

# ICE submission to the Comprehensive Spending Review

September 2020

## About ICE

Established in 1818 and with over 95,000 members worldwide, the Institution of Civil Engineers exists to deliver insights on infrastructure for societal benefit, using the professional engineering knowledge of our global chartered membership.

## Overview

The Government has made a public commitment to increase investment in infrastructure as part of an 'infrastructure revolution', with Budget 2020 allocating £640bn over five years. While some detail on how that will be spent has been announced, the Comprehensive Spending Review (CSR) and crucially the National Infrastructure Strategy, will set out detail – hopefully in a strategic way. Well planned infrastructure has a role to play in addressing CSR priorities:

- **Strengthening the recovery and providing jobs and skills:** Delivering infrastructure system interventions either maintenance, upgrade or creation, creates jobs both through construction and induced investment.
- **Levelling up economic opportunity across all national and regions:** Infrastructure system investment can support 'catching up' on productivity, by addressing capacity constraints to growth or providing the basic building blocks for access to productivity-enhancing technologies.
- **Improving outcomes in public services and supporting the NHS:** In particular, when infrastructure is viewed as a system supporting the wider social, environmental and economic system, new outcomes can be targeted. This includes investing in safe active travel infrastructure to unlock positive impacts on chronic diseases caused by a lack of physical activity.
- **Leading in the development of technologies that will support reaching net-zero:** Transport and energy alone account for around 60% of the UK's CO2 emissions, the infrastructure system is a ready testbed for driving the transition towards net-zero through new technologies and approaches.

For the UK's infrastructure system to play its full role in meeting these priorities, the right framework needs to be put in place. CSR, and linked announcements, offers the opportunity to lay the foundations of that framework, to maximise the use of infrastructure in delivering sustainable outcomes.

The key components of that framework include:

1. A joined-up long-term evidence-based National Infrastructure Strategy as the primary driver for investment decisions
2. A Net-Zero Infrastructure Plan which takes decisions on the policy trade-offs needed to maximise the use of infrastructure as part of the transition
3. A levelling up through infrastructure strategy that focuses on building regional capability to identify, finance, fund and deliver their own infrastructure requirements
4. A focus on whole system change in how infrastructure is delivered with a move away from tactical, project by project, approaches to achieving better, faster and greener delivery
5. Coordination across Government to achieve real progress

## A joined-up long-term evidence-based National Infrastructure Strategy as the primary driver for investment decisions

The UK will need to embed sustainability – economic, environmental and social, into policy decisions on infrastructure in the future, more so than at present. Investment in new and renewed infrastructure will play a core part in achieving that outcome. According to a UNOPS study, 72% of the UN Sustainable Development Goals, globally recognised measures of human sustainability, can be achieved through infrastructure<sup>1</sup>.

ICE has been calling on the Government to publish an infrastructure strategy that is long-term, holistic and evidence-based using the National Infrastructure Assessment as its framework<sup>2</sup>. The Assessment sets out clearly how the UK can achieve a more sustainable society, take steps towards the net-zero carbon emissions target and adapt to the effects of new extreme weather patterns. The Commission has also published updates to the Assessment in light of new evidence.

Delivering a National Infrastructure Strategy, based on well-evidenced need will help to ensure more effective outcomes from spending meeting the objectives the Government has set for CSR. Evidence from our global study<sup>3</sup> of strategic infrastructure planning show these outcomes to include:

- Ensuring packages of investment equate to more than the sum of their parts
- Improving public confidence in the process
- Growing investor and supply-chain confidence to improve delivery capability and invest in skills and
- Improving the affordability of future investments by supporting sustainable economic growth

Social distancing, as a measure to prevent the spread of the coronavirus, has had an impact on infrastructure system demand and it is right to look at what implications this may have on plans for infrastructure interventions. ICE's work<sup>4</sup>, looking at the impacts of Covid-19 on the UK's infrastructure systems, shows that the long-term drivers of infrastructure demand have remained:

- The population is still projected to grow to 75 million in the coming decades
- The need to decarbonise, now with a legally binding net-zero emissions target for 2050
- The UK's entrenched regional inequalities remain; indeed, these have come into stark reality during the Covid-19 lockdown

These drivers underpin the National Infrastructure Assessment, which looks out over several decades. The Assessment should continue to form the basis of the National Infrastructure Strategy.

