Policy proposals for the built and natural environment

November 2022

EDGE

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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 multiple stakeholders across the built and natural environment professions. We encourage cross-disciplinary debate and campaign for change that will improve outcomes for society.

The cover graphic (© Ed Hawkins / University of Reading) shows annual average temperature variations relative to an average of 1971-2000 (9.7°C) in the UK from 1884 at the bottom to 2021 at the top. The lowest annual average in the period is 7.4°C in 1879 and the highest 11.0°C in 2014 (UK Met Office data).

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This is a call for action

Global heating and rapid biodiversity loss require urgent and co-ordinated action. Targets have been agreed and ratified: global heating is not to exceed 1.5°C over pre-industrial temperatures, net-zero carbon emissions will be reached by 2050 and the destruction of environments and species will be halted with subsequent net-gain of their diverse habitats and populations. What have not been established or put into train are the actions necessary to achieve these targets.

the Edge considers that successfully overcoming the existential threats of climate change and biodiversity loss is feasible, but only if two conditions are met – first that there has to be a clear focus and overriding combined commitment by government, industry and society to address the major challenges that face us all and, second, that the necessary changes are carried through with the utmost urgency. There is a great deal to do and very little time left. This is especially true of the built environment, one part of the Edge's area of specialism and expertise, which is responsible for at least 40% of the UK's carbon emissions and considerable harm to its partner, the natural environment.

In this document the Edge attempts to set out actions it believes are required to tackle these twin emergencies. These range from reform of the basis of the economy itself, so that it rewards good practice and actively discourages bad, to more industry-specific proposals including the planning, procurement and regulatory systems that impact almost all buildings in the UK; whether existing, under construction or proposed. The aim is for policies that transform everyday places and ordinary lives.

The proposals are arranged under 8 headings, ranging from the broad to the tightly focused, with each heading the responsibility of different government departments or sectors of the industry. The proposals are not intended to be cherry-picked, they support each other and are all more or less necessary if essential reform is to be achieved.

This brief document is intended to be accessible and straightforward to grasp. As a result it doesn't include the very necessary detail, research and references required to back it up. the Edge will publish this fuller information and more detailed set of propositions in due course.

the Edge welcomes discussion and debate on these topics and will be arranging public sessions in the months ahead to do just that. Alternative propositions are very welcome.

contact@edgedebate.com, November 2022

"Policies that transform everyday places and ordinary lives"

Edge Policy Highlights

1. **An economy that supports the environment**
   "A carbon emissions tax to replace VAT"

2. **Planning and investing for the benefit of society as a whole**
   "Social value a core component of the NPPF"

3. **Using our limited land intelligently and productively**
   "A land use framework to ensure the wellbeing of future generations"

4. **Delivering essential infrastructure and transport**
   "Infrastructure provision that demands carbon accounting and responsibility"

5. **Building climate and biodiversity skills and understanding**
   "Climate skills and understanding delivered at all stages of education"

6. **Measuring, declaring and eradicating carbon emissions**
   "Carbon rationing introduced for all buildings and developments"

7. **Creating a resilient built and natural environment**
   "Buildings and environments configured to absorb climate shock"

8. **Design and construction performing in the public interest**
   "Individual Building Passports to record essential building and performance data"

16 Winchester Walk, Southwark, London - Cullinan Studio, © Paul Raftery

“A carbon emissions tax to replace VAT”

1 An economy that supports the environment

Current economic policies are chiefly focused on industrial growth through increases in productivity rather than on other potential public goods. These policies have led to the current position of high levels of inequality, social polarisation, environmental degradation and the threat of irretrievable and dangerous climate change.

It is essential that the policies and drivers that control economic behaviour are retargeted to focus on benefiting both society and the planet. Such policies can and should achieve high levels of worthwhile and rewarding employment, good living conditions and, critically, to improve and not damage the environment. Without a functioning and diverse environment there will be no economy - a point forcibly made by Professor Sir Partha Dasgupta of the University of Cambridge in his review 'The Economics of Biodiversity' for HM Treasury (2021).

