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Demystifying Cumulative Effects

Thought pieces from UK practice



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Demystifying Cumulative Effects

Volume 7 of the Impact Assessment Outlook Journal brings together a selection of articles, thought and opinion pieces on the subject of cumulative effects assessment (“CEA”) in EIA. As an impact assessment practitioner myself, I understand the uncertainty that still surrounds this area of practice despite a steadily increasing volume of academic and practical guidance.

The 2017 EIA Regulations added a new, or at a least different, focus on what is meant by “cumulative”, and the tension between proportionality and caution persists. We all want to follow proportionality principles, “...just a bit risky for this project...maybe next time...”.

This volume includes four IEMA Quality Mark articles written around the subject, either after the 2017 EIA Regulations came into force or covering topics that transcend the changes. We are also extremely lucky to benefit from two original thought pieces – one from Neil Collar taking a legal perspective on robustness, and one from Prof. Martin Broderick and Dr. Bridget Durning of the Impact Assessment Unit at Oxford Brookes University.

I am conscious that some of the excellent pieces in this volume still ask more questions than they answer. That is unavoidable, and in many ways helpful if we are to keep stimulating debate, sharing our challenges and concerns, and working collectively as a profession to reach a

reasonable consensus. The scope of, and approach to, CEA must get to a place in which it meets the needs of as many of our stakeholders as possible following, at the very least, a shared set of fundamental principles.

In the first article, Ceara and Georgina take us through some of the challenges in assessing cumulative effects that have remained despite a real attempt at greater clarity in the 2017 EIA Regulations. The tension between proportional and precautionary has not gone away, and practitioners still find themselves in discussion with decision-makers about expectations that go beyond both the letter and spirit of the legislation. This can be exacerbated when two schemes adopt different approaches to meet the needs of different decision-makers, which is inevitable, no matter how unhelpful, in the absence of a universally agreed methodology. Ceara and Georgina argue that, rather than minimising the risk of challenge, attempting to be everything to everyone actually increases risk, by

making use of uncertain information about other projects. Is it better to acknowledge uncertainty than seek to compensate for it? Not everyone, it seems, agrees. But as with all such challenges, the best way through is clear dialogue, understanding the needs and expectations of everyone in the process, and consensus-building, no matter how complex it may seem.

Anastasia offers up a useful reminder of exactly what we understand is meant by cumulative effects, and the distinction between “intra” and “inter” relationships. I encourage everyone to consider this excellent article alongside the others here that talk about terminology, and especially in the context of Martin and Bridget’s thought piece. They propose that much of the confusion arising from terminology might be made a thing of the past if we were to collectively adopt the terms “additive” and “synergistic” when referring to cumulative effects. Martin and Bridget acknowledge that CEA seems a “dark art” to some, so perhaps demystifying what we mean by the terms we use, and using them frequently and consistently, is something we could all commit to. I certainly intend to do exactly that.

Anastasia’s article concludes that we need to focus on reducing the potential for bias and uncertainty by acknowledging it and working hard to agree with stakeholders what CEA can reasonably be expected to cover, and perhaps more importantly what it cannot.

One of the enduring problems of CEA is a need (or perceived need) to isolate the contribution of the proposed development to the total effects of all development. I may be able to explain the effects of the development I’m assessing, and you may be able

to explain yours, but can we really add them together as if they were numbers to get a combined effect? And if we can, how much of the effect that’s “mine” would have happened regardless of “yours” and how much happens because of it? What then if we add a third development to the mix? Joanna and Kate consider this in the context of onshore wind energy developments, a sector with an approach to CEA that is arguably more developed than most. The two-stage approach proposed may not suit every case, but I applaud the willingness to think and propose different solutions that may lead to a more reasonable and fair set of conclusions about cumulative effects. We need to think differently about how to approach – and report – CEA if we are to get to something that meets the needs and expectations of as many stakeholders as we reasonably can. I would encourage everyone to embrace the inherent flexibility in approach and allow it to drive innovation. We will come to a clearer and more universally accepted way – or ways – to do CEA only through thinking, challenging and changing.

In the last of the Quality Mark articles, Tim Spicer challenges us to think exactly like this. Tim concludes with the statement *“The sooner the industry starts adopting an agreed methodology for assessment that becomes standard practice, the less likely we are to be seen as overburdening a client...if industry practice starts to operate on a level playing field, we will no longer need to question our commercial astuteness and facilitating role when delivering developments for clients.”* If we combine this ultimate goal of consistency and industry-accepted practice with an acknowledgement that we need to continue trying, changing, maybe failing a bit, in order to get there, I truly believe we will.



