

NATIONAL INFRASTRUCTURE COMMISSION

CONSULTATION ON THE NATIONAL INFRASTRUCTURE ASSESSMENT

RESPONSE BY THE NATIONAL INFRASTRUCTURE PLANNING ASSOCIATION

1. This is a response to the consultation launched in June 2016 by the National Infrastructure Commission on the process and methodology for arriving at its National Infrastructure Assessment in 2018.
2. The National Infrastructure Planning Association (NIPA) is an organisation of several hundred members created to bring together all those involved in the planning and authorisation of nationally significant infrastructure projects (NSIPs) in the UK, particularly those projects requiring development consent under the Planning Act 2008 and to promote best practice.
3. NIPA's members are drawn from a wide variety of organisations: project promoters, local authorities, law firms, environmental consultants, planning consultants, surveyors and so on and all members have had an opportunity to comment on this response.

Overall issues

4. The National Infrastructure Assessment presents one of the most significant opportunities to shape the future direction of the UK, and NIPA is grateful for the opportunity to participate.
5. One of the overarching issues facing the NIC in its approach is the extent to which the National Infrastructure Assessment will be reactive or proactive. Will the 2017 vision document set out what the NIC thinks will happen or thinks ought to happen? If the NIC is to fulfil its third objective of improving quality of life, then its vision should tend to be more proactive, and NIPA would support this.
6. There are quality of life issues such as rebalancing the economy between the south east and the rest of the country to which infrastructure planning can make a contribution, rather than simply supporting the likely growth in the south east by providing more infrastructure there. A balance should therefore be struck between the three objectives throughout the NIC's work towards its assessment.
7. The contrast between some sectors largely being funded by the public sector (e.g. transport) and some by the private sector (e.g. energy) should not mean that the NIC focuses on one rather than the other; the assessment of need for infrastructure should be agnostic as to how it will be funded. The importance of making the NIA a document designed to attract private sector investment should also not be underestimated.
8. Finally, the NIC should ensure it works with the emerging sub-national bodies such as Transport for the North, Midlands Connect and combined authorities, both to tap their understanding of their areas and to ensure integration rather than conflict between the national and sub-national levels.

Q1. The Government has given the National Infrastructure Commission objectives to:

- **foster long-term and sustainable economic growth across all regions of the UK**
- **improve the UK's international competitiveness**
- **improve the quality of life for those living in the UK**

What issues do you think are particularly important to consider as the Commission works to this objective?

9. The main issue that will inform much of the direction the country takes is the extent to which climate change features. If the UK is to reach (or even exceed) its 2050 target of an 80% reduction in carbon emissions from 1990 levels, the decarbonisation of electricity generation and transport will be a more significant factor than the three objectives set out above.
10. Other issues include social and health impacts – for example at the most basic level shelter, food, water and energy/heat supply and security, and health and education opportunities and outcomes. It is also about better connecting and providing opportunity for more deprived communities with employment opportunities; natural resource demand, utilisation and management in both a rural and urban context; development density – the benefits and issues raised by higher rather than lower density of development; and the impact on and relationship with local and sub-national planning policies and regulatory frameworks, funding mechanisms and planning periods caused by the Commission's recommendations.

Q2. Do you agree that, in undertaking the NIA, the Commission should be:

- **Open, transparent and consultative**
- **Independent, objective and rigorous**
- **Forward looking, challenging established thinking**
- **Comprehensive, taking a whole system approach, understanding and studying interdependencies and feedbacks?**

Are there any principles that should inform the way that the Commission produces the NIA that are missing?

11. Yes. It is worth noting that the abolished Infrastructure Planning Commission had five principles: openness, engagement, sustainability, independence and consensus. It will be important to ensure real public engagement (not just consultation and presentation) and therefore to add engagement and consensus expressly to the NIC's principles, as they should go to the heart of the NIC's work (although they are covered later in the consultation document and by inference referred to as part of the first principle). In addition, when taking a comprehensive whole system approach it will be important that this is a whole and ecosystems approach. This should also be clearly set in a spatial context.
12. The NIA should aim to take a UK-wide approach and the NIC should seek to work with both the UK Government and the devolved administrations.
13. It is important that the NIC takes a genuinely long-term perspective on infrastructure needs and opportunities. The NIC should look well beyond individual parliamentary cycles and create certainty for infrastructure planning and investment, which typically requires policy and political support across the span of several parliaments.

Q3. Do you agree that the NIA should cover these sectors in the way in which they are each described?