"Truly sustainable economic growth and development means recognising that our long-term prosperity relies on rebalancing our demand of Nature's goods and services with its capacity to supply them."

Good behaviour should be incentivised and bad behaviour penalised to promote investment that supports and drives the journey to achieving net-zero and biodiversity targets. In particular:

a. A tax on products and services that emit carbon and other pollutants into the atmosphere should replace VAT – to be revenue neutral overall.

b. Tax incentives [and penalties] to support carbon reduction and biodiversity net-gain, minimise the use of virgin resource and enable circular economy businesses and projects.

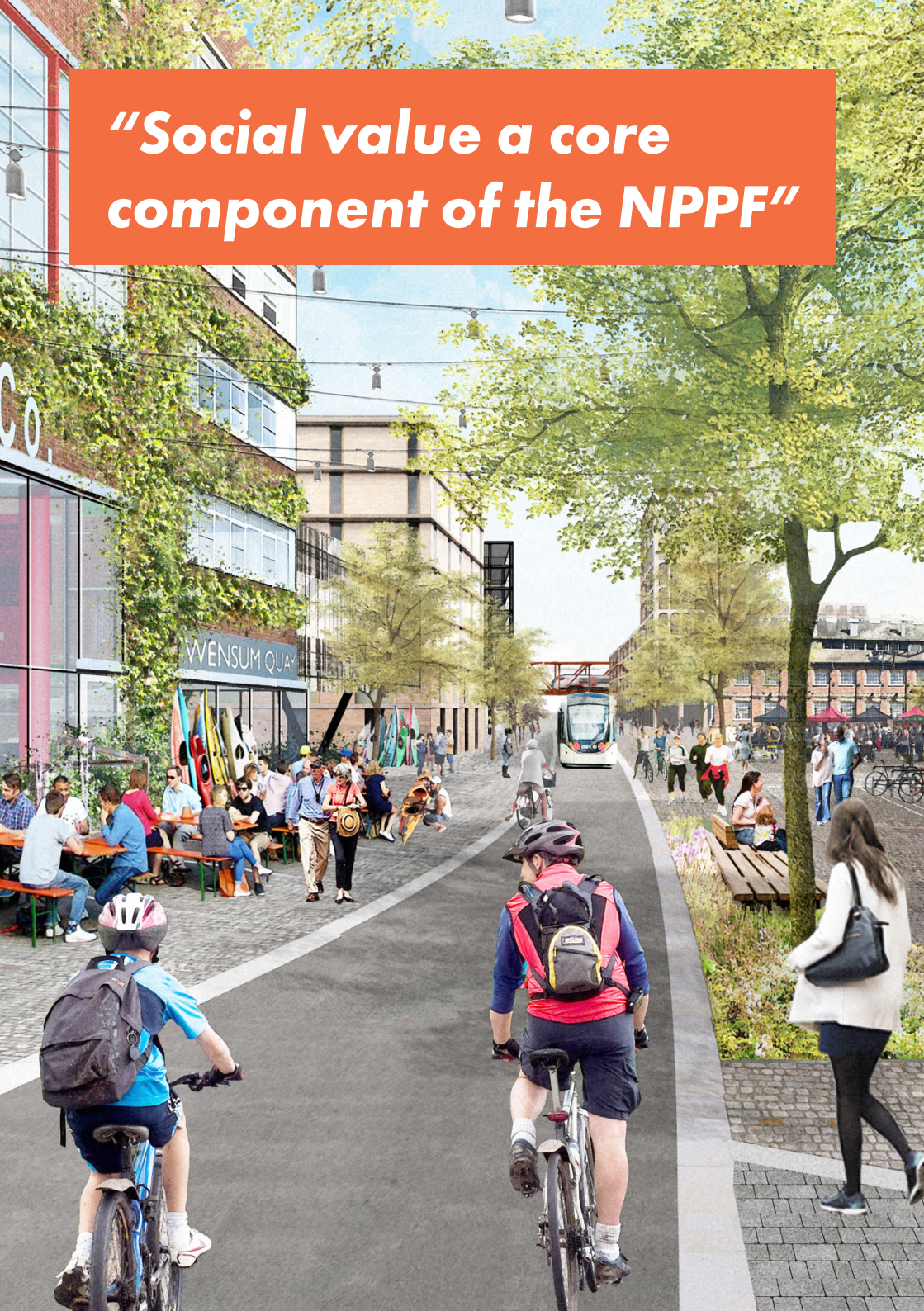
c. Tiered energy tariffs to encourage energy use reduction and investment in energy efficiency measures.

