



UK100 Response to the National Infrastructure Commission | Second National Infrastructure Assessment Baseline Report Call for Evidence

Introduction

Question 1: Do the nine challenges identified by the Commission cover the most pressing issues that economic infrastructure will face over the next 30 years? If not, what other challenges should the Commission consider?

The nine challenges largely cover the most pressing issues that economic infrastructure will face over the next 30 years. The Commission's social research, carried out in June 2021, found that people cited fighting climate change by reducing greenhouse gases as the top priority for the UK's infrastructure in 30 years' time. It states that infrastructure should form part of wider locally-led economic strategies, alongside other areas like skills and inward investment. It states that cities and towns should have devolved powers and funding to develop locally led infrastructure strategies, with central government oversight reserved for only the biggest projects. It adds that the government should make expert support and advice available to help those local authorities where capacity and capability are obstacles to developing and delivering their infrastructure strategies.

UK100 supports this assessment, because as convenors and designers of place and economies with a local democratic mandate and local expertise, local authorities are best placed to deliver a place-based transition to Net Zero which responds to local needs, opportunities and challenges and engages with residents, businesses and public sector organisations. Our Power Shift report finds that the UK government has yet to provide local leaders with the powers and resources to deliver, amounting to a system that is currently structurally incapable of delivering Net Zero. The NIC needs to engage with local decision makers - to ensure national decisions consider local needs and vice versa. Additionally, we believe that since climate resilience and Net Zero are new objectives since the first assessment, it is important that a discussion paper is produced for these.

The NIC's first National Infrastructure Commission made the following recommendations:

- Devolved powers and funding for cities and towns to develop locally led infrastructure strategies: Infrastructure strategies need to be developed and determined locally, by people who understand the needs and strengths of the area.
- The need for infrastructure strategies to form part of wider economic strategies: While infrastructure can improve productivity and make places more liveable, it is not the whole solution – factors like skills and education also have an important role to play and therefore need to be aligned to infrastructure investment.
- The need for local capacity to deliver these strategies: Government should make expert support and advice available to help those local authorities where capacity is an obstacle to developing and delivering their infrastructure strategies.

What action has the Government taken to deliver on these recommendations? It is clear from the pledges made in the Net Zero Strategy and the Transport Decarbonisation Plan that the Government recognises the key role of local authorities in delivering Net Zero, but delivery on these ambitions is needed. We urge the NIC to restate the above recommendations in the Second National Infrastructure Assessment.

Question 4: What interactions exist between addressing the Commission's nine challenges for the next Assessment and the government's target to halt biodiversity loss by 2030 and implement biodiversity net gain? Your response can cover any number of the Commission's challenges.

The challenges identified by the NIC concerned with the need to meet Net Zero are interconnected with the government's target to halt biodiversity loss by 2030 and implement biodiversity net gain, in the sense that the climate emergency and the ecological emergency are interconnected and co-dependent.

Many nature based solutions can be implemented to reach Net Zero, including tree planting, peat bog restoration and agro-ecological farming practices. These solutions in turn help to increase biodiversity and protect species and habitats. Additionally, improving air quality through decarbonising transport and driving a modal shift towards public and active transport usage is closely tied to increasing the health of ecosystems, species and habitats, by reducing the negative impacts of air pollution. And the increase in a more biodiverse landscape will also have mitigative impacts on the severity of air pollution.

In the Environment Act the Government legislated for Local Nature Recovery Strategies to be developed which cover the whole of England. Nature based solutions have an important role to play in the delivery of Net Zero and these

connections can be better articulated and delivered as 'green' infrastructure projects are rolled out across the country.

Question 5: What are the main opportunities in terms of governance, policy, regulation and market mechanisms that may help solve any of the Commission's nine challenges for the Next Assessment? What are the main barriers? Your response can cover any number of the Commission's challenges.

Local authorities have been identified by UK100 research, as well as the Committee on Climate Change, the National Audit Office and the Government itself in the Transport Decarbonisation Plan and the Net Zero Strategy as key to the delivery of Net Zero.

Empowering the convening and implementation functions of local authorities represents a key governance opportunity for successfully realising Net Zero. But the current regulatory and financial framework in which local authorities operate represents a key barrier to delivery.

A core recommendation of our [Power Shift](#) report was the need for a [National-Local Net Zero Delivery Framework](#), which was explored in more detail in our Framework research. The Government acknowledged this work in the Net Zero Strategy by announcing the establishment of a Local Net Zero Forum. This and the UK Infrastructure Bank are recent developments that suggest that the Government's thinking is evolving on Net Zero delivery and in terms of connecting the local to the 'big kit' infrastructure. We have real opportunities to capitalise on in terms of shifting emphasis towards place based solutions that are scaled to deliver objectives. Policy now needs to be better aligned with delivery in order to consider local contexts in national infrastructure development.

