



HM Treasury, 1 Horse Guards Road, London, SW1A 2HQ

29 October 2018

Sir John Armitt
Chair
National Infrastructure Commission
4th Floor, Finlaison House
15-17 Furnival Street
London
EC4A 1AB

Dear Sir John,

**GOVERNMENT RESPONSE TO THE NATIONAL INFRASTRUCTURE ASSESSMENT /
NEW NATIONAL INFRASTRUCTURE COMMISSION STUDY ON RESILIENCE**

Thank you again to you and your Commissioners for your work on the National Infrastructure Assessment (NIA), published in July. In the Budget today, I have committed to respond in full to your report in a National Infrastructure Strategy to be published in 2019. The Strategy will respond in depth to all the recommendations in the NIA. Alongside the Budget we have published an interim response to the NIA setting out the new steps the government is taking in areas the National Infrastructure Commission identified as priorities.

I am also writing to you today to request the NIC undertake a new study on the resilience of the UK's economic infrastructure. The National Infrastructure Assessment highlighted the importance of ensuring our infrastructure can respond future challenges, such as those expected as a result of climate change to the success of our economy. We need to ensure our systems can cope with future shocks, threats, and challenges, especially those intensified by the increased interdependence of infrastructure systems. I am therefore asking the NIC to review the evidence on the different approaches for improving the resilience of infrastructure systems. The NIC should make recommendations to government on how best to assess resilience, how government should plan for unexpected shocks, and to review the costs and benefits of measures to improve resilience.

I attach the Terms of Reference for the study, which reflect feedback from the Commission on this proposal. I would like once more to emphasise the importance of the Commission's fiscal and economic remits, and ensuring that the study is transparent about the costs of implementing any recommendations, particularly for businesses and consumers.

I look forward to the publication of your interim freight study this Autumn. I intend to write to you again shortly with the Terms of Reference for the study you are undertaking on economic regulation.

A handwritten signature in black ink, appearing to read 'Philip Hammond', with a stylized flourish at the end.

PHILIP HAMMOND

Resilience Study Terms of Reference

Context

1. The resilience of our economic infrastructure is critical to the success of our economy. Our quality of life is dependent not only on having the right infrastructure, but on infrastructure systems which can respond to future challenges, such as the Industrial Strategy Grand Challenges, and future shocks, whether from natural hazards, malicious threats or accidents.
2. Society has developed increasingly complex and interdependent infrastructure systems to enable the efficient delivery of infrastructure services such as utilities and the movement of goods, people and information. This has resulted in vulnerabilities including accidents and disruption but there should also be opportunities to enhance resilience through better understanding and design of infrastructure systems as well as smarter and faster responses.
3. Over recent years there have been improvements in the understanding of infrastructure interdependencies. The development of the Data & Analytics Facility for National Infrastructure¹ provides a particular opportunity to undertake an in-depth analysis of resilience, working with key stakeholders, to inform a future approach ahead of the next National Infrastructure Assessment.

Scope

4. The Government asks the Commission to:
 - a) Review UK and international knowledge and approaches relating to the resilience of current and future economic infrastructure systems, including how this can be best understood, definitions², ways of assessing resilience, treatment of interdependencies³ and the management of the risk from different threats and hazards
 - b) Develop an understanding of public expectations and response to the potential loss of infrastructure services and review alternative options and contingency planning, for example, in the light of technological advances such as cyber threats, and behavioural changes
 - c) Develop an analytical approach that can be used to better understand the resilience of economic infrastructure systems, and the costs and benefits⁴ of measures to improve this

¹ <https://www.dafni.ac.uk/about/>

² Such as [Cabinet Office](#) (resistance, reliability, redundancy and response & recovery) and United Nations (ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner).

³ E.g between sectors, countries, companies

⁴ Particularly in relation to the Commission's objectives to support sustainable economic growth across all regions of the UK; improve competitiveness; and improve quality of life.

- d) Undertake pilot analysis of infrastructure systems (for example through 'stress tests'⁵ of sectors, geographical areas or companies) to identify actions to improve the resilience of national infrastructure systems and inform investment decisions
 - e) Make recommendations to government on the resilience of economic infrastructure, how best to assess resilience, sharing of good practice, actions needed and data collection or analysis to inform the next National Infrastructure Assessment
5. Issues relating to foreign ownership, specific critical national infrastructure assets, industrial relations, national security concerns⁶, the security of supply chains, and issues relating to the UK's withdrawal from the European Union are out of scope. Analysis of malicious threats, skills and the financial stability of infrastructure operators are expected to be limited to the scoping stages of the study.
6. In carrying out its study, the government asks the Commission to:
- a) Consult widely with relevant experts, including from Cabinet Office, Government Departments, the Centre for the Protection of National Infrastructure, National Cyber Security Centre, the Committee on Climate Change, OECD⁷, devolved administrations, international counterparts, infrastructure operators, regulators, researchers, practitioners, professional bodies and infrastructure users
 - b) Consider the potential for cascade failures outside the economic infrastructure sectors, including social infrastructure and business supply chains
 - c) Consider whether managed adaptive approaches can be used to cope with uncertain changes over the next 30 – 50 years
 - d) Ensure recommendations are consistent with the Commission's fiscal and economic remits

Timing

7. The Commission should undertake a two-stage approach to the study with a scoping report identifying the proposed methods and analysis, followed by a final report, provisionally by spring 2020.

⁵ Stress tests are likely to be undertaken as desktop exercises that explore the performance of infrastructure systems beyond the normal limits of operation and identify how failures cascade through the different systems. This might be through a particular hazard scenario (for example surface water flooding), threat assumption or service failure (e.g. telecoms outage). There may be some opportunities to link to larger exercises with CCS or individual departments / organisations.

⁶ Including highly classified threats e.g hostile foreign states

⁷ On their recent workshop about System thinking for Critical Infrastructure Resilience and Security, and on the outcomes of the 8th OECD High-Level Risk Forum in December 2018