Consideration of Cumulative Schemes: Implementing the EIA Regulations 2017

The introduction of the EIA Regulations 2017 two years ago heralded a new era of greater clarity around cumulative assessment. The change from 'reasonably foreseeable' which feels like a term used in a court room drama involving a sequestered jury to 'other existing and/or approved development' left little ambiguity in theory.

However, in practice this has proved not to be the case. There remains a level of intrinsic caution on the part of local authorities to ensure that all likely schemes are considered, and the possibility of challenge avoided.

Consequently, it is of vital importance to agree the cumulative schemes with the relevant planning authority, which in theory should settle the issue. Yet recent experience has identified that consultation still doesn't achieve a resolved position.

Whilst undertaking socio-economic assessments on two independent applications within the Old Kent Road Opportunity Area (OKR OA) located immediately adjacent, it was expected that the cumulative scheme approach would be the same. Particularly as both schemes are residential-led, mixed-use and with concurrent application dates. However, the local authority response from two separate case officers required differing schemes to be considered to the extent that 11 additional cumulative schemes were incorporated into one assessment. This reflected the concern on one

scheme that several potential applications were waiting in the wings and would lead to last minute revisions.

This results in a quandary for the consultant, negotiations with the respective case officers did not change either's positions and understandably, the applicant with fewer schemes specified was not keen to increase this when the direction of the Regulations was towards a more focussed and arguably realistic assessment. Likewise, the case officer for the project with the greater number of cumulative schemes remained firm that this was the most appropriate precautionary approach, to the extent that they clearly stated a request to revisit the entirety of the cumulative assessment post-submission but prior to committee to ensure it was complete.

This raises a regular concern of EIA practitioners of where you draw the line of including new information in the assessment. Post-submission feels like a line in the sand but in this instance, wasn't enough and the cumulative assessment is being revisited. This was further complicated by the location of both sites in the OKR OA, which further stretched the concept of approved development, as whilst various sites are within the designated Opportunity Area, the Area Action Plan is still in draft and there remains uncertainty about which sites will come forward, for what uses, and when.

A similar scenario has recently occurred in Kent where the progress of a new draft Local Plan meant that the local authority's initial response to scoping was a need to include all potential locations submitted as part of the Call for Sites.

In each instance, there is quite rightly an apprehension of challenge and belief that thoroughness is the antidote. Given the change in the Regulations, arguably a better remedy is a more focussed assessment limited to:

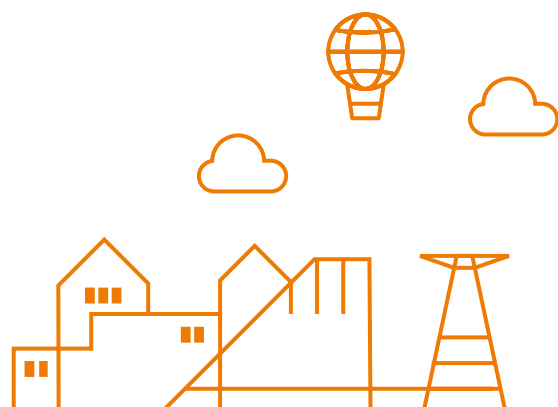
- existing schemes that is, the existing baseline, and consideration of schemes under construction and their respective operational phases;
- those schemes that are approved but not yet started construction; and
- those schemes that are considered highly likely to be going to committee before or at the same time as the application and for which sufficient information is readily available to make an informed assessment.

The latter is an inevitable need to avoid an eleventh-hour request for consideration of an additional scheme that has suddenly been submitted, or to be subject to a Regulation 25 request post-submission.

A greater susceptibility to challenge can only be introduced by attempting to cumulatively consider schemes for which little information is known. 'Reasonably foreseeable' may have departed from the EIA vocabulary but 'likely significant effects' remains a foundation of assessment. To include more ambiguous cumulative schemes is to distort the nature of likely significant effects and to move further towards disproportionate assessment.

As with everything, the best way to tackle this is continued dialogue with local authorities and the ongoing use of other project examples or case studies to demonstrate how more focussed approaches are arguably more robust.

There remains a level of intrinsic caution on the part of local authorities to ensure that all likely schemes are considered, and the possibility of challenge avoided.





