuring the direct engagement with representatives from a range of groups. This approach is claimed to make the process more "robust and creative" (*ibid*, p.34). This embrace of 'creativity' as a mean to inspire and engage with a broader section of the public is a central theme of the Scottish Government's (2021b) public engagement strategy for achieving Net-Zero.

As such, flexibility and creativity can be understood as a means to achieve inclusivity by the reach and deepness of engagement, although neither Abram et al. (2022) or the Scottish Government (2021a; 2021b) link these aspects explicitly. However, in work funded by the UKERC Whole Systems Networking Fund (WSNF), which aims to improve Equality, Diversity, and Inclusion (EDI) in energy research, Haf and Robison (2020) highlight that local communities are more likely to engage with energy transitions through broader themes of social development, mobility, culture, and art. They advocate for participatory approaches that enable diverse forms of engagement and suggest that local authorities should adopt more flexible strategies to improve community involvement in decarbonisation policymaking.

Moreover, empowering communities to actively engage with decision-making allows them to derive meaningful benefits and further embolden their participation. Sharma et al. (2023) make this argument in the context of community ownership of land to suggest that increased local decision-making power contributes to a just transition. Similarly, Community Land Scotland (2022) extends this argument to urban community-led housing by highlighting its potential to strengthen local governance, build community wealth, and contribute to urban regeneration. However, both sources caution that empowerment is contingent on broader structural conditions, such as regulatory frameworks and public investment, which shape the extent to which communities can exercise meaningful control over the land and assets they steward.

3.2 Measuring local action and engagement

According to Shapovalova et al. (2023), just transition principles emphasise the importance of social consensus, trust, and engagement through regional place-making. However, the report highlights challenges in ensuring meaningful participation beyond consultation and questions how just transition outcomes will be measured. Specifically, the authors cite Aberdeen City Council (2022)'s Net Zero Aberdeen Routemap, which references just transition alongside broad social objectives on fuel poverty alleviation and gender equality but does not provide a clear definition of just transition or specific quantifiable indicators for measuring progress. A similar critique by Shapovalova et al. (2023) is made of the Scottish Government (2021a)'s "Just Transition Outcomes" (p.31).

A doctoral thesis by Määttä (2022), which provides a detailed account of how governance frameworks shape the energy transition in Ireland and Scotland, briefly mentions the Individual, Social, Material (ISM) tool as a framework for understanding and influencing behaviour in policymaking, particularly in relation to the energy transition. The tool was developed for the Scottish Government and is described as a way to help policymakers understand how people's behaviours are shaped by individual attitudes and beliefs, societal norms, and material factors such as infrastructure and time constraints (See: Darnton and Evans 2013). However, based on interviews with policy experts, Määttä (2022) notes that, while the tool is discussed in policy documents, it is not widely used in practice.

This is to say, Scotland has a strong policy discourse on just transition, but the lack of specific metrics or assessment tools remains a challenge. As a result, the extent by which engagement with communities on just transition has led to local action is not easily known.

Nonetheless, a research paper by Kola-Bezka (2023) provides preliminary evidence that Local Action Groups (LAGs) have the potential to increase community engagement in the energy transition by amplifying communities' voices and promoting energy literacy. The research is based on a survey of 427 LAGs across the EU and UK. While LAG activity is not presented as a definitive indicator, the paper suggests that LAG involvement in energy transition initiatives can lead to greater community engagement and local action.

There is broad agreement in the reviewed literature that stronger policy requirements and regulatory provisions are needed to ensure meaningful community participation in the energy transition, as well as targeted financial support to remove barriers for hard-to-reach and underrepresented individuals and communities (Määttä, 2022; Shapovalova et al., 2023; Kola-Bezka, 2023; Ayllón and Jenkins, 2022).

The consequences of limited regulatory provisions for community participation are best exemplified by the lack of a legal right to local energy supply in Scotland. Määttä (2022) highlights that the lack of legal right to local energy supply is a policy constraint which compounds broader challenges related to financial capacity, and limits communities' ability to participate meaningfully in the energy transition. Without the ability to directly sell electricity locally, community energy projects face significant financial and viability challenges, particularly following the removal of subsidies such as the Feed-in Tariff (*ibid*).

Additionally, grid capacity limitations, especially in rural areas, further restrict access to energy markets. This makes community participation in the energy transition more difficult (*ibid*).

Against this backdrop, Ayllón and Jenkins (2022) reinforce the argument that just transition policies in Scotland require stronger justice-based mechanisms to implement policy, as well as specific indicators and monitoring frameworks to track progress. They suggest that existing economic and social metrics could serve as proxies, namely income inequality, housing affordability, and wellbeing indicators. However, they stress that a standardised set of just transition indicators has yet to be developed.

3.3 Democracy

A common theme in the reviewed literature is that democratic participation is key to advancing just transition. Bray and Ford (2021) argue that public participation is essential to prevent deepening inequalities in energy transitions, as historical transitions— e.g. coal mine closures in the UK—have disproportionately affected vulnerable communities. They stress that just transition policies must explicitly address these risks to avoid repeating past injustices. However, Wahlund and Palm (2022) note that both energy democracy (collective governance) and energy citizenship (individual engagement) are essential for participatory energy transitions. They caution that without formalised governance structures, citizen engagement may be co-opted by commercial interests, and they critique the overemphasis on consumer-driven participation in policy frameworks. In this regard, citizen juries, or climate assemblies, can act as a model for democratic participation in climate governance and energy transitions (Ross et al., 2021). Drawing on observation of jury sessions and interviews with participants in Leeds (UK), Ross et al. (2021) found that citizen juries improve trust and legitimacy in decision-making, as deliberative participation allows citizens to contribute to shaping fairer climate and energy policies.

The Scottish Government (2021a) has adopted climate assemblies to amplify community voices in pursuit of a just transition, with a particular focus on including young people "… given our intergenerational responsibility" (p.34). While climate assemblies offer a valuable deliberative mechanism for engaging citizens in climate governance, their effectiveness in fostering a just transition

depends not only on inclusive participation but also on sustained political commitment to implementing their recommendations and addressing underlying power dynamics in decision-making (Ross et al., 2021).

Scotland's experience with climate assemblies has demonstrated that deliberation is only part of the journey to a just transition. According to Andrews et al. (2022), independent research conducted for the Scottish Government via their Social Research initiative, Scotland's Climate Assembly engaged 106 members in deliberation and produced a set of ambitious recommendations, but its direct impact on government policy was less clear. While around a third of the recommendations aligned with existing or planned policies, others were acknowledged as areas for further exploration, yet the government made no firm commitments to implementing them, and over a third were ultimately not taken forward. After surveying Assembly members, Andrews et al. (2022) found that confidence in the Scottish Government's willingness to act on the recommendations declined between the Assembly's conclusion and the official response. The experience highlighted ongoing challenges in ensuring that citizens' assemblies lead to tangible political and policy outcomes, rather than serving as consultative exercises with limited governmental accountability (ibid).

3.4 Worker rights

Workers (and their representing trade unions) in carbon-intensive sectors are a strong focus of the Scottish Government (2021a)'s just transition plans (See: p.17, p.23, p.36). A report prepared for Scotland's Just Transition Commission by Pinker (2020) outlines that the rationale for including workers and trade unions in just transition plans stems from the fact that the concept of just transition was originally developed by North American trade unions. Specifically, the term is widely attributed to American labour leader and environmentalist Tony Mazzocchi, who advocated for worker protections during environmental transitions, linking labour rights with environmental justice (*ibid*). Workers must be engaged in just transition in order to "build socio-political support for the changes required as the world shifts toward a net-zero economy" (Bray and Ford, 2021, p.5). Workers' rights, therefore, require specific policy attention given livelihoods will be put in jeopardy without adequate work protections as Scotland shifts away from fossil fuels to renewable energy (Shapovalova et al., 2023).

In April 2022, the Scottish Government (2022, p.1) pledged £100,000 annually in grant funding "to support just transition capacity within the trade union movement". Indeed, the Scottish Government (2023a)'s Draft Energy Strategy and Just Transition Plan states that "Workers, and trade unions, will be at heart of everything we do as we work on our just transition plans" (p.91). The draft strategy noted that a survey of approximately 900 energy sector workers found low awareness of the term 'just transition' but broad agreement with aspects of the government's definition once explained, although concerns remained about job security, pay disparities, and access to retraining (ibid). The primary workforce objectives of the draft strategy are i) reskilling workers to transition into green jobs, ii) supporting redeployment of offshore oil and gas workers into offshore wind and other renewables while addressing challenges like pay disparities, and iii) creating pathways for younger workers to enter the energy sector given the need to replace an ageing oil and gas workforce.

An analysis of the consultation on the draft strategy by Alma Economics (2023), commission by the Scottish Government, found that while respondents acknowledged the importance of the strategy's workforce objectives, there were concerns about a lack of detail on attracting new workers, supporting oil and gas workers in transitioning to renewables, and defining 'green jobs' and training schemes. Moreover, respondents highlighted geographic disparities in training access, the need for clearer upskilling pathways, and stronger investment in education and apprenticeships to create entry routes for young workers (ibid).

3.5 Accessible information and communication

The reviewed literature highlights that communication is a crucial component of a just transition. Clear communication about the meaning of a just transition and pathways for community involvement is necessary to ensure inclusivity and procedural justice in policymaking (Macquarie et al., 2023). There is a strong need for 'trusted messengers' who can tailor information to their audience (Millar et al., 2022). The approachability of trusted messengers promotes climate literacy, as they possess local knowledge, such as the best communication channels, networks, and groups within their community (Scottish Government, 2021b).

