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WRITTEN REPRESENTATION

INTRODUCTION: Climate Emergency Policy and Planning (CEPP)

I am an independent scientist and environmental consultant, working at the intersection of science, policy, and law, particularly relating to ecology and climate change. My doctoral work, at Oxford University after a BSc in chemistry at Imperial College London (1977), was in structural biology, protein binding sites and dynamics (DPhil, 1981)¹.

Most of my 40-year career was in scientific computation, including high performance climate models. Between 1985 and 1994, I was involved in the design and testing of software for the design and logic synthesis of Very Large Scale Integrated (VLSI) circuits: this included running software models of circuits, at that time², of up to 1 million transistors. Between 1995 and 2006, I ran the high-performance computer service at the University of East Anglia which supported the university's scientific research community in running models, across a range of sciences, on a small supercomputer. I have a wide understanding of the principles and practice of modelling complex systems which I bring to this submission.

Due to the climate crisis, from 2005 I have been involved in campaigning and politics, including being a Norfolk County Councillor for 12 years. The severity of the climate emergency is clear through science and has been for several decades, and my work through CEPP now is to promote the necessary rapid response to the Climate Emergency in mainstream institutions, such as local authorities and government, through the lenses of science, policy, and law. I am an Expert contributor to the proposed UK Climate and Ecological Emergency Bill³, drafted by scientists, legal experts, ecological economists, and environmentalists, and designed specifically to reverse the climate and ecological breakdown that we are facing.

¹ An area that has become quite alive for me again, 40 years later, during the COVID pandemic re: the structural biology of vaccine design, viral protein mutations and vaccine escape etc

² 1 million was cutting edge at the time! Transistor counts now exceed 2 trillion on a single chip https://en.wikipedia.org/wiki/Transistor_count.

³ <https://www.ceebill.uk/bill>

SUMMARY - 18 NON-COMPLIANCE ISSUES

CEPP has reviewed the applicant's Environmental Statement with respect to carbon emissions, and cumulative carbon emissions, and compliance with the NPS NN, and its invocation of the EIA Regulations. Our detailed submission aims to guide the ExA through the issues. As part of this CEPP raise **18 non-compliance (N_C) issues**, listed below, within the text. These are listed here as our summary: they cover compliance to the NPS NN and EIA Regs, and other guidance such as DMRB; the Transport Decarbonisation Plan (TDP); the Aarhus Convention; national and local carbon budgets and targets; and compliance with the Paris agreement via science-based carbon budgets from UK academic experts.

Throughout this document we refer to the A47 North Tuddenham to Easton scheme as A47NTE.

N_C-1: The Environmental Statement does not comply with the requirements of the NPS NN and the EIA Regs. The absence of cumulative, and short, medium and long-term, impact assessment of carbon emissions renders the Environmental Statement inadequate under the EIA Regs, and CEPP respectfully request that the ExA consider this under EIA Reg 20 (see Appendix B).

N_C-2: The applicant has not complied with the NPS NN, EIA Regs, DMRB LA 103 as the Environmental Statement provides no cumulative assessment of carbon emissions.

N_C-3: The applicant has not complied with the EIA Regs and the guidance, nor with the NPS NN invocation of the EIA Regs, in only attempting to assess the scheme itself, and only providing a national assessment against national whole economy GHG targets (ie: no local and regional assessments have been attempted).

N_C-4: Local cumulative carbon assessment cannot currently be done because no rational choice of study area has been made which would enable it to be calculated coherently across different schemes. By definition, coherent cumulative assessment requires a common and standard study which enables all relevant schemes in the local area to be assessed against the same baseline area. The applicant, and also Norfolk County Council, have not chosen a standard study area across the relevant local schemes.

N_C-5: Carbon assessment requires a study area that reflects the specific characteristics of carbon. Appropriating a "study area" used for air quality assessment to carbon assessment ignores the differences in the fundamental physical science and impacts between air pollutants and carbon emissions. As the affected road network (ARN) derived for air quality is different across each scheme, cumulative carbon assessment across schemes in the area as part of compliance with the EIA regs is precluded.

N_C-6: The applicant has not complied with DMRB LA 106 by not considering road projects (locally, regionally and nationally) which are confirmed for delivery over a similar timeframe for cumulative carbon effects.

N C-7: The applicant has not provided any assessment of national cumulative carbon emission impacts for the scheme despite the requirement for cumulative assessment across Highway's England networks under section 5.3(c) of the Highways England licence, and the requirement for national cumulative assessment in the EIA Regs guidance, and the NPS NN which requires compliance with the EIA Regs.

N C-8: No assessment of the scheme has been made against the period 2038-2049⁴ when the UK is required legally to achieve net-zero and over-all eliminate all carbon emissions. **Significant additional emissions** from road use in Norfolk are inherent in each year of this period from the applicant's data. Further additional emissions would accrue from cumulative assessment with other local schemes, which the applicant has not carried out. Together these have an, as yet not fully assessed, material impact on the ability of Government to meet its carbon reduction targets.

N C-9: No assessment of the scheme has been made against the 35-year period 2050-2084, post the 2050 net-zero target. Irrespective of UK legislative dates, scientists are clear that a net-negative world, with massive extraction of CO₂ is required urgently (ie actually before 2050⁵). Yet significant additional emissions from road use in Norfolk are inherent in each year of the 2050-2084 period in the Environmental Statement making the scheme net-positive. Further additional net-positive emissions would accrue from cumulative assessment with other local schemes, which the applicant has not carried out. Together these have an, as yet not fully assessed, material impact on the ability of the UK to its obligations under the global endeavour to stabilise global heating at 1.5°C enshrined in the Paris agreement.

N C-10: The lack of transparent information and data about the traffic models on which operational carbon emissions are based does not allow any independent review and scrutiny of the high-level figures published in the Environmental Statement. The applicant is in contravention of the terms of the Aarhus Convention.

N C-11: The applicant has ignored PINS advice in the EIA Scoping opinion to do cumulative assessment with the Norwich Western link road (NWL).

N C-12: In two recent DCO applications, the SoS is requiring cumulative carbon assessment in line with the NPS NN and EIA Regs. This implies that the Environmental Statement for the scheme, which has no cumulative carbon assessment, is inadequate under the EIA Regs, and **the ExA should consider this under EIA Reg 20.**

⁴ CEPP assume that the applicant will shortly provide their assessment against the sixth carbon budget (6CB, 2033-2037)

⁵ Report from Climate Crisis Advisory Group, established and chaired by Sir David King, former UK Government's Chief Scientific Advisor from 2000 to 2007, August 2021, commentary of the IPCC 6th Assessment report "The final warning bell", <https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/61275c5abba2ec034eebf534/1629969503477/CCAG+The+Final+Warning+Bell.pdf> :

"The CCAG is clear that the current shift in global emissions is not sufficient to avoid global disaster, and there is no 'remaining Carbon Budget'. If proper account is taken of all greenhouse gases, and their CO₂ equivalence, the 450ppm" threshold has already passed, contradicting the widespread notion of a 'carbon budget' that could still be spent whilst remaining below 1.5°C temperature rise."

N C-13: PINS requested that cumulative environmental assessment is done for A47NTE including the NWL, but traffic modelling for the two schemes uses different base years, and there is a major loss of traffic from one model which remains unexplained. The applicant must provide new traffic modelling that allows cumulative environmental assessment, which is consistent between both schemes, and corrects errors.

N C-14: Even before cumulative carbon emissions are considered, the applicant's carbon assessment does not reduce operational carbon emissions (from vehicle use) over the 60-year appraisal period, as is required to comply with the government's Transport Decarbonisation Plan (TDP⁶) for ambitious quantifiable carbon reductions in transport at the local level. It shows an addition of 596,000 tCO₂e over the already very high baseline of over 53,000,000 tCO₂e over the study area. In the critical 4th carbon budget that spans half of this decade in which United Nations have said we must halve emissions, an additional 111,626 tCO₂e will be emitted from construction and operation of the scheme. Such additional carbon emissions without any mitigation plan are not acceptable in the Climate Emergency.

N C-15: The applicant has not provided the traded and non-traded operational emissions, and should make the 60-year appraisal and the TAG GHG workbook available to the Examination.

N C-16: CEPP do not accept that only comparing carbon emissions from the scheme against carbon budgets for the entire UK economy is a credible assessment method. It makes no sense from a scientific perspective where reference data for comparison should always carefully chosen. It is a deliberate tactic to "loose the signal in the noise", and it is antithetical to good science. Further, it does not comply with the EIA Regs guidance for local, regional and national assessment, against known local, regional and national carbon targets, as invoked by the NPS NN. The Environmental Statement is narrow, inadequate, and non-compliant in ignoring the wider scope of the EIA Regs.

⁶ "Decarbonising Transport: A Better, Greener Britain", Transport Decarbonisation Plan (TDP), July 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf, PDF Page 151:

*"Going forward, local transport plans (LTPs) will also need to set out how local areas will deliver **ambitious quantifiable carbon reductions in transport**, taking into account the differing transport requirements of different areas. This will need to be in line with carbon budgets and net zero."*

N C-17: Additional new local transport emissions are introduced by the scheme in the BBSNN⁷ area. Between 2025 to 2027, these would add between 9.6% (scheme alone) and 25.9% (scheme in cumulation with other schemes⁸) new emission sources when compared against the 2019 transport emissions for the area, as reported by BEIS, as a baseline. When assessed against the opening year 2025 using the 4th carbon budget as the baseline, the equivalent figures are very similar at 8.6% and 23.1%. By not considering or assessing these impacts, the applicant does not comply with the EIA Regs guidance to take relevant greenhouse gas reduction targets at the national, regional, and local levels into account. These additional emissions also fall in the period leading up to the UK international commitment, via its NDC under the Paris Agreement, to reduce emissions by 68% by 2030 (relative to 1990 levels). Additional local emissions of this magnitude, with no evident mitigation strategy, will impact national efforts, and therefore create a serious risk against the UK delivering on its NDC commitment by 2030. Accumulated with other schemes in the local area, and nationally, this risk cannot be ignored, but has not been addressed in the Environmental Statement.

N C-18: Even without cumulative effects, the applicant's figure for carbon emitted from the scheme and in the wider road network (ARN) is approximately 5 times the entire carbon budget from BBSNN (Broadland, Breckland, South Norfolk and Norwich, a larger area) area for the period from 2033 to the net-zero date 2050 using science-based carbon budgets from the Tyndall Centre. For the period, after 2050, the corresponding applicant's figure is approximately 100 times greater than the available science-based carbon budget, and infinitely greater than the Government and CCC's implied budget for the post net-zero era. The applicant has provided no indication of how these additional carbon emissions would be mitigated. This has a clear material impact on the ability of the UK to contribute to the global endeavour to stabilise global heating at 1.5°C, and it does not comply with the UK obligations under the Paris Agreement.

This evidence is compelling that the Environmental Statement is inadequate in its assessment of carbon emissions, and cumulative carbon emissions. Given the amount of remedial work required, including reconfiguring the traffic modelling used to generate carbon data, **CEPP respectfully request that the ExA gives serious consideration to suspending the Examination under EIA Reg 20 so that the missing data and non-compliances may be resolved in the Environmental Statement.**

CEPP note that Mr David Pett, lawyer for the Stop the Wensum link campaign, has also submitted a Deadline D1 WR which has identified further information that is required in the Environmental Statement for ecological assessment, especially of barbastelle bats, and has requested that this is also considered under EIA Regulation 20. Taken together with CEPP's review, the need for remedial work on the Environment Statement is incontrovertible.

⁷ Broadland, Breckland, South Norfolk and Norwich local authority areas

⁸ CEPP's realistic indicative estimate for scheme in cumulation with other schemes in the same period as in Table 5

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1 INTRODUCTION

- 1 This WR critically reviews the Environmental Statement and how it assesses carbon emissions, and cumulative carbon emissions, associated with the scheme against the requirements and obligations on the applicant under the relevant legislation, regulation and guidance for a DCO application.
- 2 Appendices A, B and C lays out the relevant background reference material on:
 - A. the National Policy Statement for National Networks (“NPS NN”). The NPS NN requires cumulative assessment of environmental factors, including carbon emissions, and it also **directly invokes** the EIA Regulations (“EIA Regs”).
 - B. the EIA Regs⁹, themselves. The regulations quite clearly require cumulative carbon emissions appraisal, as characterised by these *assessment parameters*:
 - i. *climate (including the nature and magnitude of greenhouse gas emissions)* as an environmental factor which should be assessed,
 - ii. for *the scheme itself*,
 - iii. and the scheme in *cumulation* with other existing and/or approved projects/developments,
 - iv. over *short-term, medium-term and long-term timeframes*,
 - v. and taking into account “*environmental protection objectives*” established both at EU or UK level, meaning relevant climate change targets set under UK law.
 - C. the Highways England Licence which requires Highways England (now “National Highways”) to consider the *cumulative environmental impact of its activities across its network, again including carbon emissions*.
- 3 Given these requirements, section 2 asks, and answers, the following questions with reference to the A47NTE scheme and how carbon assessment should be done in compliance with the EIA Regs.

What needs to be assessed? Key questions being:

- i. *what spatial scales* of assessment are appropriate?
- ii. *what developments* should be included in an analysis of how other developments would combine and interact with the scheme for cumulative carbon emissions assessment?

⁹ Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

- iii. *what types of carbon emissions* (eg: embedded construction emissions, operational tail-gate emissions from vehicles, emissions from land-use and land-clearance) should be calculated?
- iv. *what short-term, medium-term and long-term timeframes* are appropriate for carbon assessment?

4 Section 3 lays out a carbon assessment framework consistent with the answers to these questions and compliant with the EIA Regs, and Section 4 resolves some particular practical issues before section 5 and 6 then perform an indicative carbon assessment based on the previous sections.

2 WHAT NEEDS TO BE ASSESSED?

2.1 Overall requirements of the NPS NN and the EIA regulations

5 The NPS NN section 4.15 (Appendix B) invokes the EIA Regs and states that the Directive as transposed into UK law “*specifically requires an environmental impact assessment to identify, describe and assess effects on ... climate ...*”. The EIA Regs Schedule 4 is invoked which requires “*the likely significant effects of the proposed project on the environment, covering the **direct effects** and any indirect, secondary, **cumulative, short, medium and long-term**, permanent and temporary, positive and negative effects of the project*” to be described in the EIA.

The second highlighted section from NPS NN 4.15 above is directly “cut and paste” from the wording in the EIA Regs themselves, indicating it was the DfT’s intention in the NPS NN that significant effects, impacts or benefits as described are included in the Environmental Statement. These correspond to the assessment parameters which CEPP have already identified.

- 6 Again the EIA Regs are invoked for the assessment of carbon emissions at NPS NN 5.17 which states “*any Environmental Statement will need to describe an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive.*”
- 7 The applicant’s assessment in Chapter 14 of the Environmental Statement has not met these requirements of the NPS NN. It has not assessed **cumulative impacts**, and it has not assessed **short, medium and long-term impacts**. Chapter 14 refers generally to the NPS NN, and only specifically once to section 5.18 (at Chapter 14 14.8.1) which concerns decision making, not the requirements for the Environmental Statement itself.

N C-1: The Environmental Statement does not comply with the requirements of the NPS NN and the EIA Regs. The absence of cumulative, and short, medium and long-term, impact assessment of carbon emissions renders the Environmental Statement

inadequate under the EIA Regs, and CEPP respectfully request that the ExA consider this under EIA Reg 20 (see Appendix B).

2.2 What spatial scales of assessment?

- 8 The EIA Regs guidance¹⁰ (Appendix G) addresses how a project's impact on greenhouse gas emissions should be addressed and states:

*“The assessment should take relevant greenhouse gas reduction targets at the national, **regional, and local levels** into account, where available.”* (our emphasis)

- 9 Whilst for cumulative effects¹¹ (Appendix G):

“[They] can arise from ... the interaction between all of the different Projects in the same area;”

*“... can occur at different temporal and spatial scales. The spatial scale can **be local, regional or global**, while the frequency or temporal scale includes past, present and future impacts on a specific environment or region.”* (our emphasis)

- 10 The EIA regulations require, then, that carbon assessment is done for the scheme itself and cumulation of effects of the scheme with other existing and/or approved projects, at the local and regional scale, as well as at the national scale.

N C-3: The applicant has not complied with the EIA Regs and the guidance, nor with the NPS NN invocation of the EIA Regs, in only attempting to assess the scheme itself, and only providing a national assessment against national whole economy GHG targets (ie: no local and regional assessments have been attempted).

- 11 This renders the applicant's Environmental Statement inadequate. The further information required to remedy this is as follows:

- Assessment of the scheme itself at the local and regional scale, and against relevant greenhouse gas reduction targets, and
- Assessment of the scheme in cumulation at the local, regional and national scale, and against relevant greenhouse gas reduction targets.

¹⁰ https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, PDF page 41

¹¹ https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, PDF page 52

- Later CEPP show that the traffic modelling between schemes is incoherent, requiring substantive reworking of the traffic models to provide these assessments.

12 Given the scale of work identified by these omissions, CEPP respectively request that the ExA consider this under EIA Reg 20.

2.3 Baseline and cumulative assessment under the EIA regulations

- 13 The EIA regulations lay out that environmental **assessment** of an environmental **factor** should start from the current environmental **baseline**. Then the impacts of the scheme itself are assessed: for the case of carbon emissions as a climatic factor under the EIA Regs, this analysis will be across several different carbon emission types. Then the cumulative impacts of the scheme are assessed.
- 14 The DRMB “LA 103¹² Scoping projects for environmental assessment” defines “cumulative effects” as follows:

“Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project.

NOTE: For the purposes of this document, a cumulative impact may arise as the result of:

1) the combined impact of a number of different environmental factors;

2) specific impacts from a single project on a single receptor/resource; and/or

3) the combined impact of a number of different projects (in combination with the environmental impact assessment project) on a single receptor/resource.”

Whilst EIA Regs, Schedule 4, Para 5 (Appendix B) states “the cumulation of effects with other existing and/or approved projects”.

For the A47NTE, the relevant interpretation is ***the cumulation of effects with other existing and/or approved projects***, and the receptor/resource is the global carbon budget, or appropriate sub-sets of it, as explained later.

- 15 As CEPP’s questions above imply, further assessment parameters relating to carbon emission types, developments to include, timeframes and spatial scales need to be

¹² <https://www.standardsforhighways.co.uk/prod/attachments/fb43a062-65ad-48d3-8c06-374cfd3b8c23>

clearly scoped, for both assessing carbon on the scheme itself, and in cumulation with other projects.

- 16 However, here CEPP are concerned with the simple, over-all sequentiality of assessment in the NPS NN and the EIA Regs, relevant to the A47NTE, which can be summarised:

- ① Define the baseline – the current status of the environmental factor – for the foundation of the assessment process.
- ② Determine the impact from the “construction and existence of the development”
- ③ Determine the impact from “cumulation of effects with other existing and/or approved projects”

N C-2: The applicant has not complied with the NPS NN, EIA Regs, DMRB LA 103 as the Environmental Statement provides no cumulative assessment of carbon emissions.

- 17 The guidance¹³ on the preparation of the Environmental Impact Assessment reports (“the guidance”, Appendix G) defines “Baseline Scenario” as “*Description of the **current status** of the environment in and around the area in which the Project will be located. It forms the foundation upon which the assessment will rest.*” And the Design Manual for Roads and Bridges (DMRB) “LA 104¹⁴ - Environmental assessment and monitoring” defines baseline as “*A description of the current state of the environment without implementation of the project.*”

2.4 What developments?: National spatial scale assessment

- 18 For cumulative impacts at the national spatial scale, European Case law (CJEU, C-531-13, Marktgemeinde Straßwalchen and Others) states:

“A national authority must examine [a Project’s] potential impact jointly with other Projects.” (as quoted in the guidance¹⁵)

- 19 This judgement supports section 5.23(c) of the Highways England License in requiring assessment of cumulative environmental impact of HE activities across its network.
- 20 This requires that the scheme should be assessed against “national” networks. This requires assessment against at least the 50 major road schemes under the RIS2 programme, and also the array of road schemes under Large Local Major funding

¹³ https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, PDF page 7

¹⁴ <https://www.standardsforhighways.co.uk/prod/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a>

¹⁵ https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, PDF page 52

programme which includes the Norwich Western Link (NWL) in the Greater Norwich area.

2.5 What study area?: Local and regional spatial scale

- 21 The guidance¹⁶ (Appendix G) requires local and regional effects to be assessed both against local targets, and as part of a cumulative impacts assessment. **This requires interpretation, which the applicant has not attempted, on which developments should be included into the cumulative assessment.**

As the guidance says “... *assessment should take relevant greenhouse gas reduction targets at the national, **regional, and local levels** into account, where available*”, interpretation should start where carbon targets and budgets are available.

- 22 Local authority areas have their own carbon budgets, targets, and monitoring, and the Dept of Business and Industrial Strategy (BEIS) have historic emissions records by sector (ie Industrial, Domestic, Transport, and Land-use) since 2005. It is rational, then, for transport schemes to be assessed within the same boundaries where existing benchmark information is available ie based on these local authority areas. A meaningful local assessment is only possible if it is based on a spatial scale and area which corresponds to known and reliable carbon budgets.
- 23 For the A47NTE, a rational approach would be to assess a regional comparison across the East of England – this would require including the cumulative effects of all existing and planned roads schemes across the region.
- 24 For local comparison, CEPP note that the A47NTE is located within the administrative boundary of South Norfolk Council, Broadland District Council and Breckland Council with a small area north of the Affected Road Network (ARN) spanning into the administrative district of Norwich City Council¹⁷.
- 25 A local comparison of the A47NTE can be achieved at the district council level against emissions for Breckland, Broadland, South Norfolk and Norwich (“BBSNN”). These areas have well established historical emissions data for comparison at the relevant local authority level¹⁸, and in some cases the councils may have relevant targets.
- 26 This interpretation requires a consistent study area (see below) to be used for all schemes in the local area, and therefore has implications for the traffic modelling required, both for assessment of the scheme itself, and for the scheme in cumulation with other projects in the area.

¹⁶ https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, PDF page 41

¹⁷ Volume 6, 6.1 Environmental Statement, Chapter 5 – Air Quality [APP-044], section 5.7.3

¹⁸ <https://data.gov.uk/dataset/723c243d-2f1a-4d27-8b61-cdb93e5b10ff/emissions-of-carbon-dioxide-for-local-authority-areas>, latest data release 24th June 2021

- 27 **Currently a tangled web of data is being presented** by the applicant for the A47 schemes and NCC for its schemes (see below). The 3 A47 schemes around Norwich using different “study areas”, none of which are contiguous with the local authority boundaries. The NCC NWL scheme, and the Long Stratton by-pass, use different study areas again. This precludes being able to perform the cumulative carbon emissions assessment required by the EIA Regs for the A47NTE.
- 28 It is clearly rational to use a standard study area for all the relevant schemes, based on the BBSNN area, which captures all the schemes within it, and enables cumulative carbon emission appraisal in compliance with the EIA Reg guidance, locally and against locally available carbon targets. It is not just irrational of the applicant to attempt the piecemeal approach: it precludes compliance with the regulations on cumulative carbon emissions assessment.

N_C-4: Local cumulative carbon assessment cannot currently be done because no rational choice of study area has been made which would enable it to be calculated coherently across different schemes. By definition, coherent cumulative assessment requires a common and standard study which enables all relevant schemes in the local area to be assessed against the same baseline area. The applicant, and also Norfolk County Council, have not chosen a standard study area across the relevant local schemes.

- 29 CEPP note that Norfolk County Council decided¹⁹ on August 27th, 2021, to submit Written Representations to the A47/A11 Thickthorn Junction Examination which proposes that carbon emissions analysis on that scheme should be carried out at the county level, using county-based transport data. This aligns with the EIA Requirement for local assessment, and partly aligns with CEPP’s proposal for A47NTE to be assessed against the BBSNN area. In suggesting that that carbon impacts are better not “*diluted*” into the overall UK economy, NCC are moving one step away from the “*losing the signal in the noise*” characteristic of the Environmental Statement which we highlighted at N_C_16. CEPP assume that NCC would apply this proposal to all road schemes in Norfolk including the A47NTE. The relevant paragraph is:

*“The Environmental Impact Assessment (EIA) aligns with government policy and relates all significant road network schemes to their ‘material impact’ on meeting national carbon budget targets. The county council would suggest using the context of transport in isolation **and provide analysis at a county level, using county-based transport data**; the impact would then not be diluted into the UK’s overall impact. There is a need to demonstrate how each scheme will meet the path to net zero by 2050 on a scheme by scheme basis.”*

¹⁹ https://bit.ly/2021Aug27_PlanDeleg, NCC Planning and Highways Delegations Committee, 27th August 2021, PDF page 102

30 CEPP expand on the lack of a clear study area for local assessment in the next section.

31 CEPP will also provide an indicative local assessment for the BBSNN area later²⁰.

2.6 *Spatial scale: Irrational choice of Affected Road Network (ARN) as study area for carbon assessment*

32 Chapter 14 (Climate) of the Environmental Statement [AS-053] indicates that the study area is the ARN (eg: at 14.6.3, 14.7.3, 14.8.7, underneath Table 14-10). The ARN itself is defined in Chapter 5 (Air Quality) of the Environmental Statement [APP-044] at 5.6.7, and it is shown at Figure 5.3 [APP-057].

33 This choice of study area is irrational for the traffic modelling for operational carbon emissions assessment. The study area has been chosen on criteria related to air quality assessment, and then appropriated for carbon assessment, as if the same criteria applied. **However, air pollutants and carbon emissions have completely different physical characteristics, environmental and health impacts, and accounting requirements, so the same criteria for choice of study area do not apply.** This is a long-standing error in assessment methodologies where carbon assessment is viewed as a sub-set of air quality assessment, when in fact carbon assessment requires its own very specific methodology. This error has both scientific and regulatory repercussions.

34 Air pollutant gases, such as NO₂, have very short-range effects whereas **greenhouse gases such as CO₂ have effects which are range-less.** Pollutants like particulates (eg PM 2.5) may disperse over a wider area, but their effects are still attributable and proximal to their source, rather than range-less as in the case of CO₂.

35 Air pollutants have their environmental effect in the immediate short-range area where they impact human and ecological receptors directly. The human health impact is also short-range in this sense, and results from interaction of people directly with the pollutants, close to their source. By contrast, the environmental effect of carbon emissions is range-less – a gramme of CO₂ emitted in Norfolk or in New Zealand essentially has the same environmental effect. Similarly, the health effects of a unit of carbon emissions are range-less – so emissions in Norfolk, or New Zealand, have the same health impact on a person, for example, in the global south subsequently suffering an extreme heat or flooding event.

36 The critical factor for attributing carbon emissions is the point of source, and this is an accounting issue. The vehicle carbon emissions from the A47NTE would be

²⁰ An indicative regional assessment is not provided as it would be too complex for this WR.

emitted in the combined BBSNN area, and therefore are accountable to the carbon budgets and targets of that area.

- 37 Carbon emissions assessment need their own specific “study area” which is developed on the basis of their unique physical characteristics, environmental and health impacts, and accounting requirements. Appropriating a study area developed for pollutants with very different characteristics and requirements is irrational.

N C-5: Carbon assessment requires a study area that reflects the specific characteristics of carbon. Appropriating a “study area” used for air quality assessment to carbon assessment ignores the differences in the fundamental physical science and impacts between air pollutants and carbon emissions. As the affected road network (ARN) derived for air quality is different across each scheme, cumulative carbon assessment across schemes in the area as part of compliance with the EIA regs is precluded.

- 38 Further, it does not follow the DMRB which states that a study area for each environmental factor should be clearly defined at the earliest opportunity, and take into account cumulative effects. “LA 104²¹ Environmental assessment and monitoring” states at 3.13:

*“The study area for an assessment shall be clearly defined for **each environmental factor** at the earliest opportunity.”*

and at 3.13.1:

“The study area for an assessment should reflect the project and the surrounding environment over which effects are reasonably be thought to occur, taking into account cumulative effects.”

- 39 The applicant has failed to develop a rational study area for carbon emissions appraisal by:

- appropriating a model for pollutants with very different characteristics,
- making no attempt to develop a study area for carbon emissions as a unique environmental factor,
- not considering the accounting effects for carbon emissions which is the parameter that is most relevant to both their environmental impact, and to modelling their effects,
- not taking into account how to model and calculate cumulative effects.

²¹ <https://www.standardsforhighways.co.uk/prod/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a>

- 40 Rational modelling for the A47NTE scheme, that had EIA Reg compliant local and cumulative assessment for carbon emissions as its purpose, would start by modelling the baseline conditions in a model across the BBSNN area (ie ① baseline). Then the scheme would be introduced into the model (ie ② scheme by itself), then the schemes with other existing and/or approved projects included (ie ③ scheme in cumulative assessment). Using the BBSNN area corrects the failures listed above.
- 41 Despite the issues above which makes the ARN study area completely unusable for EIA Reg compliant local and cumulative assessment for carbon emissions, CEPP note that the ARN area includes both the A11/A47 Thickthorn junction (see map in Figure 5.3 [APP-057] and the proposed route for the Norwich Western link (NWL). So even, with the faulty study area, the A11/A47 Thickthorn scheme (A47THI) and the NWL should have been assessed for cumulative carbon emissions, **and the applicant has not attempted such an assessment.**

2.7 What developments?: Schemes to be assessed for local cumulative impacts

- 42 DMRB “LA 104²² Environmental assessment and monitoring” states at 3.19:

“EIAs must include cumulative effects in accordance with the requirements of the EIA Directive 2014/52/EU [Ref 1.N].”

and at 3.21.2:

“The assessment of cumulative effects should report on:

- 1) roads projects which have been confirmed for delivery over a similar timeframe;*
- 2) other development projects with valid planning permissions or consent orders, and for which EIA is a requirement; and*
- 3) proposals in adopted development plans with a clear identified programme for delivery.”*

N C-6: The applicant has not complied with DMRB LA 106 by not considering road projects (locally, regionally and nationally) which are confirmed for delivery over a similar timeframe for cumulative carbon effects.

- 43 For cumulative impacts, the EIA guidance notes European Case law (CJEU, C-531-13, Marktgemeinde Straßwalchen and others):

²² <https://www.standardsforhighways.co.uk/prod/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a>

“where nothing is specified, that obligation is not restricted only to Projects of the same kind” (as quoted in the guidance²³)

44 In this WR, CEPP are concerned primarily with road construction projects, as these are associated with the largest carbon emission impacts. Only considering road projects provides an incomplete assessment but, as CEPP show later, available data is limited and incomplete even on the road projects. Ideally, carbon from other infrastructure developments such as rail, and from any large building developments²⁴ should be included, but CEPP do not consider these further for this review.

45 For local assessment, CEPP identify these projects in the BBSNN area with proposal for construction before the end of the 4th Carbon budget (2023-2027) as below.

- i. A47 Blofield to North Burlingham (A47BNB)
- ii. A47 North Tuddenham to Easton (A47NTE) – this scheme
- iii. A47/A11 Thickthorn Junction (A47THI)
- iv. Norwich Western Link (NWL)
- v. Long Stratton Bypass (LSB)

46 It should be noted that this excludes schemes that may be proposed for later than 2027, and therefore is optimistic: these include additional A47 schemes like the A47 Acle Straight.

2.8 What developments?: Schemes to be assessed for national cumulative impacts

47 For national assessment, this should include at least the 50 major road schemes under the RIS2 scheme, and also the array of road schemes under Large Local Major funding programme which includes the Norwich Western Link (NWL) in the Greater Norwich area.

N C-7: The applicant has not provided any assessment of national cumulative carbon emission impacts for the scheme despite the requirement for cumulative assessment across Highway’s England networks under section 5.3(c) of the Highways England licence, and the requirement for national cumulative assessment in the EIA Regs guidance, and the NPS NN which requires compliance with the EIA Regs.

²³ https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf, PDF page 52

²⁴ House construction is typically 100 tCO₂e per home, and poor spatial planning can lead to high additional transport emissions

2.9 What types of carbon emissions?

48 Emeritus Professor of Transport Policy, Phil Goodwin²⁵, has outlined 5 main ways in which increasing road capacity increases CO2 emissions²⁶, in summary:

- Construction, embodied carbon in concrete, tailpipe emissions for vehicles, and land clearance and preparation;
- Operation, maintenance, servicing, lighting;
- Vehicle emissions from use, including induced traffic and effects of changes of traffic speed;
- Wider impacts from induced development and car-dependent lifestyles and car ownership
- Synergetic effects

49 Whilst PAS 2080 defines these categories:

- A. Capital carbon, “GHG emissions associated with the creation, refurbishment and end of life treatment of an asset”
- B. Operational carbon “associated with the operation of infrastructure required to enable it to operate and deliver its service”
- C. User carbon - “GHG emissions associated with Users’ utilisation of infrastructure and the service it provides during operation”

50 In PAS 2080, these are coded into detailed “modules” which each have their own carbon emissions quantification. For example, module A-1 is embedded emissions from “raw material supply”.

51 For this review, CEPP introduce a simplified model for the carbon emissions that should be assessed, which is closer to the applicant’s presentation, but also can be mapped to, **and is consistent** with the PAS-2080 modules. It uses seven carbon emission types for quantification, as follows:

²⁵ Emeritus Professor of Transport Policy at University College London and at the University of the West of England, also Senior Fellow (Transport and Climate Change) of the Foundation for Integrated Transport Policy

²⁶ Witness statement, Prof Phil Goodwin, for case CO/2003/2020, https://transportactionnetwork.org.uk/wp-content/uploads/2021/03/Witness-statement-of-Phil-Goodwin-23-10-2020-16-03-2021_Redacted.pdf, section 6

	<i>Accounting phase / <emission type></i>	Description	
Construction	<i>Construction <CONST></i>	Material supply including primary extraction, manufacturing, transportation and construction process and site works associated with the scheme	PAS-2080 module A
Land-use emissions from land-clearance	<i>Construction <CONST-LUC></i>	Carbon released in land-clearance (eg: for carbon rich soils or woodland destroyed)	PAS-2080 module A-5
Loss of carbon sequestration	<i>Construction <CONST-SEQ></i>	Future loss of ability to sequester carbon from habitats lost during construction	PAS-2080 module D
Operation	<i>Operation <OP></i>	Associated with the maintenance and refurbishment of the scheme, and lighting	PAS-2080 module B
Road user carbon emissions (operation)	<i>Operation <OP-USE></i>	Vehicle emissions	PAS-2080 module B-9
Carbon sequestration gained	<i>Operation <OP-SEQ></i>	Future ability to sequester carbon from habitats gained	PAS-2080 module D
End of life	<i>End of life <EOL></i>		PAS-2080 module C

Table 1

52 Each of the seven types of carbon emissions identified is given a code for future reference. So far, this just identifies the type of emissions but not its temporal, or time-frame, characteristics with respect to carbon budgets which is expanded later.

53 The land-use change emission types *<CONST-LUC>*, *<CONST-SEQ>*, and *<OP-SEQ>* are separated out as they operate in different ways and timescales. It is important to be clear on how these emissions are accounted to understand the assignment of PAS-2080 modules:

- i. *<CONST-LUC>* are land-clearance emissions created at construction time, these are then accounted as construction emissions under PAS-2080 module A-5. This interpretation is consistent with other Highways England schemes^{27, 28}.
- ii. *<CONST-SEQ>* are future carbon sequestration losses which would not occur if construction did not happen (ie “habitats lost”). These come under PAS-2080 Module D “Benefits and loads beyond the system boundary”. However, these emissions are accounted for at construction time as they result from construction. This interpretation is consistent with other Highways England applications²⁹.

²⁷ See Table 2-1 in “NORTH WEST RELIEF ROAD Carbon Management Report” where “*Land use change – removal of biomass*” emissions are listed as PAS-2080 Module A-5 emissions. **<REFERENCE>**

²⁸ See “Table 1.2 PAS 2080:2016 modules in the carbon model” in “Lower Thames Crossing

6.3/ Environmental Statement/ Appendices Appendix 15.1 Carbon and Energy Plan” [TR010032/APP/6.3],

<https://www.thamescrossingactiongroup.com/wp-content/uploads/2020/12/6.3-ES-Appendix-15.1-Carbon-and-Energy-Plan.pdf>

²⁹ See Table 14-15 in “A417 Missing Link [TR010056] 6.2 Environmental Statement Chapter 14 Climate” where “*Land use change (D)*” emissions are accounted as Construction stage emissions.

iii. *<OP-SEQ>* future carbon sequestration gains which occur if compensatory habitat is developed over the scheme lifetime (ie “habitats gained”). These are accounted over the 60-year appraisal period. This interpretation is consistent with other Highways England applications³⁰.

54 The applicant has reported emissions under the *<CONST>*, *<OP>*, *<OP-USE>* types. Land use change emissions have not been determined for the A47NTE and the significance of their quantum is unknown: this requires clarification from the applicant. End of life emissions, PAS-2080 module C, have not been determined for the A47NTE: this requires clarification from the applicant.

55 With respect to land use change emissions, when the cumulative carbon impacts are considered across several local schemes, the nature of some of the local habitats are high-carbon and therefore have a very significant level of emissions associated with them. These should be assessed for all schemes, as part of cumulative carbon impact accounting, and are included in the above Table of emission types.

2.10 Short-term, medium-term and long-term assessment timeframes

56 For context, Figure 1 lays out some key time-frames related to carbon assessment of the A47NTE. This includes two “*environmental protection objectives*” established at the UK level (as per EIA Regs Schedule 4, paragraph 5), as future carbon budgets and relevant climate change targets set under UK law for the EIA Regs: the UK Nationally Determined Contribution (NDC) under the Paris agreement and the 6th Carbon budget (6CB). The figure includes:

- The first 44 years (2025-2068) of the scheme 60-year appraisal period (2025-2084) – the last 16 years omitted for space reasons.
- The first nine 5-year carbon budgets (4CB, 5CB ... 12CB) including the three budgets already set in law: 4CB, 5CB, and 6CB. The 78% reduction of carbon emissions by 2035 associated with the 6CB and set in law.
- The availability of applicant data.
- Indicative periods, for which we justify the choice later, for the EIA Regs short-term, medium-term and long-term assessment timeframes.
- The 2050 net-zero year as set in law.
- The UK’s Nationally Determined Contribution (NDC) under the Paris Agreement, set in law as 68% reduction in carbon emissions against 1990 level.

³⁰ See Table 14-16 in “A417 Missing Link [TR010056] 6.2 Environmental Statement Chapter 14 Climate” where “*Land use and forestry (D)*” emissions are accounted for each year over the 60-year appraisal period. <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/TR010056/TR010056-000221-6.2%20Environmental%20Statement%20-%20Chapter%2014%20-%20Climate.pdf>

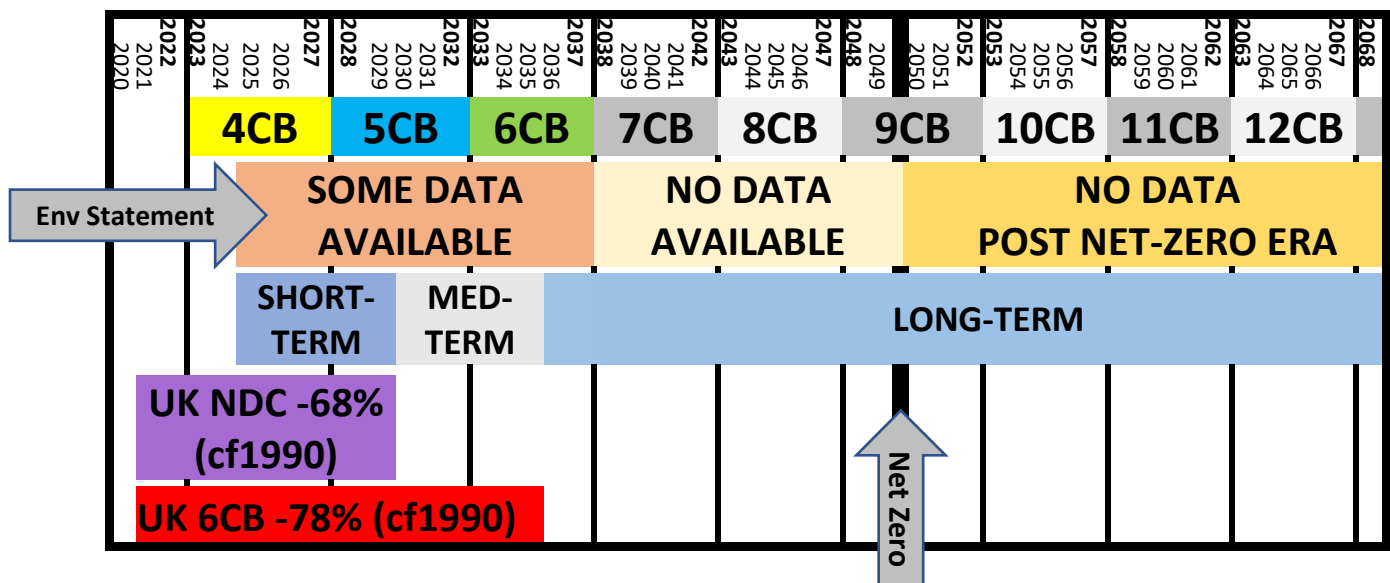


Figure 1

57 The existence of the extremely challenging NDC and the 6CB targets strongly suggest that the first five years of the scheme (2025-2030), and the first ten years (2025-2035) are critical periods for meeting UK climate change laws.

58 For these reasons, CEPP suggest that appropriate indicative timeframes for EIA Reg short-term, medium-term and long-term periods as: 2025-2030, 6 years, *short-term* period covering progress to the NDC target; 2031-2035, 6 years, *medium-term* period covering progress to the 6CB 78% target; and 2036-2084, 48 years, *long-term* and the remainder of the 60-year appraisal period. This reflects short-term and medium-term national targets which are legally binding in the UK which both fall within the first 12 years of the 60-year appraisal period.

The proposed *short-term* period is also strongly relevant to the UK’s international obligations as it ends at the end of this decade which has been identified by the United Nations and the Intergovernmental Panel on Climate Change as the critical decade in which to reduce carbon emissions globally by 50%. The proposed 48-year long-term period covers the crucial period from 2035 in which net carbon emissions first need to be eliminated completely, and then the post net-zero era in which carbon emissions need to be extracted from the atmosphere (ie: “net-negative”).

59 A further note on terminology, CEPP refers here only to the period in which the emitting happens as short-term, or medium-term. We do not refer to the environmental effect from those periods as being short-term. Scientific clarity is required to understand why we make this semantic point. In physical science³¹, and

³¹ <https://twitter.com/KenCaldeira/status/1141849042189578240?s=20> Eminent climate scientist, Prof Ken Caldeira, Carnegie Institution for Science, Stanford lead author for the U.N.’s Intergovernmental Panel on Climate Change (IPCC) AR5 report: “If you burn a lump of coal, the

the greenhouse gas radiative forcing³² effect, all emissions are long-term as carbon emissions from the short-term and medium-term period will remain in the atmosphere for centuries, unless sunk by natural or artificial carbon removal later. As shown in the footprint, the effects are devastating over the long-term, and to future people who are not present now represent their interests.

60 CEPP next review the Application for assessment in short-term, medium-term and long-term timeframes.

2.11 Issues with application in short-term, medium-term and long-term timeframes

The applicant has not attempted short-term, medium-term and long-term assessment of carbon emissions required by the EIA Regs (N_C-1)

61 The Sixth Carbon budget has only recently been legislated³³, after the applicant’s submission. The applicant’s carbon assessment [APP-053] now requires updating at Tables 14-9 and 14-10 to reflect this. So far data has been provided for the 4CB and 5CB periods, and CEPP assume that the applicant will be shortly submitting data to the ExA for the 6CB. Assuming this, the “Some Date Available” period on Figure 1 covers from 2025-2037.