2. Reaching net zero

Challenge 2: Decarbonising electricity generation – the Commission will consider how a decarbonised, secure and flexible electricity system can be achieved by 2035 at low cost.

Question 8: What are the greatest risks to security of supply in a decarbonised power system that meets government ambition for 2035 and what solutions exist to mitigate these risks?

The greatest risk to security of supply is the ability of the network to transform into a fully decarbonised, flexible and demand responsive, renewable system, which can be resilient to the increasingly extreme impacts of climate change.

Prioritising the decentralisation of energy would increase resilience and enable energy to be generated closer to where it is used, reducing the amount of energy

which is lost through transmission. Local authorities need to be seen as key stakeholders in the development of grid infrastructure plans. Local Area Energy Planning involves examining all of the opportunities for low carbon heat and power in a local area, how this may change over time, and the associated costs. A national framework for Local Area Energy Planning should be put in place giving a greater role and more powers to local and regional authorities to develop a balanced energy system which combines a mix of large scale power generation with local decentralised energy systems, as part of a wider priority focus of reaching Net Zero. This includes a clear remit to base planning decisions on the legally binding Climate Change Act.

Local Area Energy Planning can help relieve excessive demand on the national grid if there is a framework that facilitates it. This locally-led approach to infrastructure can address many of the key challenges to decarbonising the system, by providing the evidence needed to target investment smartly and cost-effectively.

To support this, local authorities will need enabling powers including:

- Power to override the constraints on on-shore wind (withdraw 2015 Ministerial Statement)
- Power to refuse consent for fossil fuel extraction or development of carbon-based energy infrastructure if it is not aligned with the national carbon target.

Key supporting policy, frameworks and resources are required from national government to underpin local authority powers:

- Funding and resources for Local Area Energy Planning to be developed and then implemented, including significant capacity building within local authorities and partnerships to deliver across local authority boundaries; this should not be competitive
- Supporting NPPF policy to ensure that every area is covered by a Net Zero Local Area Energy Plan, including the removal of the viability constraint, alongside guidance relevant to different area types

Local energy systems would involve energy consumers becoming generators themselves. To be cost effective they would use local generation, smart technology and storage solutions to balance demand and supply. Rapid investment in energy efficiency measures, which reduces the amount of energy we consume, would enable us to reduce their size and cost.

Smart local energy systems also enable the integration of heat, power, transport and storage at a local scale so that locally generated and available energy is used as efficiently and flexibly as possible to balance local supply and demand.

Network resilience needs to be ensured - if more properties are electrified, the grid needs to be able to connect to these houses and ensure a stable supply. It is

hard to convince people to switch to electricity alternatives when they have been experiencing power outages such as those occurring in the aftermath of Storm Arwen. Significant effort and investment in addressing these areas will be required. The best way to address these issues is to give local authorities the powers and resources to carry out Local Area Energy Planning which considers the specifics of local housing stocks and the best solutions to the decarbonisation of heat and energy for different types of homes.

In light of these considerations, finally, the government should reframe what is 'nationally significant' in the context of national infrastructure to account for decentralisation to deliver Net Zero.

Challenge 3: Heat transition and energy efficiency – the Commission will identify a viable pathway for heat decarbonisation and set out recommendations for policies and funding to deliver net zero heat to all homes and businesses.

Question 9: What evidence do you have on the barriers to converting the existing gas grid to hydrogen, installing heat pumps in different types of properties, or rolling out low carbon heat networks? What are the potential solutions to these barriers?

In terms of heat decarbonisation, one issue is that the costs of connections to the grid in areas with poor infrastructure can be prohibitive. The focus of decarbonising heat and power has largely been on cities and so rural areas which have specific issues in terms of homes which are off the gas grid are likely to be left behind unless extra support is provided for rural authorities.

Another issue is that installing pipework or grid reinforcement in district heat or heat pump areas a long time ahead of need could result in spending and investment in infrastructure that does not result in a revenue stream for a long time.

District heating schemes are technically complex and the “best” technology may change over the 10 years between initial studies and installation. The challenge of aligning the supply and demand and managing the infrastructure investment costs are specialist skills. Therefore, without further support from government, although local authorities want to drive the decarbonisation of heat in homes in their areas, it is very difficult for them to make this economically viable without more support from government.

One solution is for infrastructure funding for investment to be provided in anticipation of need, which may not provide a revenue stream until a future date, to enable heating pipes or grid reinforcement in heat zones so that when Street Works are being undertaken, pipes or reinforcement can be funded while

excavation is underway. Offering these guarantees can help provide longer term market assurance in investment.

