

### Submissions received after the close of the Examination A47 Blofield to North Burlingham (TR010040)

Examination Closed: 22 December 2021 Recommendation Report sent to SoS: 22 March 2022 Deadline for Decision: 22 June 2022

Submissions made after the close of Examination			
Number	Date submission received by PINS	Name (description of corres)	Date submission forwarded to SoS
001	31 December 2021	Cadent Gas Limited – Cadent assets.	22 March 2022
002	18 March 2022	Norfolk County Council – submission of Protective Provisions	22 March 2022
003	11 May 2022	ESP Utilities Group – ESP assets.	16 June 2022
004	15 June 2022	CEPP – Submission	15 June 2022
005	15 June 2022	Norfolk County Council – Withdrawal of request for Protective Provisions	15 June 2022
006	15 June 2022	Bryan Robinson – Comments on application	16 June 2022
007	17 June 2022	Jerome Mayhew MP – constituent comment	18 March 2022
008	17 June 2022	Richard Hawker – comments	15 June 2022
009	17 June 2022	Cllr Jan Davis Broadland District Council - comments	15 June 2022
010	21 June 2022	Darl Sweetland – Anglian Water	21 June 2022
011	22 June 2022	National Highways – Response to Anglian Water	22 June 2022

Submissions made in response to SoS consultation			
Number	Date submission	Name (description of corres)	Date submission
	received by PINS		forwarded to SoS
001	09 May 2022	Forestry Commission – Comments on application	13 May 2022

002	18 May 2022	Suffolk County Council – Comments on application	18 May 2022
003	18 May 2022	Broadland District Council – Consultation response	18 May 2022
004	19 May 2022	Blofield Parish Council – Consultation response	20 May 2022
005	19 May 2022	National Highways – Consultation response	20 May 2022
006	19 May 2022	Historic England – Consultation response	20 May 2022
007	01 June 2022	National Highways – Consultation response	06 June 2022
800	01 June 2022	Norfolk County Council – Consultation response	06 June 2022
009	10 June 2022	National Highways – Consultation response	15 June 2022
010	16 June 2022	National Highways – Consultation response update	16 June 2022

 From:
 .box.EAPlantProtectionOps

 To:
 A47 Blofield to North Burlingham

 Subject:
 EA\_3WWX\_24252657 - NR13 4SU

 Date:
 31 December 2021 10:24:32

**Attachments:** 

Dear Nikki Rowley-Todd

Thank you for contacting cadent gas.

I have attached cadent gases comments for this planning application & SSW22 booklet for third parties working near cadent assets.

Please see the map of the gas plan attached.

We look forward to hearing from you in the future

Kind regards

**Self Service for Plant Enquiries:** 

#### Please note - We're moving

From 9 August 2021, we will be moving our Dial Before U Dig enquiry platform from EAGLES to All Cadent and National Grid plant enquiries will need to be logged via the online portal for instant assessment. Why not register now?

If you have any questions regarding this change, please contact us on 0800 688 588 or at <a href="mailto:plantprotection@cadentgas.com">plantprotection@cadentgas.com</a>

This e-mail, and any attachments are strictly confidential and intended for the addressee(s) only. The content may also contain legal, professional or other privileged information. If you are not the intended recipient, please notify the sender immediately and then delete the e-mail and any attachments. You should not disclose, copy or take any action in reliance on this transmission.

Please ensure you have adequate virus protection before you open or detach any documents from this transmission. Cadent Gas Limited does not accept any liability for viruses. An e-mail reply to this address may be subject to monitoring for operational reasons or lawful business practices.

Cadent Gas Limited is a limited liability company, registered in England and Wales (registered no. 10080864) with its registered office at Pilot Way, Ansty Park, Coventry, CV7 9JU.

#### **LSBUD Reference:**

EA 3WWX 24252657

#### Cadent

Cadent Gas Limited, Vicarage Farm Road, Peterborough, PE1 5TP

box.eaplantprotectionops@cadentgas.com

Your Reference: TR010040

Date 31st December 2021



Dear Nikki Rowley-Todd

#### Your planning application - No objection

After receiving the details of your planning application, we have completed our assessment. We have no objection to your proposal from a planning perspective.

#### What you need to do

Please review our attached plans, which detail the Cadent gas asset/s in the area. If your application affects one of our high pressure pipelines, it is a statutory requirement that you input the details into the HSE's Planning Advice Web App. For further details, visit www.hse.gov.uk/landuseplanning/planning-advice-web-app.htm

The HSE may wish to apply more stringent criteria for building proximity after assessment. Please ensure that you formally consult with them before you proceed.

In order to help prevent damage to our asset/s, please add the following Informative Note into the Decision Notice:

Cadent Gas Ltd own and operate the gas infrastructure within the area of your development. Prior to carrying out works, please register on to submit details of the planned works for review, ensuring requirements are adhered to.

The original holding objection was triggered due to the presence of a High Pressure Major Accident Hazard Pipeline (MAHP) and/or an Intermediate Pressure Pipeline and/or an Above Ground Installation.

The minimum building proximity distance (BPD) for the pipelines and associated installations is as follows:

- Specific MAHP BPD (15 METERS MIN)
- Specific IP BPD (3 METERS MIN)
- Specific AGI BPD (based upon the hazardous area zoning)10 METERS MIN



The building proximity distance taken from The Institution of Gas Engineers and Managers publication IGEM/TD/1 Edition 5 which is the standard applicable to steel pipelines and associated installations for high pressure gas transmission and IGEM/TD/3 Edition 5 Steel and PE pipelines for gas distribution

#### Your responsibilities and obligations

This letter does not constitute any formal agreement or consent for any proposed development work either generally or related to Cadent's easements or other rights, or any planning or building regulations applications.

Cadent Gas Ltd or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

If you need any further information or have any questions about the outcome, please contact us at <a href="mailto:localentgas.com/">localentgas.com/</a> quoting your reference at the top of this letter.

#### **Kind Regards**

East Anglia Plant Protection Team

#### Cadent

Cadent Gas Limited, Vicarage Farm Road, Peterborough, PE1 5TP box.eaplantprotectionops@cadentgas.com

Registered in England and Wales No.10080864



# Specification for Safe Working in the Vicinity of Cadent Assets

CAD/SP/SSW/22

August 2021





#### **Contents**

Cad	lent contact details	3
Step	p by Step Process	4
Intro	oduction	6
1.	Scope	7
2.	Formal Consent	8
3.	Location of Gas Assets	11
4.	Temporary and Permanent Protective Measures	12
5. Gas	Working in the Vicinity of a High or Intermediate Pressure Asset (Operating at Pressures Greater than 2 bar)	13
6. (Ope	Working in the Vicinity of a Medium Pressure Gas Asset erating at Pressures Greater than 75 mbar but not Exceeding 2 bar)	22
7. (Ope	Working in the Vicinity of a Low Pressure Gas Asset erating at Pressures up to 75 mbar)	34
8.	Working in the Vicinity of a Pressure Reduction Installation (PRI)	46
9.	Tree Planting	47
10.	Unidentified Exposed Pipes	48
11.	Action in case of Damage to an Asset	49
12.	References	50
13.	Glossary of Terms	51
Ann	pendix A – Asset Location Markers	52



#### **Cadent contact details**



#### **Central admin team**

Address: Cadent, Brick Kiln Street, Hinckley, Leicestershire, LE10 0NA

Phone: 0800 688 588

Email: plantprotection@cadentgas.com

#### **East Anglia Operations Plant Protection**

Address: Cadent Gas Limited, Vicarage Farm Road, Peterborough, PE1 5TP

Email: eaplantprotectionops@cadentgas.com

#### **East Midlands Operations Plant Protection**

Address: Cadent Gas Limited, Effingham Street, Sheffield, S4 7YP

Email: emplantprotectionops@cadentgas.com

#### **North London Operations Plant Protection**

Address: Cadent Gas Limited, Uxbridge Road, Slough, SL2 5NA

Email: <a href="mailto:nlplantprotection@cadentgas.com">nlplantprotection@cadentgas.com</a>

#### **North West Operations Plant Protection**

Address: Cadent Gas Limited, Plant Protection (Block C), Mersey Road North, Failsworth,

Greater Manchester, M35 9FF

Email: plantprotection.nw@cadentgas.com

#### **West Midlands Operations Plant Protection**

Address: Cadent Gas Limited, Windsor Street, Birmingham, B7 4DN

Email: plantprotection.wm@cadentgas.com



#### **Step by Step Process**

#### Register with LinesearchbeforeUdig (LSBUD)

LSBUD provide a free online enquiry service giving results within minutes from a grid reference, postcode or street name. This allows you to submit enquiries about activities and work that you are planning which may have an impact on the gas network.