Määttä (2022) discusses the importance of making policy communication accessible, noting that the Scottish Government has taken steps to improve public understanding, such as enhancing the readability of consultation documents and creating online platforms like the 'Net Zero Scotland' website. However, challenges remain in ensuring that policy materials are truly accessible to non-expert audiences, including overly dense and technical jargon, lengthy consultation documents, and limited outreach that primarily targets those already engaged in policy discussions (*ibid*). As one policy expert put it, outreach efforts tend to target those already "…in the loop" (ibid, p.166) and this leads to uneven public awareness. Additionally, there is an implicit expectation that the public should take responsibility for understanding complex policy language rather than ensuring materials are written in an accessible way (ibid.)

3.6 Responsibility

A recurring theme in the reviewed literature is that responsibility for achieving a just transition is often framed as a shared effort between individuals and institutions. However, in practice, the onus of change is frequently placed on individuals who have limited power and resources to drive systemic transitions (Meyerricks and White, 2021). For example, energy efficiency programs that require vulnerable households to take the initiative often fail because these households lack the financial means, agency, and capacity to engage with or benefit from such interventions (Stojilovska et al., 2023). This displacement of responsibility is inconsistent with the principles of a just transition but remains a recurring feature of policy and initiatives aimed at achieving Net Zero.

Meyerricks and White (2021), in their review of Scotland's Climate Challenge Fund (CCF), argue that strategies for low-carbon transitions must not disproportionately shift the burden onto individuals. Their analysis highlights that a just transition requires addressing systemic inequalities and ensuring that both individuals and governments play a role, though the expectation that communities can drive these transitions without greater institutional support is problematic. This is not only a theoretical position but also a practical one. Whitmarsh et al. (2022) found that while people concerned about climate change actively seek out information on reducing their climate impact, this does not always translate into action. Their study observed a limited relationship between awareness and behaviour change, particularly for habitual actions like recycling, which are shaped more by social infrastructure than individual choice.

Consequently, initiatives aimed at a just transition should emphasise the co-benefits of sustainable individual actions while ensuring they are supported by systemic changes in infrastructure and institutional support (Meyerricks and White, 2021).

3.7 Cost

Cost is considered a significant barrier to participation in the just transition, but is most notably referred to regarding housing and energy. Retrofitting housing to decarbonise requires substantial upfront investment, and while long-term energy savings can offset costs, many households, especially those in lower-income brackets, lack the capital to make such investments (Grub and Wentworth, 2023). Grub and Wentworth (2023) also highlights that financial mechanisms such as subsidies, low-interest loans, and targeted support schemes are necessary to bridge this affordability gap.

Middlemiss et al. (2023) argue that achieving a just transition requires prioritising “hard-to-treat properties” (p. 777). These include older buildings, homes with poor insulation, and properties that require extensive modifications to meet energy efficiency standards. Snell et al. (2018) highlight that many households in social housing rely on local authorities for retrofitting support, yet budget cuts have significantly reduced councils' capacity to implement these measures, particularly in England. The report notes that while Scotland and Wales have been able to sustain publicly funded energy efficiency programmes, England’s reliance on energy company obligations (ECO) has created disparities in access. This lack of consistent funding raises concerns that low-income households, especially those in ‘hard-to-treat’ properties, may struggle to access necessary retrofitting schemes and increase their risk of long-term energy insecurity (*ibid*). As such, Middlemiss et al. (2023) propose targeted public investment and stronger regulatory requirements for landlords to ensure that all properties, regardless of tenure type, are brought up to modern energy efficiency standards.

Shapovalova et al. (2023) also note affordability as a major justice concern in housing transitions, given a notable contrast between the benefits of improved energy efficiency and the financial burden placed on households to fund these upgrades. They further highlight that these disparities are reinforced by market-

driven solutions that assume all households have equal agency to act, overlooking structural barriers such as tenancy laws and fluctuating energy prices.

Beyond housing affordability, energy pricing also plays a critical role in ensuring a just transition. Bray and Ford (2022) advocate for income-adjusted energy bills as a means to reduce energy poverty and facilitate fairer participation in the just housing transition. Their analysis suggests that a progressive energy pricing system—where lower-income households pay proportionally less per unit of energy—could help mitigate the disproportionate impact of rising energy costs. They argue that energy justice requires redistributive mechanisms to prevent the deepening of socio-economic disparities, particularly as the energy transition may initially lead to increased costs due to infrastructure investments. Furthermore, they note that such pricing mechanisms should be complemented by targeted subsidies and regulatory measures to protect vulnerable consumers from energy debt.

3.8 Transparency, monitoring, and evaluation

According to Macquarie et al. (2023), inclusive and transparent decision-making plays a crucial role in ensuring procedural justice and building public trust in the just transition. Transparency strengthens governance and accountability, which is a key factor in mitigating concerns over greenwashing (Shapovalova et al., 2023). For example, Scottish Power (2021) has committed to clear sustainability reporting frameworks as part of its corporate responsibility strategy, which aims to ensure accountability and credibility in its transition to Net Zero. In this regard, the company's move aligns with a broader trend of increasing scrutiny on corporate sustainability reporting, as financial disclosure reforms and investor demands place greater emphasis on transparency (Macleod, 2021).

Ayllón and Jenkins (2023) also argues that "independent, transparent monitoring and evaluation (M&E) of the policy implementation process and its subsequent impacts is a core facet of policymaking". However, they caution that M&E is often treated as an afterthought rather than an integral component of policy design. While M&E frameworks exist, their implementation is often inconsistent, and this limits their effectiveness in ensuring accountability (ibid.). Policy experts interviewed in their study raised concerns that M&E is

underutilized, and that greater transparency in tracking just transition progress is necessary to improve public confidence (ibid.).

To address these challenges, Shapovalova et al. (2023) recommended the development of a place-based just transition data dashboard to track progress. Although, they emphasise that any improving transparency and access to such information should be part of a broader, independent oversight system rather than a singular solution (ibid.). This aligns with Ross and Van Alstine (2021), who argue that while transparency and community engagement are essential, they alone are insufficient to overcome public distrust. Instead, trust depends on whether citizen input is visibly reflected in policy decisions and results in tangible outcomes (ibid).

3.9 Summary

The common practices of just transition in Scotland emphasise inclusivity, democracy, co-design, and shared responsibility. Co-design is a key principle that seeks to engage diverse groups to ensure policies reflect public input and foster procedural justice. However, participatory approaches add complexity to governance, and the urgency of decarbonisation may sideline meaningful participation unless inclusivity is embedded as a governance principle rather than merely a tool for public acceptance. Flexible and adaptive approaches are essential to sustain engagement.

Democratic participation allows local voices to influence land-use and energy decisions. Mechanisms such as climate assemblies and community ownership enhance engagement, yet challenges remain in ensuring public input translates into policy change. Scotland's Climate Assembly illustrates this issue, as confidence declined when recommendations were acknowledged but not fully implemented. Moreover, over-reliance on consumer-driven participation risks favouring market solutions over collective decision-making.

Workers and trade unions play a crucial role in securing job protections and training opportunities. Despite this, challenges persist, including geographic disparities in training access, unclear upskilling pathways, and the need for stronger investment in apprenticeships. Defining green jobs remains unresolved. Similarly, access to clear and understandable information is essential. Trusted messengers and tailored communication strategies improve

climate literacy, yet policy materials remain overly technical, shifting the burden of responsibility onto the public to interpret complex language.

Responsibility for just transition is framed as a shared effort, yet vulnerable individuals are often expected to drive change despite limited resources. This is evident in energy efficiency programs, where financial and structural barriers restrict equitable participation. Market-driven solutions assume equal agency among households, yet structural inequalities often exclude lower-income communities. Legal and infrastructural constraints also further limit participation. The absence of a legal right to local energy supply and grid capacity limitations—especially in rural areas—create barriers for community energy projects, restricting local contributions to Scotland's just transition.

Cost is another major barrier, particularly in housing and energy transitions. Retrofitting homes requires significant investment, and while financial mechanisms such as subsidies exist, they do not fully address disparities in household agency. Progressive energy pricing and stronger regulations for landlords have been proposed to ensure equitable participation.

Transparency and monitoring are crucial for accountability, yet they are often treated as secondary considerations. Independent evaluation is key to maintaining public trust, and a just transition data dashboard could improve tracking. While no standardised framework exists, social and economic indicators—such as income inequality, housing affordability, and wellbeing—have been proposed as proxies.

Overall, Scotland's just transition discourse seeks a fair, inclusive societal shift, yet challenges remain in translating principles into meaningful action.

4. Shaping a citizen co-designed just transition framework; barriers and how they can be overcome

The following sections outline the challenges and barriers faced by communities in the housing, energy, transport, and land use sectors to achieving a just transition as well as reflection on how some of these can be overcome. There is also a specific focus on the needs of special interest groups.

4.1 Housing

The current housing stock in Scotland is a major source of greenhouse gas emissions (accounting for 13% total GHG emissions); a key takeaway from the Scottish Government's 'Heat In Buildings Strategy' is that extensive retrofitting of existing homes is essential to meet net-zero and energy efficiency targets (Scottish Government 2021c). This entails insulation, draughtproofing, and replacing heating systems, as well as appliances. Voluntary retrofit is considered synonymous to climate action in the housing sector, however, the cost of retrofitting represents the primary barrier to households' participation in achieving these environmental targets (Grub, 2023).

Previous research in Scotland has shown that vulnerable groups often struggle to improve home energy efficiency due to financial and structural barriers. This inability exacerbates social challenges, including fuel poverty, particularly for residents in high-rise and low-income housing (De Haro and Koslowski, 2013). Similarly, financial constraints and awareness gaps limit suburban homeowners' ability to decarbonise, reinforcing reliance on carbon-intensive living (Bucke et al., 2022). In their analysis of energy poverty across academic disciplines, Stojilovska et al. (2023) found that studies conducted in high-income countries, such as Scotland, most frequently identified social class and age as the key vulnerability categories related to energy poverty. Though less frequently discussed, disabled people, those with health issues, women, ethnic and racial minorities, and rural residents were also recognised as vulnerable in the context of housing (ibid).

