

Edge Roundtable 153

on the Costs and Impacts of Delays to Critical Infrastructure

16th November 2023 – NIC Summary

The Roundtable was organised by the Edge at the invitation of the National Infrastructure Commission to address the issue of delays to infrastructure provision. The session was held at the headquarters of the Institution of Civil Engineers, London

Grid transformation

Naomi Baker from Energy UK talked through the environmental cost of inaction on grid transformation. The following key points were brought up in the discussion:

- Bottlenecks of grid connections are major impediment to decarbonisation, in addition to high network costs of misalignment of supply and demand (e.g. between Scotland vs. SE England).
- There are currently 500GW of 'queued' energy projects, which is more than the UK needs.
- Bottlenecks in grid connections are making the UK an unattractive place to invest in renewable generation capacity.
- If the UK is to meet its net-zero commitments and decarbonise electricity generation, it will need to resolve the bottlenecks in grid connections.

Daisy Powell-Chandler from Public First talked through the social cost of inaction on grid transformation. The following key points were brought up in the discussion:

- Delays in expanding grid infrastructure will have big knock-on social costs, by delaying pollution reduction through decarbonisation, and slowing the transition to potentially cheaper means of heating homes.
- Poor air quality is the largest environmental risk to public health in the UK. In 2010, the Environment Audit Committee considered that the cost of health impacts of air pollution was in the range of £8 to 20 billion per year. Delay in reducing this has a major social cost.

Paul Wakeley from National Grid ESO talked through the economic cost of inaction on grid transformation. The following key points were brought up in the discussion:

- The existing grid infrastructure has only had few major upgrades since its inception. There is now a need for a strategic approach from government to upgrade the transmission and distribution networks to allow for a transition to a low-carbon energy system.
- There are significant potential economic costs from the spatial misalignment between supply and demand for electricity (i.e., generation in one part of the country and demand in another)
- In addition, there are additional costs associated with a lack of grid infrastructure delaying the transition to electrification – particularly of vehicles and heat – as well as a risk to investors from a lack of a coherent government strategy (eg risk of stranded assets).

Clean water

Erica Popplewell, from River Action, talked through the environmental cost of inaction on clean water infrastructure. The following points were brought up in the discussion:

- Every major river in England is polluted above legal limits.
- 300k instances of sewage discharge into rivers in 2022, and almost no major rivers are suitable for bathing. Huge environmental cost from water companies delaying investment in sewage and treatment capacity, as well in needing to design the urban environment to reduce run-off.
- There are two main causes: a lack of acceptable wastewater treatment infrastructure, and pollution from agricultural run-off.

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Ana Mijic, from Imperial College, talked through the social cost of inaction on clean water infrastructure. The following points were brought up in the discussion:

- A lack of suitable water infrastructure has a social cost by restricting developments, as “water neutrality” restricts the supply of housing in certain areas due to over-abstraction.
- There is an imbalance between clear water supply and demand, and a potential social cost from being unable to deliver clean drinking water where it is needed.
- There is a risk that if supply and use are increased without demand management, more pollution will be discharged, making river pollution worse, with subsequent social costs.

Daniel Johns, from Water Resources East, talked through the economic cost of inaction on clean water infrastructure. The following points were brought up in the discussion:

- The chronic lack of water in some parts of the country, such as East Anglia, is constraining economic development. In Cambridge, 9k housing units and 1msqft of development on hold due to the state of local aquifers
- Over-abstraction of water has led to limitations on economic development in farming and industry to support protected land, such as addressing drought in Sites of Special Scientific Interest (SSSIs).
- Green hydrogen projects in East Anglia are unachievable at present due to lack of water.

Transport

Sue Percy, from the Chartered Institution of Highways and Transportation (CIHT), talked through the environmental cost of inaction on transport infrastructure. The following points were brought up in the discussion:

- It is hard to find evidence of environmental costs of delays in transport infrastructure, or a factor in decision-making. Often, the impact of delays are examined in terms of delayed economic activity, rather than delays in things such as modal shift from cars to public transport.
- Environmental benefits of infrastructure projects are often not quantified or articulated. However, in some areas – such as in modal shift on transport – this will be critical to meeting UK’s decarbonisation objectives.
- Maintenance of assets is also an important consideration – for example, the closure of Hammersmith Bridge has led to greater pollutions from longer journeys.

Tim Benton, from Chatham House, talked through the social cost of inaction on transport infrastructure. The following points were brought up in the discussion:

- Delaying the transition to net zero will have social costs in terms of access to infrastructure – in UK we have 3 days of fresh food at any one time (most of which comes through channel ports), any major damage to these ports from a storm surge could present big social risk. So there are potentially big risks from delaying decarbonisation, in terms of mitigation of risks to critical national infrastructure.
- Other costs from delay include pollution (eg from a delay in the transition to electric vehicles), congestion and the realm of public health (from a lack of modal shift to micromobility).

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Martin Tugwell, from Transport for the North, talked through the economic cost of inaction on transport infrastructure. The following points were brought up in the discussion:

- Delays to transport infrastructure delays its economic benefits, as well as increasing costs when things do ultimately get built. For example, the 10-year delay to the Transpennine route upgrade has delayed ten years of economic benefits.
- Recent years have seen a spate of projects be deferred or delayed – for example new platforms at Manchester Piccadilly station.
- This problem is particularly acute in the north of England. 3.3m people across the north are socially excluded because of the lack of access to adequate public-transport infrastructure.
- There is a cost of roughly £118bn in lost productivity from poor transport infrastructure in the north of England.

Table discussion

- It is important to do spatial planning in infrastructure development. The geospatial commission has recently done lots of work on this.
- The planning system remains a challenge for delays to infrastructure. However, this can be mitigated through the right kind of engagement. For example, in HS1 the public were 'preconditioned' through public debate of the route and different options, which did not happen for HS2. This meant there was much greater challenge for HS2's route than for HS1, as there was no 'pitch-rolling' or discussion of alternatives in the public realm.
- Productivity in the construction sector remains a challenge – this has barely changed since 2008. Poor productivity makes infrastructure more expensive and leads to delays.
- As we transition to net-zero there needs to be more public debate about the environmental cost of not building infrastructure – this may shift the dial in certain projects.

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NIC v1. December 2024