62 Assuming the applicant shortly provides the 6CB data in their current Chapter 14 format, the data for 2025-2037 is incomplete, and erroneous, in the following ways:

- no cumulative carbon assessment has been done;
- no local or regional assessment has been made, either on the scheme by itself, or cumulatively;
- not all carbon emission types have been calculated;
- the flawed study area chosen does not allow meaningful local assessment, or cumulative assessment, to be made.

63 When the modelling is re-aligned to use a rational study area, for example the proposed BBSNN study area, the numerical values will change. However, based on the flawed study area and limited carbon types, the proportion of assessed emissions for the scheme itself as presented by the applicant falls across timeframes as follows: 18.7% in 4CB; 6.8% in 5CB; and 74.5% in 6CB and 7CB to 16CB. So a large proportion of emissions in the Environmental Statement are after 2032 (and after 2037 when the 6CB data is presented).

greenhouse effect from the carbon dioxide released from burning that coal will, over its lifetime in the atmosphere, heat the Earth about 100,000 times more than the thermal energy released from burning that coal.”

³² https://en.wikipedia.org/wiki/Radiative_forcing

³³ <https://www.legislation.gov.uk/ukdsi/2021/9780348222616>.

64 Within the proposed long-term timeframe, “No data available” in Figure 1 covers the period from 2037 until 2049 when the UK must be net-zero by law, and the applicant provides no assessment of this period.

N C-8: No assessment of the scheme has been made against the period 2038-2049³⁴ when the UK is required legally to achieve net-zero and over-all eliminate all carbon emissions. Significant additional emissions from road use in Norfolk are inherent in each year of this period from the applicant’s data. Further additional emissions would accrue from cumulative assessment with other local schemes, which the applicant has not carried out. Together these have an, as yet not fully assessed, material impact on the ability of Government to meet its carbon reduction targets.

65 35 years of the 60-year appraisal period, 2050-2084, are in the “post net-zero era” and the Environmental statement shows that significant levels of **additional emissions** for this period which will be necessarily net-negative. The applicant has provided no assessment of how the scheme will operate in a net-zero/net-negative world, despite this being a majority time-frame within the appraisal. As the scheme, in cumulation with other schemes (locally, regionally and nationally) will be net-positive in this period, then the applicant must provide a mitigation, carbon sequestration strategy at the minimum. The applicant appears not to have considered this issue, nor to have tried to answer it.

N C-9: No assessment of the scheme has been made against the 35-year period 2050-2084, post the 2050 net-zero target. Irrespective of UK legislative dates, scientists are clear that a net-negative world, with massive extraction of CO2 is required urgently (ie actually before 2050³⁵). Yet significant additional emissions from road use in Norfolk are inherent in each year of the 2050-2084 period in the Environmental Statement making the scheme net-positive. Further additional net-positive emissions would accrue from cumulative assessment with other local schemes, which the applicant has not carried out. Together these have an, as yet not fully assessed, material impact on the ability of the UK to its obligations under the global endeavour to stabilise global heating at 1.5°C enshrined in the Paris agreement.

³⁴ CEPP assume that the applicant will shortly provide their assessment against the sixth carbon budget (6CB, 2033-2037)

³⁵ Report from Climate Crisis Advisory Group, established and chaired by Sir David King, former UK Government's Chief Scientific Advisor from 2000 to 2007, August 2021, commentary of the IPCC 6th Assessment report “The final warning bell”, <https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/61275c5abba2ec034eefb534/1629969503477/CCAG+The+Final+Warning+Bell.pdf> :

“The CCAG is clear that the current shift in global emissions is not sufficient to avoid global disaster, and there is no ‘remaining Carbon Budget’. If proper account is taken of all greenhouse gases, and their CO2 equivalence, the 450ppm” threshold has already passed, contradicting the widespread notion of a ‘carbon budget’ that could still be spent whilst remaining below 1.5°C temperature rise.”

66 This is of great concern, as the recent IPCC report (AR6, WG1) makes it incontrovertibly clear³⁶ that global heating of 1.5°C will be *very likely*, or *likely*, breached by 2040. Whilst the Climate Crisis Advisory Group (CCAG)³⁷, a group of prominent climate scientists, commenting on the IPCC AR6 say “*it is likely that the increase in global average temperature for a month and quite possibly a year will first breach 1.5°C prior to 2030 and 2°C before mid-century*” and advise moving globally to a net-negative society as soon as possible, and well before 2050.

3 COMBINED ASSESSMENT FRAMEWORK FOR CUMULATIVE IMPACTS, SPATIAL SCALE, TYPES OF CARBON AND TIME-FRAMES

67 In the previous section, CEPP have identified considerable information that is lacking from the Environmental Statement so it fails compliance with the EIA Regs, NPS NN, DMRB and the HE Licence. This and the following section drill into these areas in more detail to identify missing data that is required for the Application to comply. To enable this, Table 2 brings together the requirements from the previous sections into one table, and also shows the available published data for each emission type.

68 A ✓ means data exists, not that its calculation is necessarily correct, or agreed with, or endorsed by CEPP. The relevant traffic models have not been made available, or even described in an accessible or transparent way, to the public. They are therefore closed data systems. As a former software engineer and scientific modeller, CEPP would require detailed information about the traffic model internals to have any confidence in the very-high level data values that are presented, from this closed system, in Chapter 14 of the Environmental Assessment. The non-disclosure of the relevant information, despite it pertaining to the biggest emergency that we face as a society, precludes independent review and scrutiny.

69 UK is signatory to the Aarhus Convention³⁸ which at Article 4 grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment, and at Article 6 highlights the requirement for early

³⁶ IPCC “Climate Change 2021, The Physical Science Basis, Summary for Policymakers, Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change”, “https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf, Section B.1 “Global 1 of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO2 and other greenhouse gas emissions occur in the coming decades.”, Section B.1.3 “Under the five illustrative scenarios, in the near term (2021-2040), the 1.5°C global warming level is **very likely** to be exceeded under the very high GHG emissions scenario (SSP5-8.5), **likely** to be exceeded under the intermediate and high GHG emissions scenarios (SSP2-4.5 and SSP3-7.0), **more likely than not** to be exceeded under the low GHG emissions scenario (SSP1-2.6) and **more likely than not** to be reached under the very low GHG emissions scenario (SSP1-1.9)” Footnote 4 indicates that *very likely* and *likely* are technical terms defined as follows “The following terms have been used to indicate the assessed likelihood of an outcome or a result: virtually certain 99–100% probability, very likely 90–100%, likely 66–100%, about as likely as not 33–66%, unlikely 0–33%, very unlikely 0–10%, exceptionally unlikely 0–1%.”

³⁷ CCAG report, August 2021, “The final warning bell”, <https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/61275c5abba2ec034eefb534/1629969503477/CCAG+The+Final+Warning+Bell.pdf>

³⁸ <https://unece.org/DAM/env/pp/documents/cep43e.pdf>

public involvement. The applicant is in contravention of the terms of the Aarhus Convention.

N C-10: The lack of transparent information and data about the traffic models on which operational carbon emissions are based does not allow any independent review and scrutiny of the high-level figures published in the Environmental Statement. The applicant is in contravention of the terms of the Aarhus Convention.

- 70 A * means that as far as CEPP know published data is not available.
- 71 The ?✓ for the national cumulative data means that data may be available for some of the schemes in each of the RIS2 and LLM categories, but the ☒ for RIS2 indicates its calculation is currently contested in the Courts³⁹ and by experts⁴⁰. Following a judgement in the lower court, the claimant in this case, Transport Action Network, released a press statement on the day of the judgement⁴¹ stating that they have sought permission to appeal the ruling.
- 72 The ?* for national cumulative data means that largely this data is not known, and cumulative total across the sum of relevant schemes has not been published by any authorities.
- 73 The *↑↑ indicates that construction and land use change carbon emissions are expected to be high on the NWL scheme: <CONST> emissions due to a 700m viaduct within the scheme requiring a large quantum of cement; <CONST-LUC> due to significant areas of woodlands, veteran and ancient trees, and carbon-rich soil that would be disrupted; and <CONST-SEQ> due to loss of significant areas of woodlands, veteran and ancient trees, and carbon-rich soil sinks that currently provide ecological services as carbon sinks. Data on this is required for the cumulative assessment to be completed for this scheme, but NCC have made no information available on these impacts yet.

Note that the EIA Scoping Opinion [APP-136] by the Planning Inspectorate on behalf of the SoS states on Combined and Cumulative Effects (Scoping Report section 15) at ID 4.11.4 (in the “Aspect Based Scoping Tables” section4):

“The cumulative assessment should include the Norwich [Western – sic] Link Road which is proposed to be built in proximity to the Proposed Development and may have an overlapping construction period with the Proposed Development.” (our emphasis)

³⁹ <https://transportactionnetwork.org.uk/ris2-legal-case/> - Transport Action Network Limited v The Secretary of State for Transport (And Highways England Company Limited), CO/2003/2020

⁴⁰ Witness statement, Prof Jillian Anable, for case CO/2003/2020, https://transportactionnetwork.org.uk/wp-content/uploads/2021/03/Witness-statement-of-Jill-Anable-23-10-2020-16-03-2021_Redacted.pdf

⁴¹ <https://transportactionnetwork.org.uk/wp-content/uploads/Court-protects-stability-of-roads-programme-over-climate-RIS2-decision-press-release.pdf>

The applicant has not provided this data. This is required to meet the EIA Regs, and PINS Scoping Opinion on it. Provision of this data requires urgent resolution between NCC and the applicant.

N C-11: The applicant has ignored PINS advice in the EIA Scoping opinion to do cumulative assessment with the Norwich Western link road (NWL).

74 The “Temporal” column indicates which carbon budget period the emissions fall.

75 In Table 2, CEPP have broken down some emission types for assessment, over the next three published UK carbon budgets (4CB, 5CB and 6CB), and their 60-year assessment period. This corresponds to the applicant’s submission for <CONST>, <OP> and <OP-USE> types.

Type and accounting period	Temporal	This scheme	BBSNN area cumulative				National cumulative	
		A47NTE	A47BNB	A47THI	NWL	LSB	RIS2	LLM
<CONST> ^{4CB}	4CB	✓	✓	✓	x↑↑	x	?x	?x
<CONST-LUC> ^{4CB}	4CB	x	x	x	x↑↑	x	?x	?x
<CONST-SEQ> ^{4CB}	4CB	x	x	x	x↑↑	x	?x	?x
<i>NB: Schemes beyond 4CB construction excluded</i>								
<OP> ^{4CB}	4CB	✓	✓	✓	x	x	?x	?x
<OP> ^{5CB}	5CB	✓	✓	✓	x	x	?x	?x
<OP> ^{6CB}	6CB	✓+	✓+	✓+	x	x	?x	?x
<OP> ^{60YR}	Long-term	✓	✓	✓	x	x	?x	?x
<OP-USE> ^{4CB}	4CB	✓	✓	✓	✓	✓	?✓☒	?✓
<OP-USE> ^{5CB}	5CB	✓	✓	✓	✓	✓	?✓☒	?✓
<OP-USE> ^{6CB}	6CB	✓+	✓+	✓+	x	✓	?✓☒	?✓
<OP-USE> ^{60YR}	Long-term	✓	✓	✓	✓	✓	?✓☒	?✓
<OP-SEQ> ^{60YR}	Long-term	x	x	x	x	x	?x	?x
<EOL>	-	x	x	x	x	x	?x	?x

Table 2

✦ CEPP assume 6CB data will be provided during the respective examination periods for these schemes if it hasn’t already

76 Table 2 shows that the required data is very incomplete. For local cumulative assessment especially, reliable construction and land-use change emissions for the Norwich Western link scheme, as high-lighted above, are missing.

77 For national cumulative assessment, much of the data is missing or contested, suggesting that a national cumulative assessment may not be possible within the timeframe of the Examination. If the data is not available to the Examination, then a

conclusion may not be possible, on whether the A47NTE, or the RIS1/2 programmes of which it is part, are consistent with the legal and policy requirements and obligations (eg: the 4CB, 5CB and 6CB Carbon budgets, the 2030 national target of 68% reduction in the UK National Determined Contribution under the Paris Agreement⁴², and the 6CB 2035 78% reduction by 2035⁴³ target). The Secretary of State may be required to make an assessment for the DCO decision.

78 CEPP note two recent DCO applications where the Secretary of State has required further information on cumulative effects of the development on climate, including greenhouse gas emissions, “*which should be set in light of the requirements set out in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and in light of paragraphs 5.17 and 5.18 of the National Policy Statement for National Networks*”. These are:

- i. The A38 Derby Junctions (see letter of August 2nd, 2021, in Appendix D)
- ii. M54 to M6 Link Road (see letter of August 9th, 2021, in Appendix E)

This would appear to indicate that the Secretary of State is requiring cumulative assessment of carbon emissions, in line with the NPS NN and EIA Regs, in order to be able to decide DCOs for road schemes.

N C-12: In two recent DCO applications, the SoS is requiring cumulative carbon assessment in line with the NPS NN and EIA Regs. This implies that the Environmental Statement for the scheme, which has no cumulative carbon assessment, is inadequate under the EIA Regs, and the ExA should consider this under EIA Reg 20.

4 PRACTICAL ISSUES: CARBON IMPACTS ASSESSMENT OF THE PROJECT

79 The carbon assessment architecture described in the previous section has several practical requirements, especially for the calculation of vehicle emissions that derive from transport models, in order for a coherent carbon assessment to be made which are now described.

4.1 Study areas for vehicle use emissions in cumulative assessment

80 To sum the vehicle emissions (<OP-USE>) to determine an overall cumulative figure for this emission type, the modelling study areas must be the same. Currently, they are not. The only solution is start with the same study for all schemes. CEPP have already discussed this above and proposed that the BBSNN

⁴² 12th December 2020, <https://www.gov.uk/government/publications/the-uks-nationally-determined-contribution-communication-to-the-unfccc>

⁴³ <https://www.legislation.gov.uk/ukdsi/2021/9780348222616>

area which provides a common study area which is also contiguous with local authority areas for which common carbon budgets and targets may be provided.

4.2 Model baseline years for vehicle use emissions

- 81 The Norwich Area Transport Strategy (NATS) models are used both by the applicant for the A47 schemes and by the County Council for their schemes. Despite, apparent standardisation on overall choice of NATS, the models are run from different baseline years. NCC has chosen to adopt a different NATS model (base year 2019 – “NATS-2019”) for its NWL scheme whilst Highways England use an earlier model (base year 2015 – “NATS-2015”) for the A47 schemes.
- 82 This raises an initial concern that the applicant is using a NATS-2015 baseline when the local transport authority, NCC, have made a preference for NATS-2019.
- 83 However, NCC have not adequately demonstrated that the NATS-2019 model is a closer reflection of real and predicted traffic patterns. This is shown by a CEPP analysis of data from NCC for the NWL modelled with an earlier study with NATS-2015 (for a Strategic Outline Business Case, SOBC in 2019), and their current Outline Business Case (OBC in 2021) study at NATS-2019, as below.
- 84 Table 3 shows a comparison of high-level vehicle km data from the studies. The ticks ✓ indicate that the A47NTE scheme is included within all models of the NWL shown as already existing.

	<u>NWL/SOBC (2019)</u>		<u>NWL/OBC (2021)</u>	
	NATS-2015		NATS-2019	
NWL	Do Minimum	Do Something	Do Minimum	Do Something
A47NTE	✓	✓	✓	✓
Vehicle km	SOBC-DM	SOBC-DS	OBC-DM	OBC-DS
2025 km	5950805 ⁴⁴	5707558 ⁴⁵	4136000 ⁴⁶	4087000 ⁴⁷
2040 km	6788116 ⁴⁸	6853722 ⁴⁹	4904000 ⁵⁰	4767000 ⁵¹
2025 OBC/SOBC Vkm			-30.50%	-28.39%
2040 OBC/SOBC Vkm			-27.76%	-30.45%
2025 DS-DM Vkm		-243247		-49000
2040 DS-DM Vkm		65606		-137000

Table 3

CEPP observe two key effects:

- 85 **Blue shaded area:** There is a reduction of around 30% of vehicle km in the modelling between the SOBC and OBC modelling, on all scenarios (ie: DM/DS, 2025/2040).
- 86 **Orange shaded area:** In the SOBC model, introduction of the NWL reduces overall vehicle km at the opening year. Traffic then expands over time faster with the NWL, so that by the forecast year, Vkm are relatively greater with the NWL. **By contrast,** in the OBC model, after an initial reduction of traffic with the NWL, traffic expands less slowly with the NWL so that by the forecast year, there is a relatively greater reduction in Vkm with the NWL.

⁴⁴ Table 5.29, NWL SOBC, OSR, PDF page 112, https://bit.ly/2019Jul15_NWL_OSR

⁴⁵ Table 5.29, NWL SOBC, OSR, PDF page 112, https://bit.ly/2019Jul15_NWL_OSR

⁴⁶ NWL OBC, Environmental Impact Report, 4.7.3, p33, <https://www.norfolk.gov.uk/-/media/norfolk/downloads/roads-and-transport/nwl/environmental-impact-report.pdf>

⁴⁷ NWL OBC, Environmental Impact Report, 4.7.3, p33, <https://www.norfolk.gov.uk/-/media/norfolk/downloads/roads-and-transport/nwl/environmental-impact-report.pdf>

⁴⁸ Table 5.29, SOBC, OSR, PDF page 112, https://bit.ly/2019Jul15_NWL_OSR

⁴⁹ Table 5.29, SOBC, OSR, PDF page 112, https://bit.ly/2019Jul15_NWL_OSR

⁵⁰ OBC, Environmental Impact Report, 4.7.3, p33, <https://www.norfolk.gov.uk/-/media/norfolk/downloads/roads-and-transport/nwl/environmental-impact-report.pdf>

⁵¹ OBC, Environmental Impact Report, 4.7.3, p33, <https://www.norfolk.gov.uk/-/media/norfolk/downloads/roads-and-transport/nwl/environmental-impact-report.pdf>

87 An explanation is required from NCC as to why these significant differences are observed between the models.

- **Simply, how have 30% of vehicle km been lost between the modelling using different base years?**
- **And how has the relative traffic growth been switched from year-on-year increasing with an NWL in the SOBC model run to year-on-year decreasing with an NWL in the OBC model run?**

88 As far as the A47NTE, the applicant needs to provide a rationale for continuing with an older traffic model when NCC has upgraded. However, given that the A47NTE and NWL are physically connected, and that PINS previously requested that cumulative environmental assessment is done for A47NTE including the NWL, **the applicant must provide new traffic modelling that allows cumulative environmental assessment which is consistent between both schemes.**

N C-13: PINS requested that cumulative environmental assessment is done for A47NTE including the NWL, but traffic modelling for the two schemes uses different base years, and there is a major loss of traffic from one model which remains unexplained. The applicant must provide new traffic modelling that allows cumulative environmental assessment, which is consistent between both schemes, and corrects errors.

4.3 What needs to be done to facilitate cumulative assessment of vehicle emissions (<OP-USE>)

89 In summary, the precursor for assessing cumulative operational carbon emissions across these schemes is a coherent and consistent modelling environment. To achieve this, it is necessary:

- A. To choose an appropriate “study area” which covers all the schemes. A rational approach would be to choose BBSNN area.
- B. To set a common base year for the model version, agreed between Highways England and NCC.
- C. To develop a consistent set of model assumptions to apply. CEPP cannot say further what these should be, as the traffic models and their assumptions have not been made publicly available by the applicant.
- D. To set the “Do Minimum” (DM) model run at the correct current environmental baseline in which none of these schemes exist. Currently, in 2021, as far as vehicle carbon emissions, none are emitted from any of the A47 schemes, nor from the NWL scheme or the LSB scheme. This is the correct baseline for DM modelling, and, as the current environmental baseline, aligns with the EIA Regs guidance, described above, on the choice of the baseline for an EIA.

5 LOCAL CUMULATIVE ASSESSMENT

90 Despite limited and faulty data, as described above, CEPP now provide an indicative local cumulative assessment.

	1	2	3	4	5			
	tCO2e		No schemes	This scheme	BBSNN cumulative DS ^{ACCU}			
	Accounting type	Temporal	DM	DS ^{A47NTE}	A47BNB	A47THI	NWL	LSB
A	<CONST> ^{4CB}	4CB	0	87,727 ⁵²	25,765 ⁵³	25,946 ⁵⁴	✖↑↑	✖
B	<CONST-LUC> ^{4CB}	4CB	0	✖	✖	✖	✖↑↑	✖
C	<CONST-SEQ> ^{4CB}	4CB	0	✖	✖	✖	✖↑↑	✖
<i>NB: Schemes beyond 4CB construction excluded</i>								
D	<OP> ^{4CB}	4CB	0	39	66	54	✖	✖
E	<OP> ^{5CB}	5CB	0	63	110	90	✖	✖
F	<OP> ^{6CB}	6CB	0	63	110	90	✖	✖
G	<OP> ^{60YR}	Long-term	0	780 ⁵⁵	1,320 ⁵⁶	1,080 ⁵⁷	✖	✖
H	<OP-USE> ^{4CB}	4CB	2,848,032 ⁵⁸	2,871,892 ⁺	Requires modelling			
I	<OP-USE> ^{4CBΔ}	4CB Δ	0	23,860 [*]	Derivable H5-H3			
J	<OP-USE> ^{5CB}	5CB	4,640,659 ⁵⁹	4,681,289 ⁺	Requires modelling			
K	<OP-USE> ^{5CBΔ}	5CB Δ	0	40,630 [*]	Derivable J5-J3			
L	<OP-USE> ^{6CB}	6CB	✖	✖	Requires modelling			
M	<OP-USE> ^{6CBΔ}	6CB Δ	0	✖	Derivable L5-L3			
N	<OP-USE> ^{60YR}	Long-term	53,142,467 ⁶⁰	53,738,477 ⁺	Requires modelling			
O	<OP-USE> ^{60YRΔ}	Long-term Δ	0	596,010 [*]	Derivable N5-N3			
P	<OP-SEQ>	Long-term	0	✖	✖	✖	✖	✖
Q	<OP-SEQ> ^{60YR}							
R	<EOL>	-	0	✖	✖	✖	✖	✖

Table 4

(⁺Derived as <ES Chapter 14 “Operation DS”> - <OP>; ^{*}Derived as <OP-USE>^{DS} - <OP-USE>^{DM})

91 Table 4 shows the sequential cumulative assessment as laid out in “Requirements of the EIA regulations” above, and fills in figures where they are published. This indicates 3 model runs: ① Baseline ie “No schemes”; ② Impact of “this scheme”; and ③ Impact of cumulative schemes in the BBSNN Area.

⁵² Section 14.8.3, A47 NORTH TUDDENHAM TO EASTON DUALLING, Environmental Statement Chapter 14 Climate [TR010038/APP/6.1, APP-053]

⁵³ Section 14.8.3, A47 BLOFIELD TO NORTH BURLINGHAM DUALLING, Environmental Statement Chapter 14 [TR010040/APP/6.1, REP2-002]

⁵⁴ Section 14.8.3, A47/A11 THICKTHORN JUNCTION, Environmental Statement Chapter 14 Climate [TR010037/APP/6.1, APP-051]

⁵⁵ Section 14.8.4, A47 NORTH TUDDENHAM TO EASTON DUALLING, Environmental Statement Chapter 14 Climate [TR010038/APP/6.1, APP-053]

⁵⁶ Section 14.8.4, A47 BLOFIELD TO NORTH BURLINGHAM DUALLING, Environmental Statement Chapter 14 [TR010040/APP/6.1, REP2-002]

⁵⁷ Section 14.8.4, A47/A11 THICKTHORN JUNCTION, Environmental Statement Chapter 14 Climate [TR010037/APP/6.1, APP-051],

⁵⁸ Table 14-10, A47 NORTH TUDDENHAM TO EASTON DUALLING, Environmental Statement Chapter 14 [TR010038/APP/6.1, APP-053]

⁵⁹ Table 14-10, A47 NORTH TUDDENHAM TO EASTON DUALLING, Environmental Statement Chapter 14 [TR010038/APP/6.1, APP-053]

⁶⁰ Table 14-10, A47 NORTH TUDDENHAM TO EASTON DUALLING, Environmental Statement Chapter 14 [TR010038/APP/6.1, APP-053]

- 92 For the cumulative model run across BBSNN, the same ‘rational’ study area would be run, as for the scheme itself and the baseline, but with the inclusion of the further schemes into the modelling.
- 93 All three model runs also require the same NATS model (same base year) and the same configuration of it for a reliable cumulative impact assessment to be made.

5.1 Notes on Table 4

- 94 CEPP introduce the Δ symbol to indicate where differential, or *delta*, data is used as opposed to *absolute* carbon emissions.
- 95 It is important to note that the Δ data is very often small differences between exceptionally large base absolute emissions, and it is the very large quantum of absolute carbon emissions which are being generated year-on-year in the BBSNN area. The small differential, delta, figures reported, as in the 60-year vehicle carbon appraisal, masks the underlying massive erosion of any available carbon budgets by the continuing with a UK and Norfolk transport system which profiles a very high absolute carbon footprint (eg: transport is >40% of the total BEIS carbon footprint in the BBSNN area as we calculate in Table 5). For example, the 60-year absolute carbon emissions across the ARN (a smaller area than BBSNN) for the scheme are over 53 MtCO_{2e}, but the delta figure reported is 596,010 tCO_{2e} (about 1%). When comparing emissions to carbon budgets, it is preferable to use absolute data, as the carbon budgets themselves are absolute, finite, and actually already used up⁶¹.

N C-14: Even before cumulative carbon emissions are considered, the applicant’s carbon assessment does not reduce operational carbon emissions (from vehicle use) over the 60-year appraisal period, as is required to comply with the government’s Transport Decarbonisation Plan (TDP⁶²) for ambitious quantifiable carbon reductions in transport at the local level. It shows an addition of 596,000 tCO_{2e} over the already very high baseline of over 53,000,000 tCO_{2e} over the study area. In the critical 4th carbon budget that spans half of this decade in which United Nations have said we must halve emissions, an additional 111,626 tCO_{2e} will be emitted from construction and operation of the scheme. Such additional carbon emissions without any mitigation plan are not acceptable in the Climate Emergency.

⁶¹ Report from Climate Crisis Advisory Group, established and chaired by Sir David King, former UK Government's Chief Scientific Advisor from 2000 to 2007, August 2021, commentary of the IPCC 6th Assessment report “The final warning bell”, <https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/61275c5abba2ec034eefb534/1629969503477/CCAG+The+Final+Warning+Bell.pdf> :

“The CCAG is clear that the current shift in global emissions is not sufficient to avoid global disaster, and there is no ‘remaining Carbon Budget’. If proper account is taken of all greenhouse gases, and their CO₂ equivalence, the 450ppm” threshold has already passed, contradicting the widespread notion of a ‘carbon budget’ that could still be spent whilst remaining below 1.5°C temperature rise.”

⁶² “Decarbonising Transport: A Better, Greener Britain”, Transport Decarbonisation Plan (TDP), July 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf, PDF Page 151:

“Going forward, local transport plans (LTPs) will also need to set out how local areas will deliver **ambitious quantifiable carbon reductions in transport**, taking into account the differing transport requirements of different areas. This will need to be in line with carbon budgets and net zero.”

- 96 The orange shaded area reproduces the data from the Environmental Statement, or derived from the data, as indicated. However, it should be noted that this is effectively a ‘placeholder’ in the Table for correctly assessed data that does not exist yet: this would be new calculations of data made via the cumulative assessment architecture described. As stated above, this would require a rational study area – the current ARN used is not. When this is corrected, the scheme is run on a new study area, the figures will be different.
- 97 CEPP note that the applicant has not reported changes in traded and non-traded emissions which is data that should have been produced in the 60-year appraisal and is usually reported.

N C-15: The applicant has not provided the traded and non-traded operational emissions, and should make the 60-year appraisal and the TAG GHG workbook available to the Examination.

5.2 “Three carbon totals” to assess against local budgets

- 98 CEPP identify three carbon totals to take forward to an indicative assessment against local budgets for the 4th carbon budget. These are:
- A. The applicant’s “Difference (DS-DM)” figure for the 4th Carbon budget from APP-053, Table 14-10 of **111,626 tCO₂e** (label in Table 5 below: “A47NTE”).
 - B. This figure with the <CONST>^{4CB} and <OP>^{4CB} figures for A47BNB and A47THI schemes added to A. This is **111,626 +25,765+25,946+66+54 = 163457 tCO₂e** (“A47NTE_CUMU1”). This figure is *far below even a minimum estimate* of the BBSNN cumulative total for 4CB but represents the sum of known data. The additional <OP-USE> vehicle emissions data is not known in the cumulative case, and nor are other carbon emissions for the NWL schemes, expected to be high (see below).
 - C. A more realistic guess-estimate of the BBSNN cumulative total for 4CB of **300,000 tCO₂e** (“A47NTE_CUMU2”). This is a guess-estimate for a final figure of additional emissions which must include the <CONST>^{4CB}, <CONST-LUC>^{4CB}, and <CONST-SEQ>^{4CB} for the NWL and other emissions on the NWL and LSB. CEPP have already indicated that the construction, land-use, and sequestration-loss figures for the NWL are expected to be large.
- 99 As our comment above, the A, B and C figures above have been produced from modelling which has several issues including incoherent study areas, different NTS base years, different model configuration. By taking these figures forward as indicative values, CEPP do not endorse them, or accept them as correct.

100 Note that most of these carbon emissions figures, from construction emissions, can be expected to be accounted for in 1 year, 2025, although vehicle use and operation emissions are also included for 2026 and 2027. The data, therefore, represents various estimates of an emissions spike which would predominantly occur in 2025.

101 The next section makes the assessment, first providing some background on carbon budgets.

6 ASSESSMENT AGAINST LOCAL CARBON BUDGETS

6.1 What is a carbon budget and how does it point to the truth?

102 A financial budget is defined as ‘a plan to show how much money a person or organisation will earn and how much they will need or be able to spend’⁶³. A carbon budget is similar, but instead of money, it sets out “the cumulative amount of carbon dioxide (CO₂) emissions permitted over a period of time to keep within a certain temperature threshold⁶⁴.” **Unlike money, for carbon budgets, there are no overdraft facilities, nor national deficits, not quantitative easing mechanisms from central banks.** Once a CO₂ budget is spent, it cannot be recovered, and the laws of physics determine the consequences for the planet and for humanity⁶⁵. Carbon budgets reveal the truth of this situation.

103 The “laws of physics” can now provide increasingly accurate modelling of the global and local carbon budgets. In the last five years the reports of the Intergovernmental Panel on Climate Change (IPCC) have highlighted that our political institutions, businesses, and society have not started to respond to the climate emergency with the urgency required. Simply put we are living outside of our budget.

104 Collectively, we now know that this decade is the most crucial decade for reversing 200 years of carbon polluting activities, reversing the rash, profligate spending of our collective carbon budget, and building a new future based on a non-polluting global society. It is crucial that we address this emergency using every tool possible, and this includes carbon budgets and their capacity to point to the truth of where we are not doing enough, **and what we may be unable to do or build consequently.**

⁶³ <https://dictionary.cambridge.org/dictionary/english/budget>

⁶⁴ <https://carbontracker.org/carbon-budgets-explained/>

⁶⁵ Greenhouse gas removals (GGR) and negative emissions technologies may provide extremely costly, speculative, and unproven at scale methods which proxy for an “overdraft facility”. Even if these work, they would be like paying back a loan at a huge interest rate. See, Kevin Anderson , John F. Broderick & Isak Stoddard (2020): A factor of two: how the mitigation plans of ‘climate progressive’ nations fall far short of Paris-compliant pathways, Climate Policy, DOI: 10.1080/14693062.2020.1728209, Appendix A “*However, there is wide recognition that the efficacy and global rollout of such technologies are highly speculative, with a non-trivial risk of failing to deliver at, or even approaching, the scales typically assumed in the models. ... Whilst the authors of this paper are supportive of funding further research, development and, potentially, deployment of NETs, the assumption that they will significantly extend the carbon budgets is a serious moral hazard (Anderson & Peters, 2016).*”

105The Paris Agreement 2015 is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016⁶⁶. The UK is a signatory to the agreement. Its goal is to limit global heating to well below 2°C degrees, preferably to 1.5 °C, compared to pre-industrial levels.

106Scientists have established models that calculate how much more carbon dioxide⁶⁷ may be emitted globally into the atmosphere before breaching various temperatures of global overheating – eg: how many billions of tonnes (or Gigatonnes, GtCO₂) before breaching 1.5 degrees, how many billions of tonnes before breaching 2.0 degrees etc. These are referred to as carbon budgets, and CEPP have previously explained them above as a bank account analogy but with no overdraft, deficit, or quantitative easing facilities available.

107**It is important to understand the difference between science-based carbon budgets and political targets like the net-zero target in the UK.** Net-zero by 2050 can be achieved by many different paths or trajectories of annual carbon emissions, and the carbon emitted is basically the area under the curve. Annual emissions cuts may be backloaded or front loaded. Backloaded, or less steeply front-loaded, cuts will have a much greater quantum of carbon emissions emitted under the curve, and therefore also use much more of the carbon budget. Science-based carbon budgets by contrast aim to define a trajectory which meet a criterion – in the examples here, the path necessary to meet the temperature target in the Paris agreement. The UK Committee on Climate Change publishes paths and budgets, but their ability to meet the criteria of the Paris temperature target has not been demonstrated scientifically – although CCC may claim, and genuinely, endeavour to meet that criterion. In fact, the CCC budgets, and assumptions, and hence UK carbon budgets, are increasingly challenged by scientists, see below.

108It is further worth noting that a recent report⁶⁸ from Climate Crisis Advisory Group (CCAG) has recently said that there is no remaining carbon budget and policy should be directed towards net-negative carbon emissions as soon as possible. The report says:

“The CCAG is clear that the current shift in global emissions is not sufficient to avoid global disaster, and there is no ‘remaining Carbon Budget’. If proper account is taken of all greenhouse gases, and their CO₂ equivalence, the 450ppm threshold has already passed, contradicting the widespread notion of a ‘carbon budget’ that could still be spent whilst remaining below 1.5°C temperature rise.”

⁶⁶ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

⁶⁷ In fact, the models assess a variety of Greenhouse Gases, but for simplicity we restrict this document to CO₂ (carbon dioxide) carbon budgets

⁶⁸ CCAG report, August 2021, “The final warning bell”, <https://static1.squarespace.com/static/60ccae658553d102459d11ed/t/61275c5abba2ec034eefb534/1629969503477/CCAG+The+Final+Warning+Bell.pdf>

The CCAG was founded, and is chaired, by the eminent scientist Professor Sir David King, Fellow the Royal Society (FRS), and former UK Government's Chief Scientific Advisor from 2000 to 2007. CCAG comprises prominent climate scientists. It was created in response to the Climate Emergency this year, as a new advisory group to help inform the public, governments and financial institutions providing them with the most comprehensive science, and more crucially, guiding them towards action for climate repair. CCAG's important scientific commentary on the climate crisis can be made by their small group on a faster cycle than the IPCC.

6.2 Science-based carbon budget assessment of compliance against UK obligations under the Paris agreement

109 To understand what emission reductions should be made in UK local authority areas to make a 'fair' contribution⁶⁹ towards the Paris Climate Change Agreement, scientists at Manchester Tyndall centre have taken IPCC global carbon budgets and produced the so-called SCATTER budgets for UK local authorities. SCATTER stands for Setting City Area Targets and Trajectories for Emissions Reduction project and was funded by the Department for Business Energy and Industrial Strategy (BEIS). It developed a methodology for Local Authorities to set carbon emissions targets that are consistent with United Nations Paris Climate Agreement⁷⁰. The Tyndall budget for the BBSNN area is given in Appendix F.

110 These budgets translate the "well below 2°C and pursuing 1.5°C" global temperature target, and the equity principles enshrined in the United Nations Paris Agreement, to a national UK carbon budget which is then split between sub-national areas using different allocation regimes.

111 The assumptions for this transformation from global to local budgets in given in two sources:

- a) a 2020 Climate Policy paper⁷¹, widely referred to as the "Factor of Two" paper
- b) the "full" report from the Tyndall Carbon Budget Tool for UK Local Authorities⁷², widely referred to SCATTER budgets

⁶⁹ 'fair' meaning equitable under the Paris Agreement equity principles between developing and developed nations, known as Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) <https://www.oxfordclimatesociety.com/blog/what-you-need-to-know-about-common-but-differentiated-responsibility>

⁷⁰ <https://carbonbudget.manchester.ac.uk/about/>

⁷¹ Kevin Anderson, John F. Broderick & Isak Stoddard (2020): A factor of two: how the mitigation plans of 'climate progressive' nations fall far short of Paris-compliant pathways, Climate Policy, DOI: 10.1080/14693062.2020.1728209

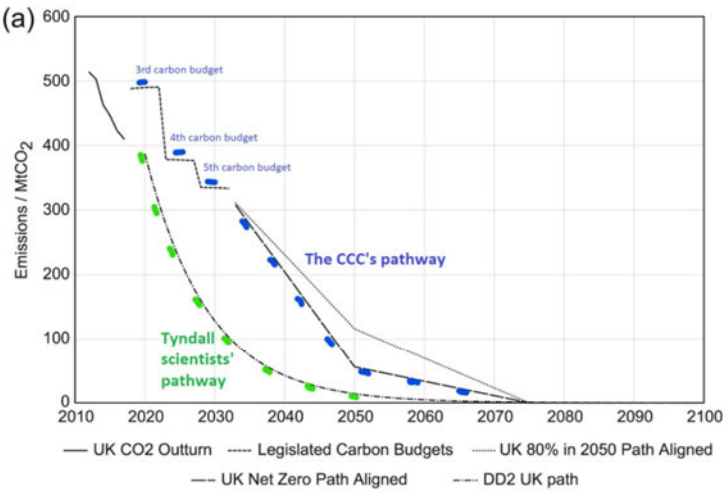
⁷² <https://carbonbudget.manchester.ac.uk/reports/>

These two sources are authored by the same research group and are internally consistent. The “Factor of Two” paper is a landmark in 2020 in appraising national carbon budgets.

6.3 Relevant carbon budgets/targets derivable from the Climate Change Committee

112The Climate Change Committee (CCC) has recently published its sixth Carbon Budget (6CB) report. Its headline recommendation is for the UK to deliver a reduction in net annual emissions of 78%, against a 1990 baseline, by 2035. Previous UK ambition was targeting an 80% reduction against 1990 figures by 2050 under the original Climate Change Act, so this represents a halving of the time to get to around 80% emission cuts (against 1990 baseline) from 2020.

113However, the CCC do not show anywhere how the 6th Carbon Budget (6CB) can be derived directly by a stepwise downscaling from a scientifically established global carbon budget (in contrast to the Manchester Tyndall references above which do demonstrate this). The derivation of the 6CB is focussed more on meeting the national, politically set, net zero-target of 2050 via an array of policy interventions rather than fitting to a specific carbon budget (relating to the back-loading and front-loading point above).



This graph is from the [Factor of Two paper](#) by climate scientists at the Tyndall centre. People & Nature added the highlights. The pathway for UK carbon emissions highlighted in green is one that, the scientists argue, is compatible with the Paris agreement. The pathway highlighted in blue is one they have plotted to reflect the CCC's emissions reductions proposals: it implies cutting emissions at about half the pace that the scientists' pathway implies

Figure 2

114Generally, the difference between the Tyndall and CCC carbon budgets is that the Tyndall ones are 2 – 3 times smaller (and tighter). As shown above, the Tyndall budgets have rapid decarbonisation from 2020 in order to meet the overall budget

(area under the curve). The Tyndall trajectory is derived from the IPCC budget for 1.7°C, supporting the point from CCAG that there is no remaining budget for 1.5°C.

115The graph above is taken from⁷³ and illustrates the difference between CCC and Tyndall carbon budgets. In simple terms, the carbon budget is the area under the annual emissions trajectory curve. Issues such the shape of the curve, front-loading or back-loading emissions reductions can produce vastly different curves and corresponding *areas under the curve*. So it is possible for the UK to meet net-zero at 2050 via vastly different overall carbon budgets. Therefore “net-zero”, in itself, is not a good measure of compliance with the Paris agreement temperature target whereas a science-based carbon budget is.

116Further, the details of the carbon accounting differ, so it is non-trivial to get a like-for-like comparison between the science-based carbon budget from Manchester Tyndall and the Climate Change Committee budgets. For further information, see footnotes⁷⁴.

⁷³ <https://peopleandnature.wordpress.com/2021/07/08/how-the-uk-climate-change-committee-steals-from-the-carbon-budget/>

⁷⁴ “How the UK Climate Change Committee steals from the carbon budget”, blog post by Professor Peter Somerville, 8th July 2021, <https://peopleandnature.wordpress.com/2021/07/08/how-the-uk-climate-change-committee-steals-from-the-carbon-budget/> and “Calculating a fair carbon budget for the UK”. blog post by Professor Peter Somerville, 8th July 2021, <https://peopleandnature.wordpress.com/2021/07/08/calculating-a-fair-carbon-budget-for-the-uk/>

6.4 Short-term assessment against local carbon budgets

117 CEPP now assess three carbon emissions totals - “A47NTE”, “A47NTE_CUMU1”, “A47NTE_CUMU2” derived above - against three carbon budgets from historic BEIS data, the published 4th carbon budget, and science-based budgets from the Tyndall Centre.

tCO₂e		<i>A47NTE - 111,626 tCO₂e</i>	<i>A47NTE_CUMU1 - 163,457 tCO₂e</i>	<i>A47NTE_CUMU2 - 300,000 tCO₂e</i>
2019 BEIS ANNUAL	BBSNN area	BBSNN area	BBSNN area	BBSNN area
Transport total 2019 ANNUAL	1,157,866	9.64%	14.12%	25.91%
LA area 2019	2,885,555			
% Transport of Total	40.13%			
4th Carbon Budget				
Transport (2023-2027) 5-YEAR	6,503,733	1.72%	2.51%	4.61%
Transport (2023-2027) ANNUAL	1,300,747	8.58%	12.57%	23.06%
LA Area (2023-2027) by population ANNUAL	3,241,631			
% UK Population	0.83%			
Carbon Budget ANNUAL	390,000,000			
Tyndall SCATTER budget				
Transport (2023-2027) 5-YEAR	2,371,464	4.71%	6.89%	12.65%
Transport (2023-2027) ANNUAL	474,293	23.54%	34.46%	63.25%
LA Area (2023-2027) ANNUAL	1,182,000			

Table 5

118 Table 5 gives the assessment. The left-hand side of the table displays the budgets.

119 The latest BEIS data for local authorities is given⁷⁵, corresponding the reported emissions in 2019 for BBSNN (Broadland, Breckland, South Norfolk and Norwich emissions summed). The transport total is separated out, and its percentage of the total is also given. Assessment against the “Transport total 2019 ANNUAL” figure for each area is then as assessment against the actual reported data for 2019 of the “three carbon totals” for 4th carbon budget which each include the emissions spike that is expected to occur in 2025 (with some in 2026 and 2027).

⁷⁵ <https://data.gov.uk/dataset/723c243d-2f1a-4d27-8b61-cdb93e5b10ff/emissions-of-carbon-dioxide-for-local-authority-areas>, 2005-2019 data, downloaded June 25th, 2021

120The data for the “4th Carbon budget” takes the annual legislated carbon budget for the 4th Carbon budget and distributes it on the basis of % of UK population⁷⁶.