#### Submit an enquiry

Within LSBUD there are 3 enquiry types, initial enquiry, planned works and emergency works. Initial enquires are for information only purposes and will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry. If your works are of a genuine emergency nature (e.g. burst water main etc.) then you should submit an emergency enquiry.

#### Review the response, asset location and enclosed guidance

LSBUD will auto-generate a response based on your enquiry details and our assets in the area. The assessment will be based on the selected Work Category and Work Type, if your planned works propose activities to be undertaken within the distances specified within this booklet you must obtain site specific advice from our specialist operational plant protection team.

If your response says that we need to assess your enquiry further, you must not start any work until we confirm it is safe to do so.

If you are advised to proceed with caution, then you must ensure that you utilise the provided asset plans and follow the guidance in this document.

#### **Observe restrictions**

In addition to the guidance contained in this booklet, you must ensure that you observe any site-specific advice provided by our specialist operational plant protection teams.

## If in doubt contact Cadent using the details in this booklet



# Keeping you, your workers and the public safe when working near our pipelines



#### Disclaimer

This document is provided for use by third parties for safe working in the vicinity of Cadent assets. Where this document is used by any other party it is the responsibility of that party to ensure that this document is correctly applied.

Users should ensure that they are in possession of the latest edition of this document by referring to the Digging Safely webpage on the Cadent website.

#### Mandatory and non-mandatory requirements

In this document:

- Shall: indicates a mandatory requirement
- Should: indicates best practice and is the preferred option

If an alternative method is used then a suitable and sufficient risk assessment shall be completed to show that the alternative method delivers the same, or better, level of protection.



#### Introduction

## Safe Working in the Vicinity of Cadent Assets: Requirements for Third Parties

This specification is for issue to third parties carrying out work in the vicinity of Cadent gas assets and associated installations. It is provided to ensure that individuals planning and undertaking work take appropriate measures to prevent damage.

Any damage to a gas asset, or its coating, can affect its integrity and can result in failure leading to potentially serious hazardous consequences for individuals located in the vicinity.

It is therefore essential that the safety advice outlined in this document, along with any site-specific advice given by our operatives, is complied with when working near to our assets. If Cadent consider any work to be in breach of the requirements stipulated in this document, then the Cadent Plant Protection Officer will request that work is suspended until the non-compliances have been rectified.

Every reasonable precaution shall be undertaken to avoid personal injury or damage to our apparatus. If we incur any direct or indirect costs as a consequence of your works and we are required to repair or divert any gas apparatus, you'll be recharged in full.

Any damage to our apparatus will be subject to legislative reporting responsibilities to the HSE under Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013, Gas Safety Management Regulations 1996 and the Pipelines Safety Regulations 1996.

The requirements in this document are in line with the Institution of Gas Engineers and Managers (IGEM) recommendations IGEM/SR/18 Edition 3 - Safe Working Practices to Ensure the Integrity of Gas Assets and Associated Installations and the HSE's guidance document HS(G)47 Avoiding Danger from Underground Services.

It is the responsibility of the third party to ensure that any work carried out also conforms with the requirements of the Construction and Design Management (CDM) Regulations 2015 and all other relevant health and safety legislation. Reference shall be made to our apparatus within your site Health and Safety file.





#### 1.Scope

This specification sets out the safety precautions and other conditions associated with working in the vicinity of Cadent assets, located in negotiated easements (see Section 13) and public highways.

Where the guidance in this document cannot be adhered to, then the diversions process shall be followed.

Before contacting our diversions team, you'll need to have your site information and any design proposals available.

Once you have this information, please contact our diversions team <a href="mailto:diversions@cadentgas.com">diversions@cadentgas.com</a> or on 0330 678 1034.

Visit for more information.







#### 2. Formal Consent

Cadent's assets are either located in an easement agreed with the landowner at the time of installation, or within the highway. As the required arrangements for working in an easement and working in the highway differ, this section describes the specific requirements for these two areas.

Any documents handed to contractors or other individuals undertaking work (e.g. farmers, local authorities etc.), on site by Cadent, shall be signed for and adhered to by the site. All personnel working on site shall be made aware of the potential hazards of working near gas assets and the actions they should follow in case of an emergency.

#### 2.1 Within an easement

The promoter of any works (see Section 13) within an easement shall provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. Work shall not commence in an easement strip until formal written consent has been provided by Cadent. This will include details of Cadent's protection requirements, contact telephone numbers and the emergency telephone number. On acceptance of Cadent's requirements, the promoter of the works shall give Cadent at least 14 days' notice before commencing work on site.

Where clearance to proceed has been granted directly from the system, for example, if your works only affect low pressure assets (operating at less than 75 mbar), but the asset concerned is within an easement, the promoter of the works shall contact the network Plant Protection Office for formal written consent.

In addition to formal written consent, an easement crossing agreement (deed of indemnity) may be required. This shall be discussed with the Cadent Plant Protection Officer prior to the commencement of the works.

The width of an easement is dependent on a number of factors and is mainly dependent on the operating pressure, pipeline material and diameter as these factors influence safe working requirements and building proximity distances. Easement details should be registered at Land Registry however if you are unsure please liaise with your network Plant Protection Officer.





Below is a list of our standard easement widths, however, some easements may vary:

Pressure tier/ Material	Diameter	Easement Width (total)
HP Steel	900mm, 1060mm, 1200mm (36", 42", 48")	24.4m (80')
HP Steel	750mm and 600mm (30" & 24")	18.3m (60')
HP Steel	Up to and including 450mm (18")	12.2m (40')
HP RTP	Determined on a c	ase by case basis
IP Steel	All sizes	6m plus pipe diameter
IP PE > 5.5 bar	Above 500mm (19")	30m plus pipe diameter
	356mm to 500mm	16m plus pipe diameter
	126mm to 365mm	12m plus pipe diameter
	Up to and including 125mm	12m plus pipe diameter
IP PE <5.5 bar	Above 500mm (19")	26m plus pipe diameter
	356mm to 500mm	8m plus pipe diameter
	126mm to 365mm	8m plus pipe diameter
	Up to and including 125mm	8m plus pipe diameter
AGI's	All sites	3m restrictive width around the installation
MP PE	Above 500mm (19")	12m plus pipe diameter
	356mm to 500mm	6m plus pipe diameter
	126mm to 355mm	5m plus pipe diameter
	Up to and including 125mm	4.5m plus pipe diameter
MP Steel	All sizes	6m plus pipe diameter
MP Iron*	All sizes	6m plus pipe diameter
LP	Above 125mm	3m plus pipe diameter
	Up to and including 125mm	1m plus pipe diameter



#### 2.2 Within a highway

Work shall be notified to Cadent in accordance with the requirements of the New Roads and Street Works Act (NRSWA) and HS(G)47. The promoter of any works within the highway should provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. This shall be submitted at least 14 days before the planned work is to be carried out. If similar works are being carried out at several locations in close proximity, a single risk assessment and method statement should be adequate depending on the nature of the works. Work should not go ahead until formal written consent has been given by Cadent. This will include details of Cadent's protection requirements, contact telephone numbers and the emergency telephone number.





#### 3. Location of Gas Assets

A copy of our plans with your marked-out site is provided in our LSBUD response. Cadent asset records shall be consulted to establish the indicative location of the gas assets in relation to the promoter's work area.

If the marked-out area is incorrect you MUST resubmit your enquiry with the correct area marked out.

Prior to work commencing on site, the gas assets should be located to verify the indicative location from plans.

This should initially be carried out through nonintrusive methods utilising pipe locators where possible. The indicative location should be verified through trial holes. Once located, the gas assets should be marked out at regular

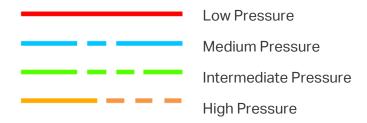


intervals using asset location markers with triangular flags (see Appendix A) or other suitable methods.

For assets exceeding 2 bar, the excavation of all trial holes shall be monitored by Cadent. For assets not exceeding 2 bar, monitoring will be at the discretion of the Cadent Plant Protection Officer.

Safe digging practices, in accordance with HSE publication HS(G)47, shall be followed. Direct and consequential damage to gas plant can be dangerous both to employees and to the general public.

We utilise marker posts and surface boxes to denote the location of our apparatus providing access to key parts of our network. Free access shall be maintained to such apparatus during and after your works and these shall not be moved, covered or damaged during the works.