This section outlines barriers to public participation in a just transition for the housing sector, the groups of special interest, and ways to overcome such barriers.

4.2 Barriers to participation

4.3 Unaffordability

The affordability of housing as well as adaptation measures represent the foremost barrier to engagement in housing transition. Urban areas face challenges such as high land prices, which can hinder community-led housing initiatives (Community Land Scotland, 2022). This barrier is exacerbated by

investors who do not support sustainable urban housing initiatives and absentee landowners (ibid).

After conducting focus groups and surveys with suburban households in Perth, Bucke et al. (2022) found that many households perceive the up-front costs of retrofitting as increasingly prohibitive due to the cost-of-living crisis. Additionally, in their review of empirical studies, Bucke et al. (2022) summarised that the lack of suitable financing has long been recognised as a barrier to retrofitting, with credit constraints further compounding the issue (see: Table 1, p. 291). However, they also highlight a point made by Pelenur (2013) that reduced operational costs, comfort, aesthetics, health, safety, awareness of environmental benefits, and resource efficiency can all serve as motivating factors for individuals to undertake retrofit projects. Nevertheless, Bucke et al. (2022) conclude that achieving systematic decarbonisation will require coordinated interventions from local and state governments to ensure affordability for communities.

4.4 Lack of awareness

The success of individual-driven energy efficiency initiatives is highly dependent on the public's awareness of the options available to them (Scottish Government, 2021b). Yet, Bucke et al. (2022) identify a distinct lack of public awareness regarding retrofitting options in the UK and argue that this is partly due to ineffective public engagement programmes. They cite previous research (See: Marchand, Koh, and Morris, 2015; Brown et al., 2018; Committee on Climate Change, 2019) to illustrate how inadequate communication and policy outreach have contributed to this gap.

Communication is key to public uptake of sustainable and energy-efficient technologies at home. Lorincz et al. (2021, p.2) found that "… consumer behaviour does, in fact, change as a result of awareness creation…" based on their analysis of UK time-use surveys on energy consumption. Their findings indicate that information and awareness influence how households engage with energy-demand management strategies, such as time-of-use tariffs and smart appliances.

However, a common point in reviewed material is that increased awareness is necessary but insufficient to achieve decarbonisation. Bucke et al. (2022) argue awareness of retrofitting and decarbonisation measures does not translate into

action due to financial constraints, the cost-of-living crisis, and lack of suitable financing options. Lorincz et al. (2021) confirm that awareness influences energy consumption patterns, but they emphasise that structural factors, such as work schedules, daily routines, and appliance availability, significantly constrain energy behaviour. Stojilovska et al. (2023) highlight that awareness of energy efficiency does not overcome financial and infrastructural barriers for vulnerable groups. These studies reinforce the point that structural inequalities must be addressed alongside awareness campaigns.

4.5 Groups of special interest

4.5.1 Income and fuel poverty

Reduction of fuel poverty represents a central challenge in both the housing and energy sectors. People living in fuel poverty are especially at risk amid housing transitions (Grub, 2023). Stojilovska et al. (2023)'s synthesis of academic literature on factors affecting energy vulnerability identified energy-related needs and practices, precarity of housing, welfare and state support, and social networks as key factors. Their review highlights the adverse outcomes of fuel poverty, including i) worsened physical and mental health (e.g. Thomson et al., 2017), ii) increased absences from school and work (e.g. Free et al., 2010), and iii) decreased social participation (e.g. Stojilovska et al., 2021). These negative outcomes, when combined with rising energy costs and structural inequalities, can compound vulnerability and reduce community engagement.

Fuel poverty is closely related to income poverty. Stojilovska et al. (2023) highlight that impoverished households are more likely to experience fuel poverty, because low- and middle-income households often lack the financial means to retrofit their homes for improved energy efficiency. However, they emphasise that fuel poverty is not solely an affordability issue but is also shaped by factors such as housing quality, welfare support, and social networks (ibid). Similarly, Grub (2023, p.9) states that in order "to meet [retrofitting] targets, governments will have to reduce costs or offer other incentives" to encourage voluntary participation in the absence of decarbonisation mandates. These studies stress the need to address structural barriers beyond affordability to ensure a just transition.

Reinforcing this point, people experiencing fuel poverty report misunderstandings of their circumstances create barriers to receiving adequate

support (Ayllón and Jenkins, 2022). Specifically, fuel poverty is often framed primarily as an affordability issue rather than one also rooted in housing quality and infrastructure (ibid). This narrow framing constrains the scope of energy policy and, in turn, hampers the effectiveness of a just transition (ibid).

For example, Middlemiss et al. (2023) found that the private rented sector has a higher incidence of fuel poverty than other tenures. However, renters face structural barriers beyond affordability, including limited agency to undertake retrofit projects, because landlords ultimately control energy efficiency decisions. Miu and Hawkes (2020) attribute this lack of agency to the 'split incentive' problem i.e. landlords see little benefit in upgrading properties since tenants, rather than property owners, reap the financial rewards. They found that many landlords are unwilling to invest in retrofits due to high upfront costs, frequent tenant turnover, and a lack of direct financial benefits. Supporting this, Ambrose et al. (2016) found that landlords often neglect energy efficiency improvements, which in turn, leads to greater energy costs for tenants. Meanwhile, Snell et al. (2018) found that, while social housing tenants sometimes receive retrofit support, budget cuts and funding constraints have significantly hindered financial assistance for social housing.

4.5.2 The elderly and disabled people

Elderly people are among the most vulnerable age groups in terms of energy poverty (Stojilovska et al., 2023). In high-income countries with harsher climates, older populations face heightened risks due to climate-induced health impacts and heating needs, therefore, housing refurbishment is an important consideration for social policy responses (ibid).

However, retrofits should be designed with the specific needs of recipients in mind. For example, flexible energy tariffs may "disproportionately harm people with inflexible needs" (Middlemiss et al., 2023, p. 769), such as the elderly (ibid) and people with disabilities (Calver and Simcock, 2021; Powells and Fell, 2019), who may struggle to adjust their energy use in response to fluctuating prices. Additionally, as energy transitions increasingly rely on smart technology for energy monitoring, barriers to digital engagement must be addressed. Middlemiss et al. (2023) highlight concerns about digital exclusion and the need for improved technology literacy among vulnerable groups. Similarly,

Martiskainen et al. (2021) emphasise that smart meters and other digital tools tend to benefit engaged users while disadvantaging those with accessibility challenges, including the visually impaired.

4.5.3 Migrants and asylum-seekers

The living conditions of immigrants are an important, but understudied, issue in the context of housing transitions. MacGregor et al. (2019) challenge "… the assumption that immigrants need to be taught British values in order to engage with sustainability" (p. 151). Their research on Somali immigrants in the UK highlights how poor housing conditions and inadequate local services shape their ability to engage with sustainability efforts. Similarly, Burbidge et al (2024) found non-energy policies, particularly housing and asylum policies which lead to inadequate housing conditions and limited access to services, contribute to energy deprivation among refugees in the UK. In this light, ensuring equitable access to quality housing and public services is essential for fostering inclusive sustainability policies that do not marginalise immigrant communities.

4.6 Overcoming barriers to participation

4.6.1 Procedural justice

In their study on empowering communities in North-East Scotland to engage with just transition, Potts and Ford (2022) identified capacity building, networking and connectedness, and learning from local action as drivers of just transition through several workshops held with stakeholders. Their study emphasises procedural justice, i.e. a focus on the process of decision-making and recognising all stakeholders, as a tool for amplifying marginalised voices in the design and delivery process. Community-led action, as opposed to one-way consultation, is key to supporting empowerment, forming partnerships, and building solidarity (ibid). The inclusion of local community groups is necessary to build capacity, especially in regard to local retrofitting programmes and increasing homes' energy efficiency (Scottish Government, 2017; Stojilovska et al., 2023). Potts and Ford (2022) also highlight Glasgow's fuel poverty charity, South Seeds, as an example of an accessible resource centre for directly engaging with community members, building trust, and advocating for behaviour change at the grassroots level.

Importantly, as mentioned in Section 3.8., Ayllón and Jenkins (2022) assert that monitoring and evaluation are essential mechanisms for achieving procedural justice. Monitoring and evaluating helps deliver procedural justice by emphasising accountability and transparency.

4.6.2 Community ownership of land

Community Land Trusts have played a significant role in identifying land for housing developments, particularly in rural areas, and they have the potential to address urban housing challenges as well (Community Land Scotland, 2022). Scotland's Community Housing Trust network has a strong track record of enabling the delivery of community-led housing projects, supported by Community Right to Buy and Asset Transfer legislation, which help overcome barriers to land acquisition (ibid).

Eco-developments and co-housing schemes, such as Lilac in Leeds, provide alternative housing models that enhance residents' agency (Chatterton, 2013). However, these developments maintain high barriers to entry and are mostly contained to "… prosperous high-consumption semi-rural towns or more progressive cities in the UK" (Chatterton, 2013, p. 1669). Beyond affordability, McKenna et al. (2024) highlight that participatory housing models often remain inaccessible to lower-income individuals, as the time commitments, volunteer-led governance, and reliance on social networks create barriers to broader participation. Moreover, while community-led housing offers a promising model for democratizing housing, McKenna et al. (2024) argue that its reliance on volunteer labour and external funding creates significant limitations to scaling up. Therefore, greater emphasis must be placed on affordability, accessibility, and structural support if these developments are to play a meaningful role in a just housing transition.