14. NIPA generally agrees with the sectors and the manner in which they are proposed to be covered. In each case, the NIC should balance economic, social and environmental considerations.
15. Whilst NIPA recognises that housing supply is currently outside the scope of the NIA, it should be recognised that housing is a key driver in the infrastructure sectors which are being considered. The assessment will have to recognise the influence of the spatial distribution of housing on all infrastructure sectors (and vice versa).
16. NIPA questions whether steps should be taken to incorporate a high level assessment of natural resources as a separate “sector”, recognising both the constraints and opportunities presented by natural resources and building on a sustainable development approach.
17. As part of the NIA, NIPA suggests that consideration should be given to the location of infrastructure, building on the *Smart Power* report which recognises the capacity for substantial technological change, although this should not inhibit commercial opportunities for infrastructure provision.
18. On energy, the priority is to ensure that there is sufficient generation to meet demand (while using the interventions such as storage and local peak spreading set out in *Smart Power*), particularly since as energy consumption is decarbonised, electricity demand could increase significantly.
19. On flood defences, NIPA questions whether it would be more appropriate to consider flood risk beyond the period of the assessment, since infrastructure developed up to 2050 will be expected to have a design life well beyond that date. As part of a holistic approach, NIPA suggests that flood risk, the adequacy of defences, and the protection of infrastructure should be considered over a longer period of 80-100 years.

Q4. Are there particular aspects of infrastructure provision in these sectors which you think the NIA should focus on?

20. Yes. NIPA suggests that the NIA should consider the way in which costs should be balanced against other considerations, for example landscape impacts. This could include considering existing methods of assessment (e.g. WebTAG) and considering whether there is scope for developing new metrics for quantifying costs and benefits of infrastructure provision, either generally or in relation to specific sectors. NIPA recognises that this point is touched upon as a “cross cutting issue” in paragraph 54 of the consultation document.
21. We also suggest that as well as making recommendations for the government to endorse as it sees fit, the NIA should recommend that National Policy Statements that the NIC considers to be absent, incomplete or out of date be updated. For example, there is no water supply NPS, despite the Planning Act 2008 covering such infrastructure; the suite of energy NPSs does not cover some technologies such as tidal energy or electricity storage, and that suite is now five years old.

Q5. The NIA will seek to pull together infrastructure needs across sectors, recognising interdependencies. Are there particular areas where you think such interdependencies are likely to be important?

22. Yes. NIPA has identified the following areas where interdependencies are likely to be particularly important:

- Waste and energy – for example through energy from waste/biomass schemes;
- Transport and digital and communications – reducing the need for travel by improving telecommunications and digital connectivity to support remote working, and improving productivity by considering the needs of business and leisure travel by providing greater connectivity on public transport.

Q6. Do you agree that the NIA should focus on these cross-cutting issues?

23. Yes. The NIA will need to recognise the distinct challenge inherent in the cross-cutting theme of 'geography and local growth'. If the NIA is to be successful in its objective of fostering long term economic growth, it will need to recognise that delivering infrastructure is not the fulfilment of that objective, but an important step along the way. To be successful, the infrastructure will need to promote a response, particularly in land use development and growth. Generating confidence that such a response will take place is a key challenge for the work of the NIC. Without that confidence, planning for (and particularly investing in) major infrastructure becomes a speculative gamble.

24. The interaction of the work of the NIC with the land use planning system, therefore, is key – but there is little reference to it in the consultation. The box on page 18 does say, for instance, that the NIC will make recommendations that co-ordinate the timing and delivery of new infrastructure with the delivery of new housing, but how is this to be achieved?

25. It would be useful if the NIC could be seen to be promoting mechanisms for joined up infrastructure and land use planning including collaboration between the public and private sectors. Otherwise, the NIA risks either simply following the consequences of growth planned by planning authorities or pre-empting the outcome of land use plans. Close joint working with plan making authorities is clearly to be encouraged but the importance of integrated planning is so significant that the NIC will need to consider very closely its role as part of a process of joint working, particularly with larger, devolved authorities. The NIC will also need to consider whether there is a case to push for legislative change to more clearly enable cross boundary land use and integrated infrastructure planning, for example along transport corridors.

26. Any financial assumption made by the NIC should only be seen as a guide, and should not be used by economic regulators as a definitive cost to deliver as they are best placed to make decisions on costs. NIPA recommends that the NIC work with regulators and regulated utility firms to estimate the impact of any recommendations on consumer bills.

Q7. Are there any other cross-cutting issues that you think are particularly important?

