INVESTING IN INFRASTRUCTURE

Dr Scott Steedman

The Prime Minister took advantage of the CBI Conference in October to announce "the UK's first ever national infrastructure plan". The Plan is indeed a first. It has been prepared by Infrastructure UK (IUK), a public private partnership within HM Treasury currently investigating the factors influencing the cost of major infrastructure projects. The Plan argues that infrastructure investment needs to reach £40 billion per year over the next five years and then potentially to continue at this level for decades.

Not since the Victorian period, when London was transformed in a generation – from Dickens to Disraeli – have civil engineers faced such a potentially transformational challenge. Energy infrastructure, transport infrastructure, digital communications, flood management, water and waste – the National Infrastructure Plan sets out ambitious goals for the future. For the first time in my career, the engineering profession might have something tangible to work with. We finally have an opportunity to address the bigger picture rather than pursuing individual projects and programmes.

Infrastructure is the backbone of our economy. In the face of pervasive international competition, growing concern over energy security and tough carbon reduction targets, we see in the IUK Plan the first comprehensive acknowledgement by government that our infrastructure systems need urgent attention.

IUK recognises that its grand plans will be unattainable without substantial and sustained private investment. But it will not be easy to make the UK an attractive place to invest in major infrastructure projects and programmes, especially in the present economic climate.

Private investors baulk at the uncertainties in our regime for planning and consents, the cost of civil engineering in the UK, and the need to think about the connections, often physical, between different infrastructure elements. It's no good constructing a new port if you can't guarantee the road and rail links, or installing offshore wind turbines if you can't connect them to the grid. And what about the overlay of information and communications technologies that can make these work together much more effectively?

What can the engineering profession do to help? Firstly we must explain the high cost base for civil engineering projects in the UK compared with other Western European countries. IUK has commissioned a study into this, but there are surely savings to be made by streamlining the many layers of design approval, integrating the supply chain more effectively and cutting out unproductive planning processes and onerous procurement procedures in the often protracted pre-construction phase.

On carbon, the report by the Low Carbon Construction Review Innovation and Growth Team, led by the government's Chief Construction Advisor and published at the end of November, set out key actions to change our approach to design and construction.

In future, we need to make engineering choices on infrastructure projects on the basis of their contribution to a low carbon economy and not, as we have previously, on the basis of individual merit. In a low-carbon economy the long lifespan of infrastructure means that it has to be flexible and adaptable, easily upgraded – or downgraded – through the application of new technologies and materials to meet changing demands.

But de-carbonising our infrastructure will test both the construction sector and political decision makers. Infrastructure in a low-carbon economy needs to include both low embodied energy (the energy that went into creating it) and low carbon costs throughout its operational life.

Seeing infrastructure as part of an integrated system requires engineers to balance lifetime reductions in carbon emissions against functionality and performance. Reducing vehicle speeds on congested roads and motorways not only keeps vehicles moving but also saves energy. The increased capital carbon cost of minimising road gradients (the carbon cost associated with construction) might be offset within a few years by the carbon benefit stream arising from reduced fuel consumption by road users. And so on.

As an industry and a profession we can deliver all of this, but, like investors, we need confidence that not only this government but future governments will continue to support the radical changes that we need across the sector. How will this be driven? Who will bring the regulators and planners on board? How will we demonstrate to investors that the UK is committed and its engineers are prepared? The IUK Plan is potentially a powerful catalyst for change for our infrastructure and the industry that delivers it. Let's get behind it.

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