d. All regulated industries, including utility companies, should be required, by law, to have net zero carbon by 2050 and quinquennial biodiversity net gain as intrinsic goals and be required to publish and commit to plans for achieving them.

e. All public and publicly-supported buildings and estates to work to clear 10-year investment plans for carbon retrofit and reduction, biodiversity improvement and overall maintenance.

f. Reconstitute the role of utility providers as public interest organisations, whether in the public or another sector.

g. Encouragement and protection for local provision of goods and services.


"Social value a core component of the NPPF"
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2 Planning and investing for the benefit of society as a whole

The planning and development consent process is key to achieving a UK economy that not only provides for the needs of all of its citizens and delivers greater equality and high environmental quality but also takes into account the requirements of future generations. It should ensure that developments in the natural and built environments provide social value and that it successfully mediates between competing potential benefits to society and the environment. This should align with the more specific requirements of the UK Public Services (Social Value) Act 2012.

Measures to include:

a. Introducing an Act protecting and appointing advocates for the welfare and interests of future generations.
b. Making social value a core component of the National Planning Policy framework alongside 'Achieving sustainable development' and going further than the current social objectives of delivering housing numbers and fostering 'beautiful and safe places'.
c. Basing infrastructure investment decisions primarily on social and environmental gain rather than relying exclusively on financial considerations.
d. Binding air and water quality, health, safe streets, affordable infrastructure, inclusiveness and net zero into urban planning and implementation.
e. Ensuring that planning requirements flow seamlessly into Building Control, health and safety practice, facilities management and overall enforcement (the 'Golden Thread').
f. Working to retain as much existing physical value as possible through strategies including retrofit, adaptation and re-use before considering demolition and building anew.
g. Ensuring a healthy and clearly articulated balance in planning guidance between cultural and heritage considerations and social and environmental needs.
h. Introducing measures to control, when necessary, land value and rental charges.
i. Encouraging and resourcing the community ownership and management of land and other assets for community benefit.
j. Binding permitted development to verified carbon emission reductions and biodiversity improvements.
k. Ensuring that planning is adequately resourced at the local level to fulfil its forward-focused, decision-making and enforcement roles.
l. Requirements for genuine delivery, monitoring and reporting of social value generation policy goals.

"A land use framework to ensure the wellbeing of future generations"

3 Using our limited land intelligently and productively

On a constrained landmass with finite resources, intelligent and shared use of the available land is essential.

A successful strategy should:

a. Be focused on delivering specific high-level long term goals, to ensure; biodiversity protection and enhancement, sufficient clean water, adequate and appropriate planting to meet carbon and climate mitigation objectives, renewable energy generation capacity, more local housing and employment opportunities, radically reduced pollution and waste and substantially improved public access to open spaces and natural environments for all.

b. Reduce reliance on private motor transport and encourage walking and other low carbon travel modes, with a target of a maximum 15 minute journey times to local services.

c. Provide a unified record of the current (and previous) state of land-use in an easily and openly accessible format.

d. Be able to demonstrate the impact of potential environmental change.

e. Assist small scale piloting of planning and change of use proposals.

f. Enable effective consultation and interaction between interested parties, including Local Planning Authorities, landowners and community groups.

g. Provide an agreed and robust methodology for evaluating alternative land-use options and balancing different policy objectives.

As part of the overall strategy a land use framework should be developed, designed to drive:

h. A zero carbon emissions national economy.

i. Equitable and fair access to opportunities, resources, goods and services.

j. Healthy and safe environments.