Review of the Current Practices in the Assessment of Cumulative Effects

What are Cumulative Environmental Effects?

Understanding the interaction of multiple development types across large temporal and spatial scales is important for predicting how future developments may impact populations, communities, the economy and biodiversity. Most development activities would typically have minor impacts individually, but collectively over time their impact on the environment is more substantial. The potential environmental effects in different locations related to one study area show the importance of cumulative effects. These are defined as:

“Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the projects” (May 1999).

The cumulation of these effects are characterised by two different types of relationships:

- **Intra-relationship:** combined effect of individual development – for examples, noise, dust and visual on one particular receptor; and,
- **Inter-relationship:** several developments with insignificant impacts individually but which together represent a significant cumulative effect.

Inter-relationships between effects are also referred to as:

“the accumulation of, and interrelationship between, effects which might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place”.

The need to consider cumulative effects in planning and decision making is set out in the National Policy Statements (NPS), especially National Planning Policy Framework (NPPF) 2019. Paragraph 204(f) states that planning policies should:

“set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality”.

The overarching NPS for Energy (EN-1) 2011 states that:

“when considering cumulative effects assessment, the ES should provide information on how the effects of the applicant’s proposal would combine and interact with the effects of other developments”.

The NPS clearly states that all 'other developments' considered as part of the Cumulative Effects Assessment (CEA) must be those for which consent has been sought or granted, as well as those already in existence. PINS Advice Note Nine: Rochdale Envelope identifies 'other developments' and more specifically 'major developments' as those that are:

- under construction
- permitted application(s), but not yet determined;
- submitted application(s) not yet determined;
- projects on the Planning Inspectorate's Programme of Projects; and,
- identified in the relevant Development Plan
- Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

Summary of the existing Advice Notes and guidelines

Many practitioners face the complexity of cumulative effects in practice, primarily due to:

- the essence that impact assessments must focus on the foreseeable future; and,
- a lack of knowledge and clear regulation concerning how cumulative effects assessment should be undertaken.

Currently, a range of public sectors and industry-led guidance reports are available on how to approach CEA, but at present there is no single, agreed industry standard method. Nonetheless, the following guidance reports are effectively used by environmental consultants as a guide to CEA.

These are:

- Hyder Guidance 1999: guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions; and,
- The PINS Note 17: Cumulative Effects Assessment. Both reports identified above provide general criteria that can be used to aid in cumulative assessment and are not intended to be formal or prescriptive.

Hyder Guidance 1999 suggests various approaches which practitioners can adapt and combine to suit a particular project; but does not recommend a single method for assessing cumulative effects. The guidance emphasises that the approach adopted for the assessment of cumulative effects must be practical and suitable for the project chosen and multiple factors must be considered. These are:

- the nature of the impact(s);
- the availability and quality of data; and,
- the availability of resources (time and finance).

With these factors in mind, practitioners can choose from a combination of techniques used throughout different stages of CEA such as Scoping and Impact Identification; and, Evaluation Techniques. Scoping and Impact Identification techniques include:

- Network & systems analysis;
- Consultations;
- Checklists, and;
- Spatial Analysis.

Evaluation techniques include:

- Modelling; and,
- Carrying capacity analysis.

On the other hand, PINS Advice Note 17: Cumulative Effects Assessment provides a clear methodology for effective CEA, which consists of a staged process that consultants may wish to adopt.

This methodology can be used for a variety of projects, from small scale mixed use developments to Nationally Significant Infrastructure Projects. It advises consultants to follow four stages when conducting a CEA, which Evaluation Techniques include:

1. Establishing the Zone of Influence (ZOI) and identify a list of 'other developments' which could potentially interact with the proposed development;
2. Analysing the list obtained in stage 1 and identify the sites that may have a significant effect on the environment, economy or community when assessed cumulatively with the proposed site. Providing a justification as to why the sites that will result in no cumulative effects can be scoped out of the assessment and develop a new list of sites that can progress to stage 3;
3. Gathering all required information for the sites on the new list; and,
4. Assessing the likely residual effects as a result of the interrelationship between the proposed and cumulative sites.