27. Yes. Although NIPA broadly agrees with the cross-cutting issues identified, the following issues might be added:

- Skills: ensuring a skilled and appropriately and practically educated workforce is critical to securing the delivery of the desired infrastructure, and to the extent that there are skills shortages these need to be identified at an early stage given the lead time for developing skills.
- International interconnectivity: this issue is particularly relevant to transport infrastructure but has broader relevance e.g. in energy and digital communications. The extent and pattern (existing and desired) of international connectivity is an important driver for the quantum and location of infrastructure.
- Investment priorities: the NIA should identify how investment priorities might affect the desired pattern of infrastructure development, for example whether prioritising distributional aims would lead to a different infrastructure pattern than if infrastructure development were focused simply on raising overall output.
- Security: this point may be covered in “resilience”, but NIPA considers that security should be identified as a separate cross-cutting issue.

Q8. Do you agree with this methodological approach to determine the needs and priorities?

Q9. Do you have examples of successful models which are particularly good at looking at long-term, complex strategic prioritisation in uncertain environments?

Q10. Do you believe the Commission has identified the most important infrastructure drivers (set out below)? Are there further areas the Commission should seek to examine within each of these drivers?

Q11. The NIA will aim to set out a portfolio of interventions that best meets the demands of the UK in the future. Do you have a view on the most appropriate methodology to determine that portfolio?

Q12. In your view, are there any relevant factors that have not been addressed by the Commission in its methodological approach?

28. Overall, undertaking a nationwide assessment of need and prioritisation of potential infrastructure solutions is a huge task and one that will be widely reviewed and critiqued. The assessment and prioritisation will necessarily be based on a wide range of assumptions and therefore, by its very nature, cannot possibly have a single right answer. There is much value in the process and discussion of establishing a NIA and the understanding it should build in relation to the interactions between different sectors and effect of investment in the UK infrastructure networks. We would suggest that as well as the process being of value the outcome from the work needs to be right enough to inform decision makers in their decision making of schemes and investments to promote or approve and provide some certainty on project pipeline for the UK. NIPA would encourage a pragmatic approach with as broad a buy-in as possible.

29. The NIC will need to use its judgment and it may be helpful for it to set out what confidence it has in the models it uses, and to reflect on the judgment of experts and interested parties from the consultation so that it gives the appropriate weight in forming its views.

30. The NIC should consider combining different types of infrastructure in corridors – where safety and other factors such as resilience, technical feasibility, cost and environmental issues permit – to reduce its impact, such as telecommunications and electricity networks along road, rail and inland waterway corridors.

Methodological Approach

31. The methodology set out in Section 3 is a commonly-used and, importantly, recognisable process of issue identification through evidence gathering; analysis and modelling of future baseline conditions and projected scenarios of key drivers; sectoral and geographical slices through the analysis; and prioritisation to develop a suite of potential solutions that can be measured against scenarios to establish a central case for investment. Using a recognisable process is helpful to those engaging in the process; supports the NIC's desire for transparency and objectivity; and provides certainty for promoters as it is consistent with development work being undertaken in progressing schemes. NIPA therefore supports the principles set out in the proposed methodological approach to determine needs and priorities.
32. Paragraph 37 makes it clear that the range of solutions which are in scope for the NIA are policy, demand management, maintenance and operation, enhancement (as in capacity), improvement (as in improved operation, maintenance or resilience) and construction. It is implicit that the scope includes all infrastructure in the identified sectors regardless of funding source.
33. There is, however, little mention of infrastructure as something delivered mostly by the private sector and how private sector decision-making might influence the allocation of public sector resources other than the reference to the funding and financing cross-cutting issue identified in Paragraph 50.
34. It is the case that around two-thirds of the current national infrastructure pipeline is expected to be funded solely by the private sector with around a further 10% of projects having a mix of private and public funding. A £100 billion of the current pipeline is purely publicly funded¹. This, of course, is the current pipeline of schemes (60% of the projects and programmes within the pipeline are either in construction or part of an active programme²) and the NIA horizon is much further out, but it would seem that it is unlikely that a reversal of this funding mix would occur such that public funding of infrastructure became greater than that provided by the private sector.
35. This might therefore suggest that there should be more explicit recognition that infrastructure assets are investments and purchased/promoted for long term asset value gain and/or profit generation for shareholders. We would suggest that this important characteristic of the UK infrastructure networks needs to be considered in the assessment methodology including the response private sector investors may have to public sector policy and investment decisions.
36. In terms of solution selection, the NIC will need to take care to ensure the process continues to reflect the scope of potential solutions. Transport strategies in particular have a tendency to

¹ *National Infrastructure Pipeline factsheet July 2015, Updated 10 August 2015*, Infrastructure UK, HM Treasury and Infrastructure and Projects Authority, 10 August 2015

² As reported in (1) and *National Infrastructure Delivery Plan 2016–2021*, Infrastructure UK, HM Treasury and Infrastructure and Projects Authority, March 2016

promote infrastructure solutions and this type of investment is likely to come forward from promoters. To this end it may be useful for the NIC to separately look at high level impacts and potential benefits of different investment levels in new infrastructure; enhanced capability, improved operation, maintenance, resilience; and even decommissioning to gain an overall understanding of value and need for the different types of solutions required.