In the post-national lockdown and pre-vaccine phase; however, accelerated progress will be required to support faster 5G and full-fibre broadband alongside more significant provision made for safer active travel. The telecommunications industry has highlighted measures such as funding to assist local authority planners and looking at the role of business rates, as steps that can be taken to speed up 5G and fibre rollout.

<sup>1</sup> UNOPS (2018) [Infrastructure: Underpinning Sustainable Development](#)

<sup>2</sup> ICE (2019) [What should be in the National Infrastructure Strategy?](#)

<sup>3</sup> ICE (2019) [Enabling Better Infrastructure](#)

<sup>4</sup> ICE (2020) [Covid-19 and the new normal for infrastructure systems – next steps](#)

## A Net-Zero Infrastructure Plan which takes decisions on the policy trade-offs needed to maximise the use of infrastructure as part of the transition

A key recommendation of ICE's State of the Nation 2020 was for policymakers to deliver a plan for transitioning the UK's economic infrastructure networks to a net-zero footing. ICE believes the net-zero infrastructure plan should be delivered as part of the National Infrastructure Strategy and should address both existing infrastructure (much of which will still be in service in 2050) and new infrastructure.

There are key policy choices that will need to be answered by a net-zero infrastructure plan if the UK is to achieve the net-zero target. In particular, decisions on the future energy mix, pathways to decarbonising transport and heat, and options for reducing emissions from harder-to-abate sectors.

Achieving the net-zero target by 2050 will require an unprecedented transformation of infrastructure systems and the built environment. While 2050 may seem distant, in many cases the infrastructure currently under development will take years to deliver and will be operational well beyond 2050.

Beyond retrofitting or enhancing existing infrastructure for net-zero, we need to ensure we are not embedding further emissions in new infrastructure that is delivered. At present, there is a policy gap between the UK's legally binding goal for reaching net-zero emissions by 2050 and policy action to achieve this. While the UK has an ambitious target, it does not have a comprehensive plan for how it will be achieved – especially in relation to the built environment.

A decarbonisation programme of the scale and complexity required for the net-zero transformation cannot be delivered without a robust plan. Having a plan will provide long-term certainty which will allow the private sector to support the government's ambition of the UK as a scientific superpower leading in the development of technologies to achieve net-zero. Decisions are needed on:

- The future energy mix, including the role of the hydrogen, nuclear, bioenergy and other emerging energy technologies.
- Pathways to decarbonising transport, including the electrification of transport networks and shifting to cleaner transport modes.
- Pathways for decarbonising heat, including the retrofit of buildings for hydrogen, electrification, energy efficiency and insulation.
- Reducing emissions from harder-to-abate sectors, including the deployment of carbon capture and storage and negative emissions technologies.

The need for coherent and joined-up policy to be in place for each of these areas is not new and is something that has been well explored by experts in the infrastructure sector and those allied to it. But in many cases, the government is yet to articulate a strategic direction – inhibiting action by industry to get on and deliver net zero.

To provide long term policy stability and credibility, the government should organise its thinking into a single net-zero infrastructure plan when the National Infrastructure Strategy is published alongside the CSR. ICE's recent paper<sup>5</sup> outlines the lessons that can be learned from other countries internationally.

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<sup>5</sup> ICE (2020) [A plan for transitioning infrastructure to net-zero](#)

## A levelling up through infrastructure strategy that focuses on building regional capability to identify, finance, fund and deliver their own infrastructure requirements

There are several strands to getting the levelling up strategy right. First, we need a clear definition of what levelling up is – if the ambition is about addressing entrenched regional inequalities that have persisted, then a strategic solution is needed that looks at the role infrastructure can play, alongside other measures, to improve regional productivity levels and with it wages.

The National Infrastructure Assessment sets out some steps that can be taken on funding as part of a NIS, including a recommendation to significantly increase investment for cities totalling £43bn to 2040 alongside backing for Northern Powerhouse Rail. These are quick wins that should be taken forward as they are backed up by a strategic need.