Annual and 5-year transport budgets are calculated on this basis for the BBSNN area (assuming the BBSNN transport sector % already calculated from the 2019 BEIS data).

121The data for the “Tyndall SCATTER budget” takes the annual budgets from the Tyndall local carbon budgets website⁷⁷ for BBSNN (see Appendix F), and calculates the Tyndall budget corresponding to the 5-year 4CB budget. This is then apportioned into a 5-year and average annual transport budget for the 4CB period, using the 2019 transport shares of the overall BEIS budget.

122No evidence is provided in the application that the underlying transport emissions in the BBSNN area will reduce over the 4th carbon budget, and from 2019 to the 4th carbon budget, so CEPP assume **the “three carbon totals” are additional emissions on top of existing trends in Norfolk transport emissions** (see below).

6.5 Discussion of short-term local carbon budget assessment

123The assessment results are on the right-hand side of Table 5. The percentages on the right-hand side of the table are the proportion of the relevant budget that the particular carbon footprint “carbon total” for the scheme would use. So, for example, the applicant’s 111,626 tCO₂e figure for the 4th carbon budget (“A47NTE”) corresponds to 9.64% of the BBSNN total transport footprint in 2019.

124In the year of construction and initial use (2025), the scheme alone (“A47NTE”), based on the applicant’s figures accounts for 8.4% - 25.9% of BBSNN’s transport budget across the range of carbon budget benchmarks. When a realistic indicative cumulative assessment (“A47NTE_CUMU2”) is made in-combination with other schemes planned, then scheme in-combination accounts for 23.1% - 63.2% of the 2025 transport budget for the BBSNN area.

6.6 Discussion of long-term local carbon budget assessment

125The applicant has not published data beyond the 5th carbon budget period (2028-2032), nor the 60-year appraisal and TAG GHG workbook. However, Table 14-10 indicates that 46,098,245 tCO₂e are modelled to be emitted in the ARN area (a much smaller area than the BBSNN area) for the 52 years 2033-2084 if the scheme is built (ie DS).

⁷⁶ Using mid-2019 ONS population data at <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalescotlandandnorthernireland> and the population data reported each local authority for mid-2019 in <https://data.gov.uk/dataset/723c243d-2f1a-4d27-8b61-cdb93e5b10ff/emissions-of-carbon-dioxide-for-local-authority-areas>.

⁷⁷ <https://carbonbudget.manchester.ac.uk/reports/>

126Based on this, and the 5th carbon budget figures in Table 14-10, approximately 15,916,604 tCO₂e may be emitted in the 17year period 2033-2049, and 30,181,641 tCO₂e in the 35-year period 2050-2084, corresponding to the post net-zero era, as on Figure 1. To align with 5-year budget periods the 15-year period 2033-2047 corresponds to c.14,044,062 tCO₂e.

127The Tyndall Centre budgets for the entire BBSNN area, across all energy sectors, are 2,700,000 tCO₂e for 2033-2047, and 3,000,000 tCO₂ for 2033-2100, the Tyndall budget for 2048-2100 being 300,000 tCO₂.

128Ignoring the fact that the ARN is much smaller that BBSNN area, which includes a significant proportion of traffic on the A11, and makes the comparison optimistic (ie smaller ratios than if even equivalent areas were compared), the DS traffic carbon emissions associated with the A47NTE scheme assessed in isolation use c.5.2 times the entire Tyndall budget for the 2033-2047 period in the 2033-2049 years, and c.100.6 times the budget for the 35 years 2050-2084 post net-zero era. This indicative calculation is summarised in Table 6.

tCO₂e	Do Something (DS)	Tyndall Budget	Ratio: DS/Tyndall
2033-2047	14,044,062	2,700,000	5.2
2050-2084	30,181,641	300,000	100.6

Table 6

129Note that the CCC and Government carbon budget for the 2050-2084 period is effectively zero, although as CEPP have said above the period needs to be net-negative, based on the latest statements from scientists.

6.7 Discussion of local carbon budget assessment

130This local assessment for the 4th carbon budget needs to be considered against the following:

- A. There is already a significant policy gap identified by the Climate Change Committee in meeting the 4th carbon budget, so any new emissions **add to the shortfall** in meeting the UK legally binding net-zero commitment for 2050.

- B. The key decade for reducing emissions is 2020-2030, including the vital 4CB period, in the UK. As the UN has continually warned:

“As the scientific community has told us again and again, we need to cut greenhouse emissions [globally] by 45% by 2030”

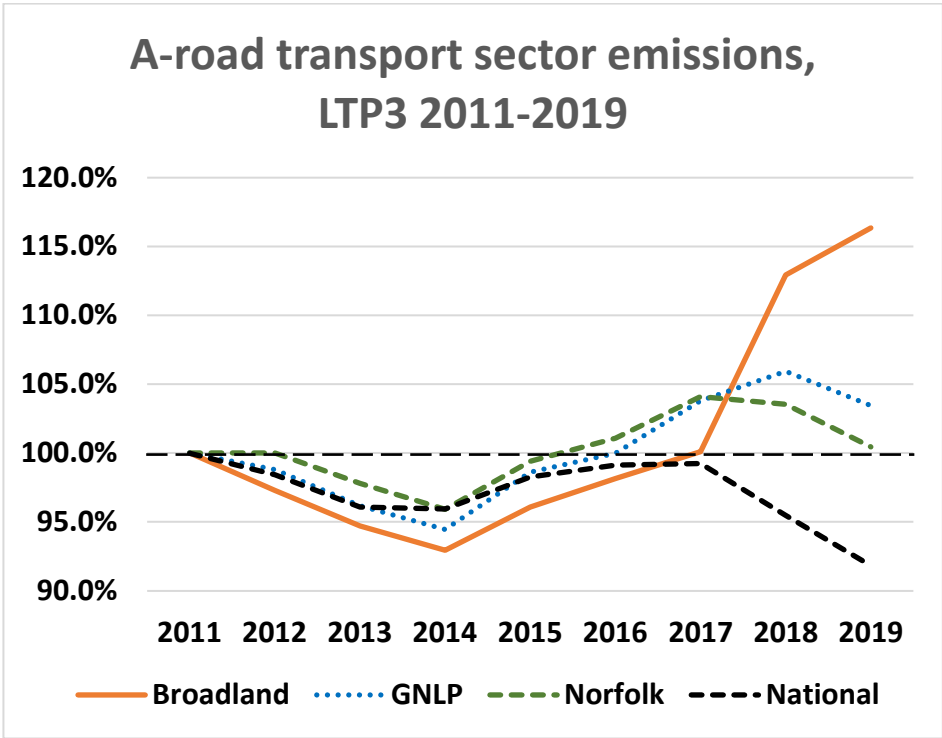
Antonio Guterres, UN General Secretary, 23rd September 2019

“What we do in the next five years will determine the future of humanity for the next millennium.”

Professor Sir David King, FRS, former UK chief scientific adviser and chair of Climate Crisis Advisory Group, 2021

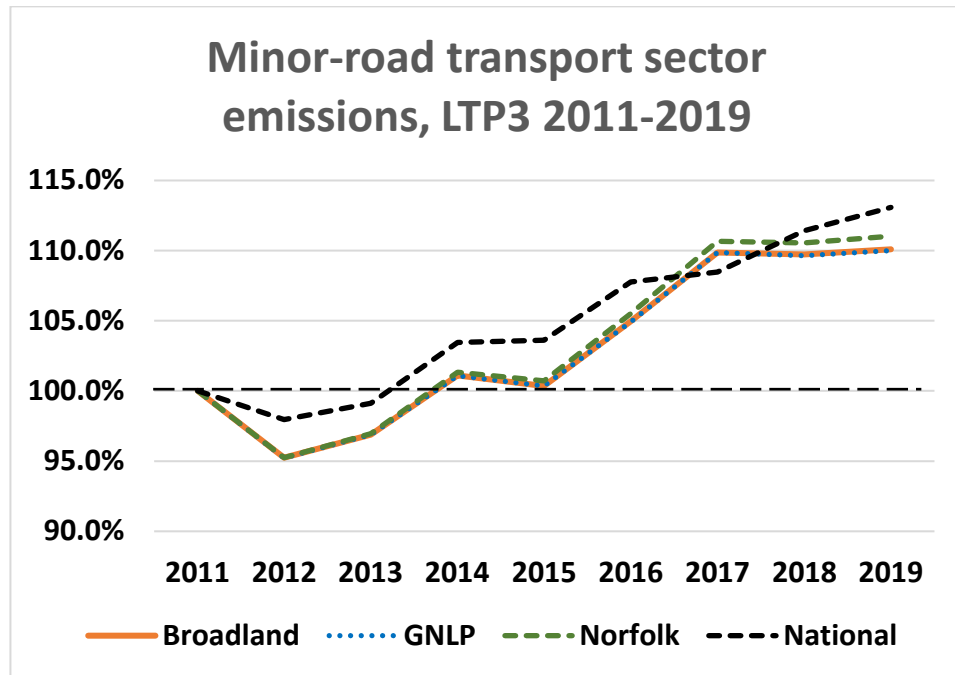
- C. The emissions reported for the scheme alone and for the two indicative cumulative assessments do not occur in isolation. **They are additional emissions on top of the existing extremely high transport carbon footprints** (>40% of BBSNN BEIS reported emissions in 2019 are for transport).
- D. **Transport carbon emission profiles have been rising in Norfolk, and faster than nationally**, until very recently. In Broadland itself, where a large segment of the A47NTE is proposed, transport emissions continue to rise, as shown below which shows the A-roads transport emissions as reported in the latest BEIS data [GNLP⁷⁸ area is Broadland, South Norfolk and Norwich on Figure below]. These are plotted for the period since the current local transport plan (LTP3) was adopted in 2011 (normalised in 2011 as 100% for each data series).

⁷⁸ This acronym derives from the local plan for the Greater Norwich area, the Greater Norwich Local Plan



The spike on the Broadland data in 2018 and 2019 is due in a large part to the opening of the Norwich Northern Distributor Road (NDR) early in 2018, showing the impact that road schemes have on carbon emissions. CEPP have described the emissions spike that will occur with the A47NTE and other associated schemes in 2025 above.

A similar plot is shown for the Minor-road data below. These have drastically increase over the LTP3 period:



131 The evidence is clear that that transport emissions have been out-of-control in Norfolk for nearly a decade since the adoption of the LTP3. To introduce additional emissions from transport infrastructure, and use, is unacceptable in a climate emergency. The additional emissions from the A47NTE scheme alone, and especially in-combination with other planned schemes, in the crucial 4th carbon budget have been shown above to add up to significant percentage increases to local transport carbon budgets.

132 Local assessment is required under the EIA regulations as CEPP have shown above. In every case in Table 5, emissions increase with the A47NTE scheme, alone or in-combination, over the existing background of extremely high transport emissions in Norfolk. The emissions calculated in the local assessment undermine vital national endeavours to meet national climate obligations as listed in the “Summary of Assessment” section below. Each these require significant emissions reductions, locally and nationally, in the 4th carbon budget period: **not increases and additions in emissions.**

N C-16: CEPP do not accept that only comparing carbon emissions from the scheme against carbon budgets for the entire UK economy is a credible assessment method. It makes no sense from a scientific perspective where reference data for comparison should always carefully chosen. It is a deliberate tactic to “loose the signal in the noise”, and it is antithetical to good science. Further, it does not comply with the EIA Regs guidance for local, regional and national assessment, against known local, regional and national carbon targets, as invoked by the NPS NN. The Environmental Statement is narrow, inadequate, and non-compliant in ignoring the wider scope of the EIA Regs.

N C-17: Additional new local transport emissions are introduced by the scheme in the BBSNN⁷⁹ area. Between 2025 to 2027, these would add between 9.6% (scheme alone) and 25.9% (scheme in cumulation with other schemes⁸⁰) new emission sources when compared against the 2019 transport emissions for the area, as reported by BEIS, as a baseline. When assessed against the opening year 2025 using the 4th carbon budget as the baseline, the equivalent figures are very similar at 8.6% and 23.1%. By not considering or assessing these impacts, the applicant does not comply with the EIA Regs guidance to take relevant greenhouse gas reduction targets at the national, regional, and local levels into account. These additional emissions also fall in the period leading up to the UK international commitment, via its NDC under the Paris Agreement, to reduce emissions by 68% by 2030 (relative to 1990 levels). Additional local emissions of this magnitude, with no evident mitigation strategy, will impact national efforts, and therefore create a serious risk against the UK delivering on its NDC commitment by 2030. Accumulated with other schemes in the local area, and nationally, this risk cannot be ignored, but has not been addressed in the Environmental Statement.

N C-18: Even without cumulative effects, the applicant’s figure for carbon emitted from the scheme and in the wider road network (ARN) is approximately 5 times the entire carbon budget from BBSNN (Broadland, Breckland, South Norfolk and Norwich, a larger area) area for the period from 2033 to the net-zero date 2050 using science-based carbon budgets from the Tyndall Centre. For the period, after 2050, the corresponding applicant’s figure is approximately 100 times greater than the available science-based carbon budget, and infinitely greater than the Government and CCC’s implied budget for the post net-zero era. The applicant has provided no indication of how these additional carbon emissions would be mitigated. This has a clear material impact on the ability of the UK to contribute to the global endeavour to stabilise global heating at 1.5°C, and it does not comply with the UK obligations under the Paris Agreement.

6.8 Summary of assessment

133The scheme would create additional transport carbon emissions which according to the applicant’s Environmental Statement introduce a spike of emissions in the 4th carbon budget, and then a sustained high-level of carbon emissions enduring past several significant climate deadlines for the UK, and climate policy directives, too late in the century. These include:

- A. UK obligations under the Paris agreement including the UK’s Nationally Determined Contribution (NDC) – legal binding emissions reductions for the

⁷⁹ Broadland, Breckland, South Norfolk and Norwich local authority areas

⁸⁰ CEPP’s realistic indicative estimate for scheme in cumulation with other schemes in the same period as in Table 5

national targets by 2030 (68% reduction from 1990 levels in the UK National Determined Contribution under the Paris Agreement⁸¹)

- B. the UK Sixth Carbon Budget (6CB) - (legally binding emissions reductions of 78% reduction from 1990 levels by 2035⁸²)
- C. the legally binding target under the Climate Change Act 2008 to meet net-zero carbon emissions by 2050
- D. the commitment from the Government in the July 14th, 2021, Transport Decarbonisation Plan⁸³ to drive “decarbonisation and transport improvements at a local level by making quantifiable carbon reductions a fundamental part of local transport planning and funding”
- E. the government’s requirement in its Transport Decarbonisation Plan (TDP) for local areas to deliver ambitious quantifiable carbon reductions in transport, in line with carbon budgets and net zero⁸⁴.
- F. the revised NPPF⁸⁵ 152 planning requirement for “radical reductions of greenhouse gas emissions”
- G. the statutory duty on Highways England under the Infrastructure Act 2015 section 5(2) to have regard for the environment, including cumulative assessments of the network, and carbon emissions assessments

134 Finally at the level of local environmental policy, 2019 NCC Environmental Policy⁸⁶ states:

“Striving to meet this collective global challenge, we will work with our neighbours within the region, specifically Suffolk County Council and the Broads Authority, to collectively achieve ‘net zero’ carbon emissions on our estates by 2030, but within our wider areas, **work towards ‘carbon neutrality’ also by 2030**”

⁸¹ 12th December 2020, <https://www.gov.uk/government/publications/the-uks-nationally-determined-contribution-communication-to-the-unfccc>

⁸² <https://www.legislation.gov.uk/ukdsi/2021/9780348222616>

⁸³ “Decarbonising Transport: A Better, Greener Britain”, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002241/decarbonising-transport-a-better-greener-britain.pdf

⁸⁴ “Decarbonising Transport: A Better, Greener Britain”, Transport Decarbonisation Plan (TDP), July 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf, PDF Page 151:

*“Going forward, local transport plans (LTPs) will also need to set out how local areas will deliver **ambitious quantifiable carbon reductions in transport**, taking into account the differing transport requirements of different areas. This will need to be in line with carbon budgets and net zero.”*

⁸⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

⁸⁶ <https://www.norfolk.gov.uk/what-we-do-and-how-we-work/policy-performance-and-partnerships/policies-and-strategies/natural-environment-policies/environmental-policy>

135The scheme, and especially cumulative effects with other planned schemes, introduces large additional carbon emissions to transport budgets in the vital 4th carbon budget period, and will render futile attempts to decarbonise, and work towards carbon neutrality, within Norfolk by 2030, and beyond.

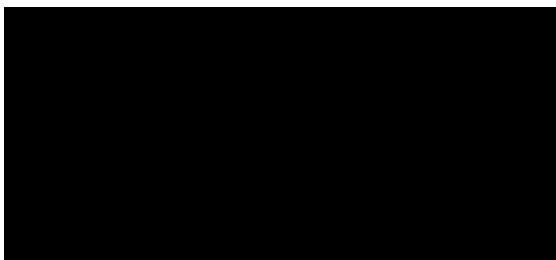
7 CONCLUSIONS

CEPP have reviewed the applicant's Environmental Statement.

We have identified 18 non-compliances against the NPS NN and EIA Regs, and other guidance such as DMRB; the Transport Decarbonisation Plan (TDP); the Aarhus Convention; national and local carbon budgets and targets; and compliance with the Paris agreement via science-based carbon budgets from UK academic experts.

This evidence is compelling that the Environmental Statement is inadequate in its assessment of carbon emissions, and cumulative carbon emissions. Given the amount of remedial work required, including reconfiguring the traffic modelling used to generate carbon data, **CEPP respectfully request that the ExA gives serious consideration to suspending the Examination under EIA Reg 20 so that the missing data and non-compliances may be resolved in the Environmental Statement.**

CEPP note that Mr David Pett, lawyer for the Stop the Wensum link campaign, has also submitted a Deadline D1 WR which has identified further information that is required in the Environmental Statement for ecological assessment, especially of barbastelle bats, and has requested that this is also considered under EIA Regulation 20. Taken together with CEPP's review, the need for remedial work on the Environment Statement is incontrovertible.



Dr Andrew Boswell,
Climate Emergency Policy and Planning, September 1st, 2021

8 APPENDIX A: NPS NN, Relevant sections on EIA Regs

136The National Policy Statement for National Networks (“NPS NN”) was promoted through the Planning Act 2008 (“PA2008”), approved by Parliament and published by the Secretary of State for Transport in December 2014.

137Chapter 4 of the NPS NN (Department for Transport, 2014) sets out the principles for assessment of schemes such as the A47 North Tuddenham to Easton (A47NTE) under the PA2008 DCO planning regime.

138Section 4.3 lays out that the Examining Authority and the Secretary of State, for any proposed development, should take into account:

- *“its potential benefits, including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits;*
- *its potential adverse impacts, including **any longer-term and cumulative adverse impacts**, as well as any measures to avoid, reduce or compensate for any adverse impacts.” (our emphasis)*

139The A47NTE is an Environmental Impact Assessment (EIA) project – see [APP-135, EIA Scoping Report], and legislative context and need for EIA at section 1.5 of APP-135.

140NPS NN Section 4.15 to 4.21 describes how environmental assessment should be done.

“The Directive specifically requires an environmental impact assessment to identify, describe and assess effects on human beings, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 sets out the information that should be included in the Environmental Statement including a description of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project, and also the measures envisaged for avoiding or mitigating significant adverse effects.” (our emphasis)

141Section 4.16 states:

*“When considering significant cumulative effects, any environmental statement should provide information on **how the effects of the applicant’s proposal would combine and interact with the effects of other development** (including projects for which consent has been granted, as*

well as those already in existence).” (our emphasis)

142 Specifically on assessment of carbon emissions in the Environmental Statement, Section 5.17 states:

“Where the development is subject to EIA, any Environmental Statement will need to describe an assessment of any likely significant climate factors in accordance with the requirements in the EIA Directive.”

143 CEPP also note that the EIA Scoping Opinion [APP-136] by the Planning Inspectorate on behalf of the SoS states on Combined and Cumulative Effects (Scoping Report section 15) at ID 4.11.4 (in the “Aspect Based Scoping Tables” section 4):

“The cumulative assessment should include the Norwich Link Road which is proposed to be built in proximity to the Proposed Development and may have an overlapping construction period with the Proposed Development.” (our emphasis)

144 Further, Natural England (in letter 18th October 2019) makes these comments on the EIA Scoping opinion. Following quoting Schedule 4 of the EIA Regs (see Appendix B), it states:

“It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals (in particular the proposed Norwich Western Link Road) and a thorough assessment of the ‘in combination’ effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.” (Emphasis as in original)

9 APPENDIX B: EIA Regulations

145 The A47 NTE is an EIA development and the decision-making process, therefore, needed to comply with the EIA Regs.⁸⁷ As CEPP note above in Appendix A, the NPS NN Section 4.15 to 4.21 also requires compliance with the EIA Regs.

146 Reg 4(2) prohibits the granting of development consent for EIA development “unless an EIA has been carried out in respect of that application”. The EIA is defined in Reg 5 as:

- (1) *The environmental impact assessment (“the EIA”) is a process consisting of—*
 - (a) *the preparation of an Environmental Statement or updated Environmental Statement, as appropriate, by the applicant;*
 - (b) *the carrying out of any consultation, publication and notification as required under these Regulations or, as necessary, any other enactment in respect of EIA development; and*
 - (c) *the steps that are required to be undertaken by the Secretary of State under regulation 21 or by the relevant authority under regulation 25, as appropriate.*
- (2) *The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors—*
 - (a) *population and human health;*
 - (b) *biodiversity, with particular attention to species and habitats protected under any law that implemented Directive 92/43/EEC⁸⁸ and Directive 2009/147/EC⁸⁹;*
 - (c) *land, soil, water, air and **climate**;*
 - (d) *material assets, cultural heritage and the landscape;*
 - (e) *the interaction between the factors referred to in sub-paragraphs (a) to (d).*
- (3) *The effects referred to in paragraph (2) on the factors set out in that paragraph must include the operational effects of the proposed development, where the proposed development will have operational effects.*
(...) (our emphasis)

147 The Environmental Statement, is further defined in Reg 14:

- (1) *An application for an order granting development consent for EIA development must be accompanied by an Environmental Statement.*

⁸⁷ Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

⁸⁸ Habitats Directive

⁸⁹ Wild Birds Directive

(2) *An Environmental Statement is a statement which includes at least—*

- (a) *a description of the proposed development comprising information on the site, design, size and other relevant features of the development;*
- (b) *a description of the likely significant effects of the proposed development on the environment;*
- (c) *a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;*
- (d) *a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;*
- (e) *a non-technical summary of the information referred to in subparagraphs (a) to (d); and*
- (f) *any additional information **specified in Schedule 4** relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected. (our emphasis)*

148 Schedule 4 of the EIA Regs then sets out in more detail the information to be included in Environmental Statements. This includes, *inter alia*:

“Para 1:

A description of the development, including in particular—

*... (c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (**including water, land, soil and biodiversity**⁹⁰) used;*

Para 4:

*A description of the factors specified in regulation 5(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, **climate (for example greenhouse gas emissions**, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.*

Para 5

⁹⁰ This is relevant to land-use and land-clearance emissions from roads infrastructure construction as discussed in main text

A description of the likely significant effects of the development on the environment resulting from, inter alia—

- (a) the construction and existence of the development, including, where relevant, demolition works;*
- (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;*
- (c) the **emission of pollutants**, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;*
- (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);*
- (e) 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;***
- (f) the impact of the project on **climate (for example the nature and magnitude of greenhouse gas emissions)** and the vulnerability of the project to climate change;*
- (g) the technologies and the substances used.*

*The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, **cumulative**, transboundary, **short-term, medium-term and long-term**, permanent and temporary, positive and negative effects of the development.*

*This description should take into account the **environmental protection objectives established at Union level** (as they had effect immediately before exit day) or United Kingdom level which are relevant to the project, including in particular those established under [the law of any part of the United Kingdom that implemented Council Directive 92/43/EEC and Directive 2009/147/EC.] (our emphasis)*

149 Paragraph 5 of Schedule 4 above shows that the Environmental Statement must cover “the direct effects and any indirect, secondary, **cumulative**, transboundary, **short-term, medium-term and long-term**, permanent and temporary, positive and negative effects of the development”, taking into account the “**environmental protection objectives**” established both at EU or UK level. The “objectives” include relevant climate change targets set under UK law including:

- the UK’s Nationally Determined Contribution (NDC) under the Paris agreement
- the legally binding target under the Climate Change Act 2008 to meet net-zero carbon emissions by 2050
- the UK Sixth Carbon Budget (6CB), and other carbon budgets and policy within that
- the Governments recent Transport Decarbonisation Plan (TDP)

- NPPF 148 planning requirement to “radical reductions of greenhouse gas emissions”,
- the statutory duty on Highways England under the Infrastructure Act 2015 section 5(2) to have regard for the environment

150 Finally, EIA Reg 20 allows for an Examining Authority to suspend consideration of an application if the Environmental Statement is found to be inadequate:

a. “Reg 20(2)

This paragraph applies if—

(a) the applicant has submitted a statement that the applicant refers to as an Environmental Statement; and

(b) the Examining authority is of the view that it is necessary for the statement to contain further information.

b. Reg 20(1)

Where an Examining authority is examining an application for an order granting development consent and paragraph (2) applies, the Examining authority must—

(a) issue a written statement giving clearly and precisely the reasons for its conclusion;

(b) send a copy of that written statement to the applicant; and

(c) suspend consideration of the application until the requirements of paragraph (3) and, where appropriate, paragraph (4) are satisfied.” (*our emphasis*)

10 APPENDIX C: Highways England Licence

151The Highways England licence requires at 5.23

“5.23 ... the Licence holder should:

...

c. Consider the cumulative environmental impact of its activities across its network and identify holistic approaches to mitigate such impacts and improve environmental performance;”

11 APPENDIX D: LETTER FROM DFT, 2nd AUGUST 2021, A38 DERBY JUNCTIONS



Department for Transport

Great Minster House
33 Horseferry Road
London, SW1P 4DR

Telephone:
e-mail: transportinfrastructure@dft.gov.uk
Web: www.gov.uk/dft

To all Interested Parties

2 August 2021

Dear Sir/Madam

PLANNING ACT 2008 AND THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

RE-DETERMINATION OF THE APPLICATION BY HIGHWAYS ENGLAND (“THE APPLICANT”) FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR THE A38 DERBY JUNCTIONS

STATEMENT OF MATTERS

1. The High Court’s order dated 8 July 2021 quashed the decision of the Secretary of State for Transport dated 8 January 2021 to grant the application by Highways England (“the Applicant”) for development consent for the proposed grade separation of three junctions and road widening on the A38 in Derby (“the Development”). Following that judgment, the Secretary of State must now re-determine that application.
2. I am therefore writing in accordance with Rule 20(2) of the Infrastructure Planning (Examination Procedure) Rules 2010 to set out to you, as an Interested Party to the above application, the following matters which the Secretary of State invites further representations for the purposes of his re-determination of the application. These matters are:
 - the carbon impact of the development; the implications, if any, of the development in relation to the Paris Agreement and the UK’s nationally-determined contribution under the Paris Agreement, the 2050 net zero target in the Climate Change Act 2008, and carbon budgets set under the 2008 Act (including the sixth carbon budget as set out in the Carbon Budget Order 2021); and, whether the increase in carbon emissions resulting from the development is so significant that it would have a material impact on the ability of the Government to meet its carbon reduction targets;

- the direct, indirect and cumulative likely significant effects of the development on climate, including greenhouse gas emissions and climate change adaptation, in light of the requirements set out in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations') and in light of paragraphs 5.17 and 5.18 of the National Policy Statement for National Networks ('NNNPS');
 - whether, taking account of any more recent data than that which was available during the examination, the Development's construction and/or operation would lead to a significant air quality impact or a deterioration in air quality in a zone/agglomeration, cause delays in areas not compliant with the Air Quality Directive becoming compliant, or cause any compliant areas to become non-compliant, both generally (if necessary), and in particular for Stafford Street within the Derby ring road Air Quality Management Area;
 - any change in whether the Development would be consistent with the requirements and provisions of relevant local or national policies, given the length of time since the examination closed. This will include those policies included in the Applicant's [Planning Statement and National Policy Statement Accordance table](#) and any updated versions thereof (including the updated Derwent Valley Mills World Heritage Site Management Plan 2020-25), as well as any wholly new policy that may be applicable;
 - other than the matters set out above, the adequacy of the environmental information produced in support of the application for the Development¹ and whether further or updated environmental information is now necessary given the length of time since the examination closed; and
 - any other matters arising since 8 January 2021 which Interested Parties consider are material for the Secretary of State to take into account in his re-determination of the application.
3. In addition to the above matters set out in paragraph 2, the Secretary of State requests information from the Interested Party specified below.
4. **The Secretary of State requests that the Applicant provides him with any updates he should be made aware of in relation to the scheme since the end of its examination.** This should include an update on the potential loss of the veteran oak tree² in Markeaton following the survey work undertaken by the Applicant on 18 May 2021, and confirmation of whether the Framework Agreement between the Applicant and Network Rail has been fully agreed upon.
5. The process for consultation and consideration of the application will be as follows:
- **The Secretary of State would like to give the Applicant the first opportunity to make representations on the matters set out in paragraph 2. The deadline for the Applicant to respond is 31 August 2021.**
 - A copy of the Applicant's representations will be published on the Planning Inspectorate's website as soon as possible after the deadline for the Applicant to respond.

¹ The Applicant's Environmental Statement (APP-039 to APP-250) are available at Appendix B of the Examining Authority's Report: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010022/TR010022-001426-TR010022_A38%20Derby%20Junctions_Recommendation%20Report_FINAL%20and%20appendices.pdf

² This matter is discussed in the Examining Authority's Report, sections 4.11.71-4.11.75, available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010022/TR010022-001426-TR010022_A38%20Derby%20Junctions_Recommendation%20Report_FINAL%20and%20appendices.pdf

- **The Secretary of State will then invite all interested parties to provide written comments on the Applicant’s response and on all other matters stated above. The final deadline for all interested parties to respond will be 26 October 2021.**
 - A copy of these representations will be published on the Planning Inspectorate’s website as soon as possible after the final deadline for responding.
 - If the Secretary of State decides that any of the information which the Applicant provides falls within the definition of ‘further information’ as set out in rule 3 of the EIA Regulations, the Applicant will be required to follow the procedure for publicising this information as set out in rule 20 of the EIA Regulations.
6. The Secretary of State will take into account in re-determining the application:
- any responses received to this round of consultation;
 - all correspondence received by the Secretary of State between 8 January 2021 and the publication of this letter;
 - all previous material sent to the Planning Inspectorate and the Secretary of State prior to 8 January 2021 and published on the National Infrastructure Planning website, including the Examining Authority’s Report.
7. With the above timetable in mind, responses to the matters outlined in this statement of matters should where possible be provided by email to A38DerbyJunctions@planninginspectorate.gov.uk, marked “For the attention of the A38 Derby Junctions Case Team”. Postal responses should be sent to The A38 Derby Junctions Case Team, National Infrastructure, The Planning Inspectorate, Eagle Wing 3/18, Temple Quay House, Temple Quay, Bristol, BS1 6PN, however, please note that as a result of the ongoing Government guidance relating to Coronavirus (COVID-19) there are limited number of staff at Temple Quay House and therefore any submissions sent by post may be subject to delay. If you will have difficulty in submitting a response by the consultation deadline, or difficulty in submitting a response by email, please inform the A38 Derby Junctions Case Team.
8. All previous representations and information relating to the application received before 8 January 2021 have been published on the National Infrastructure Planning website. To assist the Secretary of State, any reliance on information containing in previous representations made either during or since the examination should also include the relevant document reference number(s) and preferably also include hyperlinks to where the documents can be viewed on the National Infrastructure Planning website.
9. This letter is without prejudice to the Secretary of State’s redetermination of the application for the A38 Derby Junctions application and his decision whether or not to grant development consent for the Development, and nothing in this letter is to be taken to imply what that decision might be.

Yours faithfully

Natasha Kopala
Head of Transport Infrastructure Planning Unit

12 APPENDIX E: LETTER FROM DFT, 9th AUGUST 2021, M54 TO M6 LINK ROAD



Department for Transport

Great Minster House
33 Horseferry Road
London, SW1P 4DR

Telephone: [REDACTED]
e-mail: transportinfrastructure@dft.gov.uk
Web: www.gov.uk/dft

To: Highways England, Cadent Gas Limited, Severn Trent Water Limited and Western Power Distribution Limited

Date: 9 August 2021

Dear Sir/Madam

Planning Act 2008 (as amended) and the Infrastructure Planning (Examination Procedure) Rules 2010

Application by Highways England (“the Applicant”) for an Order granting development consent for the proposed M54 to M6 Link Road.

REQUEST FOR COMMENTS FROM THE APPLICANT, Cadent Gas Limited (“Cadent”), Severn Trent Water Limited (“STW”) and Western Power Limited (“WPD”)

1. Request for an Update to the Environmental Information

The Secretary of State requests that the Applicant provides additional information on:

- a) the scheme’s compliance with the sixth carbon budget as set out in the Carbon Budget Order 2021, including an update to the assessment of the impact of the scheme on the carbon budgets as set out in [Chapter 14](#) the Applicant’s Environmental Statement to take account of the sixth carbon budget including for the design year (2039); and
- b) building on Chapter 14 of the Applicant’s Environmental Statement, the direct, indirect and cumulative likely significant effects of the Scheme with other existing and/or approved projects on climate, including greenhouse gas emissions and climate change adaptation;

which should be set in light of the requirements set out in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and in light of paragraphs 5.17 and 5.18 of the National Policy Statement for National Networks.

2. Request for an update on outstanding Protective Provisions

Cadent Gas Limited (“Cadent”) Protective Provisions

The Secretary of State notes at the close of the examination an agreement on the protective provisions had not been reached

Please could the **Applicant** and **Cadent** confirm the status of the agreement regarding the protective provisions within the Development Consent Order? If an agreement has been reached. Please could both parties provide the agreed updated set of protective provisions [[RR-010](#)].

Severn Trent Water Limited (“STW”) Protective Provisions

The Secretary of State notes at the close of the examination an agreement on the protective provisions had not been reached

Please could the **Applicant** and **STW** confirm the status of the agreement regarding the protective provisions within the Development Consent Order? If an agreement has been reached. Please could both parties provide the agreed updated set of protective provisions [[RR-015](#)].

Western Power Distribution Limited (“WPD”) Protective Provisions

The Secretary of State notes at the close of the examination an agreement on the protective provisions had not been reached

Please could the **Applicant** and **WPD** confirm the status of the agreement regarding the protective provisions within the Development Consent Order? If an agreement has been reached. Please could both parties provide the agreed updated set of protective provisions [[RR-008](#)].

The deadline for any response is 23 August 2021.

Given the coronavirus (COVID 19) emergency, the Planning Inspectorate are currently unable to accept hard copies of consultation responses. Responses to the matters outlined in this letter should therefore be submitted by email to: M54toM6linkroad@planninginspectorate.gov.uk. If you will have difficulty in submitting a response by the consultation deadline, or difficulty in submitting a response by email, please inform the Case Team.

The responses will be published on the project page for the M54 to M6 Link Road DCO on the Planning Inspectorate’s website as soon as possible after the above deadline at: <https://infrastructure.planninginspectorate.gov.uk/projects/west-midlands/m54-to-m6-link-road/>

This letter is without prejudice to the Secretary of State’s decision whether or not to grant development consent for the M54 to M6 Link Road, and nothing in this letter is to be taken to imply what that decision might be.

Yours faithfully

Natasha Kopala
Head of the Transport Infrastructure Planning Unit

13 APPENDIX F: SCIENCE BASED CARBON BUDGET FOR PARIS COMPLIANCE FOR BRECKLAND, BROADLAND, NORWICH, SOUTH NORFOLK (BBSNN)

152As generated at <https://carbonbudget.manchester.ac.uk/reports/>.

153Tyndall Carbon Budget Reports present recommended climate change commitments for UK local authority areas that are aligned with the commitments in the United Nations Paris Agreement, informed by the latest science on climate change and defined by science-based carbon budget setting.

Setting City Area Targets and Trajectories for Emissions Reduction (SCATTER)

154This work was developed as part of the Setting City Area Targets and Trajectories for Emissions Reduction (SCATTER) project. The SCATTER project, funded by the Department for Business Energy and Industrial Strategy (BEIS), developed a methodology for Local Authorities to set carbon emissions targets that are consistent with United Nations Paris Climate Agreement. The SCATTER project was a collaboration between Tyndall Manchester, Anthesis Group and Greater Manchester Combined Authority. The further development of the carbon budget methodology into a widely applicable free online resource for local authorities UK-wide was supported through funding from the University of Manchester EPSRC Impact Support Fund. A SCATTER online tool by Anthesis Group is also available to local authority users online.

Date:	August 2021
Prepared By:	Dr Jaise Kuriakose, Dr Chris Jones, Prof Kevin Anderson, Dr John Broderick & Prof Carly McLachlan



- East Midlands
- East of England
- London
- North East
- North West
- South East
- South West
- West Midlands
- Yorkshire and the Humber
- Scotland
- Northern Ireland
- Wales
- Aggregate Budgets

Setting Climate Commitments for BBSNN

Quantifying the implications of the United Nations Paris Agreement for BBSNN

BBSNN CONSISTS OF THE FOLLOWING LOCAL AUTHORITIES: BRECKLAND, BROADLAND, NORWICH, SOUTH NORFOLK

Date:	August 2021
Prepared By:	Dr Jaise Kuriakose, Dr Chris Jones, Prof Kevin Anderson, Dr John Broderick & Prof Carly McLachlan

NB: All views contained in this report are solely attributable to the authors and do not necessarily reflect those of the researchers within the wider Tyndall Centre.

Key Messages

This report presents climate change targets for BBSNNⁱ that are derived from the commitments enshrined in the Paris Agreement, informed by the latest science on climate change and defined in terms of science based carbon setting. The report provides BBSNN with budgets for carbon dioxide (CO₂) emissions and from the energy system for 2020 to 2100.

The carbon budgets in this report are based on translating the “well below 2°C and pursuing 1.5°C” global temperature target and equity principles in the United Nations Paris Agreement to a national UK carbon budgetⁱⁱ. The UK budget is then split between sub-national areas using different allocation regimes. Aviation and shipping emissions remain within the national UK carbon budget and are not scaled down to sub-national budgets. Land Use, Land Use Change and Forestry (LULUCF) and non-CO₂ emissions are considered separately to the energy CO₂ budget in this report.

Based on our analysis, for BBSNN to make its ‘fair’ contribution towards the Paris Climate Change Agreement, the following recommendations should be adopted:

1. Stay within a maximum cumulative carbon dioxide emissions budget of 17.7 million tonnes (MtCO₂) for the period of 2020 to 2100. At 2017 CO₂ emission levelsⁱⁱⁱ, BBSNN would use this entire budget within 7 years from 2020.
2. Initiate an immediate programme of CO₂ mitigation to deliver cuts in emissions averaging a minimum of -13.5% per year to deliver a Paris aligned carbon budget. These annual reductions in emissions require national and local action, and could be part of a wider collaboration with other local authorities.
3. Reach zero or near zero carbon no later than 2041. This report provides an indicative CO₂ reduction pathway that stays within the recommended maximum carbon budget of 17.7 MtCO₂. At 2041 5% of the budget remains. This represents very low levels of residual CO₂ emissions by this time, or the Authority may opt to forgo these residual emissions and cut emissions to zero at this point. Earlier years for reaching zero CO₂ emissions are also within the recommended budget, provided that interim budgets with lower cumulative CO₂ emissions are also adopted.

Sections 1, 2 and 5 of this report - **Introduction, Methods and References** - can be found in the [full print report](#)

3. Results

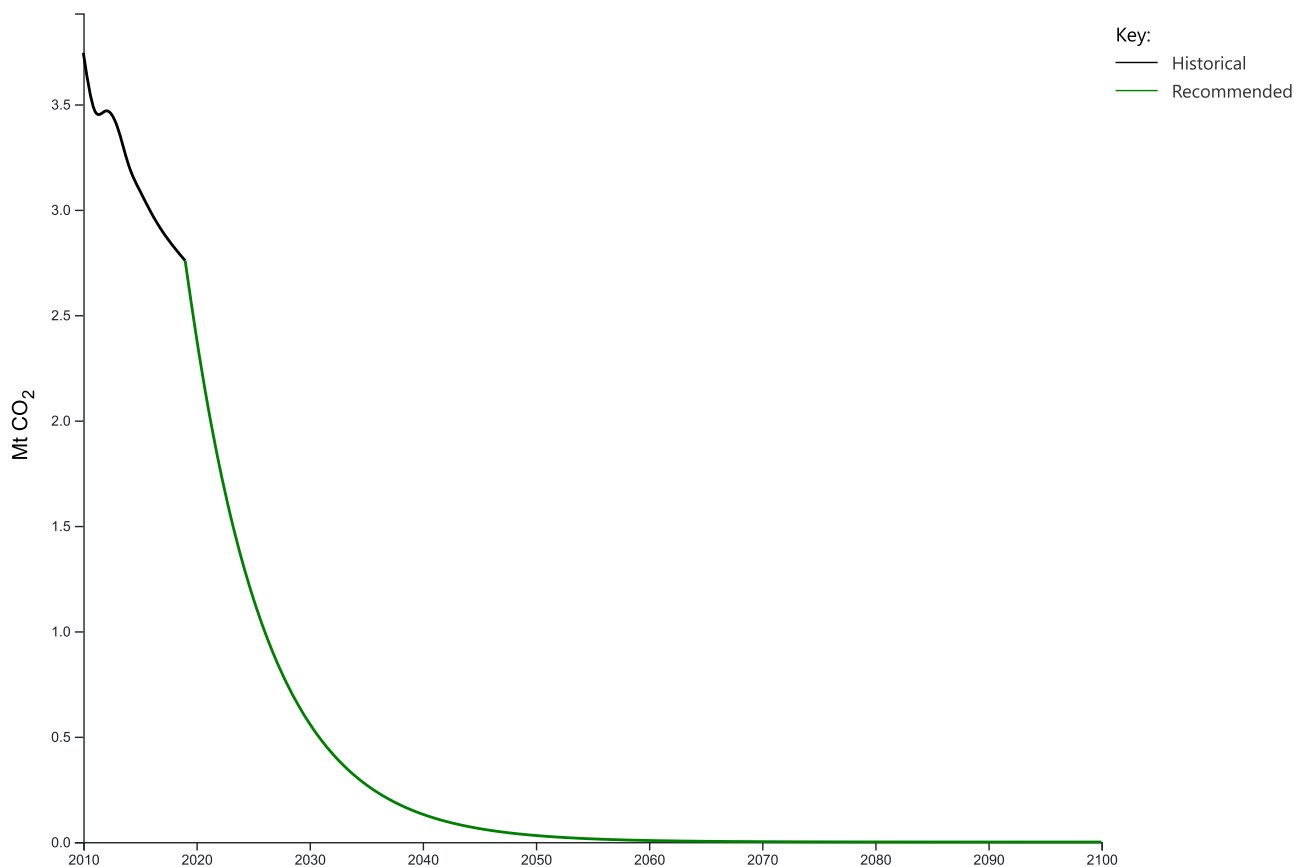
3.1 Energy Only Budgets for BBSNN

Following the Method the recommended energy only CO₂ carbon budget for the BBSNN area for the period of 2020 to 2100 is 17.7 MtCO₂. To translate this into near to long term commitments a CO₂ reduction pathway within the 17.7 MtCO₂ is proposed here. A consistent emissions reduction rate of -13.5% out to the end of the century is applied. In 2041 95% of the recommended carbon budget is emitted and low level CO₂ emissions continue at a diminishing level to 2100.

