

DOES THE UK HAVE THE INFRASTRUCTURE IT NEEDS?

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Nationally significant infrastructure projects are, by their nature, political and subject to a decision making process, with public and parliamentary involvement. This will become increasingly difficult as we are faced with challenges such as climate change, which will necessitate choices over the resilience of infrastructure, and population growth, which will place greater demand on our vital networks.

ICE launched its *State of the Nation: Infrastructure* report in June 2014, which assesses the condition and capacity of the UK's economic infrastructure, its level of resilience, the governance and regulatory arrangements in place and investment and funding issues. Our report found that the UK's infrastructure requires attention – and raised the question of whether the UK can afford the infrastructure we want, 24 hours a day, 7 days a week, 365 days a year.

FUNDING AND FINANCING

We need to decide what we can afford. Infrastructure is an enabler, not an end in itself. Too often, policymakers are more concerned with specifying an input, rather than an outcome: “I want a bridge”, rather than, “I want to get goods from A to B.” If we can create less, better infrastructure then we can provide greater value for money.

We need to build more efficient, smarter infrastructure, but we also need to fund it somehow – either through tax or user charging. The balance is a choice for the Government of the day. Irrespective of where it comes from, funding is limited and decisions on where resource is directed must be aligned to our strategic objectives. Investment requires a return. Without investment, we can neither build infrastructure, nor maintain what we already have. Although investment in infrastructure has slightly

increased recently, it remains low compared with other developed countries.

The Autumn Statement highlighted that the next Government will have to reduce public spending even further. This means less money for government departments and local authorities, which means less money for infrastructure. This will increase the need for private investment and enhance the Government's role in reducing risk for investors through stable, long term legislation and regulation. Otherwise investment will find a home elsewhere.

SECTORAL CHALLENGES Energy

Significant quantities of the UK's existing electricity generation capacity will retire soon, with major implications for security of supply unless the conditions to attract investment in new generation are provided. This is exacerbated as the use of electricity for transport and residential heat increases.

The best way to meet demand is to reduce it through demand side management. With this in mind for the UK to meet its legally binding targets for decarbonisation beyond 2020, it must transform the way that it generates and uses energy. The UK is bound by domestic targets to reduce greenhouse gas emissions and, by EU directives, to reduce energy consumption and increase its share of renewables to 15% by 2020.

All of this has to be delivered in a way that is affordable to consumers. The National Audit Office report in 2013 estimates an increase of £221 in the average household energy bill between 2013 and 2030 in real terms.

The key to achieving this aim is for Parliament to continue to create the conditions to incentivise generation, maximise investor confidence and ensure sufficient capacity to meet peak demands. Thankfully we have now seen some progress through implementation of Electricity Market Reform. Policymakers also need to resolve political uncertainties around the lack of a clear decarbonisation target and the future of the carbon price floor.

Water

The pressures from climate change and population growth mean that water availability will be less predictable in the future. The manner in which water is abstracted and used will have to change.

The changing nature of weather patterns is also impacting on water availability. In the south east, we have a water scarcity issue while the area will see an increased demand from a population that is set to grow around 23% over the next 20 or so years. We also have an increasing demand from multiple users. Demand from electricity supply is the largest user of water. Domestic use comes second.

Management of water and its interdependencies with food, energy and the environment (including flooding) is vital for future water security. The Scottish Hydro Nation concept links the importance of water to economic and business growth. The Welsh government is currently developing a specific water strategy to link economic growth to water resource management. ICE recommends that Defra adopts a similar approach for England through the National Water Resources Group.

We have been left an excellent infrastructure legacy by the Victorians; however, leakage is still too high and the type of infrastructure we need to manage our water effectively is changing.

The strategic approach to flood management which has been established over the last two decades needs to be reinforced. This combines flood defences with management of fluvial and surface water flood risk, and upstream catchment measures to improve building and infrastructure resilience to floods.

Managing at catchment scale so that we can reduce and slow down the water actually getting into our sewerage systems can have a significant benefit. We welcome the Environment Agency (EA)'s catchment management pilots and hope that these continue to gain government support.

Flood management requires investment. This has been a particular issue in maintenance, where maintenance grants from

third of traffic and two-thirds of freight. More severe congestion is anticipated in the longer term as stronger economic growth returns alongside population growth.

Britain's rail network has seen a doubling in passenger kilometres over the past two decades, resulting in capacity constraints. Track and signalling faults continue to be the main sources of infrastructure-related delay.

products' usage – extracting maximum value, reducing waste and increasing reuse.

This change requires political leadership and we already see this in devolved countries; however, Government policy for waste is currently spread across a number of departments in England. We believe the establishment of an Office for Resource Management, situated within BIS, would show a clear

Sector	No of Projects	No of Programmes	Pipeline Value £bn
Communications	1	5	11.0
Energy	77	70	274.9
(of which Oil&Gas)	0	1	53.0
Flood	5	21	3.7
Science and Research	18	4	1.4
Transport	141	129	142.3
Waste	20	0	2.0
Water	1	59	30.9
Total	263	288	£466
(excluding Oil&Gas)	263	287	£413

Figure 2 – The updated National Infrastructure Plan pipeline (December 2014)

Severe weather incidents in the winter of 2013/14 emphasised the need for greater resilience.

Local transport governance is often weak and fragmented, with funding inadequate to deliver the system we need. Responsibility for most roads remains with local highways authorities, which in major urban areas are often small with shrinking budgets. Bus services are deregulated in most of the UK, albeit with major public subsidy.

ICE believes that city-regions are often the most appropriate 'larger than local' scale for understanding and managing travel behaviour, and the trend towards devolution to English city-regions should be accelerated.

Waste and resource management

The transition to a 'circular economy' requires a shift in the way we think of our waste – from the 'take-make-dispose' model to one that extends

indication from Government that we need to reduce waste and see it as a business resource.

CONCLUSION

In answer to the question 'Does the UK have the Infrastructure it Needs?', my answer is 'Not yet – but progress is being made.' Tough political choices lie ahead. Policymakers now need to ensure that the improved policy climate will translate into tangible impacts on infrastructure.

The second speaker at the meeting should have been **Charlotte Holloway**, Head of Policy, techUK; unfortunately she



was taken ill and **Professor Brian Collins**, Professor of Engineering Policy, Director, International

Centre for Infrastructure Futures, UCL, agreed to take her place two hours before the meeting.



Figure 1 – ICE's State of the Nation: Infrastructure 2014 sector assessment grades

What is needed now is a mix of supply side measures to improve resilience in the water sector, including interconnections between water companies, extra storage, from large scale reservoirs to small scale community storage.

Flood management

One key area of concern for ICE, and the one which highlights the vulnerability of all our physical infrastructure networks and assets, is in flood management and the need to build resilience into our infrastructure networks.

the EA will be 22% lower in 2014/15 than they were in 2010/11. While we now have a welcome long term capital commitment to flood projects, maintenance is lagging in terms of vision and importance.

Transport

Our strategic road, rail and air networks are capacity constrained at critical points, undermining their contribution to prosperity and quality of life.

The vast majority of UK travel is by road. England's strategic road network (SRN) constitutes less than 3% of total road length, but carries around one-