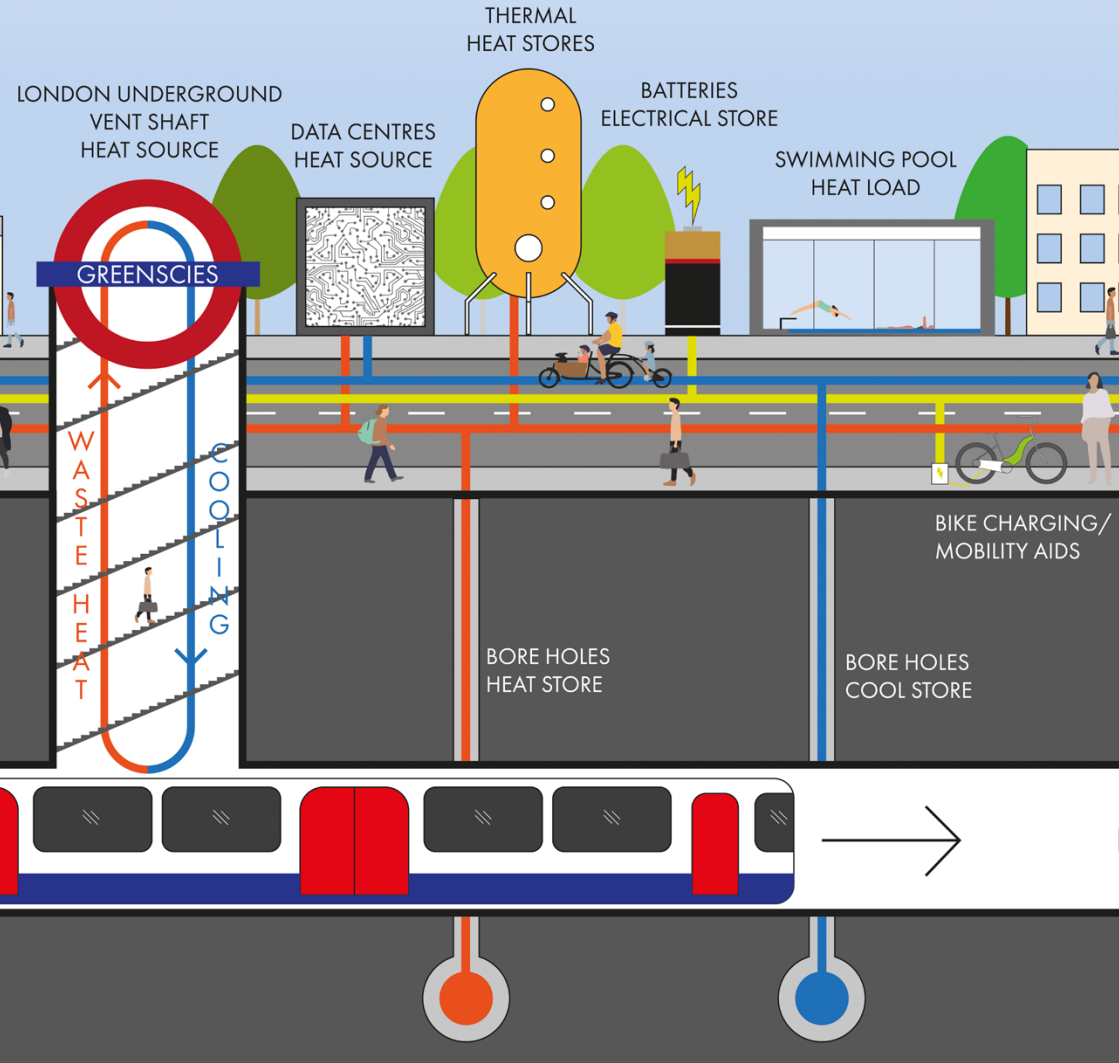
k. Maintenance and enhancement of biodiversity.

l. Enhancement of ecosystem services and nature-based solutions to climate related threats, including flooding, soil erosion and the urban heat island effect.

m. Food, resource and energy security.

n. The wellbeing of future generations.

"Infrastructure provision that demands carbon accounting and responsibility"



4 Delivering essential infrastructure and transport

A core element of a land-use strategy (above) is the provision of high quality infrastructure and co-ordinated and affordable public transport systems delivered through an integrated Department of Transport and Infrastructure.