4.6.3 Enhancing energy efficiency

Energy efficiency is a crucial component of just transition as it reduces energy demand and mitigates energy poverty (Bray and Ford, 2022). However, energy efficiency programmes that place the onus on vulnerable households to instigate interventions prove counterproductive, as such households often lack the capacity, resources, and agency to act (Stojilovska et al., 2023). McGregor

and Scandrett (2021) extend this critique by highlighting how just transition policies frequently assume communities have equal capacity to participate, when in reality, those most affected by climate change are often the least empowered to influence systemic change. By devolving responsibility for energy efficiency to individual households without addressing structural barriers—such as affordability, access to retrofitting programmes, or regulatory support—these approaches risk reinforcing rather than alleviating energy poverty. This reflects a broader governance trap in climate policy, where responsibility is shifted downward without redistributing power or resources, and this leaves vulnerable communities unable to meaningfully benefit from just transition initiatives.

Further, a reoccurring theme of the reviewed material is that sustainable energy sources are essential to just transition, but their adoption often incurs increased upfront and operational costs, which can disproportionately burden energy-impoverished households. Stojilovska et al. (2023) highlight that climate policies, including energy pricing mechanisms and renewable energy integration, can inadvertently exacerbate energy poverty by increasing household energy costs. If the benefits of sustainable living are to be truly equitable, affordability must be prioritised. Bray and Ford (2022) argue that a just energy transition requires systemic interventions to prevent vulnerable households from being excluded from energy-efficient and net-zero housing policies. They suggest that measures such as income-adjusted energy bills and stronger standards for insulation and heating could help ensure equitable access to sustainable housing irrespective of tenure (ibid.). Without these interventions, energy justice risks becoming a privilege rather than a universal right.

5. Energy

The focus of the literature review on the energy sector was on participation in energy development at the community and commercial level, namely the level of engagement in community energy projects or decision making over large-scale energy development and benefit packages. Most of the reviewed literature highlights the importance of community engagement regarding energy development, but there is little evidence pertaining to enabling participation in policymaking and/or decision-making.

5.1 Barriers to participation

5.1.1 Lack of inclusive and accessible participation forums

Poor communication and lack of awareness regarding energy projects and consultation processes limit community participation. Macdonald et al. (2017) highlight that key project information is often not widely disseminated, and when provided, it can be inadequate or misleading. While community information sessions are standard practice, poor advertising and limited outreach result in low attendance and engagement (ibid).

As a result, community members are often underrepresented in energy project outcomes, particularly when unelected bodies—who may hold their positions indefinitely—make key decisions behind closed doors (Markantoni and Aitken, 2016). These governance structures contribute to a sense of exclusion, which are further exacerbated by financial and knowledge barriers that limit participation among marginalised groups (Wahlund and Palm, 2022).

Even with Scottish government initiatives to improve accessibility and communication, participation remains hindered by technical language, sectoral complexity, and persistent structural barriers (Määttä, 2022). Furthermore, the sense of exclusion tends to increase with the scale of energy projects. Large-scale developments often prioritise financial and regulatory objectives over community concerns, and this leaves local voices marginalised in decision-making processes (Määttä, 2022; Macdonald et al., 2017).

Regardless of the formal engagement process, community groups remain "…at the bottom of the financial hierarchy, without much decision-making power" (Määttä, 2022, p.176). While developers are required to consult with communities on benefit-sharing mechanisms, this does not guarantee equitable involvement or fair distribution of project benefits (Macdonald et al., 2017).

5.1.2 Lack of resources, skills, and capital

Community engagement in energy projects requires significant financial and human resources (Macdonald et al., 2017). As a result, some communities struggle to lead projects due to financial, regulatory, and technical barriers that favour large-scale developers over smaller, community-led initiatives (Bray and Ford, 2022). Bray and Ford (2022) argue that access to funding is often constrained by complex application processes, administrative burdens, and

market-driven energy policies that prioritise commercial actors. Without targeted policy support, communities with fewer financial and technical resources are systematically excluded from leading energy projects.

Määttä (2022) identifies several barriers to community energy projects in their review of academic literature, including i) limited access to funding (e.g., Berka et al., 2017) and ii) insufficient expertise to compete with large-scale developers in auctions (e.g., Grashof, 2019; Toke, 2015). Compounding these challenges, Macdonald et al. (2017) highlight that community councils often lack the necessary resources to gather and represent community input effectively, leading to dissatisfaction with democratic participation in energy decision-making.

Beyond financial constraints, communities frequently experience shortages of skilled individuals to lead and manage projects (Markantoni and Aitken, 2016). Volunteer-based community groups face barriers due to time constraints, unpaid labour, and a lack of formal support, further limiting their effectiveness (Määttä, 2022). Participation can also be emotionally taxing, causing stress and anxiety, particularly for those with no prior experience in political or project-based engagement (ibid). Vulnerable groups, such as the elderly and chronically ill, are often excluded due to financial and knowledge barriers, despite their engagement being crucial for ensuring equity in energy transitions (Wahlund and Palm, 2022)

5.1.3 Inadequate policy requirements

Määttä (2022, p.38)'s review of academic literature on energy policy and community participation in Ireland and Scotland notes that "community energy actors have limited power to influence and operate in the political system". Their review highlights that bottom-up initiatives alone are insufficient for an effective energy transition; instead, both active public engagement and stronger policy support are necessary (ibid.). Prior research, cited by Määttä (2022), has shown that the UK's energy system has historically been structured in a way that does not prioritise public participation (e.g., Devine-Wright, 2007), and policy support for individual and community engagement remains inadequate (e.g., Saunders et al., 2021). Indeed, Määttä's (2022) findings align with those of Markantoni and Aitken (2016); while policies frequently emphasise the importance of early community involvement in renewable energy projects,

practical implementation often fails to deliver meaningful participation or empowerment.

This is due, in part, to a lack of legal requirements for developers to consult communities on benefit arrangements (Macdonald et al., 2017). Määttä (2022) highlights that while the Scottish Government's Good Practice Principles for Community Benefits provide a useful framework, they are not legally binding. As a result, these principles rely on developer cooperation and are ultimately limited in empowering communities to negotiate on equal terms with developers.

Määttä (2022) also reviews challenges facing community energy in Scotland, pointing to policy changes—such as the end of the Feed-in Tariff (e.g., Slee and Harnmeijer, 2017)—and constraints on grid capacity (e.g., Fahy et al., 2019) as significant barriers to participation in energy transitions. The reduction of government support for local energy projects has further exacerbated existing obstacles (Määttä, 2022). Addressing these challenges requires both grid expansion and systemic policy reforms to ensure the long-term viability of community energy projects.

5.2 Groups of special interest

Sectoral issues often overlap, therefore, the groups that are most vulnerable amid energy transitions are similar to those mentioned in the 'Housing' section. However, this review has identified groups with specific challenges related to energy development, namely the challenges of participating in public forums such as consultations (with public and experts) and planning sessions.

5.2.1 Lack of diversity in representation

Ethnic minority populations in the UK are more likely to experience social and economic deprivation compared to their white counterparts with inequalities in access to environmental resources and opportunities (Fifield, 2020). In Scotland, research on environmental racism remains limited, but Fifield (2020) notes that Glasgow, Scotland's most ethnically diverse city, has an overrepresentation of African, Caribbean, and White Scottish populations in its most deprived areas. Further, areas of deprivation are often more vulnerable to the impacts of climate change, with limited access to green infrastructure that could mitigate these risks (Majekodunmi, 2023). The issue of ethnic minority representation in climate policymaking is frequently discussed within the framework of 'environmental racism', a concept rooted in the 1980s environmental justice

movement in the USA (Mattar et al. 2021). This framework is often used to illustrate both the disproportionate exposure of marginalised ethnic communities to environmental hazards and their limited agency in environmental decision-making (ibid). In the UK context, ethnic minorities remain underrepresented in climate policy discussions and decision-making processes. For example, only 5% of environmental and climate professionals in the UK identify as belonging to an ethnic minority background, compared to 13% across other professions (Ogunbode et al., 2023). This lack of representation has broader implications, as Black, Indigenous, and People of Colour (BIPOC) and women—whose perspectives enrich debates on energy transitions—are often excluded from decision-making in climate governance (Wahlund and Palm, 2022).

Moreover, participation disparities extend beyond professional representation. In an observational study of public climate forums in Bristol, Boss et al. (2023) found that white men, who made up 40% of attendees, spoke 64% of the time. In contrast, white women (41% of attendees) accounted for only 33% of speaking time, while women of colour (14% of attendees) spoke just 2%, and men of colour (5% of attendees) spoke only 1%.

In Scotland, there is a lack of equivalent research measuring ethnic minority representation in public climate forums. While Fifield (2020) suggests that the smaller proportion of ethnic minorities in Scotland may contribute to the limited study of environmental racism, no quantitative analysis has been conducted to assess disparities in participation in climate policymaking. A study similar to that of Boss et al. (2023) could help determine the extent of such disparities in Scotland's public climate discussions.

However, class disparities in climate policymaking have been more widely researched. Tannock (2024) highlights that climate change disproportionately affects the working class, particularly in polluted urban areas and vulnerable communities, reinforcing the need for their involvement in shaping climate policies. Smith et al. (2024) further demonstrate that participation in climate action in two rural Scottish towns was predominantly by middle-aged or older individuals with higher education and incomes. Their study found that working-class individuals, despite having much to gain from climate action, often struggle to be heard in decision-making processes, which tend to be shaped by 'elite' and 'special interest' groups. This highlights the importance of addressing both class and ethnic representation to ensure a just transition.

5.2.2 Rural communities

There is a general scepticism among rural residents regarding Scotland's national policies and targets for a just transition. Malcolm et al (2024) in a study of three rural regions found communities felt policies related to circular economy and just transition do not adequately address the unique challenges faced by rural areas, and express feelings of being excluded from the decision-making processes that affect them. The tension between rural communities and energy projects in Scotland is rooted in a perception that national targets may prioritise broader goals over local interests and lead to a sense of alienation among rural residents regarding the energy transition process (van Veelen 2015; Clausen and Rudolph 2022).