37. We assume the NIC will take a multi-criteria approach to the assessment of potential solutions, again common practice, and a key component of this will be the three objectives set out in the consultation document:

- foster long-term and sustainable economic growth across all regions of the UK;
- improve the UK's international competitiveness; and
- improve the quality of life for those living in the UK.

38. The NIC officers and commissioners will be well versed on the evolving practice and debates about how best to measure economic growth and quality of life. Overall the different mechanisms for measuring these are relatively well established. However, there have been very few schemes of a size and impact that result in an effect on international competitiveness so this will require some thought as to what and how this will be measured. Even the very large schemes, such as the strategic case for HS2 and the Airport Commission's strategic case for Heathrow Airport Northwest Runway do not include international competitiveness as an objective (although this is part of the Heathrow submission of evidence). Whilst economic theory would lead the NIC to measure international competitiveness as the relative cost of UK goods and services against its competitors, how this is practically done when trading off infrastructure solutions will need to be looked at. The measures of this objective also, presumably, needs to not also measure economic growth which is addressed by the first objective.

39. The treatment of the cross-cutting themes needs further clarification. Some may become part of the multi-criteria for assessment such as the 'Cost, delivery and resilience' and 'Sustainability' themes. Some might be treated through scenarios such as the 'Funding and finance' theme and others as stand-alone pieces of analysis such as the 'Evaluation and methodology' theme.

40. The assessment will necessarily be qualitative and quantitative. There will be a temptation towards quantification as this enables ranking in prioritisation exercises. This will be challenging given the scope of the exercise and the timescales. The NIC may need to look where quantification will most add value to the decision making process and focus analysis on this. With the qualitative assessment, the NIC will need to think about the breadth of views informing that assessment.

41. The innovative part of the methodology is the NIC's desire to understand the interaction and interdependencies of the UK's infrastructure. Para 65 sets out that "The Commission has identified four key drivers ... the interdependencies across them and their interaction with infrastructure will be explicitly considered and examined. This interaction includes the feedback loops by which infrastructure can also affect each of the drivers".

42. The NIC should not rely on old methodologies but neither should it rely on methodologies that produce counter-intuitive results. System dynamics is a modelling technique designed for simulating interactions and interdependencies between people and physical entities. It has

been used to simulate the evolution of complicated urban areas over time, including the development of infrastructure (transport, housing, commercial property). This method could be used to look at entire infrastructure networks of people, businesses, suppliers, markets, finance, etc. all interacting over time under different scenarios. The method is well suited to beginning with simple models and expanding them as knowledge develops, and is open to collaborative working. The process can be supported, or preceded, by scenario analysis techniques such as 'Strategic Choice.'³

43. This type of approach would provide the NIC with improved understanding of the linkages and feedback loops within the infrastructure system to determine how investment might 'behave' and at the highest level inform the development of the NIA prior to more traditional assessment and prioritisation beginning at a sector level.
44. Another suggestion is that the NIC might want to consider undertaking some uncertainty modelling.
45. The most common approach in transport infrastructure assessment is to develop a cost benefit analysis from the most likely values of inputs and assumptions and to qualitatively estimate the uncertainty in the results by changing these parameters individually. There has been some move away from this in the assessment of capital costs through Quantified Risk Assessment. Uncertainty modelling, such as QRA considers inputs and assumptions as a range, rather than as a single value and a probability distribution is provided on a range of potential outcomes. The outcome is a succession of versions of the world (iterations) each based on random sampling of the range of assumptions. This approach is different and, importantly, the best performing option based on the most likely values of inputs and assumptions may not be the strongest over a range of likely outcomes.
46. Finally, the EU has commissioned research into risk assessment methodologies dealing with capacity, security, vulnerabilities and resilience of infrastructure, which might be incorporated into the NIC's approach⁴.

Drivers

47. The four infrastructure drivers set out in the consultation document are:
 - Population and demography
 - Economic growth and productivity
 - Technology
 - Climate change and environment
48. We would agree that these appear to be the most important drivers when considering long term infrastructure needs. Another driver could be social attitudes to how and where we live and how we travel. For example, arguably it has become socially unacceptable not to recycle where this was not the case twenty years ago. In some areas, car use is now considered anti-social (idling outside school areas for example) and whereas car ownership has become a luxury it may start

³ Planning Under Pressure: The Strategic Choice Approach, Friend and Hickling, 2004, Oxford, Butterworth-Heinemann

⁴ http://ec.europa.eu/home-affairs/doc_centre/terrorism/docs/RA-ver2.pdf

to become out-dated in the future time horizons considered by the NIA. Society attitudes on the types and safety of certain power generation sources also change over time.

49. This may be captured by demography but it is broader than population characteristics and quite difficult to capture or forecast. We suggest that some reflection of changing attitudes and potential future attitudes might be a useful exercise and support the NIC's desire for broader engagement particularly with future users of infrastructure networks.
50. Whilst not a driver of need, an important driver of infrastructure (build, enhancement, improvement) is the perceived investment value of infrastructure, market reaction to that value and investor confidence. The NIC may want to consider private sector confidence as a driver of infrastructure.
51. We would also mention that 'climate change' should cover ensuring infrastructure both minimises any contribution to climate change, and maximises its ability to cope with climate change if it occurs, i.e. climate change mitigation and climate change adaptation.

Q13. How best do you believe the Commission can engage with different parts of society to help build its evidence base and test its conclusions?

52. This process could be seen as the most ambitious and far-sighted review of our common objectives since the post-War years.
53. The engagement of as many parts of society as possible in this process is therefore vital, but also challenging. Vital, because there can be serious problems if the public do not buy into a project but it carries on regardless, as the recent referendum result has starkly demonstrated. Challenging, because although the public will engage fairly readily when an actual application is under consideration, they are harder to engage at the strategic planning stage.
54. Having said that, 'designing the future' of the UK should be a sufficiently important and interesting task as to engage the public. Young people in particular, often a hard to reach category, will be most affected by the conclusions of the National Infrastructure Assessment.
55. The NIC expects to be given a non-specific duty to consult in the Neighbourhood Planning and Infrastructure Bill. This is acceptable provided they discharge it at least to the level of the duties to consult on National Policy Statements in the Planning Act 2008. The track record to date has been disappointing (but partly explained by the shortness of time the NIC had) – apart from a call for evidence, with no attendant publicity, there has been no public engagement on the five specific studies the NIC has been asked to produce so far.
56. To mirror consultation on National Policy Statements, which have an equivalent status to endorsed recommendations, there should be a parliamentary element to the engagement, as well as involvement of the general public to ensure there is no democratic deficit. Relevant select committees have scrutinised draft National Policy Statements, but because the NIA will cut across departmental competencies, perhaps an ad hoc National Infrastructure Select Committee should be formed for the purpose of participating in the National Infrastructure Assessment. While it is not for the NIC to dictate Parliament's practices, it could recommend that such a committee is formed to ensure an engaged and informed response and transparency.

57. The advertising of the consultation on the NIA needs to be extensive in order to reach as many people as possible. Simply announcing it on the www.gov.uk website with an accompanying press release would be inadequate – the NIC should use a variety of media such as print, radio and even television advertisements, newspaper notices, a website and social media. . As a quasi-public organisation NIC also need to consider how it will approach. integrate and discharge their duties under the Equalities Act 2010.
58. The proposals in the consultation suggest that the only public engagement will be this consultation and the consultation initiated by the Vision and Priorities document next year. If the efforts to involve the public on this consultation is a guide to the future, it falls far short of what is required. The level of public engagement with the work of the Airports Commission was also very limited and should not be followed.
59. There is also to be ‘social research’ to understand the views and opinions of the public. That appears to be more promising, but no detail is provided. It is to be hoped that the NIC will engage experts to advise it how best to meaningfully engage the public in terms of reach and encouragement to actively participate and respond. NIPA has many members working in this field and would be happy to be involved further.
60. The NIC does not propose consultation on the final assessment and recommendations. Given the importance of the NIC’s work, it would seem fair and therefore highly desirable to allow stakeholders to comment on the full assessment and recommendations before these are finalised. This will also help to secure buy-in from stakeholders which will enhance the prospect of turning the NIC’s recommendations into projects “on the ground”.
61. Finally, the question itself suggests that engagement is only to provide evidence and testing of conclusions that have already been developed. That is again inadequate. The prospect of designing the future of the UK should be an exciting one and it should therefore be possible to involve the public throughout the NIC’s work towards a National Infrastructure Assessment and not just on hard evidence and testing conclusions.