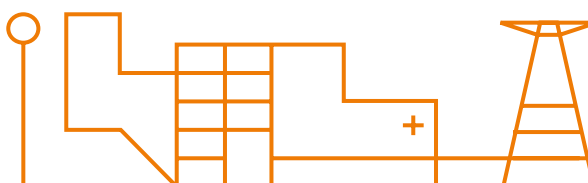
The four stages are then combined within a matrix table for clear identification of potential cumulative sites and their residual effects. For clear identification of the scale of the 'other developments', ZOI and distances from identified receptor, PINS Note 17 also recommends that the table is used with aid of spatial analysis and GIS mapping. Additionally, the in-depth methodology provided by the guidance ensures that all potential cumulative sites within the development area are assessed.

Remaining challenges of CEA

Both guidance reports outlined above provide a comprehensive amount of detail of how to approach CEA and produce CEA reports. Nonetheless, neither Hyder Guidance nor PINS Note 17 provide advice on how assessments can be completed when information regarding other sites is lacking or not available.

Planning Act 2008: Guidance on the Pre-Application Process highlights that it is not always easy for applicants to assess potential cumulative effects due to the lack of information available on the public domain, especially in relation to development programmes, development phasing and technical constraints. On this basis, neither guideline reports are effective in determining the residual effects for sites with limited information available, recognising that a pragmatic approach and professional judgement must be taken when determining what is feasible and reasonable. To reduce room for bias and uncertainty, it is therefore recommended that early engagement between regulators, statutory advisors and developers is achieved and the cumulative scope is agreed. Where information is lacking, cumulative assessment should avoid speculating on the potential impacts of 'other developments' but rather clearly state all limitations and uncertainties.

...a range of public sectors and industry-led guidance reports are available on how to approach CEA, but at present there is no single, agreed industry standard method.



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Cumulative: Additional, Combined or Both?

Guidance produced by Scottish Natural Heritage¹ in March 2012, defines cumulative impacts as *“the additional changes caused by a proposed development in conjunction with other similar developments OR as the combined effect of a set of developments, taken together.”*

Additional effects result from the incremental change associated with the addition of a proposed development to a baseline which incorporates a development which would have similar effects, or a number of developments, either existing or proposed. For example, a windfarm is already present within the landscape, the effects of which have been deemed to be acceptable due to it being consented, constructed and operating (WF1). A further two windfarms are proposed within the same landscape, for which planning applications have been submitted, but not yet determined (WF2 and WF3).

The method for the cumulative assessment to be undertaken as part of the EIA for a fourth windfarm (WF4), if adopting the additional approach, would be to assess the incremental change resulting from adding WF4 into the landscape, which in accordance with Scottish Planning Policy (SPP 2010)², it is assumed already contains WF1, WF2 and WF3. This approach reflects the possible sequential development scenario.

Assuming that all three windfarms are already present in the landscape means that the incremental change to the baseline due to the addition of one further windfarm is likely to be minor, and therefore result in a negligible cumulative impact. The limitation of this approach may be that the capacity of the landscape to accommodate all four windfarms in combination is not fully considered.

The other cumulative assessment method given above, relates to the combined effects of a number of developments taken together i.e. ‘total’ effects. For example, a minor road has a capacity of 200 vehicles per hour (vph) and the existing traffic movements on the road are 100vph. A new shop is proposed which will generate 50vph, as will second and third shops proposed nearby for which planning applications have already been submitted.

The cumulative traffic assessment, would show a combined effect of 250vph (100 existing + 50 +50+50), which exceeds the capacity of the road, and is therefore likely to result in a significant cumulative effect. This approach reflects the possible total development scenario. However, our shop proposal is ‘disadvantaged’ as a result of presenting the findings of the total combined effects of all three shops, when the contribution of the single shop to the total cumulative effect is only 50vph.

¹ <https://www.nature.scot/guidance-assessing-cumulative-impact-onshore-wind-energy-developments>
² <https://www.gov.scot/publications/scottish-planning-policy/pages/2/>

An alternative method for assessing cumulative impacts, could be to undertake a two stage cumulative assessment, which considers both methodologies outlined above, i.e. combined (total) and additional (contribution). This could be undertaken as follows:

- **Stage 1:** the cumulative effects are the **total effects** created by the development and other developments included in the assessment.
- **Stage 2:** the cumulative effects are the **contribution** of the development to the total cumulative effects assessed in Stage 1.

As the Environmental Statement is required to describe the likely significant effects of a development on the environment, where no significant total effects (Stage 1) are considered likely, the subsequent assessment of contribution of the development to total cumulative effects (Stage 2), is not required to be undertaken.