#### 4. Temporary and Permanent Protective Measures

No temporary or permanent protective measures, including the installation of concrete slab protection, shall be installed over or near to a Cadent asset without the prior written consent of Cadent. Cadent will need to approve the material, dimensions and method of installation for the proposed protective measure.

The method of installation shall be confirmed through the submission of a formal written method statement from the contractor to Cadent. Where permanent protection is to be installed over an asset, Cadent will normally carry out a coating survey of metallic assets to check that there is no existing damage to the coating, prior to the slab protection being installed. Cadent shall, therefore, be given at least 14 days' notice prior to the laying of any slab protection to arrange for this survey to be carried out.

Generally, due to the need for future access to below 2 bar gas assets, permanent protection is not permitted, however, can be approved at Cadent's discretion.

The safety precautions detailed in Sections 5, 6, 7 or 8 of this document should also be observed during the installation of the asset protection.





# 5. Working in the Vicinity of a High or Intermediate Pressure Gas Asset (Operating at Pressures Greater than 2 bar)

The below information shall only be used as guidance, for all works in the vicinity of High and Intermediate Pressure Pipelines the autoresponse from the system will advise not to carry out any works until we have undertaken a technical review of the planned works and provided site specific safe working advice.

Initial enquires are for information only purposes and will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.





#### 5.1 Excavation

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators, and any other powered mechanical plant, shall not dig on one side of the asset with the cab of the excavator positioned on the other side.

All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

#### 5.1.1 In proximity to an asset in an easement

Following location and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3m (see Figure 1). The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Consideration may be given to a relaxation of these limits or lower risk excavation methods by agreement with the Cadent Plant Protection Officer on site.

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.) and following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm, using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or close to above ground gas installations.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing, unless otherwise agreed by Cadent.

No new service shall be laid parallel to an asset within the easement. In special circumstances, and only with formal written agreement from Cadent, this may be relaxed for short excursions where the service shall be laid no closer than 600mm.

Where work is being carried out parallel to an asset, within or just alongside the easement, suitable barriers shall be erected for protection between the works and the asset to prevent encroachment.

#### 5.1.2 In proximity to an asset in the highway

Following locating and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3 meters (see Figure 1).

The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

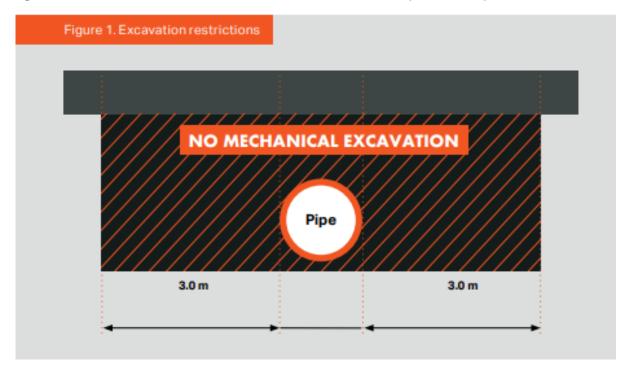


Any fitting, attachment or connecting pipework shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm, unless any attachments or projections are present on an asset (e.g. valve spindles, pressure points etc.). The use of chain trenchers is not permitted within 3m of an asset. The Cadent Plant Protection Officer may need to be present to monitor this work. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools under the observation of Cadent.

In special circumstances, consideration may be given to a relaxation of these rules by agreement with the Cadent Plant Protection Officer and only whilst they remain on site.



#### 5.1.3 Crossing over an asset (Open cut)

Where a new service is to cross over an asset, a clearance distance of 600mm between the crown of the asset and underside of the service should be maintained. If this cannot be achieved, the service shall cross below the asset (see Section 5.1.4).

In special circumstances, this distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

#### 5.1.4 Crossing below an asset (Open cut)

Where a service is to cross below an asset, a clearance distance of 600mm between the crown of the new service and underside of the asset shall be maintained. Where lengths of pipe greater than one metre are to be exposed, the Cadent Plant Protection Officer shall be consulted. Exposed assets should be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.



In special circumstances, this clearance distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

#### 5.1.5 Cathodic protection

Cathodic protection (CP) is applied to Cadent's buried steel pipe and is a method of protecting assets from corrosion by maintaining an electrical potential between the pipe and anodes placed at strategic points along the asset.

Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of Cadent assets.

Should any cathodic protection posts or associated apparatus need to be moved to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

#### 5.1.6 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment and method statement shall be submitted to Cadent for approval, prior to the works commencing.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of the cathodic protection system. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the promoter of the works.

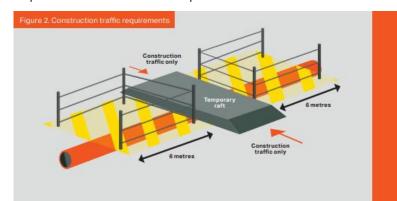
#### 5.2 Construction traffic

Where existing roads cannot be used, construction traffic shall only cross an asset at locations agreed with the Cadent Plant Protection Officer. Notices shall be placed directing traffic to the crossing points. Post and wire fencing shall be erected at all crossing points, and the fence should cover the width of the easement and extend a further 6 metres along the length of the easement on both sides (see Figure 2).

Assets shall be protected at all crossing points by a suitable method agreed with the Cadent Plant Protection Officer prior to installation. The promoter of the works shall

review ground conditions, vehicle types and crossing frequencies to determine the type and construction of the protection required.

For larger scale projects or permanent solutions, a protection slab may be required.





#### 5.3 Specific activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of an asset. The promoter of works is required to consult Cadent when intending to undertake one of the listed activities and/or further advice is required on whether the work has the potential to affect the asset. The table below shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

Activity	Distance within which Cadent advice shall be sought
Piling	15m
Surface mineral extraction	100m
Landfilling	100m
Demolition	150m or 400m for structure mass > 10,000 tonnes
Blasting	500m if the MIC is > 200kg 250m if the MIC is > 10kg but $\leqslant$ 200kg 100m if the MIC is $\leqslant$ 10kg
Deep mining	1000m
Wind turbine	1.5 times mast height

#### 5.3.1 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced. This risk assessment and method statement shall be formally agreed with Cadent prior to the commencement of the work. Please provide Cadent with at least 14 days' notice as the Cadent Plant Protection Officer may wish to be present to monitor this work.

#### 5.3.2 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Cadent shall be consulted for any activity proposed that will lead to a change in cover over the asset. Expert advice may need to be sought, which will be determined by the Cadent Plant Protection Officer.



#### **5.3.3** Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec. The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### 5.3.4 Demolition

No demolition should be allowed within 150m of an asset, or 400m for a structure mass greater than 10,000t without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### 5.3.5 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance.



The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### 5.3.6 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100 metres of an asset. Consideration should also be given to extraction around other plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined by Cadent. The easement strip should be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, Cadent shall assess whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of Section 5.3.5 apply.

#### 5.3.7 Deep mining

Assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

#### 5.3.8 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of an asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which an asset is routed.



#### 5.3.9 Pressure testing

Hydrostatic testing of a third-party asset should not be permitted within 8 metres either side of a Cadent asset, to provide protection against the effects of a burst. Where this cannot be achieved, typically where the third-party asset needs to cross a Cadent asset, one of the following precautions would need to be adopted:

- limiting of the design factor of the third-party pipeline to 0.3 at the asset's nominated maximum operating pressure (MOP), and the use of pre-tested pipe
- the use of sleeving
- Cadent conduct risk analysis of pipe failure

In either case, the third party shall submit their site-specific risk assessment and safe system of works for consideration by Cadent.

#### 5.3.10 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of an asset that will result in peak particle velocities in excess of 75mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

#### **5.3.11 Hot work**

Where a Cadent metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions has been agreed with Cadent.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, should not take place within 500mm of the gas asset. This may be reduced if suitable protection and precautions have been agreed with the Cadent Plant Protection Officer to prevent against the effects of sparks, radiant heat transfer etc.

The Cadent Plant Protection Officer shall be present to monitor all welding, burning or other 'hot work' that takes place.

#### 5.3.12 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of a gas asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.



#### 5.3.13 Solar farms

Solar Farms can be built adjacent to gas assets but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

#### 5.4 Backfilling

No backfilling should be undertaken without Cadent's agreement to proceed and the Cadent Plant Protection Officer will stipulate the necessary requirements. Some equipment may not be suitable for use over or around an asset due to the adverse effects of excessive compaction and vibration levels. The Cadent Plant Protection Officer will be able to advise on suitable equipment. Third parties undertaking work shall provide Cadent with 48 hours' notice, or shorter only if agreed with Cadent, of the intent to backfill over, under or alongside the asset.