Figure 1: An interactive chart of Energy related CO₂ only emissions pathways (2010-2100) for BBSNN premised on the recommended carbon budget.

Tracking your mouse over this chart will display the actual figures for each of the pathways, as well as for the lead-in historical values.

Pathway projections for BBSNN



Show alternative pathway projections (see below)

Table 1 presents the BBSNN energy CO₂ only budget in the format of the 5-year carbon budget periods in the UK Climate Change Act. To align the 2020 to 2100 carbon budget with the budget periods in the Climate Change Act we have included estimated CO₂ emissions for BBSNN for 2018 and 2019, based on BEIS provisional national emissions data for 2018 and assuming the same year on year reduction rate applied to 2019. The combined carbon budget for 2018 to 2100 is therefore 23.3 MtCO₂.

Table 1: Periodic Carbon Budgets for 2018 for BBSNN.

Carbon Budget Period	Recommended Carbon Budget (Mt CO ₂)
2018 - 2022	11.8
2023 - 2027	5.9
2028 - 2032	2.9
2033 - 2037	1.4
2038 - 2042	0.7
2043 - 2047	0.3
2048 - 2100	0.3

The recommended budget is the maximum cumulative CO₂ amount we consider consistent with BBSNN’s fair contribution to the Paris Agreement. A smaller carbon budget, with accelerated reduction rates and an earlier zero carbon year, is compatible with this approach. It is however important that for an alternative zero carbon year the proposed 5 year budget periods are the same or lower that those specified in Figure 2. Furthermore meeting the budget must not rely on carbon offsets.

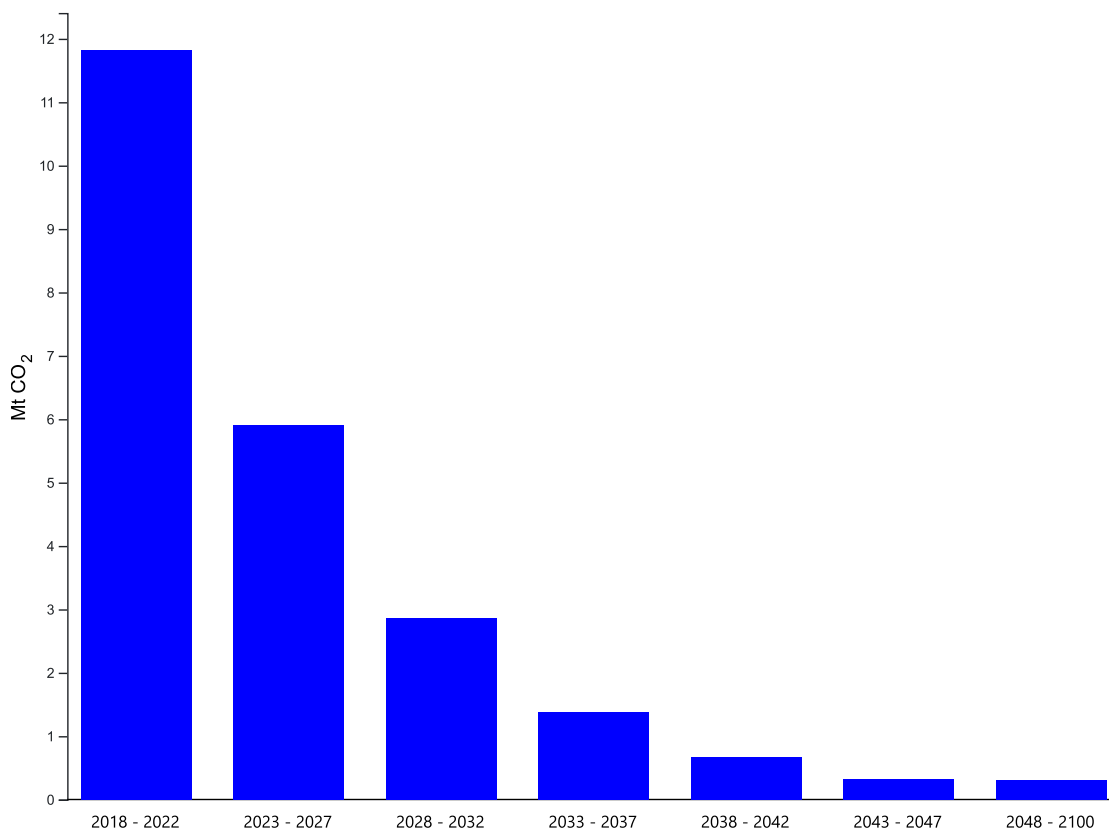


Figure 2: Cumulative CO₂ emissions for budget period (based on Table 1) from 2018 to 2100 for BBSNN

3.2 Recommended Allocation Regime for Carbon Budget

The recommended carbon budget is based on a grandfathering allocation regime for sub-dividing the UK sub-national energy only carbon budget. There are three distinct allocation regimes that can be applied to determine sub-national budgets. We have opted to recommend one common approach for allocating carbon budgets that can be applied to all Local Authority areas. This enables straightforward compatibility between carbon budgets set at different administrative scales. For example this makes it easier for individual Local Authorities to calculate their own carbon budgets that are compatible with a budget set at Combined Authority scale. It also means that under the recommended carbon budgets, all Authorities are contributing to a common total UK carbon budget. If for example all Authorities selected the allocation regime that offered them largest carbon budget the combined UK budget would not comply with the objectives of the Paris Agreement. The common approach to allocation we recommend therefore further assures that the carbon budget adopted is Paris Agreement compatible.

We have chosen a grandfathering as our common allocation approach because, based on our analysis, it is the most appropriate and widely applicable regime within the UK.

Population and Gross Value Added^{iv} (GVA) are alternative allocation regimes. Population shares the carbon budget equally across the UK on a per capita basis. In this allocation regime the UK population is compared to that of BBSNN from 2011 to 2016. The carbon budget (2020-2100) for BBSNN is then apportioned based on its average proportion of the UK population for the period 2011-2016. For regions where per capita energy demand deviates significantly from the average (e.g. a large energy intensive industry is currently located there) the budget allocated may not be equitable for all regions, therefore it is not recommended as the preferred allocation. GVA is used as an economic metric to apportion carbon budgets. For example, the UK total GVA is compared to that of BBSNN from 2011 to 2016. The carbon budget (2020-2100) for BBSNN is then apportioned based on BBSNN's average proportion of UK GVA for the period 2011-2016. GVA can be useful as a proxy for allocation on economic value, however without an adjustment for the type of economic activity undertaken, areas with high economic 'value' relative to energy use can get a relatively large budget, while the inverse is true for areas with energy intensive industries, and/or lower relative economic productivity. We would therefore not recommend GVA as an appropriate allocation regime for all regions.

Table 2 presents the result outcomes for alternative allocation regimes – population and gross value added (GVA).

Table 2: Energy only CO₂ budgets and annual mitigation rates for BBSNN (2020-2100) by allocation regime

Allocation regime (% of UK Budget allocated to BBSNN)	UK Budget ^v (MtCO ₂)	BBSNN Budget (MtCO ₂)	Average Annual Mitigation Rate (%)
Grandfathering to BBSNN from UK (0.8%)	2,239	17.7	-13.5%
Population split to BBSNN from UK (0.8%)	2,239	18.2	-13.1%
GVA split to BBSNN from UK (0.7%)	2,239	15.1	-15.4%

To view the pathways for the Population and GVA allocation regimes, select the checkbox under Fig. 1

3.3 Land Use, Land Use Change and Forestry emissions for BBSNN

Land Use, Land Use Change and Forestry (LULUCF) consist of both emissions and removals of CO₂ from land and forests. We recommend that CO₂ emissions and sequestration from LULUCF are monitored separately from the energy-only carbon budgets provided in this report. BBSNN should increase sequestration of CO₂ through LULUCF in the future, aligned with Committee on Climate Change's high level ambition of tree planting, forestry yield improvements and forestry management. Where LULUCF is considered, we recommend it compensate for the effects of non-CO₂ greenhouse gas emissions (within the geographical area) that cannot be reduced to zero, such as non-CO₂ emissions from agriculture.

3.4 Non-CO₂ Emissions

The IPCC SR1.5 report identifies the importance of non-CO₂ climate forcers (for instance methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), sulphur dioxide (SO₂) and black carbon) in influencing the rate of climate change. However, a cumulative emission budget approach is not appropriate for all non-CO₂ greenhouse gases, as the physical and chemical properties of each leads to differing atmospheric lifetimes and warming effects. There are also substantial relative uncertainties in the scale, timing and location of their effects.

We do not provide further analysis or a non-CO₂ emissions reduction pathway in this report. However the global carbon budget in the IPCC Special Report on 1.5°C, that our analysis is based on, assumes a significant reduction in rate of methane and other non-CO₂ emissions over time. Therefore to be consistent with carbon budgets BBSNN should continue to take action to reduce these emissions.

The Department of Business Energy and Industrial Strategy's Local Authority emissions statistics do not at this time provide non-CO₂ emissions data at the regional level. Given the absence of robust non-CO₂ emissions data, any non-CO₂ emissions inventory by other organisations at scope 1 and 2 for BBSNN may form the basis of monitoring and planning for these emissions. We recommend considering the adoption of a LULUCF pathway that includes CO₂ sequestration sufficient to help compensate for non-CO₂ emissions within BBSNN's administrative area.

4. Conclusions

The results in this report show that for BBSNN to make its fair contribution to delivering the Paris Agreement's commitment to staying "well below 2°C and pursuing 1.5°C" global temperature rise, then an immediate and rapid programme of decarbonisation is needed. At 2017 CO₂ emission levels^{vi}, BBSNN will exceed the recommended budget available within 7 years from 2020. **To stay within the recommended carbon budget BBSNN will, from 2020 onwards, need to achieve average mitigation rates of CO₂ from energy of around -13.5% per year.** This will require that BBSNN rapidly transitions away from unabated fossil fuel use. For context the relative change in CO₂ emissions from energy compared to a 2015 Paris Agreement reference year are shown in Table 3.

Table 3: Percentage reduction of annual emissions for the recommended CO₂-only pathway out to 2050 in relation to 2015

Year	Reduction in Annual Emissions (based on recommended pathway)
2020	22.8%
2025	62.6%
2030	81.9%
2035	91.2%
2040	95.7%
2045	97.9%
2050	99.0%

The carbon budgets recommended should be reviewed on a five yearly basis to reflect the most up-to-date science, any changes in global agreements on climate mitigation and progress on the successful deployment at scale of negative emissions technologies.

These budgets do not downscale aviation and shipping emissions from the UK national level. However if these emissions continue to increase as currently envisaged by Government, aviation and shipping will take an increasing share of the UK carbon budget, reducing the available budgets for combined and local authorities. **We recommend therefore that BBSNN seriously consider strategies for significantly limiting emissions growth from aviation and shipping.** This could include interactions with the UK Government or other local authority and local enterprise partnership discussions on aviation that reflect the need of the carbon budget to limit aviation and shipping emissions growth.

CO₂ emissions in the carbon budget related to electricity use from the National Grid in BBSNN are largely dependent upon national government policy and changes to power generation across the country. **It is recommended however that BBSNN promote the deployment of low carbon electricity generation within the region and where possible influence national policy on this issue.**

We also recommend that the LULUCF sector should be managed to ensure CO₂ sequestration where possible. The management of LULUCF could also include action to increase wider social and environmental benefits..

**14 APPENDIX G: GUIDANCE ON THE PREPARATION OF THE ENVIRONMENTAL
IMPACT ASSESSMENT REPORT**



Environmental Impact Assessment of Projects

Guidance on the preparation of
the Environmental Impact
Assessment Report

(Directive 2011/92/EU as amended by 2014/52/EU)

Printed in Luxembourg

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://ec.europa.eu>).

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**Guidance on the preparation of the EIA Report
(Directive 2011/92/EU as amended by 2014/52/EU)**

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GLOSSARY OF TERMS

Key terms used in the guidance documents are explained in the Glossary below.

Term	Explanation
2012 IA Study	Impact Assessment Accompanying the document Proposal for a Directive of the European Parliament and the Council amending Directive 2011/92/EU on the assessment of the effects of certain public and private Projects on the environment, SWD/2012/0355 final
Alternatives	Different ways of carrying out the Project in order to meet the agreed objective. Alternatives can take diverse forms and may range from minor adjustments to the Project, to a complete reimagining of the Project.
Baseline scenario	Description of the current status of the environment in and around the area in which the Project will be located. It forms the foundation upon which the assessment will rest.
Candidate Countries	Countries which are seeking to become Members States of the European Union.
Competent Authority (CA)	The authority which the Member States designate as responsible for performing the duties arising from the Directive.
Cumulative effects	Changes to the environment that are caused by activities/projects in combination with other activities/projects.
Developer	The applicant for a Development Consent on a private Project or the public authority which initiates a Project.
Development Consent	The decision of the Competent Authority or Authorities which entitles the Developer to proceed with the Project.
EIA Directive	European Union Directive 2011/92/EU, as amended by Directive 2014/52/EU on assessment of the effects of certain public and private Projects on the environment
EIA process (or EIA)	The process of carrying out an Environmental Impact Assessment as required by Directive 2011/92/EU, as amended by Directive 2014/52/EU on assessment of the effects of certain public and private Projects on the environment. The EIA process is composed of different steps: preparation of the EIA Report, publicity and consultation and decision-making.
EIA Report	The Environmental Impact Assessment Report is the document prepared by the Developer that presents the output of the assessment. It contains information regarding the Project, the likely significant effect of the Project, the Baseline scenario, the proposed Alternatives, the features and Measures to mitigate adverse significant effects as well as a Non-Technical Summary and any additional information specified in Annex IV of the EIA Directive.
Measures to mitigate (Mitigation Measures)	Measures envisaged to avoid, prevent or reduce any identified significant adverse effects on the environment
Measures to monitor (Monitoring Measures)	Procedures to keep under systematic review the significant adverse effects on the environment resulting from the construction and operation of a Project, and to identify unforeseen significant adverse effects, in order to be able to undertake appropriate remedial action.
Member States (MS)	Countries which are members of the European Union
Measures to compensate / offset (Compensation Measures)	Measures envisaged to offset any identified significant adverse effects on the environment.
Non-Technical Summary	An easy-to-follow and understandable summary of the information included in the EIA Report addressed to a non-technical audience.
Project	The execution of construction works or of other installations or schemes, and/or other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources.
Reasoned Conclusion	The explanatory statement made by the Competent Authority on the significant effects of the Project on the environment, based on the examination of the EIA Report and, where appropriate, on the results of its own supplementary

	examination.
Screening	The process of determining whether a Project listed in Annex II of the EIA Directive is likely to have significant environmental effects.
Screening Decision	Decision taken by the Competent Authority on whether a Project listed in Annex II will be made subject to the EIA procedure.
Scoping	The process of identifying the content and extent of the information to be submitted to the Competent Authority under the EIA process.
Scoping Opinion	The Competent Authority's decision on the Scoping process.

LIST OF ABBREVIATIONS

Key abbreviations used in the guidance documents are detailed in the list below.

Abbreviation	Full name
AA	Appropriate Assessment
Aarhus Convention	Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters
BISE	Biodiversity Information System for Europe
CDCIR	Community Documentation Centre on Industrial Risk
CJEU	Court of Justice of the European Union
CLIMATE-ADAPT	European Climate Adaptation Platform
EIB	European Investment Bank
EIONET	European Environment Information and Observation Network
EMIS	Environmental Marine Information System
EMODNET	European Marine Observation and Data Network
ePRTR	European Pollutant Release and Transfer Register
ESPOO Convention	Convention on Environmental Impact Assessment in a transboundary context
GBIF	Global Biodiversity Information Facility
GEO BON	Group on Earth Observations Biodiversity Observation Network
GMEP	Global Marine Environment Protection
IED	Industrial Emissions Directive
INSPIRE	Infrastructure for Spatial Information in the European Community
IPCC	Intergovernmental Panel on Climate Change
JRC	Joint Research Centre
LCA	Life Cycle Assessment
LEAC	Land and Ecosystem Accounting
LIFE +	The EU's Financial Instrument for the Environment
MSFD	Marine Strategy Framework Directive
PCI	Project of common interest
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RBMP	River Basin Management Plans
SEA	Strategic Environmental Assessment
TEN-E	Trans-European Networks for Energy
TEN-T	Trans-European Networks - Transport
UNFCCC	United Nations Framework Convention on Climate Change
WFD	Water Framework Directive
WISE	Water Information System for Europe

PREFACE

In 2001, the European Commission published three EIA Guidance Documents concerning specific stages in the EIA process: Screening, Scoping, and Environmental Impact Statement Review. These documents have been updated and revised to reflect both the legislative changes brought about since the publication of the original guidance documents and the current state of good practice.

These three updated documents concern the following three specific stages of the EIA process:

- EIA Guidance Document on Screening;
- EIA Guidance Document on Scoping;
- EIA Guidance Document on the preparation of the EIA Report.

What is the aim of the Guidance Documents?

The aim of the Guidance Documents is to provide practical insight to those who are involved during these stages in the EIA process, drawing upon experiences in Europe and worldwide.

The Screening and Scoping EIA guidance documents aim to improve the decisions taken on the need for an EIA and the terms of reference on which the assessment is made. These two documents focus on getting the EIA process started well.

The preparation of the EIA Report guidance aims to help Developers and consultants alike prepare good quality Environmental Impact Assessment Reports and to guide competent authorities and other interested parties as they review the Reports. It focuses on ensuring that the best possible information is made available during decision-making.

Who can use the Guidance Documents?

The three EIA Guidance Documents are designed for use by competent authorities, Developers, and EIA practitioners in the European Union Member States and, where applicable, by Candidate Countries. It is hoped that they will also be of interest to academics and other organisations who participate in EIA training and education, to practitioners from around the world, as well as to members of the public.

Who prepared the Guidance Documents?

The original 2001 EIA Guidance Documents were prepared by Environmental Resources Management (ERM) under a research contract with the Directorate General for Environment of the European Commission. The revised 2017 EIA Guidance Documents have been prepared by Milieu Ltd and COWI A/S under a service contract specific contract number 070201/2016/729522/SER/ENV.D.1. to framework contract ENV.F.1/FRA/2014/0063 with the Directorate General for Environment of the European Commission.

How can I get a copy of the Guidance Documents?

Copies of the Guidance Documents can be downloaded from the website of the Directorate General Environment of the European Commission at <http://ec.europa.eu/environment/eia/eia-support.htm>.

EIA: concept and stages

The Environmental Impact Assessment (EIA) of Projects is a key instrument of European Union environmental policy. It is currently governed by the terms of European Union Directive 2011/92/EU, as amended by Directive 2014/52/EU on the assessment of the effects of certain public and private Projects on the environment (EIA Directive).

Since the adoption of the first EIA Directive in 1985 (Directive 85/337/EEC), both the law and EIA practices have evolved. The EIA Directive was amended by Directives 97/11/EC, 2003/35/EC, and 2009/31/EC. The Directive and its three amendments were codified in 2011 by Directive 2011/92/EU. The codified Directive was subsequently amended by Directive 2014/52/EU. This guidance document focuses on the modifications made to the EIA Directive since 2001, with a particular emphasis on the key changes brought about by the most recent 2014 amendment to the Directive, which Member States have to transpose into their national legal systems by 16 May 2017.

The EIA Directive requires that public and private Projects that are likely to have significant effects on the environment be made subject to an assessment prior to Development Consent being given. Development Consent means the decision by the Competent Authority or authorities that entitles the Developer to proceed with the Project. Before Development Consent can be granted, an EIA is required if a Project is likely to impact significantly upon the environment. Article 2(1) of the EIA Directive (see box below) sets out the Directive's overarching requirement.

Box 1: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 2(1)

Member States shall adopt all measures necessary to ensure that, before development consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects on the environment.

The guidance documents in this series cover three stages involved in EIA: Screening, Scoping, and the Preparation of the EIA Report.

The 'Screening stage' ascertains whether the Project's effects on the environment are expected to be significant, i.e. the Project is 'Screened' to determine whether an EIA is necessary. Projects listed in Annex I to the Directive are automatically subjected to an EIA because their environmental effects are presumed to be significant. Projects listed in Annex II to the Directive require a determination to be made about their likely significant environmental effects. The Member State's Competent Authority make that determination through either a (i) case-by-case examination or (ii) set thresholds or criteria.

The 'Scoping stage' provides the opportunity for Developers to ask Competent Authorities about the extent of the information required to make an informed decision about the Project and its effects. This step involves the assessment and determination, or 'scoping', of the amount of information and analysis that authorities will need.

The information relating to a Project's significant effects on the environment is gathered during the third stage: the preparation of the EIA Report.

These three stages are complemented by specific steps in the EIA process. This is defined in Article 1(2)(g) (see box below) which provides a definition of the Environmental Impact Assessment by describing the EIA process.

Box 2: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 1(2)(g)

For the purposes of this Directive, the following definitions shall apply:

[...]

(g) 'environmental impact assessment' means a process consisting of:

(i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);

(ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;

(iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

(iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and

(v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.

The figure below sets out an overview of the stages and steps usually taken when completing an EIA. As mentioned above, implementation arrangements for these stages may vary slightly between Member States, so care should be taken in this regard. The steps defined under Article 1(2)(g) are mandatory when undertaking an EIA. By comparison, undertaking the Screening and Scoping stages may not be required, depending on the nature of a Project or other circumstances: e.g. Screening is not necessary for Projects listed under Annex I to the Directive, and the Directive only foresees Scoping to be mandatory when it is requested by the Developer to the Competent Authority.



GUIDANCE ON THE PREPARATION OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

HOW TO USE THIS GUIDANCE DOCUMENT

This Guidance Document is one in a series of three Guidance Documents on EIA that has been published by the European Commission. This Guidance Document is about the preparation of the EIA Report. The other two guidance documents are concerned with Screening and Scoping.

This Guidance Document has been designed to be used throughout the European Union (EU) and cannot, therefore, reflect all of the specific legal requirements and practices of EIA in the different EU Member States. As such, any existing national, regional or local guidance on EIAs should always be taken into consideration alongside this document. Furthermore, the Guidance Documents should always be read in conjunction with the Directive and with national or local EIA legislation. Interpretation of the Directive remains the prerogative of the Court of Justice of the European Union (CJEU) solely and, therefore, case-law from the CJEU should also be considered.

The guidance is designed for use by various participants in the EIA process.

- **Project Developers and EIA practitioners:** Project Developers are ultimately responsible for preparing a submitting to the Competent Authorities an EIA Report that meets the requirements of the Directive as transposed to national legislation. They frequently hire specialist experts or consultants ('EIA Practitioners') to support them in the preparation of the EIA Report. Part B Section 1 of this Guidance Document reviews the requirements of the EIA Report in detail, and provides practical tips. Part B sections 2 and 3 on quality of the report and the review procedure can also be useful for Developers and practitioners, who will need to follow the decision-making process and provide additional information if requested. Part C is a checklist that can be used during the process of preparing the report to check that it is in line with requirements.
- **Competent Authorities:** Competent Authorities will need to review the EIA Report and use the information for decision-making. They need to ensure that they have the necessary expertise to carry out this role, either through in-house or external resources. Where appropriate, the Competent Authority may request further information to be submitted by the Developer in order to reach a credible, reasoned conclusion about the impacts of the proposed Project or development on the environment. Part B sections 2 and 3 explain the requirements of the Directive in this regard and provide some practical information on how Competent Authorities can best carry out this role. Authorities can use the checklist in Part C when reviewing the report to ensure that it meets the requirements of the Directive.
- **Review Bodies:** In some EIA regimes, bodies have been set up to review environmental information submitted under EIA procedures and to advise Competent Authorities on the adequacy of the information before it is used for decision-making. As noted above research institutes and professional bodies may also be asked to undertake reviews by Competent Authorities.
- **Consultees – the public and stakeholders:** Some consultees who have significant interests in particular Projects may also undertake reviews of an EIA Report on their own behalf to ensure themselves that their interests have been adequately addressed and that it forms a sound basis for decision-making.

The guidance is comprised of three main sections:

- **Part A – Overview of legislative requirements for the EIA Report.** This section introduces the concept of the EIA Report and the relevant provisions of the EIA Directive that govern its preparation and use. It serves as a reference point for guidance users to check which sections of the legislation they need to refer to, and for understanding the main changes to the legislation in 2014.

- **Part B – Practical guidance on the preparation of the EIA Report.** The practical guidance is more hands-on and detailed, aimed at providing an in-depth understanding of the specific, current legislative requirements regarding the preparation and use of the EIA Report. It also provides information on how to carry out the required steps, based on practice from around the EU.
- **Part C – The EIA Report checklist.** The EIA Report checklist allows users to determine if they have fulfilled all the relevant information requirements for different parts of the EIA Report. It follows the structure of the practical guidance in Part B and is designed to be used by practitioners and Developers during the process of preparing the EIA Report and by Competent Authorities when reviewing the report for completeness and quality.

PART A – OVERVIEW OF THE LEGISLATIVE REQUIREMENTS FOR THE PREPARATION OF THE EIA REPORT

1 LEGISLATIVE REQUIREMENTS FOR THE PREPARATION OF THE EIA REPORT

As part of the Environmental Impact Assessment, the Developer must prepare and submit an Environmental Impact Assessment Report (hereafter referred to as the EIA Report). This is the first step of the EIA process, as mentioned in Article 1(2)(g), that defines the EIA process (see box 2 in the Preface). This Guidance Document is designed to support users to prepare and complete the EIA Report to the high standard envisioned by the Directive. This report must include the necessary information for the Competent Authority to reach the Reasoned Conclusion and should be of a sufficient quality to enable this judgement. Many of the EIA Directive's requirements and provisions aim to ensure that the EIA Report is of a sufficient quality to effectively serve this purpose.

Article 5 of the EIA Directive sets out what must be included in the EIA Report, and how to ensure that it is both of a sufficient high quality and complete. Extracts from the text of the Article can be found in the box below.

Box 3: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(1)

1. Where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least:

- (a) a description of the project comprising information on the site, design, size and other relevant features of the project;
- (b) a description of the likely significant effects of the project on the environment;
- (c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- (d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;
- (e) a non-technical summary of the information referred to in points (a) to (d); and
- (f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

[...] the environmental impact assessment report [...] include the information that may reasonably be required for reaching a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. The developer shall, with a view to avoiding duplication of assessments, take into account the available results of other relevant assessments under Union or national legislation, in preparing the environmental impact assessment report.

Article 5(3)

3. In order to ensure the completeness and quality of the environmental impact assessment report:

- (a) the developer shall ensure that the environmental impact assessment report is prepared by competent experts;
- (b) the competent authority shall ensure that it has, or has access as necessary to, sufficient expertise to examine the environmental impact assessment report; and
- (c) where necessary, the competent authority shall seek supplementary information from the developer, in accordance with Annex IV, which is directly relevant to reaching the reasoned conclusion on the project's significant effects on the environment.

[...]

Article 5(1) sets out what Developers must include as a minimum in the EIA Report. Annex IV, referenced in Article 5(1)(f), expands on these requirements. In short, this includes the following:

- **A description of the Project:** this is an introduction to the Project, and includes a description of the location of the Project, the characteristics of the construction, and the operational phases of the Project, as well as estimates of the expected residues, emissions, and waste produced during the construction and operation phases (Article 5(1)(a) and Annex IV point 1);

- **Baseline scenario:** a description of the current state of the environment, and the likely evolution thereof without the implementation of the Project. This sets the stage for the subsequent EIA, and Member States shall ensure information for the Baseline scenario held by any authorities is available to the Developer (Annex IV.3);
- **Environmental factors affected:** a description of the environmental factors impacted by the Project, with specific emphasis being placed on climate change, biodiversity, natural resources, and accidents and disasters (Article 3, Annex IV points 4 and 8).
- **Effects on the environment:** this section addresses the concept of ‘significant effects’¹ and the importance of cumulative effects (Article 5(1)(b), Annex IV point 5);
- **Assessment of Alternatives:** Alternatives to the Project must be described and compared, with an indication of the main reasons for the selection of the option chosen being provided (Article 5(1)(d) and Annex IV point 2);
- **Mitigation or Compensation Measures,** i.e. features or measures to avoid, prevent or reduce, and offset adverse effects should also be considered (Article 5(1)(c) and Annex IV.7);
- **Monitoring:** Monitoring Measures proposed should be included in the EIA Report, where significant adverse effects have been identified. This monitoring should be carried out during the construction and operation of a project(Annex IV.7);
- **Non-Technical Summary,** i.e. an easily accessible summary of the content of the EIA Report presented without technical jargon, hence understandable to anybody without a background in the environment or the Project (Article 5(1)(e) and Annex IV.9);
- **Quality of the EIA Report:** as well as presenting the Report well, complete with the Non-Technical Summary, experts preparing the EIA Report should be competent, and the Competent Authority reviewing the EIA Report should have access to sufficient expertise to examine it. Failure to include all necessary information can result in the Competent Authority requesting supplementary information (Article 5(3)).

Article 5 also refers to the scope and level of detail that are to be included in the EIA Report:

- This should match the scope and level of detail requested by the Competent Authority in the Scoping Opinion, where one exists, and should be sufficient to allow for a Reasoned Conclusion on the significant effects of the Project on the environment to be arrived at (Article 5(1) last paragraph).
- The Developer shall, with a view to avoiding duplication of assessments, take the available results of other relevant assessments under Union or national legislation, into account when preparing the Environmental Impact Assessment report (Article 5(4)).

The EIA Directive also contains provisions on how the EIA Report, once it has been drafted by the Developer, should be used in practice. The EIA Report serves as a tool to 1) communicate the results of the assessment of significant effects of a proposed Project on the environment; and 2) enable the Competent Authority to reach a Reasoned Conclusion regarding the impact of the proposed Project on the environment and whether and how the Project should be granted consent to be implemented. These provisions are laid out in Articles 6, 7, and 8 of the EIA Directive.

These and other requirements and provisions regarding the preparation of the EIA Report are covered in greater detail in Part B of this Guidance Document.

¹ More details on how to understand the concept of significant effects have been provided in the EIA Guidance document on Scoping.

2 LEGISLATIVE CHANGES FOR THE PREPARATION OF THE EIA REPORT

A key objective of the 2014 amendments to the EIA Directive has been to improve the quality of EIA, including with respect to the collection and assessment of environmental information and to the EIA Report's content. Briefly, the key changes include:

- The coverage of environmental issues required in the EIA Report is extended as new requirements related to climate change, biodiversity, risk of major accidents and/or disasters are introduced (Article 3.1 and Annex IV.4, IV.5 and IV.8 – this is described in detail in Part B section 1.4 below). Moreover, the EIA Report will have to cover transboundary effects, and the requirements for the assessment of cumulative effects are provided in further detail.
- The assessment of reasonable Alternatives is broadened: Alternatives studied by the Developer e.g. Alternatives to Project design, technologies, location, size, and scale, must be described in the EIA Report and an indication of the main reasons for the option chosen must be given (Article 5.1(d) and Annex IV, paragraph 2 – this is described in detail in Part B section 1.5 below);
- Provisions related to the completeness and quality of EIA Reports have been introduced (Article 5.3 – this is described in detail in Part B section 2 below);
- Monitoring requirements to be carried for Projects with significant adverse effects (Article 8a, paragraph 4 – this is described in detail in Part B section 1.6 below);
- The Competent Authority's Development Consent decision needs to be justified (Article 8a, paragraph 1) and must be issued within a reasonable period of time (Article 8a, paragraph 5 – this is described in detail in Part B section 3 below). This decision is furthermore required to include a number of elements, such as the Reasoned Conclusion and any environmental conditions attached to the decision such as Mitigation, Compensation, and Monitoring Measures (Article 8a).

These and other changes to the Directive, and how they should be implemented in practice, are presented in greater detail in Part B of this Guidance Document.

PART B - PRACTICAL GUIDANCE ON THE PREPARATION OF THE EIA REPORT

INTRODUCTION

This part of the Guidance Document gives practical guidance on the preparation of the EIA Report. It covers the following aspects:

- **The information requirements of the EIA Report.** This section reviews all of the information that Developers must include in the EIA Report. It is important to note that the content of the EIA Report may not include all of the information uncovered during the process of preparation of the EIA Report. The Directive requires that the EIA Report covers the Project and Baseline description, environmental factors, the assessment of effects on the environment, Project Alternatives, identification of Mitigation and Compensation Measures, as well as monitoring requirements;
- **The quality of the EIA Report.** This section covers the format and presentation of the EIA Report, as well as requirements concerning the expertise of those who prepare, examine and evaluate the EIA Report. It also addresses the Non-Technical Summary that must be included in the EIA Report;
- **Consultations and decision-making.** The EIA Directive has specific requirements regarding the use of the EIA Report, both as a tool to inform concerned stakeholders and the public, as well as to make decisions regarding Development Consent for Projects. This section reviews these procedures.

1 THE EIA REPORT'S CONTENT REQUIREMENTS

1.1 PROJECT DESCRIPTION

This section outlines what is required by the Developer when describing the Project, as required under Article 5 and Annex IV of the EIA Directive.

Box 4: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(1)

The information to be provided by the developer shall include at least [...] a description of the project comprising information on the site, design, size and other relevant features of the project.

Annex IV, point 1

- a) a description of the location of the project
- b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;
- c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy use, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;
- d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.

The Directive is relatively detailed in its requirements, and Developers should provide an overview of:

- the location, site, design, size, etc.;
- the physical characteristics of Project (including any demolition or land-use requirements);
- the characteristics of the operational phase of the Project;
- any residues, emissions, or waste expected during either the construction or the operational phase.

While the list in Annex IV outlining the specific characteristics to be included is only indicative, it has been developed through different iterations of the EIA Directive (see the box below In practice - 2014 amendments), and so should be thoroughly considered by practitioners. In any case, Developers should include any additional relevant characteristics of either the operational or construction phases.

Box 5: In practice – 2014 amendments to the Project description

The requirement to include a description of the Project in the EIA Report is not new, and earlier iterations of the Directive have also been quite prescriptive in this regard.

The key difference brought about by the 2014 amendments is the inclusion of relevant requisite demolition works during the construction and operational phases. In addition, an estimate of residues and emissions during the construction phase is to be included, where previously such estimates concerned only the operational phase. This change broadens the scope of the description of the Project, and aims to identify more potential environmental effects.

Other changes faced by Developers are relatively minor:

- Article 5 requires other relevant features of the Project to be included;
- A description of the location of the Project is now specifically required by Annex IV;
- The operational phase of the Project is not limited to production processes, as it was previously.

In addition, the lists of characteristics given in Annex IV, point 1 have been expanded upon:

- Any requisite demolition works must now be described, where relevant;
- Energy demand and energy used should be described in context of the operational phase;
- Natural resources must now be described in the context of the operational phase, with the Directive giving some examples;
- The list of expected residue and emission estimates is no longer exhaustive, and subsoil has been added as type of pollution;
- Estimates of quantities and types of waste produced must now be given.

1.2 BASELINE SCENARIO

This section introduces the Baseline scenario, which is typically the starting point of the assessment process. It covers the legal requirements concerning the Baseline scenario, including the 2014 amendments to the Directive, as well as some practical steps regarding data collection and points to consider when beginning to compile a Baseline scenario.

1.2.1 The notion of Baseline

Defining Baseline scenario: a description of the current status of the environment

The Baseline is a description of the current status of the environment in and around the area in which the Project will be located. It forms the foundation upon which the EIA will rest.

Specifically, developing a robust Baseline scenario for the EIA serves two key purposes:

- it provides a description of the status and trends of environmental factors against which significant effects can be compared and evaluated;
- it forms the basis on which ex-post monitoring can be used to measure change once the Project has been initiated. See the section on monitoring for more information.

Legal requirements of the Baseline scenario in the EIA Directive

In practice, an assessment of the existing and future environmental situation has, typically, always been the EIA procedure's starting point. However, after the 2014 revisions to the Directive, the description of the Baseline scenario, and likely future developments, is now specifically required as part of the Environmental Report. The exact references are shown in the box below.

Box 6: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(1) of the Directive states that:

'The information to be provided by the developer shall include at least...any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.'

Annex IV, point 3 outlines the information for the Environmental Impact Assessment Report, and includes:

'A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.'

It is important to bear in mind that the EIA Directive requires the inclusion of both:

- a description of the current state of the environment in the EIA Report; and
- an outline of what is likely to happen to the environment should the Project not be implemented – the so-called ‘do-nothing’ scenario.

The state of the environment and the nature of impacts such as pollution rates or emission limits change over time, and this has to be accounted for in the Baseline assessment. In addition, the Baseline should consider Projects in the vicinity that exist and/or that have been approved (see Part B section 1.4.3 on Cumulative Effects). The Baseline should, therefore, be dynamic, going beyond a static assessment of the current situation. This is especially important for issues where there is considerable uncertainty, such as climate change, or for longer-term developments, such as large infrastructure Projects. Predicting uncertain elements can be challenging, particularly concerning the availability of information, as well as ensuring that the assessment is carried out with reasonable effort.

Tips on understanding how to carry out the Baseline assessment are provided in the following sections. The box below summarises the changes arising from the 2014 amendments to the EIA Directive.

Box 7: In practice – 2014 amendments to the Baseline

The specific requirement to include the Baseline scenario in the EIA Report is a new provision of the 2014 EIA Directive. However, in most cases, the changes will not have much of an effect on those carrying out the EIA:

- EIAs carried out prior to this requirement have established some kind of Baseline on which to assess the Project;
- The new provision formalises this step in the EIA process and aims to bring about some consistency between EIAs, between practice in Member States, and with the provisions on the SEA Directive's baseline (see the section below on sharing baseline assessment results).

The new provisions require consideration of:

- The ‘do-nothing’ scenario: the evolution of the Baseline, i.e. how the situation would be expected to develop over time, (rather than a static description of the state of the environment at the time of the assessment);
- The proportionality of the efforts to be expended, making sure resources are not spent collecting data if the cost outweighs the benefits

1.2.2 Carrying out the Baseline assessment

The Baseline forms the foundation against which the Alternatives and the Project itself are assessed. As such, the description of the current state of the environment must be sufficiently detailed and accurate to ensure that the effects, arising both during the development of the Project and in the future, can be adequately assessed. At the same time, the collection of data and the assessment of the Baseline need to be completed with reasonable effort. Developers and practitioners alike need to determine what aspects are important and can be readily understood and where qualified assumptions or estimates can be made to ensure the timely completion of the EIA.

Essentially, carrying out the Baseline assessment involves determining what is relevant and finding the data and information necessary to set the framework against which to assess impacts on the environment.

The collection of relevant data

The development of the Baseline can often comprise the bulk of the EIA process, and can occupy a significant proportion of the final EIA Report. However, care must be taken to ensure that data

collection efforts are focused on those aspects of the environment most likely to be significantly impacted, and that environmental data and scientific knowledge are reasonably available. The EIA Directive requires that only the ‘relevant aspects’ be investigated, and the over-collection of data can result in unnecessary costs. Detailed and thorough Scoping, undertaken at the outset of the Project, will go a long way to avoiding this issue (see the Guidance Document on Scoping). In some cases, communication with the Competent Authority about the scope of significant impacts, and what can be considered reasonable in terms of data availability, is also very helpful.

More generally, the scope of the Project will determine what level of detail is required, and how far the Baseline should extend. A small Project will likely only require that a small area be covered, but the nature of the Project may well mean that a high level of detail is required. A large Project may require a bigger area, but environmental effects may be small and it may be that only a broad level of detail is needed. Another issue concerns the timeline. Practitioners will need to decide how far into the future the Baseline will stretch. This will be decided on a case-by-case basis, but should at least be far enough in the future to show the development of the Project. However, a Baseline looking 100 years into the future will be less accurate than one working on a shorter timeframe. The use of existing plans and programmes, such as spatial plans and their SEAs, can also be a good way to determine the time frame, given that the scales may be similar and appropriate data are likely to be available.

Depending on the type of Project or specific environmental aspect, practitioners will need to gauge what is relevant when developing a Baseline. Keeping this in mind, the box below gives an overview of the types of data typically used in developing the Baseline assessment.

Box 8: Types of data to be considered for the Baseline scenario

Physical: topography, geology, soil types and quality, surface, ground and coastal water quality, pollution levels, meteorological conditions, climate trends, etc.

Biological: ecosystems (both terrestrial and aquatic), specific flora and fauna, habitats, protected areas (Natura 2000 sites), agricultural land quality, etc.

Socio-economic: demography, infrastructure facilities, economic activities (e.g. fisheries), recreational users of the area, etc.

Cultural: location and state of archaeological, historical, religious sites, etc.

Accessing data for the Baseline assessment

If Scoping has been carried out, it is possible that initial data has already been collected, which can be used for developing the Baseline. In such cases, data should be checked for relevance and accuracy, and if necessary, expanded upon. The Guidance Document on Scoping includes some guidelines on where initial data can be found, but this section is intended for those cases in which Scoping has not been carried out, or information identified during Scoping has proven to be insufficient.

Data should be collected and interpreted by the relevant experts (see the section on competence of expertise and quality control). If highly technical data are used, then data should be verified for the accuracy of interpretation and its relevance. Where no such experts are available in-house, external experts should be used. Experts may also be found at the local level, given that communities may have local knowledge which is highly relevant to understanding the Baseline conditions.

Data may be difficult to find; in some cases, proxy indicators can be used that can help to understand the environmental situation in other ways. For example, a lack of air quality monitoring data from an urban area could be resolved if there are data outlining trends in traffic flows/volumes over time, or trends in emissions from stationary sources. Assumptions about the environment can be generated from other available data and can be useful in determining the relevance of impacts.

Practitioners should be aware that data sources may differ from case to case, and the most high-tech or extensive collection method may not be the best one. In some cases, desk research may be more effective than field surveys, and Google Earth may be just as useful as satellite imagery that has been purchased.

In many Member States, data are collected either nationally or regionally, and include not only data from EIAs, but also from other environmental assessments and monitoring schemes. This practice is also encouraged by other EU level Guidance Documents (see the Annex to this Guidance Document on Other Relevant Guidance and Tools). These databases help to speed up the preparation of environmental assessments. Frequently updated databases will also facilitate transboundary consultations and the linkages between strategic and Project level environmental assessments. Practitioners should always first check what institutions are already in place, and what data are already available, before starting data collection for the Baseline scenario. In addition, Article 5(4) of the EIA Directive requires Member States to, if necessary, ensure that any authorities holding relevant information make this information available to the Developer. This means that the Developer should be able to easily obtain relevant information from the different relevant authorities and to obtain guidance to that effect from the Competent Authority.

Some typical sources of information used for collecting Baseline data are listed below.

- National/regional databases of previous EIAs;
- Data collected under other EU legislation (especially the SEA Directive and the INSPIRE Directive);
- EU level and other international databases (see the box below);
- Local level/community experts; and
- Primary research carried out by competent experts.

Box 9: Some examples of supra-national level environmental databases

General datasets

- European Commission – Eurostat database;
- European Environment Agency (including national emissions, water, land cover, etc.);
- European Environment Information and Observation Network (EIONET);
- Copernicus (previously Global Monitoring for Environment and Security);
- Infrastructure for Spatial Information in the European Community (INSPIRE);
- United Nations Environmental Data Explorer.

Biodiversity and climate change datasets

- Biodiversity Information System for Europe (BISE);
- Global Biodiversity Information Facility (GBIF);
- Natura 2000 Network Viewer;
- Reporting under Habitats Directive and Birds Directive;
- Common Database on Nationally Designated Areas (CDDA) managed by the European Environment Agency;
- Ecosystem assessments (MAES)
- Group on Earth Observations Biodiversity Observation Network (GEO BON);
- EuMon (species and habitats of Community interest);
- IPCC Data Distribution Centre.