Infrastructure provision and upgrading should be systemically considered as a set of interlocking and interdependent networks and must:

a. Require and incentivise service suppliers to motivate demand reduction and actively encourage reuse and recycling of energy and resources.
b. Support and encourage walking and cycling with reduced dependence on individual vehicles.
c. Ensure equity and affordability of access and zero carbon mobility including through provision of free and low-cost public transport.
d. Overhaul public transport ownership and management to ensure intermodal connectivity and ticketing.
e. Provide a locally accessible EV charging network with vehicle-to-grid power exchange to help even out supply and demand in local electrical systems.
f. Ensure equitable distribution of zero carbon energy to locations where it can be used effectively and efficiently.
g. Actively manage energy demand against availability, using local zero carbon generation and peak demand reduction.
h. Support local energy systems that share, recycle and store waste heat and renewable energy.
i. Ensure water systems utilise the complete water cycle to maximise the use and reuse of scarce supplies.
j. Oblige data network providers to incentivise inclusion, engagement, and transparency alongside quality and speed.
k. Configure infrastructure systems to require individuals and organisations to account and take responsibility for the use of energy, carbon, and other damaging or essential resources.


“Climate understanding and skills delivered at all stages of education”

5 Building climate and biodiversity skills and understanding

Without clear understanding, motivation and relevant skills across all sectors of society it will be impossible to cope adequately with the climate and biodiversity emergencies and to afford the measures necessary to both mitigate and adapt to their impact.

The primary responsibility for altering our current and unsustainable course lies with those currently in work and able to effect immediate change, but it is essential that those presently in and entering education are provided with the necessary knowledge and abilities for dealing with the challenge ahead.

Skills and understanding should be appropriately, rapidly and effectively made available:

a. To all sectors of society, but especially including those working on carbon intensive projects and services, whether heat pump installation or carbon assessment and accreditation

b. To all stages of primary, secondary and tertiary education in preparation for lives and careers dominated by the impact of global heating in accordance with the programme laid out by Teach the Future and other student-led bodies

c. To ensure that the necessary cultural and behaviour change can occur on a willing rather than a prescribed basis by all sectors of society.

2021 2022 2023 2024 2025 2026 2027

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“Carbon budgets introduced for all buildings and developments”

Develo design targets for embodied and operational carbon

By 2022 detail, specification and tender to achieve net zero operational carbon in use

Year on year improvements in on-site management, building skills and inspection processes

By 2025 all projects starting on site designed to achieve net zero carbon in-use

Hand over process includes **addressing operational carbon issues**

Zero carbon plans for all projects completed from 2025 to establish achievable operational performance in use by 2030

2026 onwards net zero carbon in use to be achievable on all projects with practical completion

POEs on existing buildings to improve performance

Include three year post completion POE services

Monitor completed projects to help meet targets

6 Measuring, declaring and eradicating carbon emissions

Knowing the size of the problem and its sensitivity to efforts to modify it are essential first steps in achieving change, but the next step is to ensure that data is shared and compared with others in order to drive improvement. Data on carbon emissions and the effectiveness of countermeasures are currently poor, not least from the built environment, which is calculated to account for at least 40% of the UK's emissions.

Building and infrastructure owners and managers must:

a. Record and share carbon emission and energy use data, both embodied and operational, together with other basic data such as the area (m^2) of treated space; based on a standard method of calculation, in Building Passports (see 8a below).

b. Be required to publish a Display Energy Certificate (DEC) in replacement of an Energy Performance Certificate (EPC) and, where appropriate, a landlord's energy rating (LER) both on the premises and online, showing the annual level of overall energy use and carbon emissions.

c. Comply with an agreed annual carbon budget, utilising if strictly required, a cap and trade system. The budget will be set to shrink by 20% every 3 years (or 7.5% per year) in line with achieving net zero carbon by 2050. Transition support and arrangements will be required for many businesses and households.

d. In the case of owners/managers of larger building (> 250m^2) include a plan in the DEC for reducing carbon emissions on, at least, a 5-yearly basis to ensure they do not exceed their building carbon ration (see 1c. above) or a reasonable share of available decarbonised energy.