This requirement should also apply to any backfilling operations that:

- are within 3 metres of an asset
- could influence the ground stability

Any damage to an asset or its coating shall be reported to Cadent in order that damage can be assessed, and repairs carried out.

Minor damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If an asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party shall re-excavate to enable the condition of the asset coating to be assessed.





### 6. Working in the Vicinity of a Medium Pressure Gas Asset (Operating at Pressures Greater than 75 mbar but not Exceeding 2 bar)

The below information shall only be used as guidance, and where appropriate, will be supplemented by site specific safe working advice from the network Plant Protection Officer.

Initial enquires are for information only purposes and will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.

#### **6.1** Temporary and permanent structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for medium pressure assets is as follows:

Material	Minimum proximity to premises
Cast/Spun Iron	3m
Ductile Iron	30m
Steel	1m
PE (inserted)	1m
PE (non-inserted)	2m for diameters ≤ 500mm 5m for diameters > 500mm

Please note that the easement distance may be greater than the building proximity distance. For any proposed structures in the easement, please consult with the Cadent network Plant Protection Officer.



#### 6.2 Excavation

#### 6.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of the asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until the asset has been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of a gas asset. Any mechanical excavation should utilise a banksman. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

Where concrete is exposed around gas apparatus, it shall not be removed without first consulting with a Cadent Plant Protection Officer as it could be providing protection or anchorage to live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with an asset.

The use of chain trenchers is not permitted within 3m of the confirmed location of an asset.

#### 6.2.2 Working in vicinity of iron pipework

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered and, where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works, including basement conversions, underground carparks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered, care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework, any corrosion identified on the pipeline shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.



#### 6.2.3 In proximity to an asset in an easement

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over the asset should be the same as that prior to work commencing.

No new service shall be laid parallel to the asset within the easement.

Where work is being carried out parallel to the asset, within or alongside the easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

#### 6.2.4 In proximity to an asset in the highway

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

#### 6.2.5 Crossing over an asset (Open cut)

Where a new service is to cross over a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, shall be maintained. If this cannot be achieved, the service shall cross below the asset, see Section 6.2.6.

#### 6.2.6 Crossing below an asset (Open cut)

Where a service is to cross below a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.





#### 6.2.7 Cathodic protection

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall liaise with the Cadent Plant Protection Officer and undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

#### 6.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party, a risk assessment carried out and this shall be provided to the Cadent Plant Protection Officer for inspection. Equipment shall not be installed if the integrity of Cadent's assets is compromised. In this case, diversion of the affected assets is required.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to work with the Cadent Plant Protection Officer to ensure that pre and post energisation potential surveys of Cadent's assets are undertaken. The costs for any stray current mitigation systems required will be borne by the third-party promoter.

#### 6.3 Construction traffic

The promoter of the works shall review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs should be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road (such as those within footways or verges), shall not be crossed by construction vehicles without suitable protection and the consent of the Cadent Plant Protection Officer.

Where existing roads cannot be used, construction traffic should only cross Cadent assets at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 2).
- Have signs attached to the fence denoting the asset that the crossing point is located over



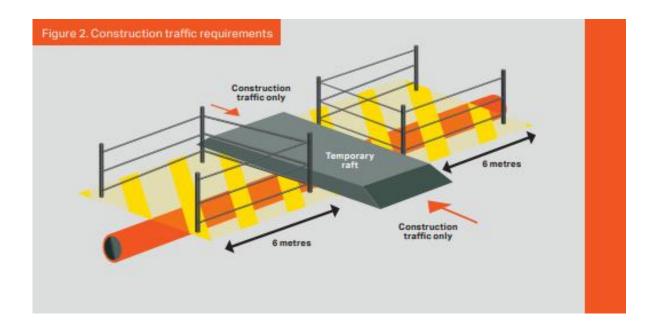
■ Be regularly inspected and maintained in good condition

Note: A 5mph speed restriction should be enforced at all crossing points.

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

For larger scale projects or permanent crossings, diversion of the asset may be required.





#### 6.4 Specific activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below to obtain further site-specific advice on whether the work has the potential to affect the asset. The table below shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

Activity	Distance within which Cadent advice shall be sought
Piling	15m
Surface mineral extraction	100m
Landfilling	100m
Demolition	150m or 400m for structure mass > 10,000 tonnes
Blasting	500m if the MIC is > 200kg 250m if the MIC is > 10kg but $\leqslant$ 200kg 100m if the MIC is $\leqslant$ 10kg
Deep mining	1000m
Wind turbine	1.5 times mast height

#### 6.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

#### 6.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced and submitted to the Cadent Plant Protection Officer for review prior to commencing work. Please provide Cadent with at least 14 days' notice as we may wish to be present to monitor the work.



#### 6.4.2.1 Tunnelling

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.

For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets, an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**. An expert on Soil/Pipe Interaction Analysis should be consulted when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works, due to the likely impact on our assets.

#### 6.4.3 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Where a change in cover is required, contact your network Plant Protection Officer.

#### **6.4.4** Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.





#### 6.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

#### 6.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.



#### 6.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of a gas asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined. Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of Section 6.4.6 apply.

#### 6.4.8 Deep mining

Gas assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

#### 6.4.9 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

#### 6.4.10 Pressure testing

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.



#### 6.4.11 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

#### 6.4.12 Hot work

Where the Cadent's metallic gas assets have been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions have been agreed with Cadent.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset. For further advice contact your network Plant Protection Officer.

Protection measures shall be agreed with the Cadent Plant Protection Officer prior to installation to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

The Cadent Plant Protection Officer will determine the need to remain on site to monitor all welding, burning or other 'hot work' that takes place.

#### 6.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

#### 6.4.14 Solar farms

Solar Farms can be built adjacent to gas assets, but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.



Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

# 6.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of medium pressure apparatus a site-specific risk assessment and lift plan is required to be reviewed by the Cadent Plant Protection Officer.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus. Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

# 6.5 Backfilling and reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset, or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset.

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe.

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the asset shall not exceed 1.5t/m<sup>2</sup> and vibratory compaction shall not be used.

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 13242:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks



## Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the main.

Prior to backfilling, if the asset is coated, Cadent require the opportunity to inspect its condition in order assess and to carry out any repairs as necessary. Please contact your network Plant Protection office to arrange this. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Officer so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.





# 7. Working in the Vicinity of a Low Pressure Gas Asset (Operating at Pressures up to 75 mbar)

For planned and emergency works in the vicinity of Low Pressure gas assets, the promoter will be advised proceed with caution. The guidance contained within this section must be followed. If it cannot, contact shall be made with the network Plant Protection office for advice.

# 7.1 Temporary and permanent structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for low pressure assets is as follows:

Material	Minimum proximity to premises
All materials	1m

Please note that the easement distance may be greater than the building proximity distance, for any proposed structures in the easement please consult with the Cadent network Plant Protection Officer.

# 7.2 Excavation

## 7.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of an asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until gas assets have been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of gas assets. Any mechanical excavation should utilise a banksman. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on the asset shall be exposed by hand.



Where concrete is exposed around gas apparatus this shall not be removed as it could be providing protection or anchorage to the live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with the asset.

The use of chain trenchers to do this is not permitted within 3m of the confirmed location of the asset.

## 7.2.2 Working in vicinity of iron pipework

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered, and where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works including basement conversions, underground carparks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and is protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework should any corrosion be identified on the pipeline this shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

# 7.2.3 In proximity to an asset in an easement

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing.

No new service shall be laid parallel to an asset within an easement.

Where work is being carried out parallel to an asset, within or alongside an easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

## 7.2.4 In proximity to an asset in the highway

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by



mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

# 7.2.5 Crossing over an asset (Open cut)

Where a new service is to cross over an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater shall be maintained. If this cannot be achieved, the service shall cross below the asset, see Section 7.2.6.

# 7.2.6 Crossing below an asset (Open cut)

Where a service is to cross below an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

# 7.2.7 Cathodic protection

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, appropriate notice, shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

## 7.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment carried out. Equipment shall not be installed if the integrity of Cadent's assets is compromised. In this case, diversion of the affected assets will be required.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the third-party promoter.

# 7.3 Construction traffic

The promoter of the works should review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs shall be allowed over gas assets.



Iron pipes, or pipes that are not already within an existing road such as those within footways or verges shall not be crossed by construction vehicles without suitable protection being designed and installed. Consideration shall be given to the requirement for access to low pressure apparatus therefore for large scale, long duration projects, or permanent crossings, the diversions process shall be followed to determine whether the asset requires diversion/replacement in advance of the works taking place.