To support this, local authorities need enabling powers including:

- Powers or regulation to coordinate the delivery of Net Zero heat zones
- Planning powers or a regulation code to insist on certain types of technologies (and ban others) in new and existing buildings in the Net Zero heat zones
- Powers to require buildings to connect to district heating schemes in identified district heating zones and to require existing developments to connect

Evaluation of heat network projects funded by the Heat Networks Delivery Unit found that local authorities with potential heat network projects find developers to be extremely hard to engage with on district heat, meaning that in new developments opportunities to install low-carbon heat are missed. The NPPF should clarify that local authorities could set local energy efficiency standards for developments that were more rigorous than national standards and insist on new homes being Net Zero carbon.

The 2008 Planning Act utilised a project size threshold as a means to identify energy projects as nationally significant or not. In presenting clear business cases for CHP, it is clear that 50MW heat generation is not comparable with 50MW energy generation in terms of the scale of project and therefore the 50MW cap should not apply to heat projects. The position on threshold for heat projects should be clarified and the 50MW limit should not apply to heat.

Planning powers are needed for local authorities to require buildings to connect to district heating schemes in identified district heating zones and to ensure all developments are 'connection ready'. Within Local Area Energy Plans powers or regulations are required to coordinate the delivery of Net Zero heat zones and planning powers or a regulation code to ensure that the best energy technology is deployed to enable Net Zero heat in new and existing buildings, taking into consideration the needs and available resources of any given place.

Planning for energy infrastructure, energy efficiency and heat as separate considerations misses an important opportunity to integrate towards smarter systems. The Second National Infrastructure Assessment should address the need to consider cross-cutting solutions in this respect, including by recommending that more powers and resources be devolved to local authorities to develop smart local energy systems which integrate local heat, power and transport needs.

Question 10: What evidence do you have of the barriers and potential solutions to deploying energy efficiency in the English building stock?

The Green Deal and the Green Homes Grant ended well ahead of time and didn't deliver as intended, undermining householder and trade confidence. Feed-in-Tariffs for larger-scale renewables were tapered and ended ahead of time, further eroding sector confidence.

Stable funding mechanisms for domestic renewable energy installations and heat network delivery, with long-term budgetary commitments, rather than short-term Treasury stimulus packages, are needed to provide confidence and clarity to householders and businesses.

Centralised government energy efficiency schemes such as the Green Deal and Green Homes Grant, which were designed as direct mechanisms to reach householders without local intermediaries, have failed. The £500m of the £1.5bn Green Homes Grant scheme which was delivered through Local Authorities was successful and oversubscribed – the problem was with the delivery of the £1bn individual voucher scheme. To address this the Government should design and deliver, with local government, a long-term plan to decarbonise buildings and heat that sets out actions and investment needed to enable all existing homes and buildings to be Net Zero carbon by 2050 at the very latest, and utilises local authorities as a key delivery partner in retrofitting homes and decarbonising heat.

The planning system locks in future emission levels from homes and heating, and so much more stringent energy efficiency requirements of homes must be brought in as soon as possible. Local authorities should be given the ability to include tougher energy efficiency standards in Local Plans as unconditional requirements for all developments. The Future Homes Standard should be more ambitious - moving to a requirement for homes to be “zero carbon” rather than “zero carbon ready”.

EPC certificates are widely regarded to be inaccurate. Reforms to improve EPCs include: requiring calculations of CO₂ emissions produced by construction to include the embedded carbon of a property and closing the performance gap between the theoretical and actual energy output of new homes through post-occupancy evaluations of real performance. This is important as evidence indicates that new homes can lose 50% more heat than expected. Additional resources should be made available to local authorities to enforce minimum energy efficiency standards in the private rented sector.

Challenge 4: Networks for hydrogen and carbon capture and storage - the Commission will assess the hydrogen and carbon capture and storage required across the economy, and the policy and funding frameworks needed to deliver it over the next 10-30 years.

Question 11: What barriers exist to the long term growth of the hydrogen sector beyond 2030 and how can they be overcome? Are any parts of the value chain (production, storage, transportation) more challenging than others and if so why?

Hydrogen has a role to play in the transition to Net Zero, particularly for some 'hard to decarbonise' sectors. But it is only one part of the solution, and it is important to prioritise alternatives which are less reliant on fossil fuels and carbon capture technology.

We should continue to look into how hydrogen can be scaled up as a more sustainable solution. But many Local Authorities are committed to decarbonising faster than the Government has committed to, speeding up our transition to Net Zero. We need to prioritise the technology which is available today, rather than relying on technological developments which aren't yet widely available.