However, rural communities are not monolithic; they have diverse perspectives and needs that must be considered in policymaking (Slee 2023). For example, long-term rural residents that felt side-lined by 'incomers', i.e. individuals and families who recently moved into an area, that have taken on lead roles in community energy projects.

5.3 Overcoming barriers to participation

5.3.1 Transparency and access to resources

Transparency is fundamental to promoting public participation in the energy transition process (Markantoni and Aitken, 2016). Developers and government actors should therefore prioritise openness in decision-making, particularly in funding allocation and governance of energy projects (ibid). To ensure inclusive communication, information on local plans must be presented in an accessible and understandable manner (MacDonald et al., 2017). Local authorities and institutions can further support public participation through training and education initiatives to improve community competencies in energy-related decision-making (Kola-Bezka, 2023). Community benefit funds, when well-managed, can enhance public engagement and foster greater community influence over energy projects, although concerns remain regarding the potential for elite control over these funds (Markantoni and Aitken, 2016).

5.3.2 Improving inclusivity

Ensuring that participation mechanisms are inclusive across different demographic groups is critical for an equitable energy transition (Bray and Ford, 2021). Participatory business models can offer opportunities for broader community involvement and engagement in decision-making, particularly in the governance of energy projects, which can benefit marginalised groups (Wahlund and Palm, 2022). Commercial energy projects should prioritise genuine community input rather than selecting contributions that align with company objectives (Macdonald et al., 2017). This can be supported through diversifying outreach and communication methods to ensure more inclusive participation (Markantoni and Aitken, 2016).

5.3.3 Systemic change and decentralisation

The decarbonisation of the UK energy system requires systemic change that prioritises vulnerable groups and fosters broader public engagement. This transition should be guided by energy justice principles to ensure procedural fairness and inclusive decision-making (Bray and Ford, 2021). A decentralised energy system is often seen as a mechanism for increasing public participation in energy production and consumption to allow for greater democratic control (Wahlund and Palm, 2022). Wahlund and Palm (2022), in their review of existing literature on energy democracy and citizenship, conclude that decentralised energy systems are widely regarded as the most likely setting for fostering citizen participation in energy governance. Furthermore, their review highlights that existing structures tend to favour profit-driven decision-making over local community needs, and this contributes to a sense of disempowerment in energy transitions (ibid.). As such, Wahlund and Palm (2022) recommends legal instruments for distributed generation, economic mechanisms such as public bond schemes, and policies supporting re-municipalisation and renewable energy cooperatives as options to significantly improve citizen participation in energy governance.

5.3.4 Government measures and support

The Scottish Government actively encourages local involvement in the energy transition through policies aimed to improve community engagement in

planning decisions (Macdonald et al., 2017). Local authorities play a vital role in implementing low-carbon legislations and strengthening democratic participation and leadership at the local level (Markantoni and Aitken, 2016). Multi-layer governance is essential to promoting public participation in democratic decision making (ibid). One manifestation of this priority is though citizen's juries and mini-publics, which bring together a diverse group of citizens to discuss and shape public policy (Roberts et al., 2020).

6. Transport

Transport is the largest sectoral source of GHG emissions in Scotland, accounting for 36% of emissions in 2019, including international aviation and shipping (Transport Scotland, 2021). The Scottish Government's Climate Change Plan Update (CCPu) aimed for a 44% reduction in transport emissions by 2023, yet the Climate Change Committee (2024) warns that this and other targets are unlikely to be met due to inadequate policy delivery. The decision to scrap annual and interim emissions targets in April 2024 has further raised uncertainty about the level of ambition for emission reductions (BBC, 2024). However, policies such as phasing out new petrol and diesel cars by 2030 and support for public sector transport decarbonisation remain active (Transport Scotland, n.d.).

A just transition for transport is a wicked problem i.e. characterised by uncertainty, contestation and complexity (Allan et al., 2023). Transport intersects with housing, employment, and public health, involving local councils, businesses, and the public, and each with competing priorities (ibid.). For example, commuting patterns from surrounding areas impact Glasgow's transport emissions and this complicates city-level reduction efforts for sources of emissions outside of Glasgow's boundaries (Allan et al., 2023). The introduction of Glasgow's Low Emission Zone (LEZ) in 2023 led to significant reductions in nitrogen dioxide (NO_2) levels and changes in traffic patterns (Shin et al., 2024). However, while Glasgow aims for net zero by 2030, citizens have

expressed frustration that their concerns are not adequately considered in decision-making (Allan et al., 2023).

6.1 Barriers to participation

6.1.1 Inaccessibility

Decentralised urban development has led to increasing travel distances and greater car dependence and this has created structural barriers to sustainable travel (Cass and Faulconbridge, 2016). As a result, shifting away from car dependency is challenging as reducing car reliance and increasing public transport use depend on access to adequate infrastructure (Scottish Government, 2021c). These existing transport challenges risk being exacerbated by the net zero transition, particularly for rural and lower-income communities (Middlemiss et al., 2023). Without affordable alternatives, many low-income and rural populations may be unable to transition to EVs, which would increase reliance on already inadequate public transport networks (ibid.). The high costs associated with transitioning to electric vehicles (EVs) and uneven access to EV charging infrastructure may reinforce transport inequalities, and further limit mobility for already disadvantaged groups (ibid.). Without targeted policy interventions, transport poverty and social exclusion could worsen under the net zero transition and disproportionately affect those with limited access to affordable, low-carbon transport options (ibid.). Transport inaccessibility is already linked to negative social outcomes, including unemployment, reduced participation in education, poor diets and social exclusion (Mattioli et al., 2017).

6.1.2 Lack of infrastructure

The spatial distribution of transport infrastructure significantly influences mobility choices, with limited investment in public and active transport reinforcing car dependence (Brand et al., 2013). In particular, Middlemiss et al. (2023) caution that a lack of access to EV charging infrastructure, especially in rural areas, hinders EV adoption and perpetuates reliance on petrol and diesel vehicles. Ensuring equity in transport infrastructure is, therefore, essential, particularly for lower-income households who rely on affordable public transport for social and economic participation (Markkanen and Anger-Kraavi, 2019). Furthermore, the absence of basic facilities, such as showers and bike

storage at workplaces, is a significant barrier to active travel (Spotswood et al., 2015)

6.1.3 Public perception

Bucke et al. (2022) found that, despite high rates of bike ownership and available storage space in Perth, cycling is predominantly perceived as a leisure activity rather than a practical mode of transport. Safety concerns, inadequate cycling infrastructure and steep terrain were identified as key factors reinforcing this perception. Additionally, the Scottish weather was cited as a deterrent, with some scepticism regarding the viability of e-bikes in overcoming local geographical challenges (ibid.).

Spotswood et al. (2015) highlight that public attitudes toward cycling are shaped by the dominant perception that roads are 'for cars' and this perception contributes to the demand for segregated cycle paths rather than road-sharing initiatives. Furthermore, workplace culture and infrastructure reinforce these barriers; cycling is often seen as inappropriate for professionals in part due to the lack of secure bike storage, locking facilities and showering options in workplaces. Concerns over road safety, fitness levels, attire, and hygiene further discourage cycling uptake, with 29% of surveyed participants deeming cycling "…too much like hard work" (ibid, p.29). These factors contribute to low confidence in the suitability of active travel as a daily mode of transport.

6.2 Groups of special interest

According to Middlemiss et al. (2023), the "…ability to travel (at all, or in lower carbon ways) can be shaped by income, disability, ethnicity or experiences of safety" (p. 773), thus exposing these groups to disproportionate barriers amid transport transition.

6.2.1 Disability

Disabled people possess a lower capacity for mobility, and therefore, face more barriers to areas with limited infrastructure for active travel and public transport

(Mullen, 2021; Schreuer et al., 2019). These barriers may be psychological, physical, or financial (ibid). For those with physical disabilities, public transport and car clubs are incredibly important (Meyerricks and White, 2021). However, in order to facilitate a just transport transition, affordability, reliability and comfort must be prioritised, particularly for those with disabilities (ibid).

6.2.2 Age

Younger and older individuals require targeted mobility support under the net zero transition, as they are among the most transport-disadvantaged groups. Middlemiss et al. (2023) highlight that younger and older people, along with those with disabilities, may face additional challenges in adapting to mobility changes, particularly in rural and low-income communities.

The Scottish Government (2023b)'s 'Just Transition – Transport' report reinforces this by highlighting that young and older individuals are less likely to own cars and face higher transport costs relative to income, especially in rural and remote areas. While the government provides free bus travel for under-22s and over-60s, gaps in public transport infrastructure and service availability persist, particularly in suburban and rural Scotland. Snell et al. (2018) further emphasise that financial constraints and accessibility issues make it more difficult for younger and older people in low-income households to transition to sustainable mobility options. Without targeted policy interventions, these groups may experience greater transport poverty and social exclusion under net zero policies.

However, middle-aged people also represent an age group of special consideration due to their disproportionate carbon emissions when compared to the former. According to Brand et al. (2013), people aged 35-64 emit more carbon when traveling, "…with median emissions about twice as high as those of younger (18–34) or older (65+) participants" (p. 162). This is to suggest, younger and older people require interventions related to mobility support, whereas middle-age people require interventions related to decarbonisation.