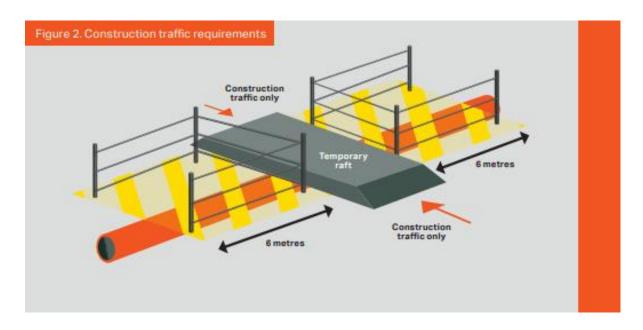
Where existing roads cannot be used, construction traffic should only cross Cadent assets with a minimum depth of cover of 750mm (post crossing construction) at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 2).
- Have signs attached to the fence denoting the asset that the crossing point is located over
- Be regularly inspected and maintained in good condition

Note: A 5mph speed restriction should be enforced at all crossing points.

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)





#### 7.4 Specific activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below and further advice is required on whether the work has the potential to affect the asset.

# 7.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

# 7.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced prior to commencing work.

Trial holes shall be undertaken to ensure that sufficient clearance exists between gas assets and the proposed third-party asset (or the pipe to be split if a pipe splitting technique is being used) prior to the works.

If an asset is to be replaced using pipe splitting techniques in the vicinity of iron mains, in addition to the below clauses, an integrity assessment shall be undertaken.

When running parallel to gas assets, the minimum clearance shall be:

1m

When crossing gas assets, the minimum clearance shall be:

■ 500mm or 1.5 times the diameter of the asset, whichever is greater.

Clearances may need to be increased due to the following factors:

- Ground conditions
- Largest reamer diameter
- Type of reamer used, e.g. hollow, finned, etc.
- Accuracy of equipment being used
- Construction of adjacent services and structures
- Configuration of other underground services crossing or running parallel to the drill path
- Consequences of damage
- Pipe stress increase from potential ground movement



The exposed asset should be suitably supported and be protected by matting and suitable timber cladding to reduce the risk of damage from any broken pipe fragments (if pipe

splitting is used). Supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

All lateral crossings shall be exposed around their full circumference with an additional 250mm clearance below. The width of the excavation shall be three times the diameter of the largest reamer or 500mm either side of the largest reamer, whichever is the greatest. These clearances shall be measured from the drill path centre. Each crossing should be manned during the drilling/splitting operation to watch the reamer/splitter pass.

For pipe splitting running parallel to a buried gas asset, trial holes should be undertaken at suitable and frequent locations along the proposed route to confirm sufficient clearance distances exist, and the pipe route is confirmed.

The line of the pipe to be installed/split should be monitored along its length to ensure no variance from its path.

Consideration should be given for a leakage survey to be undertaken before work starts, during the works if safe to do so and following completion. If there is any likelihood of damage to the asset, the operation shall be stopped immediately.

# 7.4.2.1 Tunnelling

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.

For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**. An expert on Soil/Pipe Interaction Analysis should be sought when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, due to the likely impact on our assets you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.



# 7.4.3 Changes to depth of cover

The depth of cover over or around Cadent's iron assets shall not be altered. If a change in the depth of cover is required, you must contact the diversions team to arrange for diversion or replacement of the asset before commencement of your works.

For PE and steel pipes, reductions in depth of cover are only permitted if the below minimum depths of cover can be maintained (following investigation across the affected length):

- In fields and agricultural land 1.1m
- In roads and verges 750mm
- In footpaths 600mm
- In private property 600mm

Substantial increases in depth of cover shall not be permitted.

Where a change in the depth of cover affects attachments and projections such as services and valves, liaison with our diversions team is required to ensure these are appropriately protected or altered.

## **7.4.4 Piling**

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.



#### 7.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

Where demolition is proposed you must ensure that the gas supply to the premises has been isolated in a suitable, identified location.

# 7.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.



Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

#### 7.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of an asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined. Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability.

This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of Section 7.4.6 apply.

#### 7.4.8 Deep mining

Assets routed within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance.

# 7.4.9 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. An assessment shall be carried out by the promoter of the works to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.



# 7.4.10 Pressure testing

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.

# 7.4.11 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

#### **7.4.12 Hot work**

Where the Cadent's metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset.

Protection measures shall be installed to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset shall require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

# 7.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

## 7.4.14 Solar farms

Solar Farms can be built adjacent to assets but never within an easement.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.



Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

# 7.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of low pressure apparatus a site-specific risk assessment and lift plan is required.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus. Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

# 7.5 Backfilling and reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the pipe shall not exceed 1.5t/m<sup>2</sup> and vibratory compaction shall not be used.

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 13242:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks
- Foamed concrete shall not be used



We will require marker tape to be installed at least 250mm above the crown of the pipe. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Office so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.



# 8. Working in the Vicinity of a Pressure Reduction Installation (PRI)

Pressure reduction installations come in a variety of forms:

- Above Ground Installation (AGI) Sites with exposed pipes surrounded by fencing
- Above Ground Installation (AGI) District governors often found in large above ground kiosks with vent stacks attached
- Below Ground Installation District governors with large surface governors for valves and pressure reduction equipment with an above ground control cabinet and vent stack
- Service governor Installations Small service governors providing gas to a small number of customers in an area often identified by a small green or brick kiosk

Where excavations are to be made within 10 metres of the perimeter of a pressure reduction installation (above or below ground), with the exception of service governor installations, appropriate protection methods should be determined and recorded by the Cadent Plant Protection Officer.

These installations may have magnetic slam shut devices which could operate in the event of high vibration levels being caused by the works. Advice on whether these are present shall be sought from the Cadent Plant Protection Officer and we may need to have an operative, with the competence to reset the plant, on site whilst your works are being undertaken.

Hazardous areas may be present around these installations and no ignition sources are permitted within these zones. Information on the zonings shall be sought from the Cadent Plant Protection Officer prior to commencement of any works on site.

There may be telemetry and pressure recording lines in the vicinity of these installations therefore extreme caution must be exercised when planning and undertaking works it the vicinity of these assets.

In addition to this, the safety advice detailed in either or a combination of Sections 5, 6 or 7 shall be observed when working in the proximity of an AGI.

Access to gas assets shall be maintained at all times.



# 9. Tree Planting

Before any tree planting is carried out in the vicinity of a Cadent asset or its easement, written consent should be obtained. This approval should be subject to Cadent retaining the right to remove any trees which might become a danger or restrict access to the asset at any time in the future.

The only hardwood plants which can be planted directly across an asset are shallow rooting hedge plants such as Quickthorn, Blackthorn, etc., and these shall only be planted where a hedge is necessary for screening or to indicate a field boundary.

Raspberries, Gooseberries and Blackcurrants shall not be planted within 2m of the outside edge of the pipe.

Dwarf Apple Stocks shall not be planted within 3m of an asset.

Christmas trees (Picea Abies) shall not be planted within 3 metres of an asset. However, permission may be given on the strict understanding that Christmas trees are clear-felled at intervals not exceeding seven years.

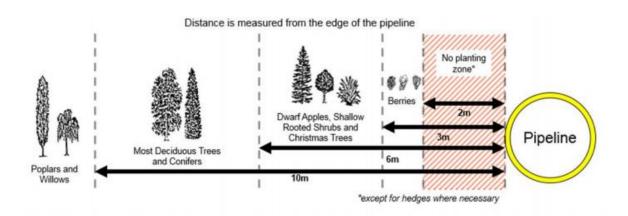
The following trees, and those of similar size which may be deciduous or evergreen, shall not be planted within 6 metres of an asset:

 Ash, Beech, Birch, most Conifers, Elm, Maple, Horse Chestnut, Oak, Sycamore, Apple, Lime and Pear trees.

Dense mass planting shall not be carried out within 10m of the outside edge of the pipe.

Poplar and Willow trees shall not be planted within 10m of the outside edge of the pipe.

For further guidance please refer to NJUG Volume 4.





# 10. Unidentified Exposed Pipes

An unidentified pipe is one that is not shown on any current or historical records.

Iron and steel water pipes and gas pipelines may appear very similar. If any such pipe is uncovered, it shall be treated as if it were a gas pipe.

If upon checking with all other utilities you believe an unidentified pipe to be a gas pipe, the promoter of the works shall contact <a href="mailto:plantprotection@cadentgas.com">plantprotection@cadentgas.com</a> with the following information:

- LSBUD enquiry reference
- Site address (please include postcode and grid references)
- Site contact details
- Size of pipe
- Pipe material
- Confirmation that the unidentified pipe is exposed (if not, it will need to be exposed prior to our attendance)
- Confirmation that Cadent and all other asset owners plans, are available for review and inspection
- Photos of the pipe

Please be aware that it can take up to 28 days for us to confirm whether the unidentified exposed pipe is a gas asset or not.