We need a focused approach to Hydrogen which solves problems which can't be solved other ways. This includes using Hydrogen power in locations and for applications which are most suited to it, e.g electrolysis for freight/storage of renewables.

Hydrogen should be part of place-based solutions where it makes sense - local authorities need to be involved in conversations about infrastructure.

Question 12: What are the main barriers to delivering the carbon capture and storage networks required to support the transition to a net zero economy? What are the solutions to overcoming these barriers?

The main barrier to CCS is that it remains a largely unproven tech, bar select emergent pilot projects at the early stages of development. This means that there is significant long term uncertainty about the viability of the technology as a scaled decarbonisation solution. The urgency to deliver Net Zero means that even with the scale of planned government financial commitment to the technology, the real mitigation gains seen from CCS are still decades away.

The costs of the technology are very high compared to other solutions. As with hydrogen, CCS interventions should be carefully considered and deployed only where they are the most appropriate option. There are other lower cost options that are more proven, carrying less financial risk which have an important role to

play and the prominent role that CCS has been planned for in Government strategic thinking should not detract attention from these solutions.

4. Levelling up

Challenge 8: Urban mobility and congestion – the Commission will examine how the development of at scale mass transit systems can support productivity in cities and city regions and consider the role of congestion charging and other demand management measures.

Question 16: What evidence is there of the effectiveness in reducing congestion of different approaches to demand management used in cities around the world, including, but not limited to, congestion charging, and what are the different approaches used to build public consensus for such measures?

In the first year of congestion charging alone since its introduction in 2003, London enjoyed a 30% reduction in traffic congestion and a 30% increase in average speeds, while bus passenger numbers increased by 38%. Traffic volumes in the charging zone in 2019 were a quarter lower than 2009. The charge generated over £2 billion in revenue from 2003 – 2019, around £150 million per year. All of this revenue has been reinvested into London's transport infrastructure, enabling and encouraging people to choose active and public transport, rather than driving private vehicles.

Moreover, the revenue that has been generated as a result of the congestion charge has resulted in massive investment in public transport infrastructure including more frequent services, subsidised and capped fares and the extension of the overground. All of these are strategic interventions which have helped economic growth while limiting growth of vehicle movements.

Challenge 9: Interurban transport across modes – the Commission will consider relative priorities and long term investment needs, including the role of new technologies, as part of a strategic multimodal transport plan.

Question 17: What are the barriers to a decision making framework on interurban transport that reflects a balanced approach across different transport modes?

The barriers to a decision making framework on interurban transport that reflects a balanced approach across different transport modes are that different modes of transport are often run by different private companies (and sometime more than one - e.g. bus services), and local and regional authorities do not have sufficient powers (except where these have been granted in specific devolution deals) to ensure that all modes of transport are integrated. We urge the Government to provide the powers required for local leaders to develop a London-style

integrated, reliable, cheaper, and more simple to use regional public transport service. The plans mentioned in the Government's Levelling Up White Paper are a step forward here, but more details on the specifics are required.

This includes incorporation of the oversight of buses into the local transport authority role and giving local authorities the power to require bus and rail to control routes, operators to collaborate on timetabling etc. within a framework on area-wide transport plans, including cross-ticketing.

Our [National Insight Briefing on Transport](#) explores the powers that local authorities have to decarbonise local transport systems and what additional powers they need to decarbonise transport in their local area.

This must apply to rural areas and not just urban centres. Rural authorities face specific issues in relation to modes of public transport, low population density and a lack of economies of scale means that public transport is often not commercially viable in many places and will require greater public funding and support. We highlight these issues and possible solutions in our [Rural Net Zero](#) report. Specific rural problems of poor public transport and connectivity should be prioritised and funded. Empowering and funding local leaders to decarbonise transport will enable a place-based transition which accounts for the different needs of rural and local communities. Such schemes include demand responsive public transport, mobility as a service, and EV car clubs to promote more EV infrastructure development in rural areas.

In order for local authorities to deliver a strategic multimodal transport plan which helps to level up their area and reduce emissions, the Government should devolve and pool local authority transport funding to provide longer term certainty, with local authorities trusted to get on and to deliver. What is now necessary for mainstream delivery, including higher quality and low-carbon public transport, should be provided through pooled and long-term funding streams, not competitive bidding in which only a few local authorities can access funding. The funds should be awarded on the development and merits of Local Transport Plans. Value for money assessments should be through what gets done and the impacts on carbon reduction and not through the micro-management of specific schemes. Local authorities should have the power to access transport funding using alternative justifications to WebTAG and WebTAG should be revised to increase the value assigned to traffic reduction, active travel and health impacts.