6.2.3 Women and LGBTQ+ people

Middlemiss et al. (2023) summarise that research shows women and LGBTQ+ people are less likely to walk, cycle, or use public transport due to concerns

about safety, particularly in environments perceived as hostile or threatening (e.g. Doran et al., 2021; Lubitow et al., 2020). Lucas et al. (2019) further highlight that safety concerns disproportionately affect women and other vulnerable groups in the UK, particularly when using public transport at night or in areas with poor lighting and limited security measures. Fear of harassment or violence acts as a significant deterrent, especially for LGBTQ+ individuals, who may experience discrimination when travelling (ibid.). Transport Scotland (2023a) finds that women, particularly when travelling at night, experience heightened fears of harassment and violence, which influences their travel behaviour. Many women report avoiding public transport, opting to pay extra for taxis, or choosing to drive when they otherwise would not (ibid.). These safety-related barriers, coupled with a lack of targeted policy interventions, contribute to persistent disparities in transport accessibility and mobility choices (Lucas et al., 2019; Transport Scotland, 2023).

6.3 Overcoming barriers to participation

6.3.1 Support wellbeing

Redesigning urban areas to support active and sustainable travel is a core component of a just transition in transport. Human-centred design offers the dual benefit of reducing carbon emissions and enhancing wellbeing, which is increasingly recognised as a fundamental goal of transport and climate policy (Scottish Government, 2023).

In this context, 'wellbeing' means "…enabling choices that promote better public health, human-scale connectedness and safer streets" (Meyerricks and White, 2021, p. 13). Active travel infrastructure not only mitigates environmental impacts but also addresses social inequalities by improving accessibility and safety for vulnerable groups. The perception of safety, particularly from the standpoint of individuals with mobility impairments, caregivers, and children, is critical in ensuring that low-carbon transport systems are truly inclusive (ibid). Moreover, commuting by active modes has been shown to contribute to better mental and physical health outcomes compared to car travel. Well-designed infrastructure can also help to "mitigate risk trade-offs for active travel" (ibid, p. 13)

A just transition in transport requires not only physical infrastructure but also broader systemic changes that foster community engagement and social participation. As Middlemiss et al. (2023, p. 772) note, "Social participation in local neighbourhoods is also likely to be shaped by the increase in active travel… being able to operate comfortably within the home is also likely to affect social participation as living environments are transformed".

A goal to enhance the liveability of local areas through active travel and place-based solutions aligns with the Scottish Government (2023b)'s commitment to a transport system that prioritises wellbeing and inclusivity. However, structural barriers to participation in active travel persist, particularly for disadvantaged communities who may lack access to safe and well-maintained infrastructure. A just transition must therefore prioritise investment in areas where transport poverty is most acute, and ensure that those with the greatest need can access the benefits of active and sustainable travel (ibid).

By centring wellbeing within transport policy, a just transition can enhance both environmental sustainability and social equity, creating healthier, safer, and more connected communities.

6.3.2 Enhance accessibility and affordability

Evidence from Scotland's 'Smarter Choices, Smarter Places' initiative suggests that improving bus services alongside cycling and walking infrastructure results in significant modal shifts, namely reducing car use and promoting active travel and public transport uptake (Transport Scotland, 2023b). Recent challenges, including service reductions, rising operational costs, and shifting travel patterns, have impacted the reliability and viability of public transport, limiting accessibility for many individuals (ibid).

Research by The Poverty Alliance (2023) found that the cost of public transport is often prohibitive for low-income families, and this leads to social isolation and financial strain. The study recommends extending free bus travel to all under-25s and individuals on low-income benefits to alleviate these challenges.

Additionally, evidence from Scotland's 'Smarter Choices, Smarter Places' programme demonstrates that integrating bus service improvements with expanded cycling and walking infrastructure leads to significant modal shifts. This approach reduces car dependency while increasing active travel and public transport use, and highlights the need for sustained investment in multimodal transport solutions (Transport Scotland, 2023b)

6.3.3 Expand active travel infrastructure

Investment in active travel infrastructure is critical to enabling a just transition. Well-planned cycle networks and behaviour-change programmes can shift travel patterns away from car dependency and towards active travel (Transport Scotland, 2023b). However, isolated cycle lanes have a negligible impact when not developed as part of a comprehensive network, therefore, there is a strong need for integrated, continuous cycling infrastructure (ibid).

Glasgow's experience demonstrates that infrastructure improvements can yield measurable increases in cycling activity; investments in cycle routes between 2013 and 2015 led to a 12%–18% rise in cycling trips in the city (Hong et al., 2019). Furthermore, high-quality cycling infrastructure—particularly segregated lanes—can reduce fear of motor traffic, a key barrier for underrepresented groups such as women and older adults (Aldred et al., 2019).

Moreover, community-led active travel programmes and investment in place-based infrastructure have also proven effective. Sustrans' 'Places for Everyone' programme in Scotland has resulted in substantial increases in walking and cycling with some areas experiencing nearly double the number of active travel trips following infrastructure improvements (Sustrans, 2024). However, Transport Scotland (2023b) highlights that stop-start funding and short-term projects often result in poor outcomes. A minimum five-year funding commitment is essential to ensure infrastructure uptake and behaviour change (ibid).

The reviewed literature reinforces the need for sustained investment in infrastructure that is responsive to local needs and inclusive of diverse mobility requirements.

7. Land Use

Participation in climate policymaking concerning land use in Scotland faces significant challenges which are largely structural and linked to issues of ownership, transparency and accessibility. According to Revell and Dinnie (2020, p.223), "most Scottish communities of place remain disconnected from decisions that affect them and from local land and resources" leaving many communities feeling disenfranchised. The reviewed literature focused on land ownership and how it impacts participation and decision-making.

7.1 Barriers to Participation

7.1.1 Land ownership

Ownership of large areas of land in Scotland is limited to a few individuals and organisations, which concentrates power and limits the ability of local communities to influence land-use decisions (Glass et al., 2019). This ownership structure creates a disconnect between landowners and the communities who are directly affected by land-use changes (Revell and Dinnie 2020). This has created a situation where communities are not only excluded from decision-making processes but also lack the resources to challenge or influence landowners' decisions (Revell and Dinnie, 2020; Glass et al., 2019)

This concentration of ownership has meant landowners can decide "… whether communities can access land, when, for what purpose and at what price" and have led to instances where landowners are unwilling to engage meaningfully with communities (Glenn et al., 2019, p.56). Consequently, residents often feel disempowered, burdened by costs necessary to negotiate with landowners, and deriving little benefit from the decisions made without their input (ibid).

Subsequently, the disconnect from decisions about land manifests in a vacation of responsibility for decisions around land use for climate action. As noted by Adaptation Scotland (2023, p.32), after a consultation with landowners and non-

landowners on land use and adaptation, is it unclear "…who is responsible and who should be funded to carry out climate action generally and adaptation more specifically".

7.1.2 Lack of representation

According to Sharma et al. (2023, p.9), in their review of community land ownership, "… professional skills such as law, accounting, ecology, and administration are becoming increasingly important for community bodies. This is likely to favour acquisition by communities with members from professional managerial classes". The lack of resourcing for Regional Land Use Partnerships (RLUPs), a government-led attempt at collaboration between communities and landowners, stifles diverse participation, as Peskett et al. (2023) highlight that inadequate political commitment and funding have limited RLUPs' ability to promote inclusive decision-making.

Lawson et al. (2022) argue that limited efforts to resource wider participation are concerning because planning processes tend to favour privileged groups while systematically underrepresenting marginalised communities. They discuss how planning structures reinforce existing inequalities by privileging those with access to professional skills, time, and resources, which creates systemic barriers to broader representation and inclusion. Moreover, they highlight the need for clearer standards on how facilitators and built environment professionals should prioritise inclusion in public consultations, and advocate for the establishment of a Code of Conduct to address these gaps (ibid).

Without such regulation, consultations and community engagement can misrepresent local people's opinions by privileging certain groups (Ponta et al., 2020). Additionally, inconveniently timed consultation events contribute to cynicism among residents, who believe these barriers to participation may be intentional (Natarajan et al., 2019). Indeed, poorly planned public consultations scheduled at inconvenient times or locations further limit public engagement and fuel community scepticism about the intentions behind participatory initiatives (Lawson et al., 2022). Working with community groups, while important for the function of participatory democracy, is demanding on community resources (van der Jagt and Lawrence, 2019). The shift to virtual public consultations aimed to reduce the time demand on individuals, but also

introduced additional obstacles for individuals in rural areas with limited internet connectivity, which has led to underrepresentation of these communities in land-use decisions (Lawson et al., 2022).

For those who can attend such events, Lawson et al. (2022, p.22) note that they often encounter an "…intimidating and hostile arena", particularly for non-experts. Further, Glenn et al. (2019, p.26) report that some landowners have been accused of using their influence to "…intimidate potential objectors into remaining silent, leading to an unwillingness to participate in the democratic planning process". This fear of repercussions can deter communities from expressing opposition to landowners' interests, exacerbating existing inequalities in planning decisions (ibid).

Additionally, the planning language and technical jargon used in land-use documents can be overwhelming, especially for laypersons without specialised knowledge (Adaptation Scotland 2023). Technical and detailed language regarding land use can be difficult to understand (Lawson et al., 2022), especially when compounded with complex decision-making processes (Glenn et al., 2019). This language barrier is further compounded for non-native English speakers (Lawson et al., 2022). The ability to comprehend and use technical language is necessary to being perceived as 'credible' in formal settings, which leads to underrepresentation of those who are not fluent in technical jargon or English (ibid).

Some community-based initiatives (CBIs) are working to create more inclusive governance processes, but their ability to influence land-use decisions is constrained by limited resources and perceived legitimacy (Revell and Dinnie, 2020). For example, Pacione (2014, p.45) notes that "…the community council in Milton of Campsie, as with all others in Scotland, has a limited budget, often uncontested elections, is not permitted to own assets, and has limited decision-making powers".