Working this through as an example:

Stage 1

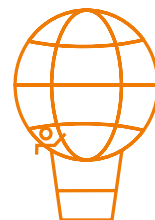
- The capacity of the A71 is 1000vph.
- The existing traffic flow is 800vph.
- Development A (our EIA development) generates 50vph.
- Development B (in the planning system) generates 100vph.
- Development C (under construction) generates 100vph.

- Therefore the combined or total vph on the A71 resulting from the three developments is 1050 vph which exceeds the capacity and results in a significant cumulative effect.

Stage 2

- Development A is contributing 50vph to the 1050vph total, which would not result in a significant cumulative effect for Development A.

It is recognised that this two stage method of cumulative assessment is time and data intensive and may therefore only be appropriate to certain forms and/ or scale of development or impact type. However, this method of assessing cumulative effects ensures the determining authority is presented with adequate information to enable an understanding of the combined cumulative effect of all developments within the study area, whilst also demonstrating the contribution to the cumulative effect of the development for which the application (and ES) is being considered.



How can we Improve the Assessment of Cumulative Effects?

Nothing causes a greater groan among technical consultants than the need to consider cumulative effects and it is true that the process is often fraught with arduous data collection and complications.

The requirement to consider cumulative effects in EIA is not a recent stipulation and has existed in its current form since the 1990s specifically within European Directive 97/11/EC and is, in fact, mentioned in previous versions as far back as Directive 85/337/EEC.

The question is, has anything really changed in EIA practice? Certainly, in the experience of DHA it has. When undertaking reviews of third party Environmental Statements (ESs), the practice varies dramatically both in scope and quality, so it is worth reminding ourselves of the intended purpose of cumulative effects assessments.

There appears to be no decisive definition of what cumulative effects in EIA are and what they should cover. The 2017 regulations offer no further guidance, except to state that an ES must provide a description of the likely significant effects of a development resulting from:

“...the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

If anything, the definition in the regulations adds further ambiguity to the methodology applied

in cumulative effects assessments. What does it mean by the cumulation of effects with existing developments? Typically, existing developments comprise of the baseline scenario.

When should a development be considered on a cumulative basis? Should a development that is already approved form part of the future baseline, or should it be considered cumulatively? And, should developments that are not ‘approved’, but are reasonably foreseeable, still be included on a cumulative basis?

For example, in cumulative effects assessments for traffic and transport, developments that have planning consent – or those that are under construction – should be considered as committed, because they have already been through the planning process and have identified any highway or transport improvements that may or may not be necessary to mitigate their impact (and can therefore legitimately form part of the future baseline). There is no further opportunity for these developments to provide additional highway or transport mitigation and so these developments, can be treated as committed within any future year scenarios.

In doing that, the impact of development proposals that follow consented developments can be determined in the knowledge of what has already been consented in transport and highways terms, along with the need for any additional highway and transport improvements that may be necessary.

Other proposed developments that have yet to be submitted to the planning process should be assessed cumulatively against the baseline scenario, to determine their cumulative impact and their cumulative highway and transport mitigation requirements (if required).

Conversely, for landscape and visual impact assessments, such an approach may not be appropriate. By including approved developments as part of the future baseline, but not including them in the cumulative effect assessment, are we **a)** providing an overly favourable assessment or **b)** preventing the local authority from understanding the true cumulative effect of each subsequent development?

There are further challenges in defining those sites, and these should be considered on a cumulative basis, both in terms of proximity and scale. The Wealden Judgement¹, for example, sets a highly sensitive threshold for cumulative effects on the 'principal of death by a thousand cuts'. How do we balance our role in protecting the environment by mitigating truly significant cumulative effects with wanting to do the best for our clients, while remaining commercially savvy?

Where do we go as EIA practitioners? Do we widen our scope for cumulative effects to tens of other developments? And, in doing so, are we over-burdening our clients and applicants, when many cumulative assessments go no further than the site next door?

Perhaps a solution is to remind ourselves of the purpose of cumulative effect assessments in order to understand how developments (if and when they are permitted in combination with other developments), will affect the environment and its carrying capacity.

In doing so, we need to accept that cumulative effect assessments are always going to be an

imperfect science, but that a degree of rigour and methodology must be applied.