The second thing we need to do is to learn lessons about the tools and levers we have available to inform future CSRs. Improving the capability of regions to identify, finance and fund their own infrastructure priorities will deliver a more sustainable solution to fixing regional inequalities. This should include regional infrastructure strategies being developed across England to help target investment and ensure that all communities and businesses have access to high-performing infrastructure.

These strategies should be developed by expanding the remit of subnational transport bodies to become subnational infrastructure bodies. Using an evidence-based approach, these bodies should determine what infrastructure provision is then required for their respective geography. The overriding ambition would be for the creation of regional infrastructure strategies that plug into future infrastructure assessments to ensure the strategic coordination of infrastructure prioritisation at multiple geographic levels.

Requiring regions to go through this process will also increase regional strategic capability, to support them in determining their priorities and making a case for investment in decades to come. Fundamentally this will also help to achieve the 'government's objective for sustained levelling up through infrastructure.

To support more regional investment and 'levelling up' through the five-case business model, what is needed is more robust evidence of regional infrastructure need. Regions empowered with regional infrastructure strategies, and greater clarity on how regional infrastructure systems operate as part of one system will be able to make stronger strategic cases for investment to Ministers (or support Ministers in making the case).

Putting regions in the driving seat through regional infrastructure strategies leads to the better outcome of regional ownership of trade-offs, capability development across regions, cooperation across regions leading to more aligned projects and programmes and the development of regional construction pipelines. These regional pipelines will provide more certainty against which construction firms can invest in capital equipment and skills. The ambition from a renewed focus on regional investment should be to make regions masters of their destiny, similar to what has happened in London since the reintroduction of London government.

## A focus on whole system change in how infrastructure is delivered with a move away from tactical, project by project, approaches to achieving better, faster and greener delivery

Work conducted by the ICE, on behalf of the Infrastructure Client Group, on the reinvention of infrastructure delivery<sup>6</sup> highlights that there is a need to move from conception to delivery more quickly and for a systems-thinking approach to be adopted for better infrastructure performance and outcomes.

More specifically, the business models for delivering infrastructure will need to change, and the principle of infrastructure as a system of systems to support human prosperity will continue to be fundamental to how infrastructure is designed and delivered.

The key problem is that tools and approaches to deliver better, faster and greener are not being used with the level of consistency needed to make a tangible and sustained impact. The White Paper identified four enablers to support the shift from the current tactical approach to a more strategic reinvention:

- Investing in digitalisation and design to make sure that we get the most out of smart technology today whilst investing in the future and the creation of digital twins
- Embedding client-led enterprise-based delivery models based on Project 13 principles
- Shifting to intelligent and outcome-based procurement models and
- Fostering new leadership based on a systems integration skillset

Within the CSR and associated announcements around improving infrastructure delivery, the following measures should be adopted to support the shift to a more strategic approach:

- Increased funding should be made available for the National Digital Twin Programme (a bid has been submitted for £23m over 4 years) and the creation of digital twins should be mandated for all major projects and programmes
- To support increased use of more productive, enterprise-based delivery models, a standardised scorecard should be developed to prioritise, identify and weight non-financial outcomes for major projects and should-cost modelling should be encouraged to inform procurement, with the potential for this to be mandated.
- Public procurement and funding models should become more intelligent and outcomes-based so that communities and businesses get the infrastructure that will deliver the greatest social, economic and environmental benefits.

## Coordination across Government to achieve real progress

Transformational change, of the scale required, will need coordination across government through pan-Departmental strategies and being baked into existing frameworks for decision making.

Two measures are needed, first embedding the net-zero target in the Green Book appraisal process to inform future investment decisions will be important, given the pace of change required and the short timescales available, investment decisions should not be made if they undermine achieving the net-zero target. Secondly, building on the previous National Infrastructure Plan for Skills, an Infrastructure Skills Plan should be developed to ensure the UK has the capability with the built environment sector to support the transition to net-zero. With the impact of Covid-19 on employment, there is a clear opportunity to signal the jobs of the future.

For more information contact [policy@ice.org.uk](mailto:policy@ice.org.uk)

<sup>6</sup> ICE (2020) [Covid-19 and the new normal for infrastructure systems – next steps](#)