7.1.3 Transparency in decision making

Many residents do not have sufficient knowledge or information to be able to meaningfully engage in planning processes (Pacione, 2014). According to Pacione (2014, p.51), "…there is evidence of unequal access to information and lack of transparency in the planning consultation process… developers and public authorities often engage in detailed negotiations and discussions… that are not open to or shared with the wider public". The Scottish Land Commission

(2023) has emphasised that transparency is a fundamental requirement for equitable decision-making because it allows communities to participate in decisions that affect their lives and local environments. However, the Commission also noted that information about who owns land, and how land-use decisions are made is frequently inaccessible to the public (ibid).

Historically, local councils have provided land management expertise and planning advice to communities, but budget cuts have reduced this support and limited their role in facilitating engagement (Sharma et al., 2023). As Lawson et al. (2022, p.16) notes "… under-resourced Planning Officers are unlikely to commit to anything beyond the most basic, statutorily minimum forms of participation". This uneven access to information compounds existing power imbalances and limits the ability of communities to respond to proposals that impact their environment and wellbeing (Pacione, 2014).

Access to professional expertise also illustrates the power imbalance between landowners and communities. Landowners – particularly those with greater financial resources – can afford solicitors and advisors that communities cannot (Glenn et al., 2019).

7.1.4 Tokenism

Many communities view public consultations as tokenistic rather than impactful. Peskett et al. (2023, p.298) describe growing apathy regarding Land Use Strategy (LUS) pilots and RLUPs, with one stakeholder stating they were "…just fed up with endless pilots." The authors attribute this apathy to the lack of visible outcomes from earlier pilots and low prioritisation of new pilots by the government. This is akin to 'consultation fatigue' and contributes to the perception that consultations are merely 'tick-box exercises' rather than genuine attempts to integrate community perspectives (Lawson et al., 2022). When public engagement produces no tangible outcomes, individuals become less willing to invest time and resources in participation (ibid).

Additionally, when community engagement in land-use processes is predominantly reactive, rather than proactive, this limits communities' ability to shape decisions and reinforces perceptions of a system that favours developers. Revell and Dinnie (2020, p.224) highlight that Scotland's top-down planning system often means "… crucial decisions affecting local communities have usually already been made well before they have the opportunity to engage".

As a result, communities frequently feel disempowered in land-use processes, with engagement reduced to responding to pre-determined plans rather than influencing outcomes from the outset (ibid).

This feeling of systematic unfairness in planning processes is well-documented in the literature (Lawson et al., 2022; Pacione, 2014). These barriers to participation serve to "…marginalise local citizens from decisions regarding the development of their communities" and sows distrust between stakeholders (Pacione, 2014, p.55).

The challenges posed by top-down governance structures can undermine trust in land-use planning, as centralised decision-making often fails to accommodate community input (Braunholtz-Speight, 2015). Top-down and centrally-administered grants perpetuate "…inter-local competition for resources" rather than cooperation (Sharma et al., 2023, p. 224). Revell and Dinnie (2020) highlight how Scotland's local government system is shaped by centralised control which limits councils' ability to set local priorities. This governance structure influences the Scottish planning system where national priorities often take precedence over community needs. Additionally, budget cuts have led Scottish Councils to adopt a more standardised approach to service delivery, "which takes little account of the wide diversity of Scottish communities, the particular challenges and opportunities they face and the need for locally appropriate solutions" (ibid, p. 222).

Ultimately, tokenism can contribute to the perception that "…participating in a consultation process is not the same as having influence" (Pacione, 2014, p.45). Inequality in the valuing of local voices can lead to disregard of local knowledge and misrepresentation of group interests (Lawson et al., 2022).

7.2 Groups of special interest

7.2.1 Tenants and non-landowners

Tenants and non-landowners frequently lack formal avenues for participating in land-related decisions as ownership traditionally confers control over land use; "Ownership gives control over land use decisions and benefits, with decisions generally reflecting the interest of the owners of land" (Glenn et al, 2019). This dynamic leads to limited representation for tenants in decision-making despite their dependence on land and local resources (ibid)

7.2.2 Young people and children

Children and young people are often underrepresented in land use planning processes despite being among those most affected by long-term environmental and spatial decisions (Reed et al., 2022). Traditional planning approaches frequently fail to account for their specific spatial needs and overlook their right to participate in shaping their environments (Wood, 2015; Shortt and Ross, 2021). Moreover, youth engagement in planning remains limited due to a lack of targeted strategies and exclusion from decision-making processes (Wang et al., 2016). Given these shortcomings, there is a clear need to expand the stakeholder base in knowledge production and decision-making to ensure more inclusive land use planning that incorporates children (Shortt and Ross, 2021) and young people (Blackstock et al., 2020).

7.2.3 Women

Women, particularly those from marginalised backgrounds, encounter distinct barriers in land-use policymaking. Engender (2018, p.2) highlights that, in Scotland, "…women are often at the heart of community or regeneration initiatives to improve their built environments", yet gender equality remains largely absent from planning frameworks. This oversight disproportionately affects women with disabilities, ethnic minority women, and older women, whose needs are often excluded from land-use policies. As a result, their ability to advocate for inclusive and accessible public spaces is significantly constrained (ibid).

7.2.4 Low-income populations

Low-income individuals and residents of deprived areas face significant barriers to participation due to time constraints and limited financial resources. The lack of time to engage in lengthy and complex decision-making processes, coupled with high costs of participation (e.g., transportation to consultation events), further discourage involvement (Lawson et al., 2022)

7.3 Overcoming barriers to participation

7.3.1 Enhancing community ownership and access to land

Expanding legislation and providing financial support for community land acquisitions can improve access to resources and facilitate self-determination and make it easier for communities to participate in land-use decisions (Meyerricks and White, 2021). Community land ownership can enhance local decision-making power and help achieve net-zero targets at a local level (Sharma et al., 2023). Additionally, community ownership and buy-in strengthen engagement in partnerships (Peskett, 2021). To bolster community ownership, councils may consider match funding a viable strategy to finance projects (Lawson et al., 2022).

Ultimately, addressing the issues of local democracy, land ownership, land prices, and land use planning "… will be key to unleashing the potential of community action – including community-led climate action" (Revell and Dinnie, 2020, p.221).

7.3.2 Enhancing participation and transparency

Participation in land use planning must be made more accessible. This can be accomplished through simplifying planning language and ensuring information is accessible to all stakeholders (Lawson et al., 2022). The Scottish Land Commission (2023) has highlighted that open data on land ownership and publicly accessible databases with jargon-free information can empower communities by giving them the knowledge needed to engage meaningfully. Additionally, Peskett et al. (2023) argue that decentralisation efforts, such as Scotland's Regional Land Use Partnerships, have the potential to improve coordination and participation but face challenges due to a lack of clear procedural guidance. The absence of well-defined frameworks and accessible information limits stakeholder engagement, particularly among communities with fewer resources. Addressing these gaps by making planning processes more transparent and structured could empower communities to organise more effective responses to land-use proposals (ibid).

However, accessibility alone is not enough; processes must facilitate meaningful engagement and ensure that marginalised voices are not overlooked (Scottish Human Rights Commission, 2021). Transparency in land ownership and decision-

making is a prerequisite for meaningful participation (Scottish Land Commission, 2023). Participation processes should support community capacity-building (Lawson et al., 2022), two-way communication (Glenn et al., 2019), and strategic engagement of key stakeholders (Reed et al., 2022). In particular, impact assessments should be viewed as "a vehicle to enhance and improve public engagement and active involvement in public realm developments" rather than tick-box exercises (Donaldson and João, 2020, p. 477).

Additionally, participants are more likely to engage meaningfully if they see that their input is valued and leads to concrete outcomes. For example, real-time updates on planning proposals or digital maps that reflect community input can make the impact of participation visible, reducing cynicism and encouraging further engagement (Lawson et al., 2022). Some innovative methods for increasing participation include interactive visualisation (Wang et al., 2015), as well as charrettes, real time digital maps, audio walking, participatory film making, theatre, e-participation, social value mapping, and co-design (Lawson et al., 2022). However, this does not mean relying solely on digital feedback mechanisms. A blend of digital and face-to-face tools is needed to engage diverse communities, including people in digital and non-digital forums (ibid).

Lastly, resource constraints often limit community involvement, therefore, funding support for councils and local groups can help cover participation costs, such as transportation to consultation events or expenses related to organising community responses (Peskett et al., 2023). Additionally, offering financial incentives for community representatives can make participation feasible for those who may otherwise be unable to engage due to financial limitations (Elstub et al., 2019).

7.3.3 Decentralisation and distribution of power

Decentralising decision-making fosters more participatory land use planning (Peskett et al., 2023). Building on the Community Empowerment Act (CEA), which empowers community groups to have more influence in public service delivery, further power to communities can be facilitated through the establishment of local democratic spaces, such as Development Trusts, with support of the government (Revell and Dinnie, 2020).

Additionally, Community Asset Transfers can empower local communities by enabling them to take over public land for social benefits (Sharma et al., 2023).

Citizen juries or assemblies can remove barriers to political participation by recruiting participants through random sampling and providing financial incentives for participation (Ross et al., 2021). These citizen juries ensure that even those who are typically disengaged or politically inactive are heard, and this will enhance diversity in participation (Elstub et al., 2019).

Most importantly, systemic change is needed to address the conflicting interests of the state, capital, local authorities, and citizens. This shift towards decentralised governance aims to prioritise the needs of local communities over managerial efficiency and control (Pacione, 2014).

8. Overview of Common Practices and Challenges to a Just Transition

This review of extant literature has led to the identification of a number of characteristics pertaining to how the concept of just transition is transacted. A critique of this material has also revealed a range of commonalities that exist across the sectors that were examined; housing, energy, transport and land-use. The drawing together of these findings and the lessons learned has led to drafting recommendations on the enhancement of just transition initiatives in Glasgow City (and beyond) by putting into context the barriers faced by communities to shaping a citizen co-designed just transition framework.