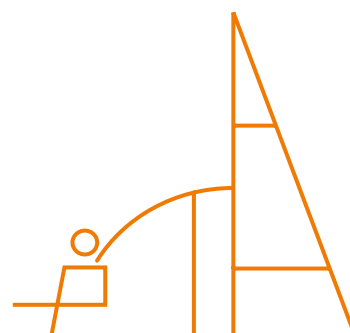
The best available guidance in that regard exists as PINS Advice Note 17 on Cumulative Effects Assessments. While this guidance is issued in respect to Nationally Significant Infrastructure Projects, it sets out a methodology for determining the zone of influence for each environmental topic that is applicable to all EIA projects. This presents a repeatable and demonstrably systematic methodology for cumulative effects assessments, and engages the input of each respective technical author contributing to the ES.

Improving cumulative effect practice will not only act to safeguard the environment, but it will also offer greater opportunities for the advancement of holistic mitigation strategies for the cumulative effects of development.

The sooner the industry starts adopting an agreed methodology for assessment that becomes standard practice, the less likely we are to be seen as overburdening a client. Similarly, if industry practice starts to operate on a level playing field, we will no longer need to question our commercial astuteness and facilitating role when delivering developments for clients.

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¹ Wealden District Council v Secretary of State for Communities and Local Government & Ors [2017] EWHC 351 (Admin) (20 March 2017).





Cumulative Effects and EIA - a Legal Perspective

Hopefully it is not stepping into Brexit territory to say that environmental impact assessment, as introduced by the European Union, has been a good thing. It has provided a mechanism for focusing on key environmental effects.

Inevitably, EIA leads to disputes. There are differences of professional opinion. Developments are often subject to vociferous opposition, with environmental impacts a key focus. EIA consultants obviously want to do, and be seen to do, the right thing.

The difficulty with European law is that it takes a broad-brush approach, and the provisions are to be interpreted in a purposive manner. That is good for avoiding "loopholes", but can make it hard for lawyers to give clear advice. There is also plenty of scope for legal arguments in court – EIA is often a topic raised in legal challenges by opponents of projects.

The assessment of cumulative effects is a good example. The Directive/Regulations clearly state that the description of the likely significant effects includes cumulative effects. However, no further indication is provided on which cumulative effects should be addressed, and how.

Which Cumulative Effects?

Existing (built) developments are part of the baseline for assessment. It is reasonable to take account of a development which has not been built but has planning permission, and the grant of that permission might

not have taken account of likely significant cumulative effects with the development now subject to EIA.

Given the lack of certainty of obtaining planning permission, it is more difficult to decide whether to include developments which are in pre- or application phase. However, there are generally accepted methodologies for many EIA topics which identify whether pre- or application phase developments should be included.

Defining 'the project'

A loophole that has been closed is 'salami slicing' the project into parts or phases. The courts have confirmed that if the development is part of a bigger project, it is the project which must be assessed, not just the development. That involves taking account of the cumulative effects with the rest of the project, even if it is (pre) pre-application.

Recent court decisions illustrate the difficulties in defining the "project". Although a masterplan showed eight data halls on a site near Athenry, Co. Galway, the Supreme Court of Ireland decided that the first data Centre (for Apple) was standalone, not functionally dependent on future phases of the masterplan, so there was no obligation to conduct an EIA of the masterplan in the course of the Apple planning application.

In the Larkfleet case, the planning application was for a link road. It was argued that the link road and a residential site were so inter-connected as to be a single project. That was rejected by the (English) Court of Appeal, who referred to the strong planning need for the construction of the link road to complete a by-pass, whether or not the residential site was developed.

How to Assess Cumulative Effects

Assessing cumulative effects can be difficult, as acknowledged by the Court in the Larkfleet case:

“The Environmental Statement gave the appropriate data to the level which LCC as applicant for permission could reasonably be required to compile, having regard to current knowledge...It explained that an urban extension with identified main components (reflecting the Masterplan) was likely to be constructed on open land to the north of the link road (i.e. on the residential site); the size of the development meant that a large proportion of that open land would be covered with built development and roads; but it could not be said where exactly buildings would be located or what their size would be. The parameter plans submitted by Buckminster in June 2013 did not materially alter this picture.

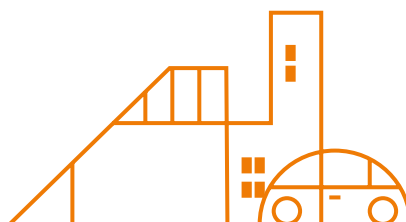
Having read and re-read chapter 14 of the Environmental Statement, I find it very difficult to see what more it could usefully have said in terms of identifying likely cumulative impacts. In my view, it gives a fair and more than adequate account of what the cumulative impacts are likely to be.”