# 11. Action in case of Damage to an Asset

If you hit a gas asset, whether the damage is visible or not, or in the event of an emergency, call the National Gas Emergency Service immediately on 0800 111 999\*.

If the Cadent asset is damaged, even slightly, and even if no gas leak has occurred, then the following precautions shall be taken immediately:

- Shut down all plant and machinery and extinguish any potential sources of ignition.
- Evacuate all personnel from the vicinity of the asset
- Notify Cadent using the free 24-hour emergency telephone number 0800 111999
- Notify the Cadent responsible person immediately using the contact telephone number provided.
- Ensure no one approaches the asset.
- Do not try to stop any leaking gas.
- Provide assistance as requested by Cadent, or emergency services to safeguard persons and property





# 12. References

Document reference	Title
HASAWA	The Health and Safety at Work etc Act 1974
CDM	The Construction (Design and Management) Regulations 2015
LOLER	Lifting Operations and Lifting Equipment Regulations 1998
RIDDOR	Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013,
GS(M)R	Gas Safety (Management) Regulations 1996
PSR	Pipelines Safety Regulations 1996
NRSWA	New Roads and Street Works Act 1991
HS(G)47	Avoiding Danger from Underground Services
IGEM/SR/18	Safe Working Practices to Ensure the Integrity of Gas Pipelines and Associated Installations
IGEM/TD/12	Pipework stress analysis for gas industry plant
NJUG Volume 4	Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees
UKOPA/11/0027	Requirements for the Siting of Wind Turbines Close to HP Pipelines
UKOPA/GP/013	Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines
UKOPA/GP/014	Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines

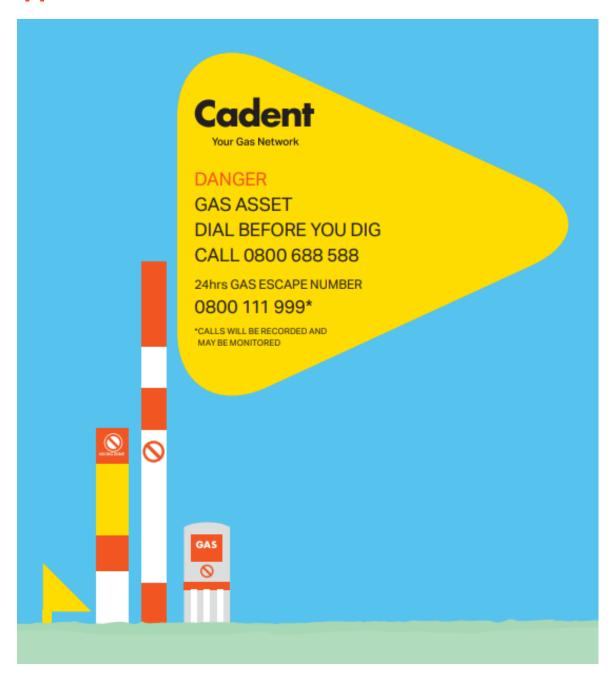


# 13. Glossary of Terms

Term	Definition
Easement	Easements are negotiated legal entitlements between Cadent and landowners and allow Cadent to lay, operate and maintain assets within the easement strip. Easement strips may vary in width, typically between 6 and 25 metres depending on the diameter and pressure of the pipeline. Consult Cadent for details of the extent of the easement strip where work is intended.
Liquefaction	Liquefaction is a phenomenon in which the strength and stiffness of the soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. When liquefaction occurs, the strength of the soil decreases and the ability of the soil to support assets are reduced.
Promoter of works	The person or persons, firm, company or authority for whom new services, structures or other works in the vicinity of existing Cadent assets and associated installations operating above 7 bar gauge are being undertaken.
Cadent Plant Protection Officer	The person or persons appointed by Cadent with the competencies required to act as the Cadent representative for the purpose of monitoring a particular activity.
Banksman	Another person who assists the machine operator from a position where they can safely see into the excavation and warn the driver of any services or other obstacles. This person should remain outside of the operating radius of the excavator arm and bucket.

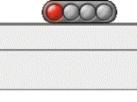


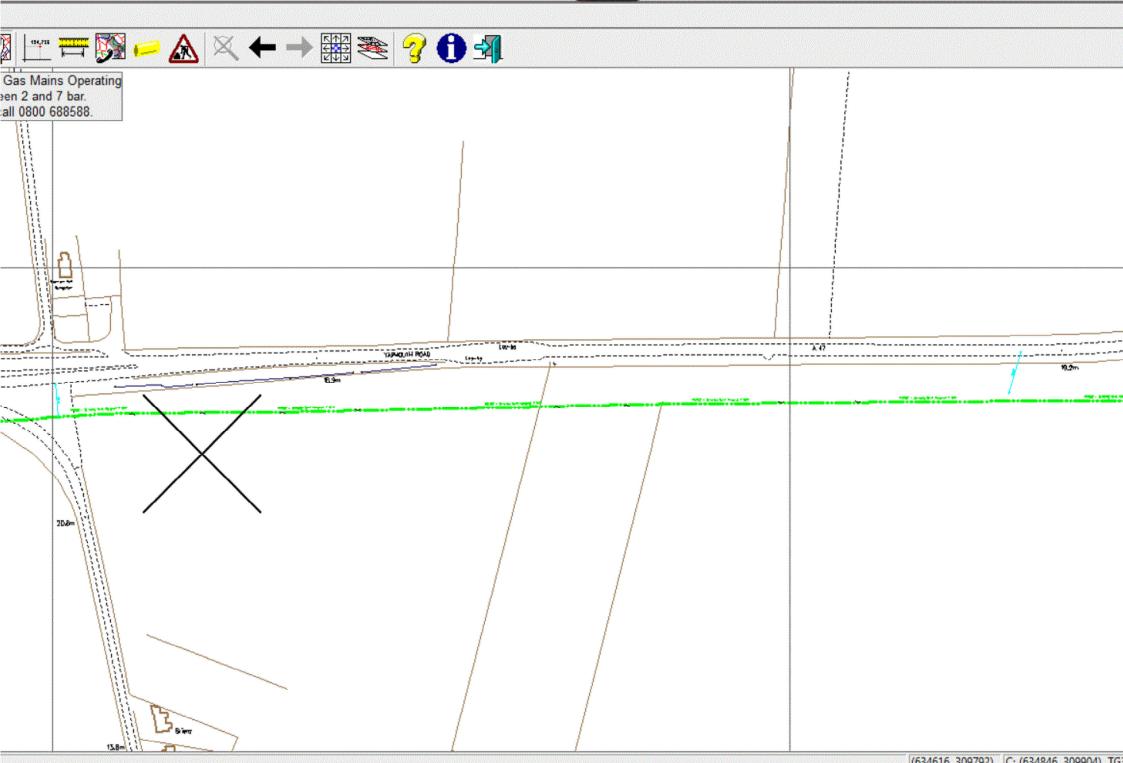
# **Appendix A – Asset Location Markers**

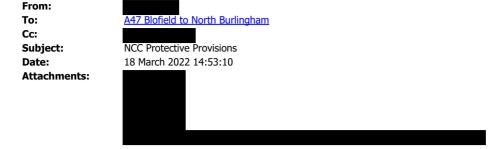




Copyright Cadent 2021 ©, all rights reserved. No part of this publication may by reproduced in any material form (including photocopying and restoring in any medium or electronic means and whether or not transiently or incidentally) without the written permission of Cadent, except in accordance with the provisions of the Copyright, Designs and Patents Act 1988



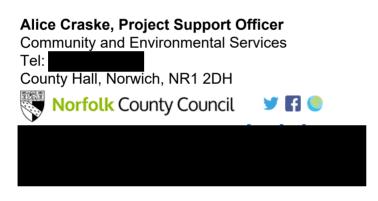




Good afternoon,

Norfolk County Council would like to submit Protective Provisions for the A47 Blofield to North Burlingham process. We have also submitted Protective Provisions for the A47 North Tuddenham DCO and A47/A11 Thickthorn Junction DCO. We are aware the DCO process has finished the examination process, but we hope you will still be able to accept the attached Protective Provisions.

Best wishes, Alice



--

To see our email disclaimer click here <a href="http://www.norfolk.gov.uk/emaildisclaimer">http://www.norfolk.gov.uk/emaildisclaimer</a>

Norfolk County Council A47 Blofield to North Burlingham Identification No: TR010040

Registration Identification Number: 20027893

Norfolk County Council is submitting draft protective provisions in order to ensure that its position is protected above and beyond the high level consents and 'satisfaction' that it is required to give under articles 14 and 17 of the draft DCO, through ensuring that there are proper processes and demarcation of responsibilities between the parties.

