



## THE SECOND NATIONAL INFRASTRUCTURE ASSESSMENT: BASELINE REPORT

### EDGE response to Call for Evidence

#### the EDGE

[the Edge](#) is a built and natural environment think tank and network. It is multi-disciplinary in a landscape remarkable for its abundance of single-discipline institutions. Started as a means of creating a shared space between the architectural and engineering institutions, the Edge is a voluntary group with no staff and lots of stakeholders across the built and natural environment professions. We encourage cross-disciplinary debate and campaign for change that will improve the outcomes for society.

This response has been generated by the core membership of the Edge to represent views from across built and natural environment perspectives.

**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?

#### **EDGE Response**

To meet the carbon emission reductions necessary in the next 30 years, there is a further critical challenge that must be identified and addressed. The Commission MUST consider and drive actions to reduce the embodied carbon in the materials of manufacture and construction. This contributes over 10% of the national CO<sub>2</sub> emissions. Zero carbon steel, concrete, aluminium, plastics must be found, developed, and introduced within the next 10 years. This will require market incentivisation and legislation. Carbon Capture (CCS) is in such early days of development that it cannot be relied upon to provide the solution to decarbonise major industrial emissions. New materials and new manufacturing processes for existing materials must be found. This will require extraordinary investment from industry, that will need to be seeded by urgent investment from government.

**Question 2:** What changes to funding policy help address the Commission's nine challenges and what evidence is there to support this? Your response can cover any number of the Commission's challenges.

#### **EDGE Response**

Investment in fundamental research by the construction materials supply industry must be supported whole-heartedly through government directed grants to industry-based R&D in construction materials and new manufacturing processes.



**Question 3:** How can better design, in line with the design principles for national infrastructure, help solve any of the Commission's nine challenges for the next Assessment and what evidence is there to support this? Your response can cover any number of the Commission's challenges.

**EDGE Response**

Better design can reduce embodied carbon of production and construction materials, but it cannot achieve net zero. This requires new processes and products for construction and manufacturing materials.

**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.

**EDGE Response**

There are several interconnecting actions that need to take place at the same time:

- Recognising the value of linear routes (rail, road etc) to provide biodiversity corridors (Challenge 9) and provision of wider linear routes where this can improve connectivity.
- Providing green bridges to avoid major wildlife barriers being created by new linear routes.
- Better integration of NIC guidance with other relevant guidance such as Natural England's nature recovery network.

**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.

**EDGE Response:**

To achieve the transition from design concept to execution requires application of new criteria for procurement and operation. Government can start by setting the best example in its own procurement of buildings and products. In addition, the introduction of Building Regulations that better control the specification and use of building materials in construction is needed. The proposed 'Part Z' regulations<sup>1</sup> must be supported to move regulations in this direction.

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<sup>1</sup> <https://part-z.uk/>



**Question 7:** What barriers exist that are preventing the widescale adoption and application of these new digital services and technologies to deliver better infrastructure services? And how might they be addressed? Your response can cover any number of the Commission's sectors outside digital (energy, water, flood resilience, waste, transport).

**EDGE Response:**

It is important that the NIC integrates its work with the Defra land-use team and the DLHUC planning team on the need for a land-use framework and integrated digital mapping, so that multi-layered decisions can be made in the most relevant locations. Liaison with Digital Britain, National Geospatial Commission and partners such as Ordnance Survey is also vital.

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

**EDGE Response:**

The National Retrofit Strategy sets out the interlock of standards and guidance, skills-planning and leadership/communications required to be developed for retrofit appropriate for decarbonisation, including proposals for stock profiling in the form of digital building renovation passports. The packages uptake is mapped to national emissions targets and is based on completed projects including BEIS Supply Chain retrofit pilots.

**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?

**EDGE Response:**

Carbon Capture and Storage is a new industry sector and has to grow at an exceptional rate to ensure that the methods for CCS are invented and developed to integrate into industry and the economy. This will require a dedicated department in government. Research, innovation, industrialisation of CCS needs massive investment. It would be wise to seek CCS methodologies that will work in parallel with existing industry practises to ensure easy and cost-effective adoption. This will require existing CO<sub>2</sub>-emitting industries to take responsibility for the capture themselves rather than "outsource" to a third party for which they have no responsibility. This will require legislation and carbon pricing to that will ensure the polluters pay for the development of the CCS processes on which they are relying to achieve their zero carbon targets.



**Question 13:** In what ways will current asset management practice need to improve to support better infrastructure resilience? Your response can cover any number of the Commission's sectors.

**EDGE Response:**

In cities there is a huge performance gap in the public realm - drainage systems are inadequate, road surfaces are often poor, and some bridges are close to being dangerous. We must make a concerted effort to maintain and bring up to a reasonable standard what we have before we develop more.

**Challenge 6:** Surface water management – the Commission will consider actions to maximise short-term opportunities and improve long term planning, funding and governance arrangements for surface water management, while protecting water from pollution from drainage. The Commission will carry out a separate call for evidence on this challenge, as the Commission will deliver this as a separate study and report to government by November 2022, in advance of its other recommendations.

**EDGE Comment:**

It is important that NIC works with Defra in the area of surface water management, to ensure its recommendations are aligned. The use of SuDS in all new developments must become a legal requirement, so that we avoid many problems in existing locations in the future and the retrofitting of SuDS (with trees where possible) must become the acceptable solution for surface water management – principally in urban areas but not exclusively.

**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?

**EDGE Response:**

Demand management may have some answers but, essentially, we must move away from private personal transport in cities, relieving congestion and enabling improved use of space, especially road space, for other vital uses. These include accessible green space, trees to reduce the urban heat island effect, space for walking and cycling etc. Cities like Copenhagen have removed private cars from large parts of the city.

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