Unfortunately the opposing lawyer cross-examining at public inquiry will not be as sympathetic and understanding.

The cumulative effects assessment is a professional opinion. Key steps in making it robust might include:

1. **Clarity of approach** – the Regulations require the Environmental Statement/EIA Report to include a description of the forecasting methods or evidence, including difficulties and uncertainties.
2. **Recognised methodologies** – if there is a recognised methodology, use it, and say that you have used it. Alternatively, if there is a reason for not using the recognised methodology, give a clear justification for not using that methodology.
3. **No recognised methodology** – if there is no recognised methodology, explain clearly the reasons for the approach you have taken.
4. **Precedents** – if you are not using a recognised methodology, it is useful to cite examples of other projects where a similar approach has been taken.
5. **Peer review** – in exceptional circumstances, obtaining an independent peer review can increase confidence in the robustness of the cumulative assessment, and provide additional justification were it to be required as a result of challenge.

The cumulative effects assessment is a professional opinion.



Shedding Light on the 'Dark Art' of Cumulative Effects Assessment (CEA)

Assessing cumulative effects is complex. It has been described as a 'dark art', a 'wicked problem' and by Hegmann and Yarranton (2011)¹ as:

"like forecasting weather or climate [as] the system under examination is complex and often responds to disturbance in a non-linear fashion".

We believe that best practice is to clearly set out the concepts and definitions of CEA and to that end we propose a short definition to guide practice and to help bring some transparency to the complex 'dark art' of CEA. We aim to clarify some of the confusion in [Table 1](#) below where we identify how these are often termed differently in regulations and in selected guidance documents.

Cumulative effects are:

*"those that result from **additive effects** caused by other past, present or reasonably foreseeable actions together with the plan, programme or project itself and **synergistic effects** (in- combination) which arise from the reaction between effects of a development plan, programme or project on different aspects of the environment"*

This definition is also that included in the British Standard 2015 guide to EIA for offshore renewable energy projects (PD6900:2015)².

Stakeholders involved in the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) process are aware of the need to address cumulative effects but that lack of consistency in terminology and lack of transparency in the methodology used to assess the effects are key areas that need to improve.

The language used in the EIA, HRA and SEA directives has caused practitioners and regulators considerable confusion. Adoption of the terms 'additive' and 'synergistic' as in the above definition will, we believe, clarify the situation.

Practitioners are also being more transparent in their methodologies which will aid others to reflect on their own practice and innovate.

¹ Cited in <https://radar.brookes.ac.uk/radar/items/c1fb6149-0f06-4a36-b423-3255bc0ee8e0/1/>
² British Standard 2015 guide to EIA for offshore renewable energy projects (PD6900:2015).

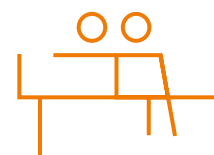


Table 1 – Terminology to describe cumulative effects

| | |
|---|---|
| <p>Additive Effects: those that result from additive effects caused by other past, present or reasonably foreseeable actions together with the plan, programme or project itself</p> | <ul style="list-style-type: none"> • EIA Directive (2011) refers to these as 'cumulative effects' • EC/Hyder (1999) guidance refers to these as 'cumulative impacts' • SEA Directive refers to these as 'cumulative impacts' • EC Habitats Directive refers to these as 'in-combination' effects |
| <p>Synergistic Effects: which arise from the reaction between effects of a development plan, programme or project on different aspects of the environment</p> | <ul style="list-style-type: none"> • EIA Directive (2011) refers to these as 'interrelationships' [no hyphen] and effect 'interactions' • EC/Hyder (1999) guidance refers to these as 'impact interactions' • SEA Directive refers to these as 'in-combination or synergistic' impacts • EC Habitats Directive does not refer to these separately |

When undertaking an assessment of the cumulative effects of developments it is therefore important to recognise and consider two 'types' of cumulative effects i.e. additive and synergistic.

It is hoped that:

- the use of a clear definition;
- the continuing development of guidance (such as the Cumulative Effects Assessment (CEA) Analytical Framework developed for NERC to be found at [Appendix B](#); PINS Advice Note 17, on Cumulative Effects Assessment ([drew heavily on the NERC funded OBU research](#)) and,
- the publication of case studies of practice will aid in continuing to improve, and shine light on, the 'dark art' of CEA.