The county council has continued in discussions with the Applicant in relation to reach an Agreement on the management of the handover process of roads that are to be de-trunked under the DCO and new local roads that are to be created under the DCO. This Agreement has been sought to be agreed in relation to processes and principles which would cover all three of the A47 DCOs being brought forward by the Applicant. It is therefore the case that these discussions have been going on for some time, without final resolution.

As such, whilst Norfolk County Council hopes that the parties can agree a legal agreement as to the management of these processes, we have been unable to do so to date and some key outstanding issues remain in relation to this project and the other A47 DCOs. The County Council therefore wishes to ensure its position is adequately protected across these important interventions for Norfolk.

Therefore, we are submitting Protective Provisions. Enclosed with this submission are draft Protective Provisions for its benefit which Norfolk County Council requests are included in any DCO that is made for the Scheme.

Norfolk County Council will continue to discuss its concerns with National Highways, including in relation to the drafting of its Protective Provisions, with the hope of agreeing all issues between us across all three A47 schemes. However, failing agreement, the council must ensure its interests as local highways authority are adequately protected, which it believes is achieved through the draft Protective Provisions we are now bringing forward.

#### NORFOLK COUNTY COUNCIL

#### PROTECTIVE PROVISIONS

#### A47 Blofield to North Burlingham

- **1.** The provisions of this Part of this Schedule have effect unless otherwise agreed in writing between the undertaker and the local highway authority.
- 2. In this Part of this Schedule—

"Commuted Sum" means the sum to be paid by the undertaker to the local highway authority for the future maintenance of the Non-standard Highway Assets not previously forming part of the local highway which will be transferred to the local highway authority, as calculated in accordance with paragraph 22 of this Part of this Schedule;

"Design Detailing" in relation to any Works, means any detailed design or amended detailed design relating to those Works which is approved by the Secretary of State pursuant to requirement 3;

"Detailed Information" means the following drawings, specifications and other information relating to the local highway, which must be in accordance with the Design Detailing—

- (a) boundary, environmental and mitigation fencing;
- (b) road restraint systems (vehicle and pedestrian);
- (c) drainage and ducting;
- (d) earthworks;
- (e) road pavements;
- (f) kerbs, footways and paved areas;
- (g) traffic signs and road markings;
- (h) road lighting (including columns and brackets);
- (i) electrical work for road lighting and traffic signs;
- (j) highway structures;
- (k) landscaping, planting and any boundary features which will form part of the local highway;
- (I) utility diversions;
- (m) a schedule of timings for the Works, including dates and durations for any closures of any part of the local highway;
- (n) traffic management proposals including any diversionary routes:
- (o) a schedule of condition of all local highway within the order limits; and
- (p) where a local highway is occupied under this Order in connection with any Works but is not itself subject to Works, specification of the condition in which the local highway will be returned post occupation;

"Detailed Local Operating Agreement" means an agreement made pursuant to paragraph 4 of

this Part of this Schedule:

"Works Local Highways" means the local highways that are subject to Works;

"final certificate" means the certificate issued by the local highway authority to the undertaker for each phase to certify that the Works have been completed to the satisfaction of the local highway authority;

"local highway" means any public, vehicular highway which vests or is intended at the completion of works to vest in or be otherwise maintainable by the local highway authority as well as the highway to be constructed under Work No 98:

"local highway authority" means Norfolk County Council;

"Non-standard Highway Assets" means highway assets associated with the local highway which the local highway authority will become responsible for maintaining and which incur maintenance costs beyond the normal costs of maintaining the public highway having regard to the lists of standard and nonstandard assets set out in paragraph 22(2)(b) of this Part of this Schedule;

"Non-Works Local Highways" means the local highways that are not subject to Works;

"Other Detailed Information" relating to any Works, means—

- (a) a schedule of timings for the Works, including dates and durations of any closures of any part of a local highway;
- (b) traffic management proposals, including any diversionary routes and any Detailed Local Operating Agreement;
- (c) a schedule of condition of the affected local highway within the Order limits; and
- (d) where the local highway is occupied under this Order in connection with the Works but Works are not undertaken on, to or under the local highway, a specification of the condition in which the local highway will be returned after the occupation has finished;

"Provisional Certificate" means a certificate issued by the local highway authority to certify that the Works to which the certificate relates have been completed in accordance with this Part of this Schedule and are ready for use for public traffic; and

"Works" means any part of the authorised development which involves the construction of a local highway or interference with a local highway (including interference with the use by the public of a local highway and temporary or permanent stopping up of any part of a local highway).

- **3.–** (1) Before commencing any part of the Works, the undertaker must provide to the local highway authority and the local highway authority must approve the Detailed Information relating to that part of the Works, and that part of the Works must not be carried out except in accordance with the Detailed Information submitted to the local highway authority or as otherwise agreed between the undertaker and the local highway authority.
- (2) Any agreement completed under sub-paragraph (1) must continue in force until the completion of the Works or the removal of the undertaker from all local highways, whichever is the earlier.
- (3) Any approval of the local highway authority required under sub-paragraph (1) must not be unreasonably withheld or delayed.

- **4.**—(1) Before commencing any part of the Works, the undertaker must submit to the local highway authority, and the local highway authority must approve, a Detailed Local Operating Agreement for that part of the Works which must deal with the following—
- (a) communications and customer care: communication with stakeholders and identification of which party is responsible for each activity;
- (b) operational areas scheme operational areas: definitions and scheme extents for the works areas, zone of influence and the establishment and extent of free recovery area;
- (c) asset handover: describing the existing assets and new assets and activities to be undertaken to enable commencement and completion of Works, and the party responsible for each;
- (d) asset inspection;
- (e) routine maintenance and repair:
- (f) winter maintenance and severe weather;
- (g) continuity of technology;
- (h) occupancy management;
- (i) incidents;
- (j) traffic management: providing the key activities to be undertaken with regard to the design, installation, maintenance and removal of traffic management; and
- (k) the sharing of information relating to claims made by and against the undertaker and confirmation that the undertaker will be responsible for such claims.
- (2) Any agreement completed under sub-paragraph (1) must continue in force until the completion of that part of the Works the Works or the removal of the undertaker from all local highways, whichever is the earlier.
- (3) Any approval of the local highway authority required under sub-paragraph (1) must not be unreasonably withheld or delayed.
- (4) Where agreement cannot be reached under sub-paragraph (1), the terms of the Detailed Local Operating Agreement will be resolved by arbitration under article 53 (arbitration).
- **5.—(**1) Before commencing any part of the Works the undertaker must provide to the local highway authority the Design Detailing and the Other Detailed Information relating to that part of the Works.
- (2) The undertaker must not commence that part of the Works in question until approval has been given by the local highway authority to the Other Detailed Information or the Other Detailed Information has otherwise been agreed in writing between the undertaker and the local highway authority.
- (3) The Works must not be constructed except in accordance with the Other Detailed Information as may be approved or agreed in accordance with sub-paragraph (2).
- (4) When signifying approval of the Other Detailed Information, the local highway authority may specify any protective works (whether temporary or permanent) which in its opinion must be carried out before the commencement of construction of any Works to ensure the safety or stability of the highway and such protective works must be carried out at the expense of the undertaker.