In terms of common practices, the concept of just transition as evidenced through the literature review is enacted and enabled through a number of mechanisms. These are generally through the lens of a) public involvement and b) co-design and co-creation.

- Public involvement approaches include information sessions, community/public engagement, participation, training, public forums, public consultations and outreach.
- Co-design and co-creation approaches include energy efficiency programming, planning processes, co-benefits of interventions, cultural connections, community wellbeing, art, visioning social development, eco-developments and co-housing schemes.

All of these approaches are not new methodologies in themselves but have been adapted and applied to supporting and achieving a fair and just transition.

However, a deeper scrutiny of the literature has revealed that these approaches can often seem 'macro' in nature from the people that they should benefit with a number of challenges being highlighted at the 'micro' level.

There are a number of deep rooted and fundamental challenges that need to be tackled, root causes identified and addressed and a systematic change in our philosophy and approach to the implementation of initiatives and policies that will lead to a successful, meaningful and sustainable just transition. The evidence points to the fact that considerable care and attention must be afforded by stakeholders who are designing, developing, initiating and implementing interventions on the ground. Due diligence ought to be given to understanding and recognising these challenges and to driving change by overcoming them as they pertain to how interventions are received by communities.

The challenges being faced by communities fall into 3 categories: i) procedural justice ii) transparency and trust and iii) financial burden. The challenges as cited across the range of literature and across all the sectors reviewed have been extracted, generalised and summarised under the 3 categories.

8.1 Procedural Justice

- Issues raised include the problems associated with unsupportive policies and policy engagement, lack of democratic participation, limited representation, displacement of responsibility, lack of public awareness and ineffective public engagement programmes. Specifically to note are the findings below:
- Black, Indigenous, and people of colour (BIPOC), women and disabled groups, whose priorities and values enrich debates are seldom included in decision making processes.
- Working-class individuals, despite having much to gain from participation, often struggle to be heard in decision-making processes, which can be influenced more by 'elite' and 'special interest' groups.
- Lack of standards for how facilitators and built environment professionals prioritise inclusion during public consultations.
- Misrepresentation of local people's opinions.
- Inconveniently timed events sew cynicism in residents who believe barriers to their participation are placed intentionally.
- Lack of thoughtful inclusion, compounded with hostile environments, ultimately leads to exclusion.

- Many residents do not have sufficient knowledge or information to be able to meaningfully engage in just transition, particularly planning processes.
- Unequal access to information and a lack of transparency in planning and consultation processes.
- Tokenism: Many communities view public consultations as tokenistic rather than impactful. Participation fatigue seems to exist in communities where members are repeatedly consulted without seeing tangible impacts from their input. This creates a perception that public consultations are merely 'tick-box exercises' rather than genuine efforts to integrate community perspectives. There is often a disregard of local knowledge and misrepresentation of community's interests.
- Community engagement is primarily reactive. In many cases top-down approaches to land use planning does not value communities' input equally.
- The language used in planning is often technical jargon which can be overwhelming. Furthermore, the language barrier is further compounded for non-native English speakers.
- Low-income individuals and residents of deprived areas face significant barriers to participation due to time constraints and limited financial resources. The lack of time to engage in lengthy and complex decision-making processes, coupled with high costs of participation (e.g. transportation to consultation events), further discourage involvement.

8.2 Transparency and Trust

- Issues raised include readability of policy documents. There seems to be struggles to learn the correct language and sectoral information needed to participate.
- Communities do not feel included or welcomed to participate in processes. Additionally, financial and knowledge barriers also contribute to the exclusion of marginalised groups.
- Issues of engagement of the community in the process of planning and designing benefits of energy projects because it does not guarantee community involvement or equitable distribution of benefits.

- The most notable barriers to community energy projects is access to funding thus exacerbating dissatisfaction with levels of democratic participation in decision making.
- Participation can be emotionally taxing for the individual, causing stress and anxiety, especially for those with no prior experience in political or project-based engagement.
- National targets may prioritise broader goals over local interests and lead to a sense of alienation among rural residents regarding the energy transition process.
- Long-term rural residents feel side-lined by 'incomers', i.e. individuals and families who recently moved into an area, that have taken on lead roles in community energy projects.

8.3 Financial

- Issues raised include the financial burden of being able to participate in engagement activities but also the misunderstanding of the circumstances faced by communities e.g. in relation to income poverty.
- Affordability to adopt new initiatives is disempowering as it is burdened by costs.
- Volunteers face significant time constraints, unpaid work, and a lack of formal support.

9. Recommendations on the enhancement of just transition initiatives

To address the challenges, a number of examples of good practices have been identified which could assist in tackling some of the deep seated problems that communities face to a fair and just transition. These ought to be considered more holistically to sharpen and enhance just transition initiatives. Generally, participants are more likely to engage meaningfully if they see that their input is valued and leads to concrete outcomes. Overall, systematic change is needed to shift governance aims to prioritise the needs of local communities over managerial efficiency and control.

9.1 Procedural Justice

- Address inequalities, for example, by quantifying the over- or under-representation of different ethnic groups in public forums on climate policymaking in Glasgow.
- Providing real-time updates on planning proposals or digital maps that reflect community inputs. This can make the impact of participation visible, reducing cynicism and encouraging further engagement.
- Providing interactive visualisation, charrettes, real time digital maps, audio walking, participatory film making, theatre, e-participation, social value mapping. A blend of digital and face-to-face tools is needed to engage diverse communities, including people in digital and non-digital forums.
- Establishing workers' rights and dedicated worker engagement roles e.g. in the Scottish Trade Union Congress, through co-design of the Energy Strategy and Just Transition Plan.
- Establish social participation in local neighbourhoods through the route of dual benefits of reducing carbon emissions and supporting wellbeing.
- Training in promoting a multi-skilled workforce.
- Capacity building, training, networking and connectedness, forming partnerships, community based climate assemblies, building solidarity and learning from local action as drivers of just transition to empowering communities.
- Impact assessments can be used as a way to enhance and improve public engagement and active involvement in public realm developments rather than tick-box exercises.

9.2 Transparency and Trust

- Maintaining social consensus, and trust, through engagement and regional place making is critical and where social participation is a key indicator of a transition's success. This can be enhanced by learning from local action as drivers of just transition.
- Local action groups can serve to amplify the voices of communities and increase engagement. With reference to climate action, it is important to meet and address people's needs rather than to emphasise mitigative actions.

- Offering multiple reasons for individuals to engage highlighting co-benefits.
- Developing an understanding of the communities' circumstances as well as monitoring and evaluating helps deliver procedural justice by emphasising accountability and transparent decision making.
- Active public engagement, meaningful participation and stronger policy support in particular for empowering communities is essential. Transparency is key to promoting public participation in the energy transition process through provision of training and education on community energy.
- Implementing a more democratic approach to decision making for example through public participation; citizen's juries and mini-publics, which bring together a diverse group of citizens to discuss and shape public policy.
- Diversifying outreach and communication methods for example to improve access to resources and facilitate self-determination and make it easier for communities to participate in decision making processes.
- Simplifying planning language and ensuring information is accessible to all stakeholders can help with community empowerment.
- Providing real-time updates on planning proposals or digital maps that reflect community input can make the impact of participation visible, reducing cynicism and encouraging further engagement.
- Facilitate meaningful engagement and ensuring that marginalised voices are not overlooked. Skills training for professionals is also needed in order to effectively engage marginalised groups in these spaces.
- Distributive justice can be facilitated through the establishment of local democratic spaces, like Development Trusts, with support of the government.
- Provide interactive visualisation, charrettes, real time digital maps, audio walking, participatory film making, theatre, e-participation, social value mapping as well as a blend of digital and face-to-face tools is needed to engage diverse communities, including people in digital and non-digital forums.

9.3 Financial

- Cover participation costs, such as transportation to consultation events or expenses related to organising community responses.
- Providing financial incentives for community representatives can make participation feasible for those who may otherwise be unable to engage due to financial limitations.
- Provide financial support for vulnerable households in both the installation and operation of energy efficient appliances.
- Encouraging informed decision making regarding appropriate home energy choices.
- Energy bills should be income-adjusted to reduce energy poverty and encourage participation in just housing transition.
- With specific reference to co-developments and co-housing schemes address affordability and accessibility.

10. Concluding remarks

This review of extant literature was set out to help develop a deeper understanding of just transition; the obstacles faced by citizens, how the concept of just transition is perceived, understood and enabled as well as looking to establish guidelines for a just transition framework. A critical analysis of the literature has led to the identification of a number of challenges faced by communities; unless addressed these will act as blocks to the successful implementation, uptake and sustainability of just transition interventions. On reflection, and based on the key findings it is critical that 'assumptions' are not made on what would work and what would not to achieve a successful just transition, with particular reference to utilising the lens of a) public involvement and b) co-design and co-creation. Rather what is required is the ability to stocktake, identify and recognise critical issues that may not always be apparent at the public involvement and co-design/co-creation stages. Attention ought to turn to wider and deeper understanding that is reflective of local values, collaboration, building resilience as well as embracing meaningful engagement at all levels. Whilst utilising this philosophy may take a bit longer to establish baselines for interaction it can lead to more successful and sustainable outcomes for a fair and just transition.

11. Partner organisations

Mary Robinson Centre for Climate Justice

Glasgow Caledonian University

Website:
https://www.gcu.ac.uk/climatejustice/

Centre for Civic Innovation

Glasgow City Council

Website: https://www.cciglasgow.org/

For more information on the GCU Mary Robinson Centre for Climate Justice and the work we do, please visit our website:

Centre for Climate Justice at GCU | gcu.ac.uk/climatejustice

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