There is a large body of international academic literature on CEA. Useful recent summaries of some of the key literature is provided in:

- Durning, B and Broderick, M. Development of cumulative impact assessment guidelines for offshore wind farms and evaluation of use in project making. Impact Assessment and Project Appraisal (IAPA) (July 2018).
- Broderick, M., Durning, B., and Sanchez, L., 2018. Chapter 19: Cumulative Effects. In Therivel R, Wood G, editors. Methods of Environmental and Social Impact Assessment. 4th ed. New York: Routledge; p. 649-677.

The Oxford Brookes University research has identified that practice in CEA is improving and evolving. Key to driving practice forward has been the requirements made by decision makers and statutory stakeholders at the scoping stage particularly due to the Planning Act 2008. Practitioners are also being more transparent in their methodologies which will aid others to reflect on their own practice and innovate. The generation of examples of good practice will also aid this. Improving assessment practice which is based on transparent methodology and robust evidence will also aid the decision makers.

It is hoped that the use of a clear definition, the continuing development of guidance and the publication of case studies of practice will aid in continuing to improve, and shine light on, the 'dark art' of CEA.



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Summary

Andy Mitchell - Guest Editor

Trying? Being wrong?! You're joking, right?!

In my introductory remarks I alluded to the fact that we need to try, learn and change if we are to get to an agreeable way – or ways – to undertake and present CEA. Perhaps the original article from Neil will offer some comfort to those who got a shiver down the spine when I did. Case law acknowledges that CEA is not straightforward. It also acknowledges an element of professional opinion that cannot be avoided. Neil proposes some steps that might provide a useful framework within which to plan and deliver an assessment – be clear, explain your methods whether they are generally accepted or innovative, cite precedent if it helps to explain, and consider if peer review might be justified to add robustness.

Just don't be afraid to rely on your experience and professionalism to explain what you've done, or to ask for advice from the professional community around you. Those that are familiar with my thoughts on this may roll their eyes but, in short, always show your working.

I hope this collection of short articles is helpful for airing some issues, explaining others, prompting ideas and discussion, and hopefully moving us collectively closer to a more widely accepted approach to CEA.

I'd like to sincerely thank each of the contributors – those agreeing to the use of previously submitted Quality Mark articles and those contributing new writing – for sharing their perspectives on CEA. I look forward to working with them and others as we continue to develop this fascinating area of practice.

Acknowledgements

Andy Mitchell, an Associate at Arup has acted as the guest editor for this edition of the new IA Outlook Journal. We recognise and appreciate his contribution. We also offer thanks to the editors and reviewers of this edition: **Rufus Howard** and **Charlotte Lodge** (IEMA). We would like to thank the authors of the articles in this seventh edition of the Impact Assessment Outlook Journal: **Georgina Dowling, Ceara Shields, Anastasia Fleming, Jo Cottin, Kate Wigley, Tim Spicer, Neil Collar, Prof. Martin Broderick** and **Dr Bridget Durning**. Alongside the authors we would also like to thank the EIA Quality Mark registrant organisations, who both gave the authors time and encouragement to write the articles, and allowed their publication in this IEMA IA Network publication, they are: **Arup, CBRE, WYG, LUC, DHA, Brodies LLP** and **Oxford Brookes University**.

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Demystifying Cumulative Effects

This seventh edition of the Impact Assessment Outlook Journal provides a series of thought pieces on the consideration of cumulative effects in EIA. In this edition, the Guest Editor (Andy Mitchell) has selected six articles produced by IEMA professionals and EIA experts. The result is a useful and illuminating quick read across different aspects of UK practice exploring different aspects of cumulative effects assessment in EIA.

About the Guest Editor: Andy Mitchell BA (Hons), CEnv, FIEMA, MRTPI Associate at Arup

Andy is a Fellow of IEMA, a Chartered Environmentalist and Chartered Town Planner. He has over 17 years of experience across private sector consultancy and rail infrastructure delivery. Andy is an Associate with Arup and leads the Environment and Sustainability team in Glasgow. He has undertaken leading EIA roles for high-profile, controversial infrastructure and development projects across the UK, including HS2 and the proposal for a new stadium and training facilities for Aberdeen Football Club. He was also one of the principal authors of the environmental and sustainability assessment work in support of the successful United 2026 bid to host the FIFA World Cup in Canada, Mexico and USA.

Andy is an advocate for sharing best practice and furthering impact assessment knowledge and expertise. He is an active participant in the development of IEMA policy and guidance and has been a member of the IEMA Impact Assessment Steering Group for over a year.



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