Water & Marine datasets

- Water Information System for Europe (WISE);
- European Marine Observation and Data Network (EMODNET);
- Environmental Marine Information System (EMIS) ;
- European Atlas of the Seas.

Chemicals and industrial datasets

- Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH);

- Major Accident Reporting System (MARS);
- Community Documentation Centre on Industrial Risk (CDCIR);
- European Pollutant Release and Transfer Register (ePRTR).

An example of data sharing platforms is provided in the box below.

Box 10: An example of data sharing

In Italy, several environmental and territorial databases are available for public access via a website dedicated to the SEA/EIA procedures. The ministry of the environment provides a catalogue of environmental data at the national and regional levels which is updated regularly. Sources include databases, web resources, documents, spatial datasets (webGIS service, Google Earth, WMS and WFS). Specific criteria are used to ensure the reliability and quality in accordance with national and EU provisions.

Information from the Italian's government website Ministero dell'Ambiente.

Sharing Baseline assessment results

Sharing results from other types of environmental assessment procedures or similar Projects' EIAs is also important for the Baseline's assessment. For example, if one year is spent collecting Baseline data for a windfarm, a similar windfarm Project in a similar location would be able to use much of the data already collected for the first Project.

The SEA, WFD, IED, and Habitats Directive (see the Annex to this Guidance Document on Links with Other EU Instruments) all require that some form of baseline be developed: for instance, under the Habitats Directive the baseline would be the conservation objectives of the Natura 2000 site. But very few Member States have provisions on how this is to be done. In any case, practitioners should check the Baseline scenario, as well as environmental reports and other relevant assessments of the status of the environment carried out under the SEA and Habitats Directives, the WFD, and the IED if they are carried out in the vicinity of the Project covered by the EIA. Care should be taken to ensure that the data are still up to date and relevant, keeping in mind the differences in scope of the different instruments.

The similarities between the SEA and EIA provisions also mean that SEA guidance documents and reports prepared in this context may be used to inspire an EIA. Below is an example from the 2001 SEA Guidance Document issued by the European Commission (see the Annex to this Guidance Document on Other Relevant Guidance and Tools). It should be borne in mind that similar documents may exist at the national level, and would include information which may differ from this guidance and provide additional information.

Box 11: SEA Guidance Document: a comparison with EIA Baseline provisions

The SEA baseline provisions were first introduced in 2001, and guidance and lessons learnt have been developed since then. The SEA Guidance can prove useful to applying the EIA provisions to the Baseline. Below are the phrases that appear in both Directives in **bold**, and how they are covered in the SEA Guidance Document.

PART A **'the relevant aspects'** refer to environmental aspects that are relevant to the likely significant environmental effects of the plan or programme. These aspects could be either positive or negative. This concept should be considered in the same way during both assessments, but the aspects themselves may differ between EIA and SEA. An SEA, for example, may cover a large area of land and, therefore, may have much broader aspects that may be affected than an EIA, which may be assessed at a much smaller level of detail.

PART B **'current state of the environment'** requires that the information be up-to-date. Both the SEA and EIA will benefit from the data being up-to-date (see the section on decision-making).

PART C **'likely evolution of the relevant aspects without the implementation'** of the plan or programme gives a foundation upon which the plan or programme (if it does go ahead) can be assessed. For an SEA, the description of the evolution should cover roughly the same time horizon as that envisaged for the

implementation of the plan or programme. The same timeframe could be used for an EIA falling under such an SEA.

Information collected under the other environmental assessments may provide a starting point for an EIA, given that Developers must provide authorities with data on various issues regularly. EU-level initiatives such as INSPIRE provide standardised data collection, making comparison between different environmental assessments easier. The IED, for example, requires that Developers provide annual information on their emissions with regards to different mediums, volume, and amount of materials on-site (stocked, disposed of, etc.). Such information, collected solely for the purposes of the IED, may not be directly transferrable to the EIA Report, given that the scope and purpose of these collections may differ from EIA requirements. However, previously reported information may prove invaluable for establishing a Baseline and mapping trends over time.

1.2.3 Baseline: In a nutshell

- The Baseline assessment is the starting point of an EIA. The Baseline scenario and its assessment provide a description of the affected environment as it is currently, and as it could be expected to develop if the Project were not to proceed;
- A Baseline has typically always been included in EIAs, but the 2014 amendments to the EIA Directive specify that a Baseline must be included in the EIA Report and that it must include the current environmental situation as well as expected future developments ('do-nothing' scenario);
- The Baseline assessment needs to be detailed and comprehensive enough to allow for an understanding of the extent of environmental impacts, but must be conducted within a reasonable time and with a reasonable amount of effort on the part of the Developer. Scoping helps to understand this in advance;
- The collection of relevant data is critical to a robust assessment of the Baseline. Data should be identified and assessed by qualified experts;
- Efficiencies in data collection from existing databases, free services, and other relevant environmental assessments should always be investigated.

1.3 ENVIRONMENTAL FACTORS

This section reviews the scope of the environmental factors covered by the Directive, with a focus on those factors that have been expanded in the 2014 amendments to the Directive.

1.3.1 Scope of environmental factors covered by the Directive

As shown in the box below, Article 3 sets out those environmental factors that EIAs have to consider relevant for particular Projects. These factors are described further in Annex IV, point 4 to the Directive, which provides details about the information required for the EIA Report.

Box 12: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 3

1. The environmental impact assessment shall identify, describe, and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- (a) population and human health²;

² Human health is a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air

- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- (c) land, soil, water, air and climate;
- (d) material assets, cultural heritage and the landscape;
- (e) the interaction between the factors referred to in points (a) to (d).

2. The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned.

In particular, the requirements have been expanded to cover some of these factors in greater detail, in response to the evolution of the understanding of the interaction between Projects and the environment, and other policy actions taken in light of these developments. These elements are:

- Climate change – both mitigation and adaptation;
- Risks of major accidents and disasters;
- Biodiversity;
- Use of natural resources.

Developers are, therefore, expressly required to assess a broader scope of impacts with respect to these issues wherever relevant. These issues are each treated specifically in the following sections.

1.3.2 Impacts related to Climate change

Legislative requirements and key considerations

Box 13: Directive 2011/92/EU as amended by Directive 2014/52/EU

Annex IV point 4

A description of the factors specified in Article 3(1) likely to be significantly affected by the project: ... climate (for example greenhouse gas emissions, impacts relevant to adaptation) ...

Annex IV point 5(f)

A description of the likely significant effects of the project on the environment resulting from, inter alia:

- (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; ...

Annex IV to the EIA Directive includes direct reference to climate and climate change in two provisions. The emphasis is placed on two distinct aspects of the climate change issue:

- **Climate change mitigation:** this considers the impact the Project will have on climate change, through greenhouse gas emissions primarily;
- **Climate change adaptation:** this considers the vulnerability of the Project to future changes in the climate, and its capacity to adapt to the impacts of climate change, which may be uncertain.

In 2013, the European Commission issued a guidance document on integrating climate change and biodiversity into Environmental Impact Assessment (see the Annex to this Guidance Document on Other Relevant Guidance). This guidance document provides information about the legal aspects of understanding these issues in EIAs, the benefits and challenges of integrating them into assessment

pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population.

procedures, and detailed methodological approaches to carrying out assessments on these issues. It should be read alongside this section of the EIA guidance document.

Climate change mitigation: Project impacts on climate change

Most Projects will have an impact on greenhouse gas emissions, compared to the Baseline (see the section on Baseline), through their construction and operation and through indirect activities that occur because of the Project. The EIA should include an assessment of the direct and indirect greenhouse gas emissions of the Project, where these impacts have been deemed significant:

- direct greenhouse gas emissions generated through the Project's construction and the operation of the Project over its lifetime (e.g. from on-site combustion of fossil fuels or energy use)
- greenhouse gas emissions generated or avoided as a result of other activities encouraged by the Project (indirect impacts) e.g.
 - Transport infrastructure: increased or avoided carbon emissions associated with energy use for the operation of the Project³;
 - Commercial development: carbon emissions due to consumer trips to the commercial zone where the Project is located.

The assessment should take relevant greenhouse gas reduction targets at the national, regional, and local levels into account, where available. The EIA may also assess the extent to which Projects contribute to these targets through reductions, as well as identify opportunities to reduce emissions through alternative measures.

Climate change adaptation: the vulnerability of the Project to climate change

The Directive also requires that Environmental Impact Assessments consider the impacts that climate change may have on the Project itself — and the extent to which the Project will be able to adapt to possible changes in the climate over the course of its lifetime. This aspect of the issue of climate change can be particularly challenging as 1) it requires those carrying out the assessment to consider the impacts of the environment (the climate in this case) on the Project, rather than vice-versa; and 2) it often involves a considerable degree of uncertainty, given that the actual climate change impacts, especially at local levels, are challenging to predict. To this end, the EIA analysis should take trends and risk assessment into consideration.

In April 2013, the European Commission adopted the EU Strategy on adaptation to climate change (COM(2013) 216 final), which sets out a framework to prepare the EU for climate impacts now and in the future. One of its main objectives is related to the promotion of better-informed decision-making through initiatives such as the European Climate Adaptation Platform (CLIMATE-ADAPT)⁴ which was designed, as a web-based platform, to support policy-makers at the EU, national, regional, and local levels in the development of climate change adaptation measures and policies. The Strategy comprises a set of documents that are useful to a wide range of stakeholders. In relation to the adaptation measures considered within EIAs, the Commission Staff working document entitled *Adapting infrastructure to climate change* (SWD(2013) 137 final), as well as *Guidelines for Project Managers: Making vulnerable investments climate resilient* (DG Climate Action, Non-paper) are of particular importance.

³ For example, such a requirement is already included in the French legislation concerning EIAs.

⁴ <http://climate-adapt.eea.europa.eu/about>.

- Integration of climate change mitigation considerations into EIAs

The effective assessment of impacts on climate change mitigation within EIAs is heavily dependent upon the methodology employed, and a number of standardised methodologies for calculating greenhouse gas emissions already exist. The extent to which they will be applicable to the specific case in question will be important, as well as issues relating to data collection. Calculating direct impacts will be more straightforward than indirect impacts – and assessments will have to rely on estimates in some cases.

The European Commission Guidance Document on integrating climate change and biodiversity into EIA identifies key European sources of data, including data repositories and online digital datasets thought to be useful when integrating climate change in EIA. This guidance document also provides links to carbon calculators and to other methodologies, including to the methodology for calculating absolute and relative GHG emissions piloted by the European Investment Bank (EIB) (EIB, Methodologies for the Assessment of Project GHG Emissions and Emission Variations) – see the Annex to this Guidance Document on Other Relevant Guidance and Tools.

On the global level, in 2011 the United Nations Framework Convention on Climate Change issued a paper on ‘Assessing climate change impacts and vulnerability, making informed adaptation decisions’ (UNFCCC, Highlights of the contribution of the Nairobi work programme, Assessing climate change impacts and vulnerability, making informed adaptation decisions) which contains sections on, inter alia, the development and dissemination of methods and tools, the provision of data and information, and the assessments of impacts and vulnerability at different scales and in different sectors.

The Life Cycle Assessment (LCA) can be used to consider a Project’s overall direct and indirect greenhouse gas emissions balance.

- Integration of climate change adaptation considerations into EIAs

As discussed above, the integration of climate change adaptation considerations into EIAs is challenging; it requires a shift in thinking about assessments and taking possible long-term risks and uncertainty into account. Recent improvements in the information base for understanding climate change impacts and risks for a variety of sectors and locations has made this challenge less daunting, however, and the information base and acquisition of experience on this topic is growing rapidly. The European Climate Adaptation Platform, known as Climate-ADAPT, is a good place to start to find support tools and links to the latest adaptation knowledge, including detailed studies on vulnerabilities and risks.

The European Commission Guidance Document on integrating climate change and biodiversity into EIA is another important source of information and ideas on how to carry out the assessment (see the Annex to this Guidance Document on Other Relevant Guidance and Tools). It provides examples of key questions to ask to identify climate change adaptation concerns; these consider major impacts such as heat waves, droughts, extreme rainfall, storms and winds, landslides, rising sea levels, and others. The guidance document also explains how to take account of trends, drivers of change, and risk management approaches in EIAs. It suggests approaches to building adaptive capacity into Projects through alternative measures, such as changes in the use of materials or construction designs that will be more resilient to expected risks. It also shows how EIAs can facilitate adaptive capacity and management in Projects by clearly acknowledging their assumptions and uncertainty in climate impacts and by proposing practical monitoring arrangements to verify the validity of predictions and responses over time.

1.3.3 Impacts related to risks of major accidents and disasters

Legislative requirements and key considerations on accidents and disaster risks

Box 14: Directive 2011/92/EU as amended by Directive 2014/52/EU

Annex IV point 5(d)

A description of the likely significant effects of the project on the environment resulting from, inter alia:

- (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters) and

Annex IV point 8

(8) A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. [...] Where appropriate, this description should include [...] details of the preparedness for and proposed response to such emergencies.

Annex IV contains direct reference to accidents and disaster risks in two provisions. The Directive uses the terms ‘major’ accidents and ‘disasters’, which are tied to the notion of significant effects (see the section below on assessing effects on the environment): the focus of these provisions is on significant risk and/or a risk that could cause significant environmental effects.

Two key considerations emerge therefrom, namely:

- The Project’s potential to cause accidents and/or disasters

In this case, the Directive explicitly refers to considerations for human health, cultural heritage, and the environment.

- The vulnerability of the Project to potential disaster/accident

In this case, the requirement covers both natural (e.g. earthquakes) and man-made disasters (e.g. technological hazards) that could significantly impede the Project’s activities and objectives and which might have adverse effects. In its 2009 Prevention Communication, the Commission has committed itself to mainstream disaster prevention concerns in the EU legislation and in the EIA Directive in particular. The need to build ‘resilience to natural and man-made disasters’ and to invest in risk prevention is envisaged in several EU strategies and proposals⁵. Some relevant information on these topics is readily available and can be obtained through risk assessments pursuant to other EU legislation, such as the Seveso III Directive on the control of major-accident hazards involving dangerous substances⁶ or the Directive establishing a Community framework for the nuclear safety of nuclear installations⁷. Other relevant assessments, carried out pursuant to national legislation, may also be used for this purpose provided that the requirements of these Directives have been met.

An example from Ireland, presented in the box below, illustrates the necessity to consider the adverse impacts of natural disaster/risks when constructing a Project.

⁵ E.g. the EU Internal Security Strategy COM(2010)673, the Commission's proposal for the Cohesion fund for 2014-2020 COM(2011)612, the Commission's Communication on the prevention of natural and man-made disasters COM(2009)82.

⁶ Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC.

⁷ Council Directive 2009/71/EURATOM of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations.

Box 15: Assessment of natural disasters risk in an EIA in Ireland – CJEU, C-215/06, *Commission v Ireland*

In 2008, the ECJ ruled that Ireland had failed to fulfil its obligations under several Articles of the EIA Directive. This case concerned the construction of the largest terrestrial wind-energy development ever planned in Ireland and one of the largest in Europe.

When initial phases for development consent were granted in 1998, wind farms were not included in either Annex I or II to the Directive and, therefore, were not subject to an EIA. However, wind farm construction required a number of works, including the extraction of peat and of minerals other than metalliferous and energy-producing minerals, as well as road construction, which were listed in Annex II to the EIA Directive requiring Screening to be carried out. The competent authority in Ireland assessed that no EIA for these supplementary works was required, given that their impact would not significantly impact the environment.

Subsequently, a landslide occurred in October 2003, which the Commission claimed led to a large-scale ecological disaster, when the mass of peat which was dislodged from an area under development for the wind farm polluted the Owendalulleagh River, causing both the death of about 50,000 fish and lasting damage to the fish spawning beds. Ireland contended that the landslide was caused by the construction methods used and that there was no question of difficulties which could have been anticipated by an EIA, even one in conformity with the Community requirements.

The ECJ stated that the intended Projects of peat and mineral extraction and road construction were not insignificant and that the EIA should have been carried out.

Given that it was not undertaken, the question of soil stability, even though it is fundamental when excavation is intended, was not assessed.

Integration of disaster/accident risk considerations into EIAs

Box 16: Key considerations on disaster/accident risk

Including disaster/accident risk assessment in EIAs should address issues such as:

- What can go wrong with a Project?
 - What adverse consequences might occur to human health and to the environment?
 - What is the range of magnitude of adverse consequences?
 - How likely are these consequences?
 - What is the Project's state of preparedness in case of an accident/disaster?
 - Is there a plan for an emergency situation?
-
- Assessment of the Project's vulnerability to disaster risks

An integrated assessment of vulnerability to disaster risks and hazards aims to assess whether the Project is indeed vulnerable to such events and, if so, to provide recommendations to avoid/minimise those risks. Where relevant, a multi-risk approach should be followed to cover the climate-related hazards, discussed previously in the section concerning climate change (see section above on climate change). The study on the EIA and risk assessment undertaken as part of the Sixth Framework Programme (the Sixth Framework Programme covers EU activities in the field of research, technological development and demonstration) contains useful information concerning risk assessment and risk management, lists existing guidelines on the subject and the results of the EIA's application in terms of risk assessment in several Member States (see the Annex to this Guidance Document on Other Relevant Guidance and Tools). It examines the ways in which, and the extent to which, extraordinary hazards and risks are dealt with in the EIA in the EU Member States, both within the regulatory framework and in EIA practice. The study also lists qualitative, semi-quantitative, and quantitative methods by which to assess risk of accident/disasters.

- Tools: prevention, monitoring and early warning

After the major natural and man-made risks have been identified and assessed, measures to control and manage their significant impacts should then be taken, e.g. to ensure compliance with existing minimum prevention standards, safety requirements, building codes, improved land use planning, etc. These could be integrated into a coherent risk management plan that also includes sufficient preparedness and emergency planning measures to ensure an effective response to disasters or to the risks of accidents (cf. 2012 IA Study, page 140).

1.3.4 Impacts related to biodiversity

Legislative requirements and key considerations on biodiversity

Box 17: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 3

The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

Annex IV point 4

A description of the factors specified in Article 3(1) likely to be significantly affected by the project:

... biodiversity (for example fauna and flora) ...

Annex IV (4) refers to biodiversity and includes, inter alia, fauna and flora. The reference to the assessment of impacts on ‘biodiversity’ was added to the Directive in the 2014 amendments, which previously referred only to ‘fauna and flora’. This is important: fauna and flora taken individually refer to animal and plant life in a particular zone or time, it involves a somewhat individual perspective, while biodiversity refers to the interactions and variety of, and variability within, species, between species, and between ecosystems; this is, therefore, a much broader concept than simply looking at the impacts on fauna and flora individually. This change is in line with some of the actions of the 2006 EU Biodiversity Action Plan requiring that ‘all EIAs should take full account of biodiversity concerns’ (Halting the loss of biodiversity by 2010 - and beyond - Sustaining ecosystem services for human well-being, SEC(2006)621). This is particularly important, given that the EU has missed its 2010 target of halting the loss of biodiversity and the new 2011 EU Biodiversity Strategy reiterates that this target is to be achieved by 2020 (Our life insurance, our natural capital: an EU biodiversity strategy to 2020, COM (2011) 244 final).

In addition, Article 3(1) also spells out the need to assess both the direct and indirect significant effects of the Project on, inter alia, biodiversity, with particular attention being paid to species and habitats protected under the Habitats Directive and the Birds Directive. The reference to these Directives was also added in the 2014 amendments.

Integration of biodiversity considerations into the EIAs

A number of key issues need to be addressed by Developers in relation to biodiversity concerns. These include, for instance, the degradation of ecosystem services⁸, the loss and degradation of habitats, the loss of species diversity, and the loss of genetic diversity.

⁸ Ecosystem services are understood as the ecosystem’s capacity for (i) provisioning, (ii) regulating, (iii) supporting, and (iv) providing cultural benefits. This means, for instance, that if pollution to a water stream is taking place, then this could result in degradation of the stream’s capacity to (i) provide clean water, ensuring thereby that fish and aquatic plants are (ii) healthy and (iii) thriving, leading to (iv) the depreciation of the site’s value for local fishermen.

The European Commission issued guidance concerning the integration of biodiversity into the EIA in 2013 (see the Annex to this Guidance Document on Other Relevant Guidance and Tools). This guidance document lists key concerns and includes examples of key questions that should be asked, in order to assess impacts on biodiversity effectively. There are also several other guidance documents that are useful for the integration of biodiversity concerns into the EIAs. Some of these documents are listed in the box below, please also refer to the Annex to this Guidance Document on Other Relevant Guidance and Tools.

Box 18: Guidelines on biodiversity integration in the EIA

- Commission, Assessment of plans and Projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- Netherlands Commission for Environmental Assessment & CBD-Ramsar-CMS, Voluntary Guidelines on biodiversity-inclusive Environmental Impact Assessment.
- Slootweg, Roel; Kolhoff, Arend, Generic approach to integrate biodiversity considerations in screening and Scoping for EIA.
- Chartered Institute of Ecology and Environmental Management, Guidelines for ecological impact assessment in the UK and Ireland, Terrestrial, Freshwater, and Coastal, January 2016.

In cases in which Projects are likely to have significant effects on a site protected under the Habitats and Birds Directives, the assessment of effects of Projects on biodiversity will be carried out as part of an Appropriate Assessment according to Article 6(3) of the Habitats Directive. The 2014 amendments to the EIA Directive require that this assessment be carried out in coordination with the EIA, according to procedures specified in the European Commission guidance on streamlining environmental assessments under Article 2(3) of the EIA Directive (see the Annex to this Guidance Document on Other Relevant Guidance and Tools). It is important to bear in mind that EIAs must assess impacts on biodiversity even in cases in which certain Projects do not impact upon a Natura 2000 site.

Integration of marine biodiversity into the EIAs

Following the adoption of the Marine Strategy Framework Directive (MSFD), in 2008⁹, impacts on the marine environment are to be further considered in EIAs for Projects within marine areas. These could include Annex I Projects, such as trading ports, or Annex II Projects such as extracting minerals by dredging, wind farms, shipyards, coastal work to combat erosion, for example, moles and jetties.

Contrary to biodiversity on land, which has been covered by EU law since the 1980s, a thorough analysis of biodiversity in the sea only became required with the adoption of the MSFD. The issue of data gathering and problems with the lack of data may, therefore, be greater than it is for other Projects. However, a number of tools, databases, and information systems are now available and aim to preserve the natural resources and biodiversity, while keeping the marine economic sectors viable.

These include:

- Several tools developed to support the assessment of the marine environment under the MSFD. Member States are required under Article 8 of the MSFD to carry out an assessment of their marine waters every 6 years. This can be considered as a form of baseline. In addition, according to Article 11 of the MSFD, Member States must establish a monitoring programme, reviewed every 6 years, which should also gather data for the purposes of achieving good environmental status;

⁹ Directive 2008/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).

- There are also regional sea conventions that have relevant information concerning data on marine biodiversity and sea such as the Helcom¹⁰ in the Baltic region, OSPAR for the North East Atlantic, the Barcelona Convention for the Mediterranean and the Bucharest Convention for the Black Sea;
- The Global Marine Information System has been developed by the JRC to provide the stakeholders with an appropriate set of bio-physical information (GIS functionalities) that is important in conducting water quality assessments and resource monitoring in the coastal and marine waters;
- The Global Marine Environment Protection (GMEP) Initiative is a best practices-sharing mechanism that was prompted by several high profile offshore drilling accidents. GMEP was conceived by the G20 Leaders at the Toronto Summit in 2010 to protect the marine environment.

See the Annex to this Guidance Document on Other Relevant Guidance and Tools for full references.

In 2014, the Commission also adopted a Directive establishing a framework for maritime spatial planning¹¹ that requires Member States to establish so-called maritime spatial plans with the overall objective of achieving the sustainable use of marine resources. This Directive requires Member States to establish the maritime spatial plans as soon as possible, and at the latest by 31 March 2021. Several types of Projects within the maritime spatial plans, such as those concerning renewable energy development, oil and gas exploration and exploitation, maritime shipping and fishing activities, ecosystem and biodiversity conservation are all subject to the EIA and the Developer will have to ensure that they are in line with their respective maritime spatial plan objectives.

Several guidance documents have been written in relation to the assessment of environmental impacts of Projects in the marine environment, at the EU as well as national levels. Some are listed in the box below and are part of the list provided under the Annex to this Guidance Document on Other Relevant Guidance and Tools.

Box 19: Relevant Guidance documents

EU Guidance Documents

- Commission guidance on wind energy development in accordance with the Natura 2000

Other Guidance Documents

- OSPAR, Assessment of the Environmental Impact of Offshore Wind-farms
- RPS, Environmental impact assessment practical guidelines toolkit for marine fish farming
- EMEC, Environmental impact assessment (EIA) guidance for developers at the European Marine Energy Centre

A good practice example from Italy and Malta, involving the assessment of impacts on marine biodiversity as part of the EIA, is described in the box below.

Box 20: Minimising cable impact on marine ecosystem by Terna

Terna, the Italian electricity grid operator, has developed an innovative methodology for the installation of marine cables that minimises the environmental impact of submarine grid interconnections between Malta and Sicily and protects meadows of the rare sea grass 'Posidonia oceanica'.

The corridor foreseen for this cable crossed an area that is home to 'Posidonia oceanica', a seagrass that is declining (according to the RedList) and provides a habitat for many species. In order to protect the 'Posidonia oceanica' as well as other seabed species from harm, Terna refrained from the drilling technique most commonly used for marine cable installation.

¹⁰ <http://www.helcom.fi/baltic-sea-trends/data-maps/>.

¹¹ Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.

This technique would have involved the use of bentonite to lubricate and consolidate the sand around the drilling head, which could have potentially suffocated the 'Posidonia oceanica' due to the bentonite debris. The innovative solution applied used Xanthan gum, a polysaccharide sometimes employed as a food additive that can easily be biodegraded.

Good Practice of the Year 2016 award, http://renewables-grid.eu/fileadmin/user_upload/Files_RGI/RGI_Publications/Good_Practice_of_the_Year_Award_brochure_2016.pdf

1.3.5 Impacts related to the use of natural resources (depletion risks, resource use considerations)

Legislative requirements and key consideration on use of natural resources

Box 21: Directive 2011/92/EU as amended by Directive 2014/52/EU

Annex IV point 1(c)

Description of the project, including in particular:

- (c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;

Annex IV point 5(b)

A description of the likely significant effects of the project on the environment resulting from, inter alia:

- (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

Annex IV (1) and (5) requires the Developer to assess the use of natural resources and the impacts of the Project resulting from their use/depletion. In this context, the Directive requires the assessment to consider the sustainability of resources as far as possible, in particular land, soil, water, and biodiversity, as well as energy. The requirement for the assessment of a Project's impacts on the availability of natural resources is additional to the requirement to assess the impact on the resources — and a slightly different emphasis needs to be taken into account by Developers and practitioners. This emphasis reflects a shift in environmental policy focus from one of protecting natural resources — through assessing and mitigating impacts — to one of preserving the availability of natural resources for human activity. In this sense, assessments should also focus on the efficiency of resource use; can Projects do more with less in terms of energy use, water intake, land and soil use, etc.?

The integration of the use of natural resources into EIAs

The European Commission's Thematic Strategy on the Sustainable Use of Natural Resources (COM(2005) 670) has defined three types of indicators needed to measure resource efficiency:

■ Resource use indicators

Indicators of resource use should inform not only on the quantities of resources extracted, but also their quality, abundance (e.g. renewable, non-renewable, exhaustible, non-exhaustible), availability and location.

■ Environmental impact indicators

Resource use also impacts the environment and human health through a sequence of changes in the state of the natural environment. Life Cycle Assessment (LCA) methodology provides a framework for describing environmental impacts. An LCA quantifies all of the physical exchanges with the environment, be they inputs (materials, water, land use, and energy) or outputs (waste and emissions to air, water, and soil). These inputs and outputs are then assessed in relation to specific environmental impact potentials (e.g. climate change, eutrophication, ecotoxicity). These so-called midpoint impacts can then, once more, be related to endpoint impacts such as human health, the natural environment,

and natural resources (for full references to the European Commission, Assessment of resource efficiency indicators and targets see the Annex to this Guidance Document on Other Relevant Guidance and Tools).

■ Socio-economic indicators

Indicators of socio-economic benefits are not just limited to the market value of resources, but also to those aspects of resource use related to well-being and to quality of life that are not measured within the economy.

Methodologies for the assessment of resource use and efficiency are fairly recent, and only a few documents providing details thereon are currently available. These are provided in the box below and are part of the list provided under the Annex to this Guidance Document on Other Relevant Guidance and Tools.

Box 22: Methodologies on the assessment of natural resources use

- European Commission. 2012. Life cycle indicators framework: development of life cycle based macro-level monitoring indicators for resources, products and waste for the EU-27. European Commission, Joint Research Centre, Institute for Environment and Sustainability
- Assessment of resource efficiency indicators and targets, Final report, European Commission, DG Environment, 19 June 2012
- Land and Ecosystem Accounting (LEAC), European Topic Centre Terrestrial Environment, LEAC methodological guide book, July 2005

1.3.6 Environmental factors: In a nutshell

- Article 3 of the EIA Directive provides the scope of environmental factors that should be assessed by the EIA. This list of environmental issues was broadened by the 2014 amendments to the Directive, by adding the following factors in particular: climate change – both mitigation and adaptation; risks of major accidents and disasters; biodiversity; and the use of natural resources;
- These factors sometimes require EIA practitioners to pay greater attention to issues of risk, uncertainty and resource use related to a Project than they may have previously – in some cases new assessment methods or techniques will be necessary;
- In addition to the guidance provided in this section, reference is made to a large number of initiatives, mostly at the EU-level, to further assist practitioners in their assessment. Practitioners are encouraged to make use of these tools, many of which are listed under the Annex to this Guidance Document on Other Relevant Guidance and Tools.

1.4 ASSESSING EFFECTS ON THE ENVIRONMENT

Article 3 requires that the EIA Report identify, describe, and assess significant effects. Section 1.3 above concerns the identification of the environmental factors likely to be impacted upon by the Project. This section focuses on the phrase ‘significant effects’; that is, identifying which effects are to be considered and which are determined to have only a negligible effect on the environment. The concept of cumulative effects has also been included in this section, given that effects considered to be insignificant in isolation may have a significant impact on the environment when they interact with other effects.

1.4.1 Legal framework of significant effects

The EIA Directive stipulates that ‘significant’ effects must be considered when it comes to assessing the effects (or impacts) on the environment. The concept of significance considers whether or not a Project’s impact could be determined to be unacceptable in its environmental and social contexts. The assessment of significance relies on informed, expert judgement about what is important, desirable or

acceptable with regards to changes triggered by the Project in question.

This limits the assessment to those impacts that are likely to have a significant or important enough impact on the environment to merit the costs of assessment, review, and decision-making. While the concept of significant effects is referred to several times throughout the EIA Directive (see the box below), no clear definition is provided, and significance has to be assessed in light of the Project's specific circumstances. If Scoping has been carried out, the significance of effects may have been either indicated or, in some cases, already determined at the Scoping stage and, therefore, practitioners should refer to the Guidance Document on Scoping.

Box 23: Directive 2011/92/EU as amended by Directive 2014/52/EU

The phrase 'significant effect' is used throughout the Directive, in various contexts. The following extracts highlight only those relevant for understanding the phrase in the context of the EIA Report. References to cumulative effects have also been highlighted.

Article 1(1) of the Directive states that:

'This Directive shall apply to the assessment of the environmental effects of those public and private projects which are likely to have **significant effects** on the environment.'

Article 3(1) of the Directive states that:

'The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the **direct and indirect significant effects** of a project on the following factors'

Article 5(1) of the Directive states that:

'where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least:

(...)

(b) a description of the **likely significant effects** of the project on the environment

(c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset **likely significant adverse effects** on the environment;

(...)'

Annex IV point 5 to the Directive states that:

5. A description of the **likely significant effects** of the project on the environment resulting from, inter alia:

(...)

(e) a **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;

(...)

The description of the **likely significant effects** on the factors specified in Article 3(1) should cover the **direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects** of the project...'

As seen in the box above, the concept of significance is a core concept for the EIA Directive; it is one that, in essence, guides the EIA process. In addition to the present section, further information on this concept can be gathered from the Guidance Documents on Screening and Scoping.

1.4.2 Significance in the context of the preparation of the EIA Report

Those preparing the EIA Report may have to determine the significance of the effects of the Project upon the environment. This could be because Scoping was not undertaken earlier in the EIA process, or additional effects and/or data surface during the evolution of the EIA Report. In these instances, the assessment of significance should be based on clear and unambiguous criteria:

- Significance criteria take both the characteristics of an impact and the values associated with the environmental issues affected into account;
- Significance is always context-specific and tailored criteria should, thus, be developed for each Project and its settings.

Furthermore, the EIA Directive requires that significant effects be described in the EIA Report in an *appropriate manner* (Article 3 of the Directive), so that it ultimately allows for decision-making. For this reason, significance determinations must be substantiated: it is important that the assessors set out a transparent methodology that explains how they approach the assessment and that they then demonstrably apply that methodology in their assessment. The methodology should explain how the assessor deems whether or not a significant effect will occur, allowing others to see the weight attached to different factors and can understand the rationale of the assessment (see the box below).

Box 24: Methodological considerations on the assessment of significant effects in the EIA Report

As mentioned in the IEMA Special report:

'In order to provide justifiable results, EIA practitioners gather evidence to inform and explain the evaluation of an individual effect. Effective EIA practice ensures that the methods used are clearly explained in the environmental statement (now EIA Report) so that they can be readily understood by the stakeholders and the public consulted. The assessment's findings are regularly set out as different levels of significance (e.g. major, moderate, minor, etc.).

This approach is considered good practice: whilst recognising the inherent subjectivity of the assessment, it attempts to aid communication of the scale of the impact by introducing a classification. This approach also allows the practitioner to identify and discuss effects that some groups may consider significant, whilst others would not. For example, a negative landscape effect described as being of 'minor significance' might be considered to indicate that a majority of people would not consider the effect to be significant; however, a smaller group, perhaps within the local community, may disagree and consider the effect to be significant.'

IEMA special report: The State of Environmental Impact assessment practice in the UK

At the same time, significance determinations should not be the exclusive prerogative of 'experts' or 'specialists': significance should be defined in a way that reflects what is valued in the environment by regulators and by public and private stakeholders. A common approach used in EIA is the application of a multi-criteria analysis. Common criteria used to evaluate significance include the magnitude of the predicted effect and the sensitivity of the receiving environment:

- **Magnitude** considers the characteristics of the change (timing, scale, size, and duration of the impact) which would probably affect the target receptor as a result of the proposed Project;
- **Sensitivity** is understood as the sensitivity of the environmental receptor to change, including its capacity to accommodate the changes the Projects may bring about.

A LIFE + Project has developed a practical tool that uses the multi-criteria analysis to assess the most significant environmental impacts of various Projects and to illustrate the results thereof. This Project is detailed in the box below.

Box 25: IMPERIA project: improving environmental assessment by adopting good practices and tools of multi-criteria decision analysis

The aim of the IMPERIA Project was to collect good practices and to develop new methods and tools to enhance effective and good-quality impact assessments with transparent and clear reporting in the context of EIA and SEA.

The Project proposes the use of multi-criteria analysis methods to collect, organise and to present the possible impacts of developments and plans in a systematic, comprehensive and transparent way. The tools developed in IMPERIA enable the structured comparison of impacts affecting different objects, acting in different directions, and involving different scales.

The ARVI method is the key deliverable of the Project: it is an excel-based tool for impact significance assessment and for the comparison of Alternatives. It allows experts assessing different types of impacts to follow uniform principles and to report about the reasoning chains in an illustrative manner.

IMPERIA project: Improving Environmental Assessment by Adopting Good Practices and Tools of Multi-Criteria Decision Analysis

1.4.3 Cumulative effects

It is important to consider effects not in isolation, but together; that is, cumulatively. Data collected during this stage may indeed show that analysed impacts become significant when they are added together or with other effects. While the concept of cumulative effects ties in closely with significant effects, as seen in the legislation box above, Annex IV, point 5 (e) of the EIA Directive requires that the cumulation of effects with other existing and/or approved Projects are described in the EIA Report. Cumulative effects are changes to the environment that are caused by an action in combination with other actions. They can arise from:

- the interaction between all of the different Projects in the same area;
- the interaction between the various impacts within a single Project (while not expressly required by the EIA Directive, this has been clarified by the CJEU – see the box below).

The coexistence of impacts may increase or decrease their combined impact. Impacts that are considered to be insignificant, when assessed individually, may become significant when combined with other impacts. The box below provides clarification on these points, in light of case-law from the CJEU.

Box 26: Cumulative effects - useful interpretation from CJEU case-law

Interaction between different Projects in the same area:

- 'Not taking account of the cumulative effect of Projects means in practice that all Projects of a certain type may escape the obligation to carry out an assessment when, taken together, they are likely to have significant effects on the environment within the meaning of Article 2(1) of the Directive.' CJEU, C-392/06, *Commission v Ireland*.
- 'A national authority must examine [a Project's] potential impact jointly with other Projects. Moreover, where nothing is specified, that obligation is not restricted only to Projects of the same kind.' CJEU, C-531-13, *Marktgemeinde Sträßwalchen and Others*.

Interaction between the various impacts within a single Project:

- 'The Court indicated as much for road Projects (CJEU, C-142/07, *Ecologistas en Accion-CODA*) as for transboundary Projects (CJEU, C-205/08, *Umweltanwalt von Kärnten*) that the whole Project should be considered: the division into fifteen sub-Projects of a road Project or the existence of a border splitting a power line Project in two sections does not mean the Project is below the threshold set by the Directive' (M.Clément, *Droit Européen de l'Environnement, Jurisprudence commentée*, 3ème édition 2016, p. 147-148).

Cumulative effects can occur at different temporal and spatial scales. The spatial scale can be local, regional or global, while the frequency or temporal scale includes past, present and future impacts on a specific environment or region.

Because of their complex nature, significance thresholds and criteria for the assessment of cumulative effects should be defined through a collaborative approach, involving all of the interested and affected parties in the process of data collection and analysis. They may also need to make greater use of interdisciplinary perspectives and methods: e.g. network diagrams and models that identify the cause-effect relationships which result in cumulative effects, trend analyses that identify historical, current and future trends for a given resource, and interactive matrices that consider the interactions of magnitude of the impacts assessed individually (for full reference to Lawrence D. (2005), *Significance Criteria and Determination in Sustainability-Based Environmental Impact Assessment* see the Annex to this Guidance Document on Other Relevant Guidance and Tools).

Box 27: In practice – 2014 amendments to the EIA Directive

The concept of significance is not a new concept for the EIA Directive; however, the use of the word is more noticeably present in the aftermath of the 2014 changes. In many instances, the addition of the word would have little impact for practitioners, as the effects identified and studied would have often been significant. However, it should be noted that:

- The 2014 amendments align the EIA Directive with the SEA Directive (Annex I(f) to the SEA Directive);
- Practitioners are dissuaded from using resources to investigate insignificant effects;
- Practitioners should make sure that they have grounds for determining significance, which can be defended if need be;
- The cumulation of effects is now specifically mentioned in a stand-alone paragraph, under Annex IV, point 5(e), in addition to being iterated in the list of Annex IV, point 5 last paragraph.

1.4.4 Assessing effects on the environment: In a nutshell

- Effects to be assessed in the EIA should be determined to be significant. This ensures that effort is not wasted on insignificant effects.
- Significance is covered in detail in the Guidance Document on Scoping, which should be read by anyone preparing an EIA Report who is forced to determine the significance of environmental effects.
- Practitioners should determine significance based on their own judgement, clearly stating their methodology and reasons for the conclusion. At the same time, there are various criteria available for use, including a multi-criteria analysis.
- When considering significance, the cumulative effects of all of the Projects in the area, both spatial and temporal, should be considered.

1.5 MANDATORY ASSESSMENT OF ALTERNATIVES

This section covers the selection, description, and assessment of the reasonable Alternatives required by the EIA Directive. Within the context of the EIA process, Alternatives are different ways of carrying out the Project in order to meet the agreed objective. Alternatives can take diverse forms and may range from minor adjustments to the Project, to a complete reimagining of the Project.

1.5.1 The notion of Alternatives

The identification of Alternatives to the Project is a long-standing requirement of the EIA Directive, but it is often mentioned by practitioners as comprising a difficult element of the EIA process. The consideration of Alternatives is an important part of the EIA process, which ought to be reflected in the effort and resources allocated to this part of the EIA process (see e.g. Jalava, K., et al., (2010) Quality of Environmental Impact Assessment, full references in the Annex to this Guidance Document on Other Relevant Guidance and Tools).

Identifying and considering Alternatives can provide a concrete opportunity to adjust the Project's design in order to minimise environmental impacts and, thus, to minimise the Project's significant effects on the environment. Additionally, the proper identification and consideration of Alternatives from the outset can reduce unnecessary delays in the EIA process, the adoption of the EIA decision, or the implementation of the Project.

The legal requirements of the EIA Directive, relating to the assessment of Alternatives, are presented in the box below.

Box 28: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(1) states that the developer shall include at least:

- d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;
- f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

Annex IV point 2 expands further:

2) A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

Put simply, the Developer needs to provide:

- A description of the reasonable Alternatives studied; and
- An indication of the main reasons for selecting the chosen option with regards to their environmental impacts.

The number of Alternatives to a proposed Project is, in theory, infinite, considering that the Directive does not specify how many Alternatives should be considered. National legislation or general practice may, however, dictate how many Alternatives are to be considered. The number of alternatives to be assessed has to be considered together with the type of alternatives, i.e. the ‘Reasonable Alternatives’ referred to by the Directive. ‘Reasonable Alternatives’ must be relevant to the proposed Project and its specific characteristics, and resources should only be spent assessing these Alternatives. In addition, the selection of Alternatives is limited in terms of feasibility. On the one hand, an Alternative should not be ruled out simply because it would cause inconvenience or cost to the Developer. At the same time, if an Alternative is very expensive or technically or legally difficult, it would be unreasonable to consider it to be a feasible Alternative.

Section 1.7 below expands further on Monitoring Measures, but if significant adverse effects can be avoided, prevented, reduced, or offset, it is likely that Monitoring Measures will be required. The costs of these Monitoring Measures should be considered, given that they may lead to the economic unfeasibility of the Project. In this regard, the costs of the Mitigation/Compensation Measures may also need to be considered.

Ultimately, Alternatives have to be able to accomplish the objectives of the Project in a satisfactory manner, and should also be feasible in terms of technical, economic, political and other relevant criteria. A brief checklist, highlighting key reasons why an Alternative might *not* be considered to be reasonable, is provided in the box below.

Box 29: An Alternative may be considered unreasonable/infeasible if:

- There are technological obstacles: high costs of a required technology may prevent it from being considered to be a viable option, or the lack of technological development may preclude certain options from consideration;
- There are budget obstacles: adequate resources are required to implement Project Alternatives;
- There are stakeholder obstacles: stakeholders opposed to a Project Alternative may make a particular option unattractive;
- There are legal or regulatory obstacles: regulatory instruments may be in place that limit/prohibit the development of a specific Alternative.

The feasibility of the Alternatives proposed can be determined on a case-by-case basis. The final set of reasonable Alternatives identified will then undergo a detailed description and assessment in the EIA Report.

Box 30: In practice – 2014 amendments to Alternatives

- In Article 5, the ‘outline of the main Alternatives’ has been replaced with a ‘description of the reasonable Alternatives’ studied by the Developer.
- Annex IV provides examples of the types of reasonable Alternatives (Project design, technology, location, size, and scale). Annex IV also requires a comparison of the environmental effects across the options as justification for selecting the chosen option, whereas previously the requirement was that such effects had to be ‘taken into account’.

- Prior to 2014, 13 Member States¹² had already introduced a legal obligation to consider different types of Alternatives (including the 'do-nothing' scenario in some cases – see below).

1.5.2 Identifying Alternatives

This section further explains the types of Alternatives that should be identified and assessed in the EIA Report. It should be noted that each Project and each EIA is different, and there can be no definitive list prescribing how Alternatives are to be identified and assessed. Practices and legal requirements vary greatly between Member States, and practitioners should check these before beginning to consider Alternatives. In some cases, Alternatives will have been developed at the plan stage (e.g. a plan for the transport sector, a regional development plan, or a spatial plan) or by the Developer during the Project's initial design. In such cases, some Alternatives may have already been excluded, in which case, it would likely be unnecessary to consider them again. In other cases, the EIA practitioner may have to work out Alternatives or variants of Project components in order to mitigate significant environmental impacts that emerge during assessment. The process is iterative and requires some flexibility and good communication between all parties.

An open mind should be kept when considering the scope and nature of Alternatives. Indeed, depending on the Project at hand, Alternatives that should be considered may refer to the fundamental design of the Project itself, or may concern finer details, such as the technical specifications of the Project. In some cases, Alternatives to the type of Project should also be considered. It may even be the case that important Alternatives fall outside the expertise or remit of the Developer (i.e. that could not be implemented by the Developer). If relevant, these should not to be dismissed as being unreasonable from the outset.

The identification of Alternatives can be facilitated on the basis of information available at the planning level or the information received through the public consultation. If Project Alternatives have been explored in a plan or programme, practitioners should check SEAs and other environmental assessments undertaken in the near vicinity for similar Projects for Alternatives which may be relevant for the EIA. Public consultations can also help to identify reasonable Alternatives. Not only do the public concerned have local knowledge, which should be utilised, they may also give an indication of the reasonableness of an Alternative. Moving a bridge 15km downstream may increase environmental benefits, but if Developers have to fight or compensate commuters upset about an increased journey to work, then the Alternative may be deemed unreasonable.

However, Alternatives are to be identified and assessed both by the developer and the competent authorities and it is very important that the identification and consideration of Alternatives should not be treated as a mere formality.

Types of Alternatives to be considered

Annex IV to the Directive gives some examples of the types of Alternatives to be considered and which include:

- Project design;
- technology;
- location;
- size;
- scale.

¹² According to IA in 2012: Bulgaria, Denmark, Estonia, Finland, Germany Greece, Italy, Netherlands, Poland, Romania, Slovakia, Spain.

This list serves as inspiration for a multitude of other Alternatives. These roughly relate to the categories above. Some such Alternatives are listed below:

- the nature of Project;
- timeframes for construction or the lifespan of the Project;
- process by which the Project is constructed;
- equipment used either in the construction or running of the Project;
- site layout (e.g. location of buildings, waste disposal, access roads);
- operating conditions (e.g. working schedule, timing of emissions);
- physical appearance and design of buildings, including the materials to be used;
- means of access, including principal mode of transport to be used to gain access to the Project.

The Competent Authority in charge of the Scoping phase may already have highlighted, if not required, the consideration of certain Alternatives during the preparation of the EIA Report (see the Guidance Document on Scoping). As highlighted in the example below, a number of Alternatives can be indicated during the Scoping phase. A number of reasons may lie behind these choices, including the key EIA concepts of significant effects and reasonableness.

Box 31: Examples of Alternatives identified and considered in the construction of a power line in Portugal

The Project concerned the construction of a power line crossing the Alto Douro Wine Region (UNESCO World Heritage). During the Scoping phase several points were identified:

- Aerial vs. underground lines;
- 400 kV vs. 220 kV line capacity;
- 6 possible points of connection to the national grid, and 9 different routes were indicated.

1.5.3 Assessing Alternatives

Methods for assessing Alternatives

The EIA Directive requires that Developers provide the main reasons for selecting the option chosen. This means that the resources should not be spent on an intricate explanation; however, the reasons should be transparent.

The method for assessing Alternatives will depend on the type of Alternatives; the only requirement in the EIA Directive is a comparison of the environmental effects (Annex IV to the EIA Directive). However, Developers should be flexible during the assessment of Alternatives. During the assessment, one preferred Alternative may transpire to be ‘unreasonable’; in other cases, one Alternative may inspire other Alternatives. The level of detail concerning the description of the environmental effects of the Alternatives may be less than for the chosen option. Nevertheless, the aim of the exercise is to provide a transparent and well justified comparison.

Local knowledge and interests are also very important during the assessment of Alternatives and, therefore, dialogues with the public concerned on Alternatives are encouraged where appropriate. In certain situations, this may already be required by other permitting processes parallel to the EIA (e.g. when deciding on an electricity line’s route planning, national law may mandate for dialogue with land-owners in addition to organising public consultations as part of the EIA). In addition, after the EIA Report has been drafted (see section B.3.) during public consultations ensuring the public is aware that Alternatives have been considered, and providing clear reasons why the final choice was made, increases transparency. Ensuring early participation with the public concerned on Alternatives is a good practice that could not only save resources, but also reduce delays as a result of challenges arising from the public or other organisations/authorities.

Assessing the ‘do-nothing’ scenario

The ‘do-nothing’ scenario or ‘no Project’ Alternative describes what would happen should the Project not be implemented at all. In some Member States, national legislation requires the ‘do-nothing’ scenario to be considered and included in the EIA Report. In some cases, however, the ‘do-nothing’ scenario cannot be considered a feasible policy option, as a Project is very clearly needed: for example, if another policy dictates an action, such as a waste management plan, which requires improved waste management, then a new plant must be built.

The ‘do-nothing’ scenario is heavily based on the Baseline. Therefore, the section of this Guidance Document on developing the Baseline should be consulted, in order to ensure a solid foundation for the ‘do-nothing’ scenario.

1.5.4 Mandatory assessment of Alternatives: In a nutshell

- The EIA Directive requires Developers to describe the reasonable Alternatives that have been identified and studied and to compare their environmental impacts against the Project option chosen. This is an important aspect of the EIA Report and one that often challenges practitioners and Developers. Alternatives have to be ‘reasonable’, meaning that feasible Project options meet the Project’s objectives.
- The 2014 amendments to the Directive now require the EIA Report to include a description of the reasonable Alternatives (as opposed to an ‘outline’) studied by the developer who holds the pen. They also suggest types of Alternatives, such as Project design, technology, location, size, and scale.
- The approach to identifying Alternatives is highly Project-specific. Some Alternatives are overarching and may be identified in plans and programmes (e.g. transport plans or regional development programmes) or by the Competent Authority at the EIA Scoping stage. Others might concern the technical design and are identified by the Developer. In cases, EIA practitioners may identify Alternatives and propose them to the Developer. The process of identifying and assessing Alternatives is iterative and requires some flexibility and good communication between all parties.
- Consultation with the public is usually very important both for identifying and assessing Alternatives. A clear presentation of Alternatives, and how they have been assessed, also lends transparency to the process and can improve public acceptance and support for Projects.
- The environmental assessment of Alternatives should be targeted and focused on the comparison of impacts between several options and presented as such in the EIA Report.

1.6 MITIGATION AND COMPENSATION MEASURES

Measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment are described in the EIA Report. These measures are commonly referred to as ‘Mitigation Measures’, with the exception of the last action, offsetting, which can be considered to be a Compensation Measure. The box below sets out the legislative requirements.

Box 32: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(1) of the Directive states that:

‘(...) the developer shall include at least:

- (c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;’

Annex IV point 7 states that:

‘A description of the measures envisaged to avoid, prevent, reduce, or if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for

example the preparing of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover by the construction and operational phases.'

In addition to the legislative requirements, Recital 35 of the 2014 Directive amending the EIA Directive references 'mitigation and compensation measures', noting that such measures should be appropriately monitored.

Box 33: In practice – 2014 amendments to the measures to mitigate and compensate

- In Article 5, the actions 'prevent' and 'offset' have been added.
- Annex IV point 7 now includes 'avoid' (although 'prevent' is not new to Annex IV).
- Annex IV also includes the new provision to provide Monitoring Measures, and a description explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduce or offset, specifically referencing that these apply to both the construction and operational phases.

When considering Alternatives, such Mitigation Measures might influence how Alternatives are assessed. For example, an Alternative might be considered unfeasible until a Developer factors in a Mitigation or Compensation Measure that reduces the impact of the Alternative. In addition, by considering Mitigation Measures when considering all Alternatives, even feasible Alternatives may benefit from a more environmentally sound Project design, ultimately ensuring a high level of environmental protection.

Different types of Mitigation Measures act in different ways to reduce adverse impacts:

Box 34: Types of Mitigation Measures

Type of measure	How it works
Measures to prevent	Impact avoidance by: <ul style="list-style-type: none"> ■ Changing means or techniques, not undertaking certain Projects or components that could result in adverse impacts. ■ Changing the site, avoiding areas that are environmentally sensitive. ■ Putting in place preventative measures to stop adverse effects from occurring.
Measures to reduce	Impact minimisation by: <ul style="list-style-type: none"> ■ Scaling down or relocating the Project. ■ Redesign elements of the Project. ■ Using a different technology. ■ Taking supplementary measures to reduce the impacts either at the source or at the receptor (such as noise barriers, waste gas treatment, type of road surface).
Measures to offset	Offset or compensate for residual adverse impacts that cannot be avoided or further reduced in one area with improvements elsewhere with: <ul style="list-style-type: none"> ■ Site remediation / rehabilitation / restoration. ■ Resettlement. ■ Monetary compensation.

For the purposes of the Directive, in accordance with the precautionary and preventive action principle, a long-term approach should be promoted, and priority should be given to avoiding impacts (prevention measures), while remediation and Compensatory Measures should only be considered as a last resort.

Mitigation and Compensation Measures are assessed on the basis of how effective they are in reducing potentially significant adverse environmental impacts. In some cases, existing legislation (e.g. the IED - see the Annex to this Guidance Document on Other Relevant Guidance and Tools), refers to the use of best available techniques, as set out in reference documents, in order to ensure that operators use the latest, most effective and economically justified technology to protect the environment. From this perspective, best available techniques can provide a very reliable starting place for Developers to identify risk management approaches and technologies that may be in turn be suggested as Mitigation Measures in an EIA Report. The EIA Report should clearly describe the adverse impact each measure is intended to avoid, mitigate or compensate when implemented. It should also describe the effectiveness of such measures, their reliability and certainty, as well as the commitment to ensuring their practical implementation and monitoring of the results.

1.6.1 Mitigation and Compensation Measures: In a nutshell

- Mitigation and Compensation Measures should be considered when assessing Alternatives, both with a view to strengthening the feasibility of Projects, and to improving the Project's design.
- Both Mitigation and Compensation Measures may be costly, and may influence the choice of Alternatives
- Mitigation and Compensation Measures may apply to both the construction and operational phases of the Project.
- A description of Mitigation and Compensation Measures for significant adverse effects must be incorporated in the decision to grant Development Consent for a Project (see section 3.2. on 'Decision-making: Reasoned Conclusion and Development Consent' of this Guidance Document).

1.7 MONITORING

This section covers the legislative requirements of the EIA Directive to ensure that adequate Monitoring Measures are in place, both during the construction and operational phases of the Project. It also sets out some guidelines to help practitioners to identify possible Monitoring Measures.

1.7.1 Legislative requirements for EIA monitoring

Monitoring Measures must be incorporated in the Development Consent for a Project if the Project is likely to have significant adverse effects (see the section on decision-making below). Monitoring Measures are, therefore, referred to in Article 8a of the EIA Directive, which outlines the information to be incorporated in the Development Consent, and the Monitoring Measures proposed (if appropriate) should be included in the EIA Report. The description of Monitoring Measures is linked to the description of measures proposed to mitigate significant adverse effects on the environment and should be directly linked to ensuring these measures are carried out successfully.

Monitoring Measures may be developed directly for the Project in question, or may arise from other requirements – EU or national legislation governing the operation of a Project, funding requirements or other sources. It is important – and a requirement of the Directive – that there is no duplication or inconsistency of effort in monitoring. With a view to avoiding duplication, if Monitoring Measures stem from other EU or national legislation, then this should be reflected in the EIA Report so as to inform the Competent Authority. The Competent Authority may then decide to use these existing measures if appropriate (Article 8a (4) 3rd paragraph). Indeed, the 2012 Impact Assessment for the review of the EIA Directive estimated that 50% of Projects developed each year would fall under other EU legislation requiring monitoring, and thus monitoring would be carried out regardless of EIA requirements.

The relevant requirements of the EIA Directive are given in the box below.

Box 35: Directive 2011/92/EU as amended by Directive 2014/52/EU

Annex IV point 7 on the information referred to in Article 5(1) sets out the information for the EIA Report and includes:

- (7) A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.

As the proposed monitoring measures mentioned above are used to develop the final measures issued with the development consent, Article 8a is also relevant. This Article states:

- (1) The decision to grant development consent shall incorporate at least the following information: [...]
(b) any environmental conditions attached to the decision, a description of any features of the project and/or measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment as well as, where appropriate, monitoring measures.

In addition, Article 8a also states:

- (4) In accordance with the requirements referred to in paragraph 1(b), Member States shall ensure that the features of the project and/or measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment are implemented by the developer, and shall determine the procedures regarding the monitoring of significant adverse effects on the environment.

The type of parameters to be monitored and the duration of the monitoring shall be proportionate to the nature, location and size of the project and the significance of its effects on the environment.

Existing monitoring arrangements resulting from Union legislation other than this Directive and from national legislation may be used if appropriate, with a view to avoiding duplication of monitoring.

Monitoring is also referenced in Recital 35¹³ of the 2014 Directive amending the EIA Directive. Although it is not legally binding, it explains the intent of the Directive on monitoring, emphasising the need for the results of the EIA to be implemented in practice, and for procedures to be put in place to ensure that this is the case.

The 2014 amendments to the Directive have strengthened the requirements for monitoring in both the EIA Report and the Development Consent. A summary is given in the box below.

Box 36: In practice – 2014 amendments to measures to monitor

- Monitoring of significant adverse effects on the environment and/or measures taken to mitigate them is now required (where appropriate) when issuing Development Consent.
- Monitoring arrangements may be required by other EU legislation and, therefore, monitoring carried out under the EIA Directive should not result in duplication.
- Monitoring arrangements have to be examined, where appropriate, during the preparation of the EIA Report and are to be included in the EIA Report.

¹³ Recital 35 of the 2014 Directive amending the EIA Directive: 'Member States should ensure that mitigation and compensation measures are implemented, and that appropriate procedures are determined regarding the monitoring of significant adverse effects on the environment resulting from the construction and operation of a project, inter alia, to identify unforeseen significant adverse effects, in order to be able to undertake appropriate remedial action. Such monitoring should not duplicate or add to monitoring required pursuant to Union legislation other than this Directive and to national legislation'.

1.7.2 Objectives of Monitoring Measures

The monitoring requirements can help ensure:

- Significant adverse impacts from the construction and operation of Projects do not exceed impacts Projected in the EIA Report and that measures taken to offset such impacts are carried out as planned;
- the methods with which significant adverse effects can be assessed for robustness. This can help to improve the identification of impacts in future EIA Reports;
- the EIA is in line with other EU legislation, especially the SEA Directive¹⁴.

These three points are examined below in turn.

Monitoring ensures the Project meets predicted impacts

The EIA Directive aims to reduce Projects' significant adverse effects on the environment, as much as possible; however, some Projects cannot be implemented without significant impacts on the environment. During the EIA process, such impacts are not only identified, but their evolution is also forecasted. The systematic ex-post impact monitoring of adverse significant effects, resulting from the Project, offers an opportunity to identify if forecasted impacts are not developing as predicted, so that steps may be taken for rectification. This monitoring also tracks the effectiveness of measures set in place to mitigate or to compensate for significant effects. Monitoring also allows for additional or unforeseen relevant information to be taken into account, climate change or cumulative impacts for example, again allowing for remedial action.

Assessment for future EIAs

In addition to evaluating the impacts of a Project, ex-post Project monitoring can also shed light on the effectiveness of the EIA procedure, with regards to the quality of the data used and the accuracy of the approaches and methods. This can improve the transparency, legitimacy, and effectiveness of the EIA process, especially if documented evidence of the actual environmental impacts of a Project is publicly available.

Other EU legislation

The SEA Directive, IED, and WFD all require ex-post monitoring, and the Habitats Directive recommends monitoring, after an Appropriate Assessment, to be a good practice (more information about these other EU instruments can be found in the Annex to this Guidance Document on Links with Other EU Instruments). The MSFD also requires Member States to establish and implement coordinated monitoring programmes for the ongoing assessment of the environmental status of their marine waters. Further consideration of these Directives, as well as associated EU, or national-level, guidance documents should be carried out, not only as a means to avoid duplication when a Project falls under more than one Directive, but also as a baseline upon which to develop guidance on ex-post EIA monitoring. In more practical terms, monitoring should not duplicate the monitoring carried out under other assessments; therefore, practitioners should make themselves aware of other such arrangements.

The European Commission already had the opportunity to publish a guidance document on streamlining environmental assessments, including monitoring. Information from this document is

¹⁴ For more information on the importance and utility of EIA follow-up, please refer to Morrison-Saunders A., R. Marshall and J. Arts 2007 EIA Follow-Up International Best Practice Principles. Special Publication Series No. 6. Fargo, USA: International Association for Impact Assessment.

relevant and a selection from which is presented in the box below.

Box 37: Monitoring requirements for other EU environmental legislation	
Appropriate assessment (Habitats Directive)	<ul style="list-style-type: none"> ■ Monitoring is considered good practice. ■ In particular, the monitoring of Mitigation or Compensation Measures will help to ensure effectiveness (either ensuring that there are no adverse effects on the integrity of the site or by maintaining network coherence).
SEA	<ul style="list-style-type: none"> ■ Member States monitor the significant environmental effects of the implementation of plans and programmes to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action (Article 10(1)). ■ The EIA Report shall include 'a description of the measures envisaged concerning monitoring' (Annex I (i)). ■ Monitoring allows the actual significant environmental effects of implementing the plan or programme to be tested against those predicted. Any problems that arise during implementation, whether they have been foreseen or not, can be identified and future predictions can be made more accurately. ■ Monitoring can be integral in compiling baseline information for future plans and programmes, and in preparing information which will be needed for EIAs of Projects.
IED	<ul style="list-style-type: none"> ■ Member States shall take the necessary measures to ensure that the Competent Authority periodically reconsiders all permit conditions and, where necessary to ensure compliance with the IED Directive, updates those conditions. ■ If the Competent Authority so requests it, the operator shall submit all information necessary for reconsidering the permit conditions, including, in particular, results of emission monitoring and other data, that enables a comparison of the operation of the installation with the best available techniques and with the emission levels associated with the best available techniques (Article 21 (1)-(2)). ■ Member States shall ensure that the monitoring of air polluting substances is carried out (Article 38). The monitoring of the emissions is prescribed in Article 48, Article 60, Article 70, and it depends on the type of the installations.
WFD	<ul style="list-style-type: none"> ■ The WFD includes the requirement to establish monitoring programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district (Article 8 and Annex V).
<p><i>Extracts from: European Commission, 2016, Commission guidance document on streamlining environmental assessments conducted under Article 2(3) of the EIA Directive, OJ C 273/1, 27.07.2016</i></p>	

1.7.3 Developing Monitoring Measures

Developing monitoring indicators is an essential first step for any monitoring activity. These indicators are highly dependent upon the type of Project concerned; however, consultation of the Baseline (see the section concerning the Baseline) may guide Developers in identifying the right indicators. In addition, some indicators, water and air for example, may come from EU legislation such as the WFD and the IED.

Taking the legislative requirements outlined in this section into account, as well as Recital 35, Monitoring Measures could:

- Make sure that the significant effects identified develop as predicted;
- Ensure that the measures in place to mitigate and compensate significant adverse effects are carried out;
- Identify unpredicted significant adverse effects.

The types and number of environmental parameters to monitor, and the monitoring frequency, are very Project-specific, and need to be proportionate to the Project's relevant parameters. The Directive

provides some suggestions on these in Article 8a(4): the ‘nature, location and size of the Project and the significance of its effects on the environment’. In essence, this means that the time, effort, and costs put into Monitoring Measures should be justified by how important the potential environmental impacts will be, as well as the complexity of any Mitigation and Compensation Measures recommended in the EIA Report to avoid, prevent, reduce or to offset effects. The cost of monitoring can indeed be a decisive factor when considering not only the Alternatives (as mentioned above), but also when developing Monitoring Measures. Other parameters, such as the sensitivity of the local environment, the number and type of affected stakeholders, and the level of uncertainty regarding the assumptions and Projections made in the assessment itself should also be taken into account.

Monitoring data collection and evaluation activities should be frequent enough so that the information generated is still relevant, but not so frequent as to be a burden to those implementing the process. Monitoring need not be difficult or overly technical, and could even be as simple as a photo taken from the same vantage point over time, if such a photo clearly documents the relevant indicator.

The EIA Directive does not specify how to carry out monitoring, who should do it or how monitoring results should be analysed and used. Below are some more practical suggestions that Developers and practitioners can take into account when designing Monitoring Measures as part of the EIA Report.

- Monitoring Measures should be detailed enough to allow for proper implementation – the parameters, frequency, methods, responsibilities, and resources should be identified in advance.
- Authorities issuing the Development Consent should be satisfied that monitoring results will be evaluated by relevant authorities, naming such authority if relevant (this could be done via random inspection). Rather than carrying out monitoring individually for each Project, measures could be coordinated at higher level (depending on the Projects this may take place in a variety of different fora such as municipal plans, via an SEA, or more informally). The section on Baseline recommends developing a database to reduce the time spent on extensive field surveys and to facilitate future environmental assessments for similar Projects. Such a database would also be closely linked to monitoring results from ongoing Projects.
- Discussions with authorities and communities during the Scoping stage would help identify issues requiring monitoring. This can also build trust and partnerships that may become valuable when collecting data for monitoring.
- To the extent that it is reasonable, Monitoring Measures should have the capacity to identify any unforeseeable adverse effects, meaning that they should take the state of the affected environment, as well as the specific impacts (e.g. emissions, resource use) generated by the Project, into account.
- Monitoring results should be made available to the Competent Authorities and to the public.

Box 38: Examples of Monitoring Measures

The French ‘Grenelle 2’ law, n°2010-788 of 12 July 2010 introduced a requirement for EIAs to include a description of how the effectiveness of the main preventing/mitigating/offsetting measures would be monitored; it also introduced the possibility for Developers to be inspected in order to check that such measures have actually been implemented (cf. 2012 IA).

A good practice example, recommended by the European Commission Guidance Document on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (see the Annex to this Guidance Document on Other Relevant Guidance and Tools), involves the ex post monitoring programme established for wind farm developments in the North Sea. In the Belgian part of the North Sea, several areas within a specifically designated zone have been given in concession to wind farm operators. The Belgian Competent Authority has set up a joint monitoring programme that is financed by the wind farms in operation, given that it is not efficient to require each wind farm operator to run a similar ex-post monitoring programme independently.

1.7.4 Monitoring: In a nutshell

- Monitoring Measures for Projects with significant adverse effects must be incorporated in the decision to grant Development Consent for a Project and, as such, should generally be included in the EIA Report. Monitoring Measures may be linked to other legal requirements, such as those stemming from the IED, WFD or the Habitats Directive. Care must be taken to avoid duplication in Monitoring Measures in this regard. Requirements on Monitoring Measures were added to the EIA Directive as part of the 2014 amendments (Article 8a and Annex IV).
- Generally, Monitoring Measures can help to ensure that Projects meet all existing environmental legal requirements, and that impacts are in line with EIA Report Projections. They should also ensure that any Mitigation or Compensation Measures for expected significant effects are carried out as planned.
- Monitoring Measures can also provide insight into the quality of the EIA procedure carried out, and can generate lessons learned and good practices for future EIAs.
- Practitioners should first check which Monitoring Measures are required by other legislation. If these are not sufficient or appropriate for monitoring the expected environmental impacts or proposed Mitigation Measures, then additional measures may be proposed within the EIA Report. Monitoring Measures should always strive to be proportionate to the nature of the environmental impacts in terms of the time, costs, and other resources involved.
- Monitoring Measures should be specific and detailed enough to ensure their implementation, including defining roles, responsibilities, and resources. In some cases, economies of scale can be achieved through the joint monitoring of related Projects. Measures should also be capable of identifying important unforeseen effects

2 QUALITY OF THE EIA REPORT

This section covers the quality of the EIA Report. It addresses the format and presentation of the EIA Report, and the more recent requirements concerning the competence of the experts involved in preparing and reviewing the EIA Report.

2.1 FORMAT AND PRESENTATION OF THE EIA REPORT

The main aim of an EIA Report is to provide prudent information for two types of audiences – decision-makers and people potentially affected by a Project. The Report, therefore, must communicate effectively with these audiences.

2.1.1 The qualities of a good EIA Report

To this end, Article 3(1) of the EIA Directive requires that significant effects be identified, assessed and described in an ‘appropriate manner’. Article 5(1) sets the form – the information should be presented in an EIA Report that enables stakeholders and authorities to form opinions and to take decisions regarding the proposed Project. While there are no formal requirements concerning the format and the presentation of the report, it is recommended that the EIA Report clearly sets out the methodological considerations and the reasoning behind the identification and assessment of significant effects, so that others can see the weight attached to different factors and can understand the rationale of the assessment.

The box below provides some of the main characteristics that a good EIA Report should have to meet this objective.

Box 39: The qualities of a good EIA Report

- A clear structure with a logical sequence that describes, for example, existing Baseline conditions, predicted impacts (nature, extent and magnitude), scope for mitigation, proposed Mitigation/Compensation Measures, significance of unavoidable/residual impacts for each environmental factor;
- A table of contents at the beginning of the document;
- A description of the Development Consent procedure and how EIA fits within it;
- Reads as a single document with appropriate cross-referencing;
- Is concise, comprehensive and objective;
- Is written in an impartial manner without bias;
- Includes a full description and comparison of the Alternatives studied;
- Makes effective use of diagrams, illustrations, photographs and other graphics to support the text;
- Uses consistent terminology with a glossary;
- References all information sources used;
- Has a clear explanation of complex issues;
- Contains a good description of the methods used for the studies of each environmental factor;
- Covers each environmental factor in a way which is proportionate to its importance;
- Provides evidence of effective consultations (if some consultations have already taken place)
- Provides basis for effective consultations to come;
- Makes a commitment to mitigation (with a programme) and to monitoring;
- Contains a Non-Technical Summary which does not contain technical jargon;
- Contains, where relevant, a reference list detailing the sources used for the description and assessments included in the report.

2.1.2 The Non-Technical Summary

As can be seen in the box above, Article 5(1)(e) of the EIA Directive requires Developers to include a Non-Technical Summary of the EIA Report. This obligation is reiterated under Annex IV, point 9.

Box 40: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(1)

1. Where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least:

- (e) a non-technical summary of the information referred to in points (a) to (d);

Annex IV point 9

9. A non-technical summary of the information provided under points 1 to 8.

The contents of that summary are broad: Article 5(1) lists points (a) to (d) which includes almost all of the elements listed under Article 5(1), while Annex IV point 9 lists points 1 to 8, again almost all of the elements included in this Annex. This summary is, therefore, broadly encompassing as it needs to include the description of the Project, the significant effects, Mitigation Measures, Monitoring Measures, the Baseline, and reasonable Alternatives, as well as the methods used for the assessment including explanations on any hurdles encountered during the analysis. This indicates that the Non-Technical Summary ought to be more than just a few pages long. However, it should be borne in mind that it is a summary and needs to be concise and engaging enough to enable stakeholders and the public to get a proper sense of the key issues at stake and the proposed way forward. Depending on the Project, and the degree of complexity of the environmental issues involved, a Non-Technical Summary of 10 to 30 pages in length is generally considered to be good practice.

Moreover, the term ‘non-technical’ indicates that this summary should not include technical jargon. It should be understandable to someone who does not have a background in the environment or in-depth knowledge of the Project, and should be easily identifiable within the EIA Report –provided either at the very beginning or at the very end of the document.

EIA Report authors may also consider providing context about the methodology for carrying out the EIA, highlighting any significant uncertainties about the outcomes. It may also be useful to describe the Development Consent process for the Project, and the role of the EIA in this process, to help lay members of the public to understand the context for the EIA.

The box below summarises elements that are typically found in a good Non-Technical Summary for an EIA Report. These points are further reiterated in the checklist under Part C.

Box 41: The qualities of a good Non-Technical Summary

- The Non-Technical Summary is easily identifiable and is accessible within the EIA Report;
- The Non-Technical Summary provides a concise, but comprehensive description of the Project, its environment, the effects of the Project on the environment, the proposed Mitigation Measures, and the proposed monitoring arrangements;
- The Non-Technical Summary highlights any significant uncertainties about the Project and its environmental effects;
- The Non-Technical Summary explains the Development Consent process for the Project and the role of the EIA in that process;
- The Non-Technical Summary provides an overview of the approach to the assessment;
- The Non-Technical Summary is written in non-technical language, avoiding technical terms, detailed data and scientific discussion;
- The Non-Technical Summary is comprehensible to a lay member of the public.

2.2 THE COMPETENCE OF EXPERTISE AND QUALITY CONTROL

2.2.1 Legal requirements

The effectiveness of the EIA procedure relies upon high-quality EIA Reports that can be properly reviewed and evaluated by competent experts and which can contribute to sound decision-making. In order for this to be possible, the competent experts must be involved in both the preparation and in the review of the EIA Report.

A high-quality EIA Report must be prepared by competent experts, experts who understand the relevant legislation and technical parameters involved in carrying out an effective assessment and in the preparation of a high-quality report. In turn, the Competent Authority responsible for evaluating the report must have access to sufficient expertise to judge its quality and request revisions as appropriate. This section covers the legislative requirements and changes in place to ensure the quality of the experts and those reviewing the EIA.

Article 5(3) of the EIA Directive refers to the quality of the expertise used to carry out the EIA report and the need for sufficient information in order for the Competent Authority to reach a conclusion about the Project's effects on the environment. The text is given in the box below.

Box 42: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 5(3)

In order to ensure the completeness and quality of the environmental impact assessment report:

- (a) the developer shall ensure that the environmental impact assessment report is prepared by competent experts;
- (b) the competent authority shall ensure that it has, or has access as necessary to, sufficient expertise to examine the environmental impact assessment report; and
- (c) where necessary, the competent authority shall seek supplementary information from the developer, in accordance with Annex IV, which is directly relevant to reaching the reasoned conclusion on the project's significant effects on the environment.

In short, the Directive requires the following:

- the Developer needs to ensure the quality of the experts who prepare the EIA Report;
- the Competent Authority needs to ensure that it has access to the necessary expertise to review and to evaluate the EIA Report; and
- the Competent Authority must be able to request more information, where relevant, from the Developer.

These three aspects are discussed in greater detail in the following sections.

2.2.2 Experts used by Developers

This section examines how experts, used by a Developer to prepare EIA Reports, can be considered to be competent and looks at the different systems used in Member States to ascertain the competence of EIA experts.

Defining 'competent experts' (Developers)

It is important that Developers understand the concept of 'competence', with regards to experts preparing the EIA Report. The EIA Directive does not go into detail, requiring that experts be for instance external consultants instead of in-house experts, rather the Directive simply requires that experts be competent, leaving it up to the interpretation by the Member States concerned.

The original approach proposed during the 2012 review of the EIA Directive was to include the phrase ‘**accredited** experts’ in the amended Directive. Neither the words ‘accredited’ nor ‘qualified’ can be found in the operative provisions of the Directive; however, the latter term is included in Recital 33 of the 2014 Directive amending the EIA Directive: ‘[e]xperts involved in the preparation of environmental impact assessment reports should be qualified and competent...’. The non-specific requirement allows for greater flexibility for the Member States who can choose to establish an accreditation system, increase transparency, or can set out how to define how competences can be measured.

The box below stresses the recent changes brought about by the 2014 amendments relating to the competency of experts.

Box 43: In practice – 2014 amendments to the competency of experts

In most cases, the changes will not have much effect on those carrying out the EIA:

- At least 14 Member States already use accredited consultants;
- A large majority of Developers already hire specialist consultants who can be considered to be competent.

The new provisions provide a more formal check on the EIA Report:

- Experts must be proven to be competent, especially if the EIA is contested afterwards;
- Developers need to consider more seriously how they demonstrate the competence of those who prepare the EIA Report, and look to external expertise where required even if the costs incurred are higher.

Finding competent experts (Developer)

Different approaches to ensuring the competence of the experts engaged by Developers to prepare EIA Reports can be taken. Some of the examples listed directly below are discussed in greater detail in this section:

- Developers use a centralised list/standardised qualification to determine competence;
- Developers use experts from recognised institutions;
- Developers use experience of practitioners as a measure of competence;
- Developers use a more flexible approach, where transparency allows competence to be scrutinised easily.

These approaches to verifying competence can be used in isolation; however, a combination of these approaches can also be used. For instance, a list of accredited experts may be used and experts are then picked from that list on the basis of their experience or institutional affiliation. Choosing between one or several of the different approaches is important, and careful consideration should be given in implementing different approaches, as seen in the box below.

Box 44: Examples of the different approaches used in Poland to determine competent experts since the 1980s

Poland has employed several approaches to determine ‘competent experts’ since the 1980s (N.B. a form of EIA was undertaken early on in this country, before to their accession to the EU).

- A system of listing ‘qualified’ experts was set up, but in practice it did not work as expected and ended up being considered to be counterproductive. In addition, the list was set up at the national level, whereas most EIAs are done at a regional, decentralised level. The approach was, subsequently, abandoned.
- In Poland, the National Environmental Impact Assessment Commission has been functioning for years. It is an opinion-giving and advisory body of the General Director for Environmental Protection. The main task of the

National Commission is to provide opinions on complex EIA matters and cases. There are also Regional EIA Committees, which act as advisory bodies for regional directors for environmental protection. The EIA Commission also takes part in proceedings where there are complex environmental issues.

- More recently, a more flexible approach has been adopted. National legislation sets criteria for experts requiring higher education (in various relevant fields including ecology, biology, etc.) and five years of proven experience doing EIAs under the supervision of more senior experts. Transparency also plays a considerable role, given that all of the Reports are to be made publicly available and in a formal register where anyone can challenge the study's accuracy (either formally or through public scrutiny).

Many Member States do have such approaches in place that allow for the discovery of EIA experts and to verify their competence. Developers hiring these experts should, therefore, check whether these accreditation systems are available to help them to ensure that any external experts they employ for the preparation of the EIA Reports have been duly certified. It should be noted that what makes an expert 'qualified' or indeed 'competent' may vary between different Member States.

- Qualification and/or centralised list

This approach requires experts who wish to prepare EIA Reports to undertake specialist training, either through a university or through another standardised provider, in order to ensure that they have the necessary skills. Once qualified through this procedure, experts can then join a central list held at the national or local levels or by the Developers themselves.

Box 45: Benefits and drawbacks of accreditation and listing

Benefits	Drawbacks
<ul style="list-style-type: none"> ■ Experts have same minimum level of knowledge as peers; ■ Suitability checked using application criteria; ■ Developers can easily find suitable experts; ■ Added transparency to the process of selecting experts. 	<ul style="list-style-type: none"> ■ Limits the use of specialist experts not on the list; ■ False sense of security (especially where there is no way to check previous performance or no transparency regarding how people join the list, e.g. by paying a fee); ■ List must be updated regularly; ■ List must possess enough experts with a knowledge of each local level and each type of impact.

Examples of this approach exist in Belgium, where only accredited persons can be designated as EIA Report authors (*agrément des auteurs d'études d'incidences*) in the Walloon Region and in the Brussels Capital Region. The implementation of this approach in both Regions is briefly presented in the box below.

Box 46: An example of accreditation procedures: Walloon and Brussels-Capital Regions of Belgium

	Walloon Region	Brussels Capital Region
Date system first instituted	1985	1992
Framework	Single legislation (Walloon Code of Environment, Article R.58 and following), but several accreditations are required, depending on the type of Project (e.g. industrial, civil engineering, urbanism)	Different legislation and provisions depending on the Project's nature
Issuance	Walloon Minister responsible for urban and rural planning Publication in Official Journal (<i>Moniteur Belge</i>)	Brussels Government in Council Annual publication of the list of accredited individuals/companies in Official Journal (<i>Moniteur Belge</i>)
Validity	5 years (maximum), renewable with the relaunch of the procedure	15 years (maximum), renewable with the relaunch of the procedure

Changes	Holder of authorisation must notify the authority in case of changes made to the situation which might impact of one of the authorisations	
Sanctions	Temporary or permanent withdrawal under different circumstances: <ul style="list-style-type: none"> ■ disrespect of the Walloon Code of Environment ■ after prior warning and where a developed Project does 'not seem consistent with the rules of art' or is of a 'poor quality'. Prior warning can be triggered by different environmental administrations. 	Temporary or permanent withdrawal under different circumstances: <ul style="list-style-type: none"> ■ the approval holder no longer meets the conditions for approval ■ the approval holder no longer has sufficient technical means at its disposal ■ after prior warning, if a Project developed is of 'unsatisfactory quality'

- Recognised institutions

Another similar approach to ensuring the demonstrable quality of experts is to pre-qualify the institutions from which they are supplied. The experts themselves may not hold the necessary qualifications or experience, but could work under the authority of their institution, which may be a university (or a specific department thereof) or a consultancy specialising in the field of impact assessment. This places a lot of trust in the institution to ensure that the expert is competent, given that having seen the expert work on other Projects, the recognised institution would be in a good position to vouch for the expert. The institution has its own name and reputation to uphold and is, therefore, incentivised to provide good quality work.

- Experience

Basing competence on experience would require experts to demonstrate their experience working on EIAs when being selected for the role of preparing the EIA Report, regardless of their formal qualifications. As time goes by, experts will gain more and more experience and, thus, the quality of the work they do will increase. Experience can be judged both on a set of criteria or on a case-by-case approach and should be demonstrable in case the quality of the EIA Report is questioned thereafter.

- Transparency

Selecting and verifying experts through a more ad hoc, transparent process allows for greater flexibility on the part of the Developers, given that it does not require a prescribed method for measuring competence. Instead, regardless of how experts are selected, the names and CVs of all of the consultants are included in the final report, and the reason(s) for employing them is clearly detailed. Competence can, therefore, be checked and scrutinised by the public and by the Competent Authority.

2.2.3 Quality control by Competent Authorities

Just as Developers need to ensure that the EIA Report is prepared by competent experts, authorities also need to be able to demonstrate that they have sufficient experts to examine and evaluate EIA Reports. Different approaches are adopted for this across the EU Member States.

Defining 'sufficient expertise' (Competent Authorities)

Article 5(3) of the EIA Directive requires that the Competent Authorities have access to the necessary expertise required to accurately assess an EIA Report. Recital 33 of the EIA Directive states that: 'Sufficient expertise, in the relevant field of the Project concerned, is required for the purpose of its examination by the component authorities in order to ensure that the information provided by the Developer is complete and of a high level of quality.' The Competent Authority needs to check the

structure and logic of the EIA Report, as well as the overall quality of the data, judgements, and conclusions presented.

Competent Authorities can have expertise in-house or can access this expertise through external channels. In some Member States, where EIAs have been carried out for decades, those reviewing EIA Reports, in particular those within the Competent Authorities, have years of experience and they can, thus, be considered to be experts. In some cases, EU Cohesion Policy funds, including technical assistance available from the European Reconstruction Development Fund or training activities under the European Social Fund, may be available to support training for both authorities and for other stakeholders. Where expertise is not available in-house, research institutes and professional bodies may be asked to undertake reviews. In some Member States, a review body may be available to undertake the review (see box 47 below)¹⁵.

Box 47: In practice – 2014 amendments on the expertise of Competent Authorities

In most cases, the changes will not have much of an effect on those examining the EIA Report:

- The Competent Authorities reviewing large number of EIAs already have the necessary expertise;
- Some Member States have already set up diverse review system mechanisms, including independent review bodies or inter-institutional platforms (see the box below presenting the systems in Cyprus, France, Italy, and the Netherlands).

The new provisions in Article 5(3)b require authorities to be able to demonstrate their experience:

- Experts must be proven to be competent;
- Where no suitable expert is available in-house, external experts should be used.

Finding sufficient expertise (Competent Authorities)

Competent Authorities can take various approaches to ensuring that they have access to the expertise necessary to examine EIA Reports, where this is not available in-house. If individual experts are contracted on a case-by-case basis, many of the approaches adopted by Developers in the past, detailed above, can also be used to find competent experts to carry out a review of the EIA Report on behalf of the Competent Authority. Another possible option is for Member States to set up a dedicated independent review body, a body which is always available to provide insight into the evaluation of EIA Reports.

Under Article 5(3)(c), the Competent Authority can request any supplementary information that it requires from the Developer before reaching its decision, as long as the information is directly relevant to reaching the Reasoned Conclusion. Competent Authorities need to ensure that the additional information that they request can be clearly linked to the decision-making process, and is not merely precautionary in nature.

Several Member States ensure that all authorities have access to sufficient expertise to review EIA Reports through the establishment of institutions to serve this purpose. These vary in composition, size, as well as their links to authorities.

¹⁵ Examples of independent review bodies can be found in the Netherlands (Netherlands Commission for Environmental Assessment), France (*Conseil General de l'Environnement et du Développement Durable*; General Council of Environmental and Sustainable Development), and Italy (*Istituto Superiore per la Protezione e Ricerca Ambientale*; Superior Institute for Environmental Protection and Research).

In some Member States these can be considered to be independent: in the Netherlands, a Commission is appointed by the minister whose exclusive role is to maintain a pool of approximately 300 experts who are then responsible for providing opinions on EIAs. In France, the review body is made up of nine evaluation specialists, stemming from the Ministry of the Environment directly, as well as six external qualified experts.

Other Member States opted for mechanisms closer to that of an inter-institutional platform (which may include members of the civil society). For instance, in Cyprus, ten members comprise the EIA Committee, including representatives of different ministries, the chamber of engineers, the federation of environmental organisations, and two qualified experts. The box below presents four examples in greater detail.

Box 48: Examples of quality review in Cyprus, France, Italy and the Netherlands				
Member State and body	Cyprus	France	Italy	Netherlands
	EIA Committee (Επιτροπή Εκτίμησης Περιβαλλοντικών Επιπτώσεων) ¹⁶	General Council of Environment and Sustainable Development (CGEDD) acting as Environmental Authority ¹⁷	Technical Commission for environmental impact assessment ¹⁸	Netherlands Commission for Environmental Assessment (NCEA)
Proximity to EIA procedure	Integrated into the EIA procedure	Integrated into the EIA procedure	Integrated into the EIA procedure	Integrated into the EIA procedure
Degree of involvement	<ul style="list-style-type: none"> ■ responsible for EIA Screening ■ examines the content of each EIA Report ■ consults the Competent Authority with regard to any EIA issues 	<p>Acts as Competent Authority for certain Projects (and all plans and programmes, cf. SEA).</p> <p>Oversees the EIA process:</p> <ul style="list-style-type: none"> ■ responsible for EIA Scoping ■ issues an opinion on the quality of the EIA Report 	<p>Acts as an advisory body:</p> <ul style="list-style-type: none"> ■ upon request ■ checks the applicability of exclusion conditions during the Screening stage ■ checks compliance with the requirements contained in the EIA decision ■ advises on the interpretation and application of the EIA decision ■ advises during the Scoping stage. 	<p>During or after preparation of the EIA Report:</p> <ul style="list-style-type: none"> ■ responsible for Scoping of the EIA; ■ interim recommendation can be submitted if requested; ■ checks whether the EIA contains all of the necessary information once drafted.
Time taken for review		Opinion on the EIA Report issued within 3 months This opinion is published before the EIA Report is submitted to public consultations.	Opinion on EIA decision by 60 days after the start of the procedure (30 days to ask for additional documents if deemed necessary). No other specific timelines set.	Opinion on the EIA Report issued within 6 – 9 weeks.

¹⁶ The creation of the Committee is provided under Article 5 of the main law on EIA (Law 140(I)/2005 – as amended).

¹⁷ Autorité environnementale du Conseil général de l'Environnement et du Développement durable <http://www.cgedd.developpement-durable.gouv.fr/l-autorite-environnementale-r145.html>.

¹⁸ The functioning and the organization of the Commission are established by Ministerial Decree GAB/DEC/150/07 of 18 July 2007.

Experts	The Committee is composed of ten members, including six administrators, and four civil society representative.	Nine qualified evaluation specialists from the Ministry of the Environment and six external qualified experts. Maintains a pool of relevant experts.	The Commission is composed of 50 members with adequate technical qualifications in environmental matters appointed by the Ministry of Environment.	Members of the commission are appointed by ministers. The commission maintains a pool/list of circa 300 relevant experts from the fields of industry, universities, government agencies or related groups.
Expert appointment on specific EIAs	The Committee can appoint special technical committees to examine specialised environmental issues that may arise during the examination of an EIA study.	Experts assigned according to relevance of expertise and availability. Each opinion adopted after review by all experts.		Assigned according to the relevance of expertise.
Nature of decision	Opinions are not binding and in certain cases the Committee only acts when consulted.	Opinions are not binding; however, they contain recommendations and are included in the documents for public consultation. Moreover, judges can rely on them in litigation.	Opinions are not binding and, in certain cases, the Commission only acts when requested (see row above on degree of involvement).	Opinions are not binding.

2.2.4 The competence of expertise and quality control: in a nutshell

The Directive requires that the EIA Report shall be prepared by competent experts:

- Where previously Developers were not formally obliged to use competent experts to prepare EIA Reports, they are now required to ensure that the EIA Reports are prepared by such experts;
- Many Member States have adopted systems to ensure that the EIA Report is prepared by competent experts, and Developers will have to comply with these requirements when selecting experts. These include accreditation systems and lists of pre-qualified experts or institutions.

The Directive requires that Competent Authorities have sufficient expertise to review an EIA Report:

- Several Member States already have systems in place, including the establishment of an independent review body. The functions of these bodies vary between Member States and Developers and Competent Authorities will need to check national provisions.
- The Competent Authorities should hire external experts if they do not have access to such experts internally, regardless of whether a formal review body is in place.
- Additional information can be requested by the Competent Authority, as long as the information is directly relevant to reaching a Reasoned Conclusion.

3 CONSULTATIONS AND DECISION-MAKING

The EIA Report is ultimately an informative decision-making tool: once it has been prepared by the Developer, it has to be examined by the public and various concerned authorities. This section sheds light on how these procedures are carried out, given that they are relevant to those gathering the information during the preparation of the EIA Report. It looks at the requirements of the EIA Directive with regards to public consultation and the role of EIA in the decision on Development Consent, including a discussion on time-frames applicable to both cases.

3.1 CONSULTATIONS ON THE EIA REPORT

Consultation procedures are often highly detailed in national legislation, and also fall under international legislation (Aarhus and Espoo Conventions – see the Annex to this Guidance Document on Links with Other EU Instruments). Practitioners must, therefore, consult all relevant national legislation and guidance. This guidance document provides an overview of consultation requirements and, in particular, of applicable time-frames as they impact on those preparing the EIA Report.

3.1.1 Legislative requirements for consultations

Articles 6 and 7 of the EIA Directive are the main provisions of the EIA Directive on consultations. A number of other provisions scattered throughout the Directive are also relevant: e.g. Article 4(5) on the Screening stage or Article 5(2) on the Scoping stage (see the Screening Guidance Documents and the Scoping Guidance Document of this series for more information).

Together, these provisions outline (i) what information is to be provided to the consultees, (ii) who is to be consulted during the EIA process, and (iii) lays out some minimum standards to ensure that this is done effectively (distinguishing information and participation, and setting time-frames). Furthermore, it should be borne in mind that Article 8 of the EIA Directive requires the results of these consultations to be duly taken into account in the Development Consent procedure (see the decision-making section below).

Box 49: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 6 (extracts)

(1) Member States shall take the measures necessary to ensure that the authorities likely to be concerned by the project by reason of their specific environmental responsibilities or local and regional competences are given an opportunity to express their opinion on the information supplied by the developer and on the request for development consent, taking into account, where appropriate, the cases referred to in Article 8a(3). To that end, Member States shall designate the authorities to be consulted, either in general terms or on a case-by-case basis. The information gathered pursuant to Article 5 shall be forwarded to those authorities. Detailed arrangements for consultation shall be laid down by the Member States.

(2) In order to ensure the effective participation of the public concerned in the decision-making procedures, the public shall be informed electronically and by public notices or by other appropriate means, of the following matters early in the environmental decision-making procedures referred to in Article 2(2) and, at the latest, as soon as information can reasonably be provided:

- (e) an indication of the availability of the information gathered pursuant to Article 5;

(3) Member States shall ensure that, within reasonable time-frames, the following is made available to the public concerned:

- (a) any information gathered pursuant to Article 5;

(4) The public concerned shall be given early and effective opportunities to participate in the environmental decision-making procedures referred to in Article 2(2) and shall, for that purpose, be entitled to express comments and opinions when all options are open to the competent authority or authorities before the decision on the request for development consent is taken.

(6) Reasonable time-frames for the different phases shall be provided for, allowing sufficient time for:

- (a) informing the authorities referred to in paragraph 1 and the public; and
- (b) the authorities referred to in paragraph 1 and the public concerned to prepare and participate effectively in the environmental decision-making, subject to the provisions of this Article.

(7) The time-frames for consulting the public concerned on the environmental impact assessment report referred to in Article 5(1) shall not be shorter than 30 days.

Article 7

(1) Where a Member State is aware that a project is likely to have significant effects on the environment in another Member State or where a Member State likely to be significantly affected so requests, the Member State in whose territory the project is intended to be carried out shall send to the affected Member State as soon as possible and no later than when informing its own public, inter alia:

- (a) a description of the project, together with any available information on its possible transboundary impact;
- (b) information on the nature of the decision which may be taken.

The Member State in whose territory the project is intended to be carried out shall give the other Member State a reasonable time in which to indicate whether it wishes to participate in the environmental decision-making procedures referred to in Article 2(2), and may include the information referred to in paragraph 2 of this Article.

Groups to be consulted

In accordance with these provisions, consultations on different information should take place with different groups:

- public authorities likely to be concerned (Article 6(1) of the EIA Directive):

Authorities likely to be concerned by the Project, due to specific environmental responsibilities or local/regional competencies, must be given an opportunity to express their opinion on the information supplied by the Developer, and on the Development Consent. Authorities can be identified either in general terms or on a case-by-case basis, and shall be given an opportunity to express their opinion on the information supplied by the Developer and on the request for Development Consent. Exactly how this is to be done is to be laid down by the Member States.

- the public concerned (Article 6(2), 6(3), 6(4) of the EIA Directive):

The public and the public concerned must have access to any information gathered during the preparation of the EIA Report, the reactions of the Competent Authority/Authorities at the time the information is made available, and any other relevant information which may arise later. The public concerned must be given early and effective opportunities to participate, and be able to provide their comments and opinions. Exactly how this is done is up to Member States to decide, although the EIA Directive does set out several provisions, including mandating what information should be available to the public. This information includes the EIA Report itself.

- relevant parties in affected other Member States (Article 7 of the EIA Directive):

If a Project is likely to cause significant environmental effects in another Member State, or if another Member State so requests, then transboundary consultations must be carried out. The Member State in whose territory the Project will be carried out will send the affected Member State a description of the Project (including any information on the likely transboundary impacts) and information about the nature of the decision which may be taken. The Member State affected must be given a reasonable period of time in which to indicate whether or not it will participate in decision-making procedures; if the Member State affected indicates that it will participate, then the authorities and the public in the Member State affected must be informed and given the opportunity to forward their opinion before the Development Consent is granted. These consultations may be conducted through an appropriate joint body, and some Member States may have national legislation which may lay out additional requirements.

Minimum standards for effective consultation

Consultations include two main elements:

- informing the consultees; and
- giving consultees, whether the public or public authorities, time to prepare and participate effectively in the environmental decision-making.

In addition, requirements on time-frames are provided in relation to consultations. The following time-frames are required by the Directive:

- an explicit time-frame is provided by the Directive in Article 6(7) whereby a minimum of thirty days is required for public consultation;
- no other minimum or maximum is provided, yet Article 6(6) of the EIA Directive requests that ‘reasonable time-frames’ are provided for consultations of public authorities and the public. This notion is further reiterated throughout the different paragraphs of Article 6, as well as in Article 7 in relation to transboundary consultations. The concept of reasonable time-frames is explored in the section below.

Some of the requirements detailed above were included in the EIA Directive in 2014 and are summarised in the box below.

Box 50: In practice – 2014 amendments on consultations

The 2014 amendments included significant changes to consultations and highlighted time-frames concerning consultations:

- The Directive now differentiates between information and participation;
- The provisions on public consultation require ‘reasonable time-frames’ for each of the different phases of consultation with regard to both the public and public authorities;
- A minimum of 30 days for public consultation is required. The Directive expressly refers to local or regional authorities as authorities likely to be concerned;
- The Directive now envisages information on public consultation to be made electronically available.

3.1.2 Consultations and ‘reasonable time-frames’

The Developers and practitioners preparing EIA Reports need to be aware that information needs to be shared with relevant parties in a timely manner, which may be determined by national legislation specifically or by agreement with the relevant authorities more generally. Methods for disseminating the information are also left up to Member States; however, it is worth noting that the EIA Directive specifically envisages the electronic availability of information. In any case, clearly defined methods of dissemination, as well as time-frames, can enhance administrative certainty, prevent delays, and provide certainty that different steps in the EIA process will occur within a certain period of time.

Reasonable time-frames in EU Law

- Explanation of the use of the term ‘reasonable’ by the EIA Directive

Pursuant to the principle of subsidiarity, the EIA Directive leaves the precise determination of the time-frames applicable to consultations to Member States. Indeed, as is demonstrated in the box below, Projects requiring an EIA differ in size, scale, location and complexity, and therefore setting standard and explicit time limits applicable to all Projects for the different stages, may not be considered to be appropriate.

Box 51: Understanding the concept of 'reasonable' with regard to timing in the EIA procedure

- Recital 36 of the 2014 Directive amending the EIA Directive

'Member States should ensure that the various steps of the environmental impact assessment of Projects are carried out within a reasonable period of time, depending on the nature, complexity, location and size of the Project'

- Average duration of the EIA process

The average duration of an EIA procedure was estimated to be 11.3 months but figures range from 5 to 27 months. The average time taken to reach the final EIA decision after completion of the consultations was 2 months.

Source - GHK (2010), *Collection of information and data to support the IA study of the review of the EIA Directive*.

- Compliance Committee of the Aarhus Convention: Lithuania ACCC/2006/16; ECE/MP.PP/2008/5/Add.6, 4 April 2008, para. 69

'A time frame which may be reasonable for a small simple Project with only local impact may well not be reasonable in case of a major complex Project.'

- Defining reasonable time-frames in application of the EIA Directive

Article 6 of the EIA Directive makes several references to reasonable time-frames when it comes to carrying out public and other concerned authority consultations. In addition, Article 6(7) explicitly gives 30 days as the minimum amount of time for consulting the public on the EIA Report.

This concept of reasonable time-frames, with regards to public consultations, is widely covered by other documents on the subject, those concerning the Aarhus Convention in particular, as shown in the box below on case law. This guidance document can be used as an indication to establish time-frames applicable to the EIA procedure (see also the Annex to this Guidance Document on Other Relevant Guidance and Tools).

Box 52: Reasonable time-frames for public participation in case-law of the Aarhus Convention Compliance Committee

- Sufficient time-frame:

Case Law of the Aarhus Convention Compliance Committee determines that a total of 90 days, including 45 days to inspect the relevant information and prepare, plus a subsequent 45 days to comment, is sufficient.

- Insufficient time-frame:

Case Law of the Aarhus Convention Compliance Committee found that 10 working days, to inspect relevant information and to prepare to participate in decision-making, cannot be considered to be reasonable.

A. Andrusevych, T. Alge, C. Konrad (eds), *Case Law of the Aarhus Convention Compliance Committee 2004-2011*, 2nd edition, pages 44-45.

With regards to transboundary consultations, Article 7 addresses how Member States should approach EIAs for Projects that are likely to have significant effects on the environment in another Member State. Again, the word 'reasonable' is used when referring to the time at which information is to be shared with the public or concerned authorities. In addition, Article 7(5) states that time-frames should be determined based on those set out in Article 6. Here, the guidance materials developed concerning the Espoo Convention could support the interpretation and implementation of the EIA Directive in this context.

Practitioners developing the EIA Report should familiarise themselves with these Articles and national legislation in order to reduce delays and improve administrative certainty. At any rate, it should be noted that informing the affected Member State must be done at the latest when informing the public within the Member State where the Project takes place.

- Time-frames and streamlining environmental assessments across EU instruments

Projects are often subject to several environmental assessment procedures, including the EIA. Article 2(3) of the EIA Directive requires either a coordinated or joint procedure for Projects falling under the scope of both the EIA and the Birds/Habitats Directives. In addition, this Article encourages the use of coordinated procedures when assessments of the effects on the environment arise from the EIA and other EU legislation (for more information see the Annex to this Guidance Document on Links with Other EU Instruments). Joint or coordinated procedures for other EU environmental assessments can reduce overlapping procedures, which can then lead to unnecessary delays, discrepancies, and administrative uncertainty. Time-frames play an important role in the successful coordination or joint procedures, given that defined time-frames can help align procedures which may be headed by different parties.

The European Commission Guidance Document on streamlining environmental assessments conducted under Article 2(3) of the EIA Directive provides advice about how to manage different environmental assessments in the context of joint and/or coordinated procedures, and should be read in conjunction with this guidance document. In addition, other regulations may dictate the structure of the time-frames. The Trans-European Networks-Energy Regulation (see the Annex to this Guidance Document on Links with Other EU Instruments), for example, gives three and a half years as a binding time limit for the overall permit granting process (i.e. delivering the Development Consent decision) for relevant Projects. The European Commission has also issued a Guidance Document on streamlining environmental assessments within the context of the TEN-R Regulation (see the Annex to this Guidance Document on Other Relevant Guidance and Tools).

Box 53: Other relevant EU Guidance

Commission Guidance on streamlining environmental assessments for energy infrastructure Projects PCIs (Streamlining Guidance) July 2013

Commission guidance document on streamlining environmental assessments conducted under Article 2(3) of the Environmental Impact Assessment Directive (Directive 2011/92/EU of the European Parliament and of the Council, as amended by Directive 2014/52/EU) (2016/C 273/01)

Implementing reasonable time-frames in the national context

While they are not established at the EU level, explicit time-frames, with minimum and/or maximum limits, may be set out either by Member States in national legislation or by the Competent Authorities on a case-by-case basis.

In any case, if time-frames are set-out, Recital 36 of the 2014 Directive amending the EIA Directive indicates that they ought:

- to stimulate more efficient decision-making and increase legal certainty; and
- not to affect the achievement of the objective of the Directive which is to ensure a high level of protection of the environment and of human health.

The following box provides a few tips on setting reasonable time-frames for EIAs.

Box 54: Tips for setting explicit time-frames

- Time-frames should be proportionate to the nature, complexity, location and size of the Project.
- Time-frames should be clearly defined.
- Time-frames should be flexible enough to adjust to extenuating circumstances.
- Time-frames should aim to reduce unnecessary delays in assessment procedures and increase administrative certainty.
- Time-frames should in no way lower the quality of the environmental assessments performed.

3.1.3 Consultations: in a nutshell

- The EIA Directive requires consultations with three different groups on the content of the EIA Report: the public concerned must always be consulted; public authorities must be consulted when they are likely to be concerned; and other Member States for Projects with transboundary impacts.
- Consultations include both the provision of information and the possibility to effectively prepare and participate in decision-making.
- The Directive sets out an explicit minimum time-frame for public consultations on the EIA Report (at least 30 days).
- In other cases, the Directive refers to reasonable time-frames. The notion of reasonable time-frames should be refined at the national level, depending on the Project at hand, in order to enhance administrative certainty and to reduce delays.

3.2 DECISION-MAKING: REASONED CONCLUSION AND DEVELOPMENT CONSENT

3.2.1 Legislative requirements on decision-making

The definition of the EIA in Article 1 of the Directive refers to:

- a Reasoned Conclusion, essentially the decision of the Competent Authority on the environmental impacts of the Project based on the EIA Report and on other relevant information, including information received through the consultations;
- the incorporation of the Reasoned Conclusion in the Project's Development Consent, i.e. in the decision that either grants or refuses permission to carry out a Project.

Article 8 of the Directive also requires that, in order to make the Development Consent decision, the Competent Authority takes the results of consultations duly into account.

Box 55: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 1(2)(g)(iii), (iv) and (v)

For the purposes of this Directive, the following definitions shall apply:

(g) 'environmental impact assessment' means a process consisting of:

- (iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;
- (iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination;
- (v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.

Article 8

The results of consultations and the information gathered pursuant to Articles 5 to 7 shall be duly taken into account in the development consent procedure.

Article 8a(1)

1. The decision to grant development consent shall incorporate the following information:

- (a) the reasoned conclusion referred to in Article 1(2)(g)(iv);
- (b) any environmental conditions attached to the decision, a description of any features of the project and/or measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment as well as, where appropriate, monitoring measures.

Article 8a(2)

(2) The decision to refuse development consent shall state the main reasons for the refusal.

Article 8a(6)

(6) The competent authority shall be satisfied that the reasoned conclusion, referred to in Article 1(2)(g)(iv), or any of the decisions referred to in paragraph 3 of this Article, is still up to date when taking a decision to grant development consent. To that effect, Member States may set time-frames for the validity of the reasoned conclusion referred to in Article 1(2)(g)(iv) or any of the decisions referred to in paragraph 3 of this Article.

Articles on decision-making ensure that a clear justification of the reasons and the conditions associated with the decision to grant (or refuse) Development Consent are provided and that environmental conditions stemming from the EIA decision are not sidelined when making the Development Consent decision. Thus, the aim is to ensure that the EIA process has informed the decision-making process, and that a high level of environmental protection can be guaranteed once the Project is implemented and operating.

Box 56: In practice – 2014 amendments on decision-making

The amendments of the different articles seek to strengthen decision-making in two ways; firstly, with regards to obtaining more formal and transparent justification of decision-making:

- Article 8 includes the words 'duly into account', thereby seeking to ensure that environmental considerations and the opinions of the public consulted are not side-lined when issuing Development Consent decisions;
- Article 8a(1) requires the integration of different elements into the Development Consent decision (e.g. Reasoned Conclusion, environmental conditions, Monitoring Measures);
- Article 8a(2) requires the justification of decisions to refuse Development Consent.

Secondly, the amendments seek to ensure that that environmental considerations remain under scrutiny during the actual Project construction phase and/or operational phase, as well as in any subsequent permitting procedures:

- Article 8a(1) requires the integration of different elements into the Development Consent decision (e.g. Reasoned Conclusion, environmental conditions, Monitoring Measures);
- Article 8a (6) requires that the Competent Authority checks that the Reasoned Conclusion is up-to-date.

3.2.2 Reasoned Conclusion

This section addresses the duties of the Competent Authority that adopts Reasoned Conclusions, and explains the two different systems envisaged by the EIA Directive that may be used in the Member States in relation to the adoption of a Reasoned Conclusion.

An assessment obligation for the Competent Authority

Article 1(2)(g) of the EIA Directive (introduced by the 2014 amendments), which defines the EIA process, uses the term 'examination' several times in relation to the tasks carried out by the Competent Authority adopting the Reasoned Conclusion. As discussed below, this term requires that the Reasoned Conclusion be the direct outcome of an obligation, on the Competent Authority's part, to assess the Project's significant effects. The Competent Authority must, therefore, not simply rely on the Developer's assessment and compile the information gathered through the consultations, but must also carry out its own separate assessment of the Project's significant effects.

Box 57: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 1(2)(g)(iii) and (iv)

- (iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

- (iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination;

The terminology ‘examine’ is used in a 2011 ruling of the Court of Justice of the European Union (CJEU). In this judgement, the Court ruled that Article 3 of the EIA Directive is a fundamental provision that should guide the whole EIA process. This provision requires the EIA process to not only identify and describe, but also to *assess*, the direct and indirect effects of the Project. This assessment, the Court ruled, involves an *examination* by the Competent Authority of both the information supplied in the EIA Report and of the results of the consultations.

A few key statements from the Court ruling in question are reproduced in the box below.

Box 58: CJEU, C-50/09, *Commission v. Ireland*

40 ... Indeed, that assessment, which must be carried out before the decision-making process (...), involves an examination of the substance of the information gathered as well as a consideration of the expediency of supplementing it, if appropriate, with additional data. That competent environmental authority must thus undertake both an investigation and an analysis to reach as complete an assessment as possible of the direct and indirect effects of the Project concerned on the factors set out in the first three indents of Article 3 and the interaction between those factors.

41 [...] Article 3 is a fundamental provision.

44. [...] namely that of taking the results of the consultations and the information gathered for the purposes of the consent procedure into consideration. That obligation does not correspond to the broader one, imposed by Article 3 of Directive 85/337 on the competent environmental authority, to carry out itself an environmental impact assessment in the light of the factors set out in that provision.

The content of the Reasoned Conclusion

As described above, the Competent Authority must examine the information provided in the EIA Report, as well as the results of the consultations and, where appropriate, must request any supplementary information. The Reasoned Conclusion, as the direct outcome of this assessment, should detail these examinations.

The following box provides a few tips about how to develop a good Reasoned Conclusion.

Box 59: Tips for developing the Reasoned Conclusion

- Examine and justify the different tools and methods used during the preparation of the EIA Report, and subsequent consultations.
- Examine the information and data provided in the EIA Report and during consultations. Key messages of the Baseline conditions, significant effects, predicted impacts of the Project, suggested Monitoring and Mitigating Measures, and other relevant information should be highlighted.
- Clearly discuss the evidence with a view to reaching a conclusion, allowing for any additional arguments which may arise.
- State clearly what the Reasoned Conclusion is and the arguments on which it relies.
- Define a programme to mitigate and monitor the effects of the Project (in case significant adverse effects would be caused).

Two different systems of adopting Reasoned Conclusion and granting the Development Consent

Article 8a (1) deals with the decision to grant Development Consent, and reiterates the necessity for this decision to incorporate several elements, including the Reasoned Conclusion and Monitoring Measures (see also the section on monitoring).

In relation to this point, the EIA Directive allows for the existence of different EIA systems in the Member States as provided for under Article 2(2) of the Directive (see box below).

Box 60: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 2(2)

2. The environmental impact assessment may be integrated into the existing procedures for development consent to projects in the Member States, or, failing this, into other procedures or into procedures to be established to comply with the aims of this Directive.

The underlying idea, presented under Recital 21 of the 2014 Directive amending the EIA Directive, is that ‘the Reasoned Conclusion [...] may be part of an integrated Development Consent procedure or may be incorporated in another binding decision’. There are two main systems existing in the EU with regards to the implementation of the EIA Directive. These two systems can be described as, on the one hand, a separate EIA procedure, and an integrated procedure where the EIA is one of the assessments carried out in view to reach a decision on Development Consent on the other.

- The integrated procedure

The integrated procedure system consists of an EIA procedure carried out in parallel with other assessments in view of reaching a decision for Development Consent. The Reasoned Conclusion, as such, forms part of the final decision on the Project’s Development Consent.

- The separate EIA procedure

Under the separate EIA procedure, the Reasoned Conclusion is adopted via a decision procedure that is separate from the one undertaken to grant Development Consent. In this case, the environmental conditions set out in the Reasoned Conclusion are binding. The requirement of Article 8a(1) of the EIA Directive ensures that the environmental conditions set out in the Reasoned Conclusion are included later on in the Development Consent decision. As the conditions set in the Reasoned Conclusion on the EIA are binding, they should be followed when the Development Consent is adopted.

3.2.3 Time-frames concerning decision-making

The obligation of reasonable time-frames in decision-making

Article 8a(5) of the EIA Directive concerns the time-frames set in which the decisions taken during the EIA process must be made.

Box 61: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 8a(5)

5. Member States shall ensure that the competent authority takes any of the decisions referred to in paragraphs 1 to 3 within a reasonable period of time.

This Article prescribes an overall obligation of ‘a reasonable period of time’. This obligation is applicable not as a whole, but to different decisions, including inter alia the Reasoned Conclusion as well as the Development Consent decisions. There is no precise indication in the Directive about how long the reasonable period of time should be, and Developers should be aware that specific time-frames may be set out in national legislation or be applicable from other legislation (e.g. the TEN-E Regulation).

The time taken by the authorities to issue their decisions on the Development Consent can generate significant uncertainty and delays for the Developers, which may also lead to additional costs being incurred. Again, ensuring the decisions are taken within a ‘reasonable period of time’, can contribute to more efficient decision-making and increasing certainty as well as avoiding lengthy EIA procedures.

Time-frames for the validity of Reasoned Conclusion

The EIA Directive requires that the authority, competent for the Development Consent, must ensure that the Reasoned Conclusion is still up-to-date when taking its decision (Article 8a(6)).

Box 62: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 8a(6)

6. The competent authority shall be satisfied that the reasoned conclusion referred to in Article 1(2)(g)(iv), or any of the decisions referred to in paragraph 3 of this Article, is still up to date when taking a decision to grant development consent. To that effect, Member States may set time-frames for the validity of the reasoned conclusion referred to in Article 1(2)(g)(iv) or any of the decisions referred to in paragraph 3 of this Article.

These elements sheds additional light on the overall obligation of ‘reasonable period of time’ of Article 8a(5). Indeed, in the context of separate EIA procedure, the environmental assessment may have been completed years before a decision on Development Consent can be considered.

Member States in this context may establish time-frames for the validity of Reasoned Conclusion.

Box 63: The validity of Reasoned Conclusion in Croatia

The Croatian Environmental Protection Act (*Zakon o zaštiti okoliša*) ('O.G.' No 80/13, 153/13 and 78/15) regulates the EIA procedure in Croatia.

Its Article 92 sets the duration of validity of the final EIA decision for up to two years. More specifically, it renders the EIA decision invalid if an operator does not request a permit leading to the construction permit within two years of the date the decision entered into force

The Competent Authority should, in any case, be satisfied that the Reasoned Conclusion is up-to-date, regardless of time-frames that have not yet expired.

Time-frames for informing the public of the Development Consent decision

Once the Development Consent decision has been reached, the public must be informed of its outcome.

Box 64: Directive 2011/92/EU as amended by Directive 2014/52/EU

Article 9(1)

1. When a decision to grant or refuse development consent has been taken, the competent authority or authorities shall promptly inform the public and the authorities referred to in Article 6(1) [...]

The 2014 legislative change of the EIA Directive added the word ‘promptly’ to Article 9(1) so as to align it with Article 6(9) of the Aarhus Convention which already uses this term. It should be noted that ‘promptly’ can be interpreted differently from the phrase ‘reasonable time-frame’ used throughout the EIA Directive. This suggests that there is not a specified maximum period (time-frame) in which action should be taken, but rather that action should be taken as soon as possible¹⁹.

At the Member State level, there may be national time limits established for challenging the decision that must be complied with.

¹⁹ A. Andrushevych, T. Alge, C. Konrad (eds), *Case Law of the Aarhus Convention Compliance Committee 2004-2011*, 2nd edition, Page 87.

3.2.4 Decision-making on the EIA Report: in a nutshell

- Environmental considerations, and the opinions of the public consulted, shall be taken ‘duly into account’ during the decision-making steps (both in the Reasoned Conclusion and Development Consent).
- The Reasoned Conclusion is the outcome of an assessment undertaken by the Competent Authority that is separate from the Developer’s assessment. It includes an assessment of the information provided in the EIA Report, an assessment of the results of consultations, and, if adequate, the Competent Authority’s supplementary assessment and resulting decision on the environmental effects of the Project.
- Across the EU Member States, there are two main systems of adopting reasoned conclusion:
 - Integrated procedure – the Reasoned Conclusion is integrated in the decision on Development Consent;
 - Separated EIA procedure – the Reasoned Conclusion, as a legally binding environmental decision, is adopted pending the issuance of the decision on the Development Consent
- Before taking a decision on the Development Consent, the Competent Authority should check that the Reasoned Conclusion is up-to-date.
- Different elements must be integrated into the Development Consent decision, including the Reasoned Conclusion, environmental conditions, and Monitoring Measures.
- Decisions to refuse Development Consent should be justified.

PART C – THE EIA REPORT CHECKLIST

1 INTRODUCTION

This checklist is designed to support this Guidance Document's users with the preparation and reviewing of an EIA Report. The checklist is intended to be used in conjunction with this Guidance Document; it can be used at multiple stages of the EIA procedure in various ways:

- for planning and guiding the preparation of an EIA Report by Developers or practitioners;
- when reviewing a draft, to ensure that it is complete and complies with all requirements and can be used for consultation or submitted to the Competent Authorities;
- when reviewing if enough information has been provided to allow for the public and stakeholder groups to develop informed opinions and reactions; and
- for authorities to carry out the examination of the EIA Report once it has been submitted.

The checklist is organised into seven sections that follow the order of presentation of the issues under Part B:

- Description of the Project;
- Description of the environment likely to be affected by the Project (including Baseline);
- Description of the Project's likely significant effects;
- Alternatives;
- Description of Mitigation and Compensation Measures;
- Description of Monitoring Measures;
- Quality (presentation, Non-Technical Summary, and quality of experts).

Each section includes a number of questions for consideration. These questions are numbered per question in the first column and are stated in full in the second. The third and fourth columns concern if they are relevant and if they have been adequately addressed respectively. The final column is dedicated to the question of what further information is required.

Some instructions for using the checklist have been provided below, but the checklist has, in essence, been developed as a flexible tool to enable different actors in the EIA procedure to use it at different stages of the procedure.

2 INSTRUCTIONS

Reviewing the relevance of the checklist questions

The checklist has been intentionally designed to cover the wide range of eventual Project situations envisaged by the EIA Directive. It also covers different types of user responsibilities, such as confirming whether or not authorities have access to the necessary expertise. Therefore, the first step in using the checklist is to decide, for each of the questions, whether the question is relevant to:

- the specific Project;
- the stage of the EIA procedure (e.g. planning, draft report completed, final review etc.);
- the user in his/her own capacity (e.g. practitioner preparing the report, Developer reviewing a draft, authority examining a final report).

If the question is relevant, then enter 'Yes' in Column 3. At the end of each of the checklist's sections, consider whether or not there are any special features of the Project that mean that types of information that have not been identified in the checklist that could be relevant and add these to the checklist in the spaces provided.

Assessing the sufficiency of the information provided

For all of the questions that are relevant to the Project and context, the user may then:

- include the point in the planning of the EIA Report; or
- review the EIA Report in more detail and decide whether the particular information identified in the question is provided and is sufficient. If it is complete and sufficient, then enter: 'Yes' in Column 3. If it is not, then enter: 'No'.

In considering whether the information is complete and sufficient the reviewer should consider whether there are any omissions in the information and whether these omissions are vital to the consultation or decision-making processes. If these omissions are not vital, then it may be unnecessary to identify or request further information. This will avoid unnecessary delay to the EIA process. Factors to consider will include:

- Both the legal provisions that apply and the factors that the decision-maker is required to take into account at this stage in the consent process for the Project;
- The Project's scale and complexity and the sensitivity of the receiving environment;
- Whether the environmental issues raised by the Project are high profile;
- The views of the public and consultees about the Project and the degree of controversy.

Indication of necessity for supplementary information

If the answer to a review Question is 'No', consider what further information is required and note this in Column 4.

This situation may arise in a variety of situations, for instance:

- Developers reviewing the EIA Report, prior to submission, may find that the information provided by the EIA practitioners is not sufficient and may request that the practitioners gather

- more evidence and analyse it;
- members of the public participating in the consultation procedure may find that the information provided is not complete or is insufficient to allow for their effective participation in the consultation processes. They may indicate this to both the reviewers and the Competent Authority during the consultations. The Competent Authorities intervening in the EIA process must be satisfied that the information provided is sufficient for the purposes of adopting the Reasoned Conclusion and for arriving at a decision on Development Consent.

The user may also wish to make any suggestions about where or how the information might be obtained.

3 THE REVIEW CHECKLIST

SECTION 1 DESCRIPTION OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
The Objectives and Physical Characteristics of the Project				
1.1	Are the Project's objectives and the need for the Project explained?			
1.2	Is the programme for the Project's implementation described, detailing the estimated length of time (e.g. expected start and finish dates) for construction, operation, and decommissioning? (this should include any phases of different activity within the main phases of the Project, extraction phases for mining operations for example)			
1.3	Have all of the Project's main characteristics been described? (for assistance, see the Checklist in Part C of the Scoping Guidance Document in this series)			
1.4	Has the location of each Project component been identified, using maps, plans, and diagrams as necessary?			
1.5	Is the layout of the site (or sites) occupied by the Project described? (including ground levels, buildings, other physical structures, underground works, coastal works, storage facilities, water features, planting, access corridors, boundaries)			
1.6	For linear Projects, have the route corridor, the vertical, and horizontal alignment and any tunnelling and earthworks been described?			
1.7	Have the activities involved in the construction of the Project (including land-use requirements) all been described?			
1.8	Have the activities involved in the Project's operation (including land-use requirements and demolition works) all been described?			
1.9	Have the activities involved in decommissioning the Project all been described? (e.g. closure, dismantling, demolition, clearance, site restoration, site re-use, etc.)			
1.10	Have any additional services, required for the Project, been described? (e.g. transport access, water, sewerage, waste disposal, electricity, telecoms)			
1.11	Are any developments likely to occur as a consequence of the Project identified? (e.g. new housing, roads, water or sewerage infrastructure, aggregate extraction)			
1.12	Have any existing activities that will alter or cease as a consequence of the Project been identified?			

SECTION 1 DESCRIPTION OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
1.13	Have any other existing or planned developments, with which the Project could have cumulative effects, been identified?			
1.14	Has the 'whole Project' been described, e.g. including all associated/ancillary works?			
1.15	Are any activities described as part of the 'whole Project' excluded from the assessment? Are such exclusions justified? (e.g. associated/ancillary activities can be included either because they fall under the scope of the Directive (Annex I or II) or because they can be considered as an integral part of the main infrastructure works using the 'centre of gravity test'. Guidance on associated and ancillary works has been published by the European Commission in an Interpretation Line available at: http://ec.europa.eu/environment/eia/pdf/Note%20-%20Interpretation%20of%20Directive%2085-337-EEC.pdf)			
The Size of the Project				
1.16	Is the area of land occupied by each of the permanent Project components quantified and shown on a scaled map? (including any associated access arrangements, landscaping, and ancillary facilities)			
1.17	Has the area of land required temporarily for construction been quantified and mapped?			
1.18	Is the reinstatement and after-use of the land occupied temporarily for the operation of the Project described? (e.g. land used for mining or quarrying)			
1.19	Has the size of any structures or other works developed as part of the Project been identified? (e.g. the floor area and height of buildings, the size of excavations, the area or height of planting, the height of structures such as embankments, bridges or chimneys, the flow or depth of water)			
1.20	Has the form and appearance of any structures or other works developed as part of the Project been described? (e.g. the type, finish, and colour of materials, the architectural design of buildings and structures, plant species, ground surfaces, etc.)			
1.21	For urban or similar development Projects, have the numbers and other characteristics of new populations or business communities been described?			
1.22	For Projects involving the displacement of people or businesses, have the numbers and other characteristics of those displaced been described?			

SECTION 1 DESCRIPTION OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
1.23	For new transport infrastructure or Projects that generate substantial traffic flows, has the type, volume, temporal pattern, and geographical distribution of new traffic generated or diverted as a consequence of the Project been described?			
Production Processes and Resources Used				
1.24	Have all of the processes involved in operating the Project been described? (e.g. manufacturing or engineering processes, primary raw material production, agricultural or forestry production methods, extraction processes)			
1.25	Have the types and quantities of outputs produced by the Project been described? (these could be primary or manufactured products, goods such as power or water or services such as homes, transport, retailing, recreation, education, municipal services (water, waste, etc.)			
1.26	Have the types and quantities of resources, e.g. natural resources (including water, land, soil, and biodiversity), raw materials, and energy needed for construction and operation been discussed?			
1.27	Have the environmental implications of the sourcing of resources, e.g. natural resources (including water, land, soil and biodiversity), raw materials, and energy been discussed?			
1.28	Have efficiency and sustainability in use of resources, e.g. natural resources (including water, land, soil and biodiversity), raw materials, and energy been discussed?			
1.29	Have any hazardous materials used, stored, handled or produced by the Project been identified and quantified? <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			
1.30	Has the transportation of resources, including natural resources (including water, land, soil, and biodiversity) and raw materials to the Project site, and the number of traffic movements involved, been discussed? (including road, rail and sea transport) <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			

SECTION 1 DESCRIPTION OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
1.31	<p>Have the Project's environmentally relevant social and socio-economic implications been discussed? Will employment be created or lost as a result of the Project, for instance?</p> <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			
1.32	<p>Have the access arrangements and the number of traffic movements involved in bringing workers and visitors to the Project been estimated?</p> <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			
1.33	<p>Has the housing and provision of services for any temporary or permanent employees for the Project been discussed? (this is relevant for Projects that require the migration of a substantial, new workforce into the area, either for construction or in the long term)</p>			
Residues and Emissions				
1.34	<p>Have the types and quantities of solid waste generated by the Project been identified? (including the construction or demolition of wastes, surplus spoil, process wastes, by-products, surplus or reject products, hazardous wastes, household or commercial wastes, agricultural or forestry wastes, site clean-up wastes, mining wastes, decommissioning wastes)</p> <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			
1.35	<p>Have the composition and toxicity, or other hazards from all solid wastes produced by the Project, been discussed?</p>			
1.36	<p>Have the methods for collecting, storing, treating, transporting, and finally disposing of these solid wastes been described?</p>			
1.37	<p>Have the locations for the final disposal of all solid wastes been discussed, in consideration with the Waste Management Plan(s) concerned?</p>			
1.38	<p>Have the types and quantities of liquid effluents generated by the Project been identified? (including site drainage and run-off, process wastes, cooling water, treated effluents, sewage)</p> <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			

SECTION 1 DESCRIPTION OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
1.39	Have the composition and toxicity or other hazards of all liquid effluents produced by the Project been discussed?			
1.40	Have the methods for collecting, storing, treating, transporting, and finally disposing of these liquid effluents been described?			
1.41	Have the locations for the final disposal of all liquid effluents been discussed?			
1.42	Have the types and quantities of gaseous and particulate emissions generated by the Project identified? (including process emissions, fugitive emissions, emissions from combustion of fossil fuels in stationary and mobile plant, emissions from traffic, dust from materials handling, odours) <ul style="list-style-type: none"> • during construction; • during operation; • during decommissioning. 			
1.43	Have the composition and toxicity or other hazards of all of emissions to the air produced by the Project been discussed?			
1.44	Have the methods for collecting, treating, and finally discharging these emissions to the air described?			
1.45	Have the locations for discharge of all emissions to the air been identified and have the characteristics of the discharges been identified? (e.g. height of stack, velocity and temperature of release)			
1.46	Have the methods for capturing, treating, and storing these emissions been described?			
1.47	Have the locations for the storage of all emissions identified and the characteristics of the storage unit been identified? (e.g. type of storage unit, storing capacity, methods used)			
1.48	Has the potential for resource recovery from wastes and residues been discussed? (including re-use, recycling or energy recovery from solid waste and liquid effluents)			
1.49	Have any sources of noise, heat, light or electromagnetic radiation from the Project been identified and quantified? (including equipment, processes, construction works, traffic, lighting, etc.)			
1.50	Have the methods for estimating the quantities and composition of all residues and the emissions identified and any difficulties discussed?			
1.51	Have the uncertainty attached to estimates of residues and emissions been discussed?			

SECTION 1 DESCRIPTION OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
Risks of Accidents and Hazards				
1.52	<p>Have any of the risks associated with the Project been discussed?</p> <ul style="list-style-type: none"> • risks from handling of hazardous materials; • risks from spills fire, explosion; • risks of traffic accidents; • risks from breakdown or failure of processes or facilities; • risks from exposure of the Project to natural disasters (earthquake, flood, landslide etc.). 			
1.53	<p>Have the measures to prevent and respond to accidents and abnormal events been described? (preventive measures, training, contingency plans, emergency plans, early-warning systems, etc.)</p>			
1.54	<p>Is there a plan in place detailing the preparedness for an emergency (e.g. suggested as part of the EIA Report's Mitigation measures) ?</p>			
1.55	<p>Is this plan in line with other EU legislation requirements, in particular Article 12 of the Seveso Directive (Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances) which refers to emergency plans?</p>			
Other Questions on Description of the Project				

SECTION 2 DESCRIPTION OF ENVIRONMENTAL FACTORS LIKELY TO BE AFFECTED BY THE PROJECT

No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
Baseline: Aspects of the Environment				
2.1	Have the existing land uses on the land to be occupied by the Project and the surrounding area described and are any people living on or using the land been identified? (including residential, commercial, industrial, agricultural, recreational, and amenity land uses and any buildings, structures or other property)			
2.2	Have the topography, geology and soils of the land to be occupied by the Project and the surrounding area been described?			
2.3	Have any significant features of the topography or geology of the area described and are the conditions and use of soils been described? (including soil quality stability and erosion, agricultural use and agricultural land quality)			
2.4	Has the biodiversity of the land/sea to be affected by the Project and the surrounding area been described and illustrated on appropriate maps?			
2.5	Have the species (including their populations and habitats), and the habitat types that may be affected by the Project been described? (Particular attention should be paid to any species and habitats protected under the Habitats and Birds Directives (Directives 92/43/EEC and 2009/147/EC).			
2.6	Have the Natura 2000 sites that may be affected by the Project been described?			
2.7	Has the water environment of the area been described? (including reference to any River Basin Management Plans/Programme of Measures under the WFD, running and static surface waters, groundwaters, estuaries, coastal waters and the sea and including run off and drainage. N.B. not relevant if water environment will not be affected by the Project)			
2.8	Have the hydrology, water quality, and use of any water resources that may be affected by the Project been described? (including any River Basin Management Plans/Programme of Measures under the WFD, use for water supply, fisheries, angling, bathing, amenity, navigation, effluent disposal)			
2.9	Have local climatic and meteorological conditions in the area been described? (N.B. not relevant if the atmospheric environment will not be affected by the Project)			
2.10	Has existing air quality in the area been described, including, where relevant, limit values set out by Directives 2008/50/EC and 2004/107/EC as well as relevant Programmes adopted under this legislation? (N.B. not relevant if the ambient air will not be affected by the Project)			

SECTION 2 DESCRIPTION OF ENVIRONMENTAL FACTORS LIKELY TO BE AFFECTED BY THE PROJECT

No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
2.11	Has the existing noise climate been described, including, where relevant, reference to noise maps and actions plans set out by the Environmental Noise Directive (2002/49/EU)? (N.B. not relevant if acoustic environment will not be affected by the Project)			
2.12	Has the existing situation regarding light, heat, and electromagnetic radiation been described? (N.B. not relevant if these characteristics of the environment will not be affected by the Project)			
2.13	Have any material assets in the area that may be affected by the Project been described? (including buildings, other structures, mineral resources, water resources)			
2.14	Have any locations or features of archaeological, historic, architectural or other community or cultural importance in the area that may be affected by the Project been described, including any designated or protected sites?			
2.15	Has the landscape or townscape of the area that may be affected by the Project been described, including any designated or protected landscapes and any important views or viewpoints?			
2.16	Have the demographic, social and socio-economic conditions (e.g. employment) in the area been described?			
2.17	Have any future changes in any of the above aspects of the environment, that may occur in the absence of the Project, been described? (the so-called Dynamic Baseline)			
Data Collection and Methods				
2.18	Has the study area been defined widely enough to include all of the areas likely to be significantly affected by the Project?			
2.19	Have all relevant national and local authorities been contacted to collect information on the Baseline environment?			
2.20	Have all the sources of data and information from existing databases, free services, and other relevant environmental assessments been investigated?			
2.21	Have sources of data and information on the existing environment been adequately referenced?			
2.22	Is justification provided about which particular existing datasets was(were) were relied upon, as opposed to others?			