"Buildings and environments configured to absorb climate shock"

7 Creating a resilient built and natural environment

With a changing climate and the near certainty of an increased frequency of extreme weather events our built and natural environment will need to play an important passive role in maintaining personal safety and liveability during floods, droughts, heat waves, insect infestations and the like as well as rapid recovery and repair following potentially disastrous events.

Measures are required that:

a. Oblige utility providers to move from selling energy by the unit to becoming service enablers for the outcomes that energy provides.

b. Improve the resilience of electricity systems, for example by introducing microgrids and storage, to help match supply and demand locally.

c. Ensure electrical and communications transmission equipment is protected against predicted and predictable harms.

d. New buildings should be designed and constructed to meet stringent standards and to minimise heat loss and overheating through passive measures including fabric improvements, ventilation, shading and adequate thermal capacity. Existing buildings should be upgraded as far as is practicable and useful.

e. Implement landscape and townscape designs that better absorb the shock of extreme weather (particularly flood, drought, wind, heat and cold) and foster more benign outcomes using nature based solutions such as increased tree planting and landscape measures.

f. Create incentives and protections for nature recovery in both urban and rural settings.

g. Require landowners to retain and then measure, protect and improve the quality and biodiversity of their soils.

h. Monitor and disrupt known and anticipated infection carriers and transmission routes.

i. Require buildings and systems to be robust enough to withstand predicted extreme weather events so that they only require cleaning and repair after a potentially harmful incident.

j. Provide safe refuges, including hot/cool spaces, for use during adverse climate events.

k. Ensure that maintenance on the publicly-owned estate is fully implemented and reporting and monitoring systems are kept up to date.

“Individual Building Passports to record essential building and performance data”

8 Design and construction acting in the public interest

The Grenfell fire and subsequent inquiry have shown how, without appropriate safety management, buildings and environments can fail catastrophically in the face of an, initially modest, fire. The same is equally true of the risks caused by global heating, loss of biodiversity and potential extreme weather events, but with potentially far greater and more widespread consequences.

Many of the remedies are the same or similar: a golden thread through design, construction and following through into operation and maintenance; avoidance of cost cutting without assessing the consequences; greater attention to detail with independent checking; and effective systems for evaluating in-use performance, combined with learning from this feedback.

New systems should be put in place for development and building control, including:

a. The introduction of individual Building Passports to record key features of and improvements to buildings and facilities alongside energy use and carbon emission data.
b. Procuring buildings and environments on the basis of performance guarantees, in rented and managed buildings using systems such as NABERS Commitment Agreements, Green Leases and contracts for energy performance to drive success.
c. A new workable version of The Green Deal that enables individual building owners to have their properties upgraded to high energy standards by trained and accredited local firms.
d. Allowing Local Authorities to compete on raising energy performance standards.

In response all building designers should:

e. Give precedence to the public interest and protection of the environment and planetary systems.
f. Commit to transparent and standardised energy and carbon accounting, making the data publicly available both at design and post-occupancy stages.
g. Recommend retrofit options wherever feasible.
h. Provide all projects with a costed zero carbon option.
i. Ensure full commissioning of building systems against performance requirements on handover.
j. Deliver energy and carbon performance to pre-agreed standards.
k. Ensure that aftercare, monitoring, fine tuning and maintenance are included in design proposals and contract documents.

“a clear focus and commitment combined with the utmost urgency”

Next Steps

This document is intended to introduce a programme of ideas for tackling the poorly performing built environment sector to policy-makers and campaigners. The next steps for the Edge will be:

- To discuss and test the programme, in depth, with political groups, parties and advisers; civil servants; building industry experts, organisations and campaigners as well as the wider public.
- To develop and publish a detailed and referenced support document.
- To take the arguments into the public square at events including COP27 in November 2022 and Futurebuild in March 2023.
- To build a coalition for change in the built and natural environment sectors comprising politicians, local authorities, building owners and developers, contractors, professional organisations and campaign bodies.
- To seed action, wherever it is required.

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