- (5) If within 28 days after the Other Detailed Information has been submitted the local highway authority has not approved or disapproved it or it has not been otherwise agreed, the local highway authority is deemed to have approved it as submitted.
- **6.—**(1) The undertaker will allow and facilitate an appropriately qualified officer of the local highway authority to participate in the design process for the detailed design of the Works, and will have reasonable regard to any views of that officer in finalising the detailed design prior to any element reaching design fix or freeze; provided always that it will be the decision of the undertaker whether it implements such views and for the avoidance of doubt any such view shared by the officer will not be an instruction, requirement or authorisation under this Order.
- (2) Participation under sub-paragraph (1) will be in the form of invitations to attend design meetings not less than once per calendar month and the provision to the local highway authority of such drawings, cross sections and design proposals as are required to allow the local highway authority to provide views on detailed design proposals to the undertaker.
- (3) Any participation by the local highway authority (or its appropriately qualified officer) in accordance with this paragraph will be at the cost of the undertaker.
- 7.—(1) Any officer of the local highway authority duly appointed for the purpose may at all reasonable times, subject to any necessary and reasonable health and safety restrictions imposed by the undertaker, enter upon and inspect any part of the authorised development which—
- (a) is in, over, under or adjacent to any local highway, or
- (b) may affect any local highway or any property of the local highway authority, during the carrying out of the Works, and the undertaker must give to such officer all reasonable facilities for such inspection.
- (2) The testing of materials used in any Works affecting local highways must be carried out at the expense of the undertaker in accordance with the Manual of Contract Documents for Highway Works Appendix 1/5 (Specification for Highway Works). The local highway authority must receive copies of all test certificates and results which have been requested by it in writing as soon as reasonably practicable following a request being made. Notwithstanding the foregoing, the local highway authority has full power to test all or any materials used or proposed to be used in any work to the local highway at its own expense and the undertaker must provide such information and materials as is reasonably necessary to facilitate such testing.
- (3) The undertaker must not alter, disturb or in any way interfere with any property of the local highway authority on or under any local highway, or the access thereto (except to the extent authorised under the powers conferred by this Order), without the prior written consent of the local highway authority.
- **8.—**(1) The undertaker must procure that an appropriately qualified safety auditor undertakes road safety audit stages 3 and 4 on the Works in accordance with the Design Manual for Roads and Bridges ("DMRB") Volume 5 Section 2 Part 2 (GG 119) or any replacement or modification of that standard and must provide copies of the reports of such audits to the local highway authority.
- (2) The local highway authority must be invited to participate in the stage 2, 3 and 4 road safety audits conducted under sub-paragraph (1).
- (3) Where the report of the stage 3 road safety audit identifies any recommended works to the local highway, the undertaker must agree with the local highway authority which works or alternative proposals require to be

implemented, provided that no works may be implemented which would give rise to any new or materially different environmental effects in comparison with those identified in the Environmental Statement.

- (4) Where the report of the stage 4 road safety audit identifies any recommended works to the local highway, the undertaker must agree with the local highway authority which works or alternative proposals require to be implemented.
- (5) Any works which the undertaker considers are required to be carried out to the local highway in accordance with the report of the stage 3 or stage 4 road safety audit, which works may not give rise to any new or materially different environmental effects in comparison with those identified in the Environmental Statement, must be undertaken by and at the expense of the undertaker to the reasonable satisfaction of the local highway authority.
- (6) The undertaker must agree with the local highway authority a programme for any works to be carried out under sub-paragraph (5), which programme must include timing of any closures of any part of the highway, traffic management arrangements, signage and diversion routes where required.
- (7) Where agreement cannot be reached under this paragraph, the terms of the Detailed Local Operating Agreement will be resolved by arbitration under article 53 (arbitration).
- **9.**Provision must be made in accordance with the local highway authority's reasonable requirements at the site of the Works to prevent mud and other materials from being carried on to the adjacent highway by vehicles and plant. The operational highway in the vicinity of the site of the Works is to be swept as required to ensure its safe use as a public highway.
- **10.** The undertaker must not, except with the consent of the local highway authority, deposit any soil, subsoil or materials or stand any vehicle, scaffolding or plant on any highway, (except on so much of it as is for the time being temporarily stopped up or occupied under the powers conferred by this Order) so as to obstruct the use of the highway by any person or, except with the same consent, deposit any soil, subsoil or materials on any highway except within a hoarding.
- **11.** At any time during the carrying out of the Works the undertaker's representatives or contractors' must act upon any reasonable request made by the local highway authority in relation to the carrying out of the Works as soon as practicable following such request being made to the undertakers' representatives or contractors save to the extent that the contents of such request are inconsistent with or fall outside the contractor's obligations under its contract with the undertaker or the undertaker's obligations in this Order.
- **12.** In exercising the powers conferred by the Order in relation to any local highway the undertaker must have regard to the potential disruption of traffic which may be caused, seek to minimise such disruption and must at no time prevent or unreasonably impede access by emergency service vehicles to any property.
- **13.**The undertaker must, if reasonably required by the local highway authority, provide and maintain during such time as the undertaker may occupy any part of a local highway for the purpose of the construction of any part of the authorised development, temporary ramps for vehicular or pedestrian traffic, or both, and any other traffic measures required to protect the safety of road traffic.

- **14.**—(1) If requested by the local highway authority, the undertaker must execute and complete a transfer to the local highway authority of any land and rights within the local highway compulsorily acquired by the undertaker pursuant to articles 24 (compulsory acquisition of land) and 27 (compulsory acquisition of rights) for the construction, operation and maintenance of the local highway or to facilitate it, or as is incidental to it, at nil consideration provided that the undertaker has completed all necessary works within the local highway for which that land and those rights were compulsorily acquired.
- (2) Sub-paragraph (1) above does not apply in relation to any land within the local highway compulsorily acquired by the undertaker that has been or is proposed to be permanently stopped up and rights extinguished pursuant to article 17 (permanent stopping up and restriction of use of highways, streets and private means of access).
- **15**. The undertaker will hold the local highway authority harmless and indemnified from and against any liability, loss, cost or claim arising out of or incidental to the carrying out of the Works (other than those arising out of or in consequence of any negligent act, default or omission of the local highway authority).
- **16.**—(1) Prior to completion of any part of the Works, the undertaker must notify the local highway authority that it considers that that part of the Works are complete and must allow the local highway authority the opportunity to inspect the Works to identify any defects or incomplete works.
- (2) Any defects notified by the local highways authority to the undertaker must be rectified and any incomplete works carried out by the undertaker to the satisfaction of the local highways authority.
- (3) Upon completion of remedial works under paragraph (2) the undertaker may issue a notice of completion of that part of the Works to the local highways authority.
- (3) The undertaker may not notify the local highway authority under sub-paragraph (1) until either—
- (a) a stage 3 safety audit has been carried out in respect of the Works in question in accordance with GG19 of DMRB and in the opinion of the undertaker any recommended works identified in the audit have been completed; or
- (b) if the Works in question were not subject to a safety audit, the local highway authority has been provided an opportunity to inspect the works and the undertaker has in its opinion completed any further works required to address any safety deficiencies or defects identified as a result of the inspection.
- 17. Notwithstanding article 12, the undertaker must make good any defects in those Works notified to it by the local highway authority within the period of 52 weeks from the date of the service of the notice of completion under paragraph 17(3).
- (2) The carrying out of any remedial works required under sub-paragraph (1) or paragraph 17(2) requires beforehand the submission of such items of Detailed Information to the local highway authority as the undertaker deems to be reasonable in the circumstances but always including a description of the works to be carried out, a schedule of timings for the works, including dates and durations for any closures of any part of the local highway and traffic management proposals, and approval of that Detailed Information by the local highways authority.
- (3) If the undertaker fails to take steps to remedy the defects in the Works notified to it by the local highway authority under sub-paragraph (1) or paragraph 17(2) and has not subsequently made reasonably expeditious progress towards the implementation of those remedial works within 28 days beginning with the day after the date on which the notice served under sub-paragraph (1) or paragraph 17(2) is served, the local highway

authority may undertake the remedial works required and any expenditure reasonably incurred by the local highway authority in doing so is to be recoverable from the undertaker.

- **18.** The local highway authority must, if requested to do so by the undertaker, issue to the undertaker a Provisional Certificate in relation to any part of the Works, after a notice of completion has been served on the local highways authority under paragraph 16(3).
- **19.** No earlier than 52 weeks from the date of issue of the Provisional Certificate, the local highway authority must issue a Final Certificate, certifying that all outstanding defects relating to the part of the Works in question and which required remediation have been so remedied, provided that—
- (a) all identified defects requiring remediation have been so remedied such that the local highway authority consider the Final Certificate may be issued;
- (b) a stage 4 safety audit has been carried out (if a stage 4 safety audit is required in accordance with GG19 of DMRB in connection with the Works), and following proper consideration of the representations of the local highway authority, any additional works, alterations or amendments to the Works as a result of the stage 4 safety audit have been completed to the reasonable satisfaction of the local highway authority;
- (c) the undertaker has given the local highway authority an opportunity to inspect the Works and has given proper consideration to any representations made by the local highway authority;
- (d) the undertaker has paid to the local highway authority any Commuted Sum due in relation to the part of the local highway to which the Provisional Certificate relates;
- (e) the undertaker has provided the local highway authority with such detailed information as the local highway authority may reasonably require in relation to the Works as built; and
- (f) all costs charges, expenses payable to the local highway authority pursuant to this Part have been paid.
- **20.** The undertaker must pay to the local highway authority in respect of the Works a sum equal to the whole of any costs and expenses which the local highway authority reasonably incur—
- (a) in the examination or approval of the Detailed Information and the Other Detailed Information under this Part;
- (b) in inspecting the construction of the Works including any works required by the local highway authority under this Part;
- (