SECTION 2 DESCRIPTION OF ENVIRONMENTAL FACTORS LIKELY TO BE AFFECTED BY THE PROJECT

No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
2.23	Where data collection has been undertaken to characterise the Baseline environment, have the methods used, any difficulties encountered, and any uncertainties been the data described?			
2.24	Were the methods used appropriate for the purpose?			
2.25	Have the methods used to predict the impact of the Project on climate changes been described? (if relevant)			
2.26	Have the methods used to predict climate change's impact on the Project been described?			
2.27	Is the uncertainty attached to the climate change evolution predictions discussed? (if relevant)			
2.28	Did you consider life cycle assessment of the Project to describe the Project's impact on climate change? (if relevant)			
2.29	Have any important gaps in the data on the existing environment/ evolution prediction identified (e.g. climate change), and the means used to deal with these gaps during the assessment, been explained?			
2.30	Where data collection would be required to adequately characterise the Baseline environment, but they have not been practicable for any reason, are the reasons explained and have proposals been set out for the surveys to be undertaken at a later stage?			
Other Questions on the Description of the Environment				

SECTION 3 DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE PROJECT

No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
Scoping of Effects				
3.1	Has the process by which the scope of the information for the EIA Report defined been described? (for assistance, see the Scoping Guidance Document in this series)			
3.2	Is it evident that a systematic approach to Scoping has been adopted?			
3.3	Was consultation carried out during Scoping?			
3.4	Have the comments and views of consultees been presented?			
Prediction of Direct Effects				
3.5	Have the direct, primary effects on land uses, people, and property been described and, where appropriate, quantified?			
3.6	Have the direct, primary effects on geological features and characteristics of soils been described and, where appropriate, quantified?			
3.7	Have the direct, primary effects on biodiversity been described and, where appropriate, quantified? (if relevant, are references made to Natura 2000 sites? (Directive 2009/147/EC and Directive 92/43/EEC))			
3.8	Have the direct, primary effects on the hydrology and water quality of water features been described and, where appropriate, quantified?			
3.9	Have the direct, primary effects on uses of the water environment been described and, where appropriate, quantified? (if relevant, are references made for River Basin Management Plans/Programmes of Measures under the WFD (2000/60/EC))			
3.10	Have the direct, primary effects on air quality been described and, where appropriate, quantified? (if relevant, are references made to Air Quality Plans under Directives 2008/50/EC and 2004/107/EC)			
3.11	Have the direct, primary effects on climate change been described and, where appropriate, quantified?			
3.12	Have the direct, primary effects on the acoustic environment (noise or vibration) been described and, where appropriate, quantified? (if relevant, are references made to Action Plans/Programme under the Environmental Noise Directive (2002/49/EU))			
3.13	Have the direct, primary effects on heat, light or electromagnetic radiation been described and, where appropriate, quantified?			

SECTION 3 DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE PROJECT

No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
3.14	Have the direct, primary effects on material assets and depletion of natural resources (e.g. fossil fuels, minerals) been described?			
3.15	Have the direct, primary effects on locations or features of cultural importance been described?			
3.16	Have the direct, primary effects on the quality of the landscape and on views and viewpoints been described and, where appropriate, illustrated?			
3.17	Have the direct, primary effects on environmentally relevant demography, social, and socio-economic condition in the area been described and, where appropriate, quantified?			
3.18	Have the secondary effects on any of the environment's aspects, above, caused by primary effects on other aspects been described and, where appropriate, quantified? (e.g. effects on biodiversity, including species and habitats protected under Directives 92/43/EEC and 2009/147/EC caused by soil, air or water pollution or noise; effects on uses of water caused by changes in hydrology or water quality; effects on archaeological remains caused by desiccation of soils)			
3.19	Have the temporary, short term effects caused only during construction or during time limited phases of Project operation or decommissioning been described? (e.g. emissions produced during the construction)			
3.20	Have the permanent effects on the environment caused by construction, operation or decommissioning of the Project been described?			
3.21	Have the long-term effects on the environment, caused over the lifetime of Project operations or caused by build-up of pollutants, in the environment been described?			
3.22	Have the effects that could result from accidents, abnormal events or exposure of the Project to natural or man-made disasters been described and, where appropriate, quantified?			
3.23	Have the effects on the environment, caused by activities ancillary to the main Project, been described? (ancillary activities are part of the Project but usually take place at a distance from the main Project location e.g. construction of access routes and infrastructure, traffic movements, sourcing of aggregates or other raw materials, generation and supply of power, disposal of effluents or wastes). For further guidance and explanation concerning ancillary works assessment see http://ec.europa.eu/environment/eia/pdf/Note%20-%20Interpretation%20of%20Directive%2085-337-EEC.pdf			

SECTION 3 DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE PROJECT				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
3.24	Have the indirect effects on the environment caused by consequential development been described? (consequential development is other Projects, not part of the main Project, stimulated to take place by implementation of the Project e.g. to provide new goods or services needed for the Project, to house new populations or businesses stimulated by the Project)			
3.25	Have the cumulative effects on the environment of the Project, together with other existing or planned developments in the locality, been described? (different future scenarios including a worst-case scenario should be described, as well as the effects on both climate change and biodiversity). For further guidance on the assessment of cumulative impacts see http://europa.eu.environment/eia/eia-support http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf .			
3.26	Have the transboundary effects on the environment of the Project, either during construction or operation, been described?			
3.27	Have the geographic extent, duration, frequency, reversibility, and probability of occurrence of each effect been identified as being appropriate?			
Prediction of Effects on Human Health and Sustainable Development Issues				
3.28	Have the primary and secondary effects on human health and welfare described and, where appropriate, been quantified? (e.g. health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups).			
3.29	Have the impacts on issues such as biodiversity, marine environment, global climate change, use of natural resources and disaster risk been discussed, where appropriate?			
Evaluation of the Significance of Effects				
3.30	Is the significance or importance of each predicted effect clearly explained with reference to legal or policy requirements, other standards, and the number, importance, and sensitivity of people, resources or other receptors affected?			
3.31	Where effects are evaluated against legal standards or requirements, have the appropriate local, national or international standards been used and has relevant guidance followed?			
3.32	Have the positive effects on the environment been described, as well as the negative effects?			

SECTION 3 DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE PROJECT

No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
Impact Assessment Methods				
3.33	Have the methods used to predict the effects described, and the reasons for their choice, any difficulties encountered, and uncertainties in the results been discussed?			
3.34	Where there is uncertainty about the precise details of the Project, and its impact on the environment/climate change, have worst-case predictions been described?			
3.35	Where there have been difficulties in compiling the data needed to predict or evaluate effects, have these difficulties been acknowledged and their implications for the results been discussed?			
3.36	Has the basis for evaluating the significance or importance of impacts been described clearly?			
3.37	Have the impacts been described on the basis that all Mitigation Measures proposed have been implemented i.e. have the residual impacts been described?			
3.38	Is the level of treatment of each effect appropriate to its importance for the Development Consent decision? Does the discussion focus on the key issues and avoid irrelevant or unnecessary information?			
3.39	Is appropriate emphasis given to the most severe, adverse effects of the Project with lesser emphasis given to less significant effects?			
Other Questions relevant to Description of Effects				
	Have, with a view to avoiding duplication of assessments, the available results of other relevant assessments under Union or national legislation, in preparing the environmental impact assessment report been taken into account? If so, how was this done?			

SECTION 4 CONSIDERATION OF ALTERNATIVES				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
4.1	Have the different Alternatives suggested during Scoping been considered and assessed, and if not has justification been provided?			
4.2	Have the Developer and practitioners, who are preparing the EIA Report, identified and assessed additional Alternatives (to the ones suggested during Scoping)?			
4.3	Have the process by which the Project was developed been described and are the Alternatives to the design of the Project considered during this process been described? (for assistance, see also the guidance on types of Alternatives which may be relevant in the Scoping Guidance Document in this series)			
4.4	Have the Alternatives to the design considered during this process been described? (for assistance, see also the guidance on types of alternatives which may be relevant in the Scoping Guidance Document in this series)			
4.5	Have the Alternatives to technology been considered during this process? (for assistance, see also the guidance on types of Alternatives which may be relevant in the Scoping Guidance Document in this series)			
4.6	Have the Alternatives to the location considered during this process been described? (for assistance, see also the guidance on types of alternatives which may be relevant in the Scoping Guidance Document in this series)			
4.7	Have the Alternatives to the size considered during this process been described (for assistance, see also the guidance on types of alternatives which may be relevant in the Scoping Guidance Document in this series)			
4.8	Have the Alternatives to the scale considered during this process been described? (for assistance, see also the guidance on types of alternatives which may be relevant in the Scoping Guidance Document in this series)			
4.9	Has the Baseline situation in the 'do-nothing' scenario been described?			
4.10	Are the Alternatives realistic and genuine Alternatives to the Project? (i.e. feasible Project options that meet the objectives)			

4.11	Have the main reasons for choosing the proposed Project been provided, including an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects?			
4.12	Are the main environmental effects of the Alternatives compared to those of the proposed Project?			
4.13	Are Mitigation Measures considered in the assessment of Alternatives? (more on mitigation in section 5 below)			
Other Questions on Consideration of Alternatives				

SECTION 5 DESCRIPTION OF MITIGATION				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
5.1	Where there are significant adverse effects on any aspect of the environment, has the potential for the mitigation of these effects been discussed?			
5.2	Have the measures that the Developer has proposed to implement, in order to mitigate effects, been clearly described and is their effect on the magnitude and significance of impacts clearly explained?			
5.3	Have any proposed mitigation strategy's negative effects been described?			
5.4	If the effect of Mitigation Measures on the magnitude and significance of impacts is uncertain, has this been explained?			
5.5	Is it clear if the Developer has made a binding commitment to implement the mitigation proposed or acknowledged that the Mitigation Measures are just suggestions or recommendations?			
5.6	Do the Mitigation Measures cover both the construction and operational phases of the Project?			
5.7	Have the Developer's reasons for choosing the proposed mitigation been explained?			
5.8	Have the responsibilities for the implementation of mitigation including roles, responsibilities, and resources been clearly defined?			
5.9	Where the mitigation of significant adverse effects is not practicable, or where the Developer has chosen not to propose any mitigation, have the reasons for this been clearly explained?			
5.10	Is it evident that the practitioners developing the EIA Report and the Developer have considered the full range of possible approaches to mitigation, including measures to avoid, prevent or reduce and, where possible, offset impacts by alternative strategies or locations, changes to the Project design and layout, changes to methods and processes, 'end of pipe' treatment, changes to implementation plans and management practices, measures to repair or remedy impacts and measures to compensate impacts?			
Other Questions on Mitigation				

SECTION 5 DESCRIPTION OF MITIGATION				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?

SECTION 6 DESCRIPTION OF MONITORING MEASURES				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
6.1	Where adverse effects on any aspect of the environment are expected, has the potential for the monitoring of these effects been discussed?			
6.2	Are the measures, which the Developer proposes implementing to monitor effects, clearly described and has their objective been clearly explained?			
6.3	Is it clear whether the Developer has made a binding commitment to implement the proposed monitoring programme or that the Monitoring Measures are just suggestions or recommendations?			
6.4	Have the Developer's reasons for choosing the monitoring programme proposed been explained?			
6.5	Have the responsibilities for the implementation of monitoring, including roles, responsibilities, and resources been clearly defined?			
6.6	Where monitoring of adverse effects is not practicable, or the Developer has chosen not to propose any Monitoring Measures, have the reasons for this been clearly explained?			
6.7	Is it evident that the practitioners developing the EIA Report and the Developer have considered the full range of possible approaches to monitoring, including Monitoring Measures covering all existing environmental legal requirements, Monitoring Measures stemming from other legislation to avoid duplication, monitoring of Mitigation Measures (ensuring expected significant effects are mitigated as planned), Monitoring Measures capable of identifying important unforeseen effects?			
6.8	Have arrangements been proposed to monitor and manage residual impacts?			
Other Questions on Monitoring Measures				

SECTION 7 QUALITY				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
Quality of presentation				
7.1	Is the EIA Report available in one or more clearly defined documents?			
7.2	Is the document(s) logically organised and clearly structured, so that the reader can locate information easily?			
7.3	Is there a table of contents at the beginning of the document(s)?			
7.4	Is there a clear description of the process that has been followed?			
7.5	Is the presentation comprehensive but concise, avoiding irrelevant data and information?			
7.6	Does the presentation make effective use of tables, figures, maps, photographs, and other graphics?			
7.7	Does the presentation make effective use of annexes or appendices to present detailed data that is not essential to understanding the main text?			
7.8	Are all analyses and conclusions adequately supported with data and evidence?			
7.9	Have all sources of data been properly referenced?			
7.10	Has terminology been used consistently throughout the document(s)?			
7.11	Does it read as a single document, with cross referencing between sections used to help the reader navigate through the document(s)?			
7.12	Is the presentation demonstrably fair and, as far as possible, impartial and objective?			
Non-Technical Summary				
7.13	Does the EIA Report include a Non-Technical Summary?			
7.14	Does the Summary provide a concise but comprehensive description of the Project, its environment, the effects of the Project on the environment, the proposed Mitigation Measures, and proposed monitoring arrangements?			
7.15	Does the Summary highlight any significant uncertainties about the Project and its environmental effects?			
7.16	Does the Summary explain the Development Consent process for the Project and the EIA's role in this process?			
7.17	Does the Summary provide an overview of the approach to the assessment?			

SECTION 7 QUALITY				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
7.18	Has the Summary been written in non-technical language, avoiding technical terms, detailed data, and scientific discussion?			
7.19	Would it be comprehensible to a lay-member of the public?			
Expertise				
7.20	Is the competency of experts, who are responsible for the preparation of the EIA Report, indicated or otherwise explained in the EIA Report?			
7.21	Has the Developer complied with national or local legal requirements and practices for the selection of experts responsible for the preparation of the EIA Report?			
Other Questions on Quality of Presentation				

ANNEXES

ANNEX I – LINKS WITH OTHER EU INSTRUMENTS

The EIA Directive is just one of many pieces of EU legislation in place that affect environmental and Project planning. This poses the risk of duplication of assessments and procedures, and offers various possibilities for synergy. Under the principle of Better Regulation, whereby EU policies and laws should be designed and implemented so that they achieve their objectives at minimum cost²⁰, efforts are underway to ‘streamline’ these different assessments and procedures where possible. It is important to bear in mind that ‘streamlining’ in this context means improving and better coordinating environmental assessment procedures with a view to reducing unnecessary administrative burdens, create synergies and hence speed up the environmental assessment process, whilst at the same time ensuring a maximum level of environmental protection through comprehensive environmental assessments.

Streamlining measures can, therefore, be found in the EIA Directive:

■ **Joint or coordinated procedures (Article 2(3) of the EIA Directive)**

Article 2(3) of the EIA Directive requires Member States to set up coordinated or joint procedures when an assessment is required, both under the EIA Directive and the Habitats Directive (see below). Moreover, Member States have the possibility to apply these joint or coordinated procedures to other environmental assessments stemming from EU legislation, in particular under the Water Framework Directive and the Industrial Emissions Directive. See below for more specific information on interactions with these pieces of legislation. Practitioners are advised to check their national legislation to see when and how coordination is required.

■ **Consideration of other assessments (Article 4(4), Article 5(1) of the EIA Directive)**

Article 4(4) of the EIA Directive relating to the Screening stage of the EIA process, as well as Article 5(1) of the EIA Directive on the preparation of the EIA Report, requires practitioners to take the available results of other relevant assessments under other EU and national legislation into account.

■ **Other relevant information held by authorities (Article 5(4) of the EIA Directive)**

In order to strengthen the availability of data, Article 5(4) of the EIA Directive requires any authorities holding relevant information to make it available to the Developers of Projects subject to EIA.

This section introduces the main pieces of EU legislation relevant for streamlining with EIA. Practitioners should always check whether their Project falls under other EU legislation, and their respective national transposing measures, and be aware that there are various other guidance documents issued at EU and national level to help practitioners untangle legislative complexities. Some of these EU guidance documents are referred to in the relevant sections under Part B of the EIA guidance documents and are also listed below as well as in another Annex to this Guidance Document on Other Relevant Guidance Documents.

The legislation covered in this section is by no means an exhaustive list, but the legislation with the most significance include the following (formal names are introduced below):

- SEA Directive;
- Birds and Habitats Directives;
- Water Framework Directive;
- Marine Strategy Framework Directive;
- Ambient Air Quality Directive and Heavy Metals in the Ambient Air Directive;
- Waste Framework Directive;

²⁰ European Commission Staff Working Document, *Better Regulation Guidelines*, SWD (2015) 111 final.

- Industrial Emissions Directive;
- Seveso Directive
- Trans-European networks: TEN-E, TEN-T and TEN-TEC Regulations;
- Aarhus and ESPOO conventions (including Directive 2003/4/EC and 2003/35/EC).

SEA DIRECTIVE

Name used	Formal name
Strategic Environmental Assessment (SEA) Directive	<ul style="list-style-type: none"> ■ Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment
Relevant EU guidance:	<ul style="list-style-type: none"> ■ Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive; ■ Commission guidance document on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment; ■ Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs).

The SEA Directive concerns the Strategic Environmental Assessment, which is carried out on certain plans and programmes. In many cases, an SEA of a relevant plan or programme underpinning a proposed Project will have been carried out prior to the EIA. Article 3(2) of the SEA Directive requires an SEA to be undertaken if the plan or programme ‘sets the framework’ for a Project listed in Annexes I and II to the EIA Directive.

Opportunities for synergy

The SEA and EIA are similar procedures, despite the former being carried out on plans and programmes and the latter involving Projects. Both assessments can be summarised as follows: an environmental report is prepared in which the likely significant effects (of plans, programmes or Projects) on the environment and the reasonable alternatives are identified; the environmental authorities and the public (and affected Member States) must be informed and consulted; the Competent Authority decides, taking the results of consultations into consideration. The public is informed of the decision afterwards. While the scope of the two assessments usually differs, very often much of the work carried out under the SEA can be built upon for the EIA. Alternatives identified during the SEA may be relevant for the EIA, some of the data gathered under the SEA may be used to form the baseline of the EIA. Practitioners carrying out the EIA should consult the SEA report done for any relevant plans or programmes with a view of avoiding the duplication of work.

The Guidance document on Streamlining environmental assessments for energy infrastructure Projects of Common Interest (PCIs) (see the Annex to this Guidance Document on Other Relevant Guidance and Tools) provides guidance on how to take advantage of synergies between the SEA and EIA procedures. In addition, various guidance documents exist at national level.

During the Screening procedure of EIA Projects, assessments carried out under the SEA Directive may be directly relevant to the determination of whether or not the Project may have significant impacts on the environment. This may be the case if the assessment under the SEA Directive contains information on specific sensitivities of the local area to certain developments in which the Project is proposed.

Joint/coordinated procedures

Joint or coordinated procedures are not directly provided for by the provisions of the EIA and SEA Directives, given that one relates to projects (Article 2(3) of the EIA Directive) and the other to plans/programmes (Article 11(2) of the SEA Directive); moreover, each procedure must be carried out

on its own merits (Article 11(1) of the SEA Directive). The CJEU has indeed held that an assessment undertaken within the framework of the EIA Directive does not dispense with the requirement to carry out an assessment under the SEA Directive (cf. C-295/10, *Valčiukienė and Others*, para 55-63). However, in some cases a plan/programme, and the subsequent project development, can be subjected to an integrated assessment procedure: Member States are free to set up such mechanisms, as long as all of the requirements of both Directives are fulfilled. In this perspective, the CJEU also held, in the same decision, that a joint procedure may take place in which the requirements under both Directives are covered by a single environmental assessment procedure (cf. C-295/10, *Valčiukienė and Others*, para 55-63).

BIRDS AND HABITATS DIRECTIVES

Name used	Formal name
Habitats Directive	<ul style="list-style-type: none"> ■ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna
Birds Directive	<ul style="list-style-type: none"> ■ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds
Relevant EU guidance:	<ul style="list-style-type: none"> ■ Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive; ■ Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs) ■ Commission guidance on Managing Natura 2000 sites: the provisions of Article 6 of Directive 92/43/EEC ■ Manual of European Union Habitats - EUR28.

The Habitats Directive, along with the Birds Directives (Directive 2009/147/EC), aim to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the EU Members States. Together, these Directives set up a coherent network of sites (the Natura 2000 Network) hosting habitats and/or species that should be maintained or restored at favourable conservation status according to the terms of the Directives. Any plan or Project likely to have a significant effect on a site within the Natura 2000 site is subject to an Appropriate Assessment (AA) of the implications for the site in view of the site's conservation objectives (Habitats Directive, Article 6(3)). The AA decision is binding and determines whether a plan or Project may proceed, subject to specific provisions set out in Article 6(4).

Opportunities for synergy

The scope of the AA and the EIA is different – the EIA should consider all significant environmental effects, while the AA focuses on the conservation objectives and the integrity of the Natura 2000 site in question; however, as with the SEA detailed above, some of the information collected for one assessment can be used for the other.

Joint/coordinated procedures

Article 2(3) of the EIA Directive stipulates that when Projects have to be assessed under both the EIA and the Birds or Habitats Directives, Member States *shall, where appropriate*, ensure that coordinated and/or joint procedures are provided for. This differs from instances in which Projects also have to be assessed under other EU legislation, where Member States *may* provide for coordinated and/or joint procedures. The EIA Directive makes several references to the Habitats Directive, for example, when identifying significant impacts of a Project, particular attention must be paid to species and habitats protected by the Birds and the Habitats Directives. The EU has issued a guidance document to assist practitioners in the extent to which the results from an AA assessment is taken into account in an EIA Procedure (see the Guidance document on streamlining environmental assessments conducted under Article 2(3) of the EIA Directive, full references in the Annex to this Guidance Document on Other Relevant Guidance and Tools).

WATER FRAMEWORK DIRECTIVE

Name used	Formal name
WFD	<ul style="list-style-type: none"> ■ Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy
Relevant guidance:	EU <ul style="list-style-type: none"> ■ Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive ■ Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs) ■ Common Implementation Strategy for the WFD: Guidance document no 7 Monitoring under the Water Framework Directive ■ Common Implementation Strategy for the WFD: Guidance document no 20 Exemptions to the Environmental Objectives

The WFD establishes a framework for the protection of inland surface waters, transitional waters, coastal waters, and groundwater. Under this Directive, River Basin Management Plans (RBMP) are established and updated every 6 years to coordinate and implement water status-related measures within each river basin. RBMPs must address the objectives set out by the WFD, and must include an analysis of the river basin's key characteristics, a pressures assessment, review of the impact of human activity on the status of water and measures to meet the Directive's objective of 'good status' for all waters.

Projects that may lead to failure of achieving good status of water bodies or lead to deterioration of quality elements need to be assessed and if possible, a more environmentally friendly alternative should be found. If no alternative can be found, then the Project can only go ahead when it can demonstrate that first all practicable Mitigation Measures are taken to reduce the impact. Secondly, it must also be demonstrated that the reasons for deterioration are of overriding public interest or that the Project's benefits otherwise outweigh failure to achieve the relevant environmental objectives (cf. conditions set out in Article 4(7) of the WFD). The process of identifying and assessing such impacts may be carried out jointly with the EIA procedure. However, the requirement of Article 4(7) of the WFD goes beyond the requirements of the EIA Directive in the sense that it covers activities that may not be listed in Annex I or II to the EIA Directive.

Opportunities for synergy

The WFD ensures that detailed environmental data are collected for water as part of the planning process of the RBMP. Hence, synergies can be gained for part of an EIA through data collection and the required assessments of effects on water bodies according to Article 4(7) of the WFD. As discussed above, if a Project listed in Annex I or II to the EIA Directive is found to impact the status of a water body as set out in the relevant RBMP, further assessment will be required to develop and review alternatives and possibly justify reasons of overriding public interest in line with the requirements of the Water Framework Directive. This may influence the scope and nature of an EIA Report in the sense that it must incorporate an assessment of the likely impacts of the Project on the objectives adopted for the water body in question.

Joint/coordinated procedure

Article 2(3) of the EIA Directive provides the option for joint or coordinated procedures where Projects also have to be assessed under other EU legislation, but it is not a requirement.

MARINE STRATEGY FRAMEWORK DIRECTIVE

Name used	Formal name
MSFD	■ Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)
Relevant guidance:	EU ■ Commission Final report on MSFD and licencing and permitting

The Marine Strategy Framework Directive (MSFD) establishes a framework to assess and implement good environmental status of the EU's marine waters by 2020. In doing so, the MSFD takes an ecosystem and integrated approach whereby environmental protection and sustainable use go hand in hand to prevent depletion of natural resources upon which marine-related economic and social activities are based.

Opportunities for synergy

The MSFD ensures that an environmental baseline for the marine waters are established. On the basis of this assessment and baseline, measures must be adopted and gradually implemented to ensure that good environmental status is achieved within a specified number of years. Unlike the WFD, there is no independent requirement in the MSFD to assess activities. However, the objectives and measures adopted in Member States may influence the scope and nature of an EIA Report in the sense that it must incorporate an assessment of the likely impacts of the Project on the objectives adopted for the marine water body in question.

Joint/coordinated procedure

Article 2(3) of the EIA Directive provides the option for joint or coordinated procedures where Projects also have to be assessed under other EU legislation, but it is not a requirement.

AMBIENT AIR QUALITY DIRECTIVE AND HEAVY METAL IN AMBIENT AIR DIRECTIVE

Name used	Formal name
AQD	■ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe
HMAQD	■ Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
Relevant guidance:	EU ■ N/A

The AQD establishes a framework for the active monitoring of ambient air and the removing of pollutants. The Directive establishes different air quality objectives (limit values, target values, critical levels and threshold) in relation to a wide range of pollutants (sulphur dioxide, nitrogen, dioxide, particulate matter, lead, benzene, carbon monoxide). It requires air quality plans when limit or target values are not complied with as well as short-term action plan when alert thresholds are exceeded. In addition, the Directive obliges Member States to keep the public informed and sets out requirements for the assessment of air quality (e.g., the monitoring network). In addition, the HMAQD sets limit values for the air pollutants arsenic, cadmium, nickel and benzo(a)pyrene.

Opportunities for synergy

During the preparation of the EIA Report, the existence of air quality objectives as well as existing air quality plans and short term action plans, provide a strong basis for the analysis of the Baseline, Alternatives to the Project, and environmental factors, in addition to any possible remedial action.

WASTE FRAMEWORK DIRECTIVE

Name used	Formal name
WasteFD	<ul style="list-style-type: none"> Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives
Relevant guidance:	EU <ul style="list-style-type: none"> Application of EIA Directive to the rehabilitation of landfills.

The WasteFD establishes a legal framework for the management and treatment of most waste types. The Directive sets out a waste hierarchy that ranges from prevention to disposal. Waste management under the Directive must be implemented without endangering human health and without harming the environment (e.g. without risk to water, air, biodiversity, and without causing nuisance). It also sets out rules for extended producer responsibility, effectively adding to the burdens of manufacturers to manage products returned after use.

Opportunities for synergy

The WasteFD requires the adoption and implementation of Waste Management Plans and Waste Prevention Programmes at the national and local levels. These plans and programmes should analyse the current situation with regards to waste treatment, as well as identify the measures needed to carry out waste management in the context of the WasteFD's objectives. This includes existing and planned waste management installations, which are likely to constitute Projects subject to the EIA Directive. As waste installations should be provided for under Waste Management Plans, they are also subject to the requirements of the SEA Directive (see above).

The EIA Directive may also bear relevance for any Project with regard to the waste produced not only during the construction and operation of the Project, but also, in particular, with regard to the decommissioning and/or rehabilitation of the site.

During the preparation of the EIA Report, the waste produced and returned to the Project location must be taken into consideration in assessing the Project's significant effects on the environment, and would be relevant for the establishment of Alternatives and Mitigation as well as Compensation Measures.

INDUSTRIAL EMISSIONS DIRECTIVE

Name used	Formal name
IED	<ul style="list-style-type: none"> Directive 2010/75/EU of the European Parliament and the Council on industrial emissions
Relevant guidance:	EU <ul style="list-style-type: none"> Guidance under Article 13(3)(c) and (d) of the IED; Commission Communication on the elaboration of baseline reports under Article 22(2) of the IED.

The IED is the main EU instrument regulating pollutant emissions from industrial installations. Around 50,000 Projects undertaking the industrial activities listed in Annex I to the IED are required to operate in accordance with a permit, which should contain conditions set in accordance with the principles and provisions of the IED. As indicated in the Commission Guidance document on 'Interpretation of definitions of Project categories of Annex I and II to the EIA Directive' (see the Annex to this Guidance Document on Other Relevant Guidance and Tools): the EIA Directive and the Industrial Emissions Directive (IED) sometimes relate to the same type of activities. However, it is

important to be aware of the differences that exist between the objective, the scope, classification systems, and thresholds of these two directives.

Opportunities for synergy

IED permits must take the whole environmental performance of the industrial plant into account, including emissions to air, water, and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, and the restoration of the site upon closure. Such an exercise aligns closely with the EIA Directive and ‘Member States have discretion to use the thresholds set by Annex I to the IED in the context of the EIA Directive’ (Commission Guidance Document, Interpretation of definitions of Project categories of Annex I and II to the EIA Directive, see the Annex to this Guidance Document on Other Relevant Guidance and Tools).

In addition, permits issued under the IED are to be reconsidered periodically to ensure compliance. While monitoring carried out under the IED will likely not cover all environmental aspects to be considered, the IED does require specific monitoring, part of which can be used for the EIA. The approach to monitoring for the IED can also be adopted and broadened to cover other aspects outlined in EIA monitoring proposals.

Joint/coordinated procedure

Article 2(3) of the EIA Directive provides the option for joint or coordinated procedures where Projects also have to be assessed under other EU legislation, but it is not a requirement.

SEVESO DIRECTIVE

Name used	Formal name
Seveso Directive	Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances
Relevant guidance: EU	Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive Guidance tools are collected on the Minerva portal at: https://minerva.jrc.ec.europa.eu/en/minerva

The Seveso Directive was adopted in response to the industrial accident releasing hazardous chemicals in the Italian city of Seveso in 1976. The Directive has since been revised several times. The aim of the Seveso Directive is to prevent and, in case they occur, limit major accidents involving dangerous substances. It applies to establishments where dangerous substances may be present in quantities above a certain threshold. Certain industrial activities covered by other EU legislation are excluded from the Seveso Directive (e.g. nuclear establishments or the transport of dangerous substances).

The Seveso Directive takes a tiered approach to requiring safety measures at facilities based on the volumes of dangerous substances present at facilities. Seveso sites are categorised as lower-tier Seveso establishments or upper-tier Seveso establishments. Operators of lower-tier Seveso establishments have to notify the competent authority, design a major-accident prevention policy (MAPP), draw up accident reports and take into account land-use planning. In addition to these requirements, operators of upper-tier Seveso establishment must establish a safety report, implement a safety management system, define an internal emergency plan and provide the competent authorities with all necessary information. Furthermore, authorities are required inter alia to produce external emergency plans for upper tier establishments, deploy land-use planning for the siting of establishments, make relevant information publically available, ensure that any necessary action is taken after an accident including emergency measures, and conduct inspections.

Opportunities for synergy

The Seveso Directive is highly relevant to a number of assessments under the EIA Directive such as for instance impacts related to risks of major accidents and disasters, Mitigation, and climate change

adaptation. In addition, in light of the risk presented by establishments covered by the Seveso Directive, rules on permitting as well as regarding governance come into play, and as such the Seveso Directive is often directly linked to other legislation listed in this Annex, such as the IED and Aarhus convention. The Seveso Directive in this regard ensures that detailed information on installations are collected and employed in both land-use planning as well as in contingency planning. Synergies with EIA can be gained for a part of the EIA report containing the design of installations and the assessment of risk hazards that relates to the chosen design. The Seveso Directive can also be of use for the Screening, Scoping and Preparation of the EIA Report stages in relation to: quantitative thresholds for the assessment of significance, rules of public information in relation to governance, and finally the rules on Monitoring.

Joint/coordinated procedure

Article 2(3) of the EIA Directive provides the option for joint or coordinated procedures where Projects also have to be assessed under other EU legislation, but it is not a requirement.

TRANS-EUROPEAN NETWORKS IN TRANSPORT, ENERGY AND TELECOMMUNICATION

Name used	Formal name
TEN-T Regulation: Trans-European Transport Network	<ul style="list-style-type: none"> Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network
TEN-TEC Regulation: Trans-European Telecommunication Network	<ul style="list-style-type: none"> Regulation (EU) No 283/2014 of the European Parliament and of the Council of 11 March 2014 on guidelines for trans-European networks in the area of telecommunications infrastructure.
TEN-E Regulation Trans-European Energy Network (PCI regulation)	<ul style="list-style-type: none"> Regulation (EU) No 347/2013 Of The European Parliament and of The Council of 17 April 2013 on guidelines for trans-European energy infrastructure.
Connecting Europe Facility: financing for TENS	<ul style="list-style-type: none"> Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility.
Relevant EU guidance:	<ul style="list-style-type: none"> Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs).

The Trans-European Networks consists of lists of key transport, energy and telecommunications infrastructure Projects, known as Projects of common interest (PCIs). These Projects are designed to complete the European internal market and by interconnecting national infrastructure networks and ensuring their interoperability, thereby fulfilling e.g. the EU's energy policy objectives of affordable, secure and sustainable energy.

Under the TEN-E regulation for the energy sector, PCIs can benefit from accelerated planning and permit granting, due to streamlined environmental assessment processes.

AARHUS AND ESPOO CONVENTIONS

Name used	Formal name
Aarhus Convention	<ul style="list-style-type: none"> United National Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.
Espoo Convention	<ul style="list-style-type: none"> United National Economic Commission for Europe Convention on Environmental Impact Assessment in a Transboundary context.
	<ul style="list-style-type: none"> Directive 2003/4/EC of the European Parliament and of the Council on public access to environmental information and repealing Council Directive 90/313/EEC.

		<ul style="list-style-type: none"> ■ Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regards to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC - Statement by the Commission.
Relevant guidance:	EU	<ul style="list-style-type: none"> ■ Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Transboundary Projects; ■ Guidance document for member States' reporting under Article 9 of Directive 2003/4.

The Aarhus Convention establishes a number of rights of the public, both individuals and their associations, with regard to the environment. These rights are commonly depicted under the three pillars of access to environmental information, public participation in decision-making, and access to justice in environmental affairs. Parties to the Convention are required to make the necessary provisions so that public authorities will contribute to these rights to become effective. All EU Member States, as well as the EU itself, are parties to the Convention. The first two pillars are also part of EU law via Directives 2003/4/EC and 2003/35/EC, in addition a number of provisions in different EU instruments seek to implement these rights, such as the public participation and access to justice requirements under the EIA Directive, or the Access to Justice provisions under the IED Directive.

The Espoo Convention lays down the general obligation of States to notify and consult each other on all major Projects under consideration that are likely to have a significant adverse environmental impact across boundaries. Article 7 of the EIA Directive provides the legal basis for regulating Member States' rights and obligations in case of an EIA Procedure for a Project with transboundary impacts. Article 7(1) provides rights for the potentially affected Member States to be informed about e.g. a Screening procedure in another Member State. The affected Member State is to be informed at the latest by the time at which the public is informed in the Member State in which the Project is proposed for implementation.

Opportunities for synergy

The Aarhus Convention is the most comprehensive legal instrument relating to public involvement. By establishing rules on information and participation of the public, the Aarhus Convention has led to decisions setting precedents (e.g. on timeframes for informing the public), which can assist in the implementation of the EIA procedure. The main text indicates that public participation should be effective, adequate, formal, and provide for information, notification, dialogue, consideration, and response. Furthermore, just as the EIA Directive requires 'reasonable timeframes', so too does the Aarhus Convention. These may have an impact on the different stages discussed in the EIA Guidance Document series, for instance in relation to consultations, the EIA Directive establishes specific consultation requirements (see Part B Section 3.1).

ANNEX II – OTHER RELEVANT GUIDANCE AND TOOLS

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- Chartered Institute of Ecology and Environmental Management, Guidelines for ecological impact assessment in the UK and Ireland, Terrestrial, Freshwater, and Coastal, January 2016
http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
- Commission, Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC
http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf
- Commission, Assessment of resource efficiency indicators and targets
http://ec.europa.eu/environment/enveco/resource_efficiency/pdf/report.pdf
- Commission Communication on the elaboration of baseline reports under Article 22(2) of the IED (European Commission Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on industrial emissions)
http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2014.136.01.0003.01.ENG
- Commission, DG Climate Action, Non-paper, Guidelines for Project Managers: Making vulnerable investments climate resilient
<http://climate-adapt.eea.europa.eu/metadata/guidances/non-paper-guidelines-for-project-managers-making-vulnerable-investments-climate-resilient>
- Commission Final report on MSFD and licencing and permitting
https://circabc.europa.eu/sd/a/ca90e911-6585-4de0-983f-dd07a5c2a519/MSGC_19-2016-04_Study%20on%20licencing%20and%20permitting%20and%20MSFD_Final%20Report%20Arcadis.pdf
- Commission guidance document on Non-energy mineral extraction and Natura 2000
http://ec.europa.eu/environment/nature/natura2000/management/docs/nee_i_n2000_guidance.pdf
- Commission guidance document for Member States' reporting under Article 9 of Directive 2003/4 (Guidance document on reporting about the experience gained in the application of directive 2003/4/ec concerning on public access to environmental information)
http://ec.europa.eu/environment/aarhus/pdf/guidance_en.pdf
- Commission guidance document no 7. Monitoring under the Water Framework Directive
[https://circabc.europa.eu/sd/a/63f7715f-0f45-4955-b7cb-58ca305e42a8/Guidance%20No%207%20-%20Monitoring%20\(WG%207\).pdf](https://circabc.europa.eu/sd/a/63f7715f-0f45-4955-b7cb-58ca305e42a8/Guidance%20No%207%20-%20Monitoring%20(WG%207).pdf)
- Commission guidance document no 20. Exemptions to the Environmental Objectives
https://circabc.europa.eu/sd/a/2a3ec00a-d0e6-405f-bf66-60e212555db1/Guidance_documentN%C2%B020_Mars09.pdf
- Commission guidance document on Inland waterway transport and Natura 2000, Sustainable inland waterway development and management in the context of the EU Birds and Habitats Directives
http://ec.europa.eu/environment/nature/natura2000/management/docs/iwt_en.pdf
- Commission guidance on Aquaculture and Natura 2000, Sustainable aquaculture activities in the context of the Natura 2000 Network
<http://ec.europa.eu/environment/nature/natura2000/management/docs/Aqua-N2000%20guide.pdf>
- Commission guidance on Managing Natura 2000 sites: the provisions of Article 6 of Directive

92/43/EEC	http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm
■	Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016XC0727(01)
■	Commission guidance on the application of the Environmental Impact Assessment Procedure for Large-scale Transboundary Projects http://ec.europa.eu/environment/eia/pdf/Transboundry%20EIA%20Guide.pdf
■	Commission guidance on wind energy development in accordance with the Natura 2000 http://ec.europa.eu/environment/nature/natura2000/management/docs/Wind_farms.pdf
■	Commission guidance document on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (Title: Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042
■	Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs) http://ec.europa.eu/environment/eia/pdf/PCI_guidance.pdf
■	Commission guidance under Article 13(3)(c) and (d) of the IED (Guidance document on the practical arrangements for the exchange of information under the Industrial Emissions Directive (2010/75/EU), including the collection of data, the drawing up of best available techniques reference documents and their quality assurance as referred to in Article 13(3)(c) and (d) of the Directive) https://circabc.europa.eu/sd/a/21de9052-ea90-45a3-a681-2614183a3e4a/BREF_guidance%20(final%20for%20Forum%2024%20Jun%2011).pdf
■	Commission guidelines for the assessment of indirect and cumulative impacts as well as impact interactions http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf
■	Commission, interpretation manual of European Union habitats - EUR28 http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf
■	Commission, Interpretation of definitions of Project categories of annex I and II to the EIA Directive http://ec.europa.eu/environment/eia/pdf/cover_2015_en.pdf
■	Commission JRC Institute for Environment and Sustainability, Life cycle indicators framework: development of life cycle based macro-level monitoring indicators for resources, products and waste for the EU-27 http://eplca.jrc.ec.europa.eu/uploads/LCindicators-framework.pdf
■	Commission Services Non-Paper: Application of EIA Directive to the rehabilitation of landfills http://ec.europa.eu/environment/eia/pdf/eia_landfills.pdf
■	Commission Services Non-Paper: Interpretation line suggested by the Commission as regards the application of Directive 85/337/EEC to associated/ancillary works http://ec.europa.eu/environment/eia/pdf/Note%20-%20Interpretation%20of%20Directive%2085-337-EEC.pdf
■	Commission Support assessment tools, Tools developed to support the assessment of the marine environment under the MSFD http://mcc.jrc.ec.europa.eu/dev.py?N=18&O=355&titre_page=Support
■	Commission Staff Working Document, Better Regulation Guidelines http://ec.europa.eu/smart-regulation/guidelines/docs/swd_br_guidelines_en.pdf
■	European Environment Agency Land and Ecosystem Accounting - European Topic Centre Terrestrial Environment, LEAC methodological guidebook http://www.eea.europa.eu/themes/data-and-maps/data/land-cover-accounts-leac-based-on-

	corine-land-cover-changes-database-1990-2000/
■	EMEC, Environmental impact assessment (EIA) guidance for developers at the European Marine Energy Centre http://hydropower.inl.gov/hydrokinetic_wave/pdfs/day3/4_final_emec_procedure.pdf
■	European Investment Bank, Methodologies for the Assessment of Project GHG Emissions and Emission Variations http://www.eib.org/attachments/strategies/eib_project_carbon_footprint_methodologies_en.pdf
■	Global Marine Environment Protection, Initiative http://www.g20gmep.org/about/
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■	Lawrence D.: Significance Criteria and Determination in Sustainability-Based Environmental Impact Assessment https://www.ceaa-acee.gc.ca/155701CE-docs/David_Lawrence-eng.pdf
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