

National Infrastructure Commission

The National Infrastructure Assessment, process and methodology

Background to CIWEM

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector. The Institution provides independent comment on a wide range of issues related to water and environmental management, environmental resilience and sustainable development.

CIWEM welcomes the opportunity to respond to the National Infrastructure Commission (NIC) consultation on the National Infrastructure Assessment (NIA) process and methodology. This response has been informed by our Members working across the environment sector.

Consultation questions

Objectives

1. 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?

CIWEM welcomes the development of a national infrastructure assessment. Infrastructure is critical to a successful economy and new infrastructure has the potential to stimulate the low carbon economy and increase environmental stewardship. In the past many decisions have been taken in isolation rather than considering the mutual benefits and efficiencies that could be achieved by considering them holistically. Planning infrastructure on a long term and national scale can help contribute to reducing carbon emissions and also ensure that the nation is adapted to the impacts of climate change.

In terms of the NIC's objectives, we do not consider that economic growth can be sustainable in the long term as an ultimate goal. Growth is commonly seen as way to ensure continuous improvement in quality of life, and perhaps to 2050 this may be appropriate. But beyond 2050, it may be more appropriate to think about how infrastructure can establish an economy that is in a state of dynamic equilibrium that improves, or maintains, a high quality of life. Quality of life is a fairly relative concept and so could improve indefinitely, but the size of an economy will always be limited by the quantity of goods and service that can be

physically traded. Objective 3, improving quality of life, relative to the size of the economy, should therefore be the more important objective.

Improving the UK's international competitiveness will also arguably need more emphasis in the wake of the UK's decision to leave the European Union.

We also consider that the NIA should also have an objective to ensure that infrastructure, particularly critical infrastructure, is resilient.

Principles

2. 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?

Yes we agree the Commission should adopt all of these principles. It should also be evidence based and take a risk-based approach.

The notion of being "objective" implies the use of facts and figures, but there are some issues particularly where interdependencies are involved where there are not enough facts or data. In these cases we can only rely on subjective discussion, reasoning and intuition of experts to provide a risk based approach.

Sectors

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

Yes CIWEM agrees with these broad sectors.

Energy is particularly key as it possibly has more interdependencies with the other sectors than any other individual sector. We are pleased to see the inclusion of low carbon heating given the context of the UK's carbon targets. It should also include energy from waste where appropriate.

Flooding should have more emphasis on prevention (e.g. not locating in, or relocating from, high risk areas). It should also ensure that future developments do not add to flood risk. The Commission is only looking to 2050 but it should keep in mind the potential impacts of flood risk, particularly from sea level rise, beyond this. The current framework for business cases uses a planning horizon up to 100 years in 3 epochs so the NIA should aim to fit in with this.

Waste, especially given the outcome of the recent referendum of the UK's membership of the European Union, is particularly critical to the UK as a heavily populated and developed island.

A very significant focus within the subject of waste should be the issue of internal reuse of waste (for example, industrial symbiosis and the circular economy).

There is an implication throughout the consultation document that there is a need to increase the capacity of, or reduce the impact of, existing infrastructure use. However, there is not much emphasis on actually reducing the demand on the infrastructure networks. Perhaps this is a valid assumption, but CIWEM believes encouraging the reduction of demand (particularly for water, energy and waste) should be a part of the main objectives.

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

The NIA should particularly focus on co-location of infrastructure and interdependencies, for example the development of heat networks and locating power generation close to large users or vice versa, in order to optimise infrastructure efficiencies.

Maintenance/maintainability of subterranean infrastructure across all the appropriate sectors will be important, especially "smaller" infrastructure like pipes and cables where the spatial scale makes locating and working around them more challenging. Specifically where maintenance of one infrastructure network reduces the efficacy of another infrastructure network e.g. replacement of buried water mains necessitating the closure of a road.

5. 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?

Please see the answer to question 4.

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

Yes this seems comprehensive.

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

We believe that the balance between capital expenditure and operational expenditure in new infrastructure, as well as considering the maintenance and extension of the life of existing assets, should be a focus for the NIA.

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

Yes, the methodology appears to be logical. Prioritisation will be the most difficult and working across government departments will be essential.

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

The Environment Agency's long term investment scenarios 2014 (LTIS)¹ is an economic assessment of future flood and coastal erosion risk management in the period 2015 to 2065. It is a good model for looking at long term, cost effective investment.

The model can:

- optimise investment over time
- link long-term projections to existing plans
- assess the risk of flooding from surface water alongside the risk from rivers and the sea
- assess the benefits of a range of measures, including structures and individual property protection
- explore the potential to reduce the consequences of flooding through flood forecasting and warning

10. 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?

Within the population and demography section the Commission should also emphasise behavioural and social change.

11. The NIA will aim to set out a portfolio of investments 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?

CIWEM recommends that it would be beneficial to consider a portfolio biased towards the investments that reinforce or multiply the value, or equally reduce the risk, of other investments in the portfolio.

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

Aside from more details on the methodology to combine the priorities/needs with relevant model outputs, no.

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/381939/FCRM_Long_term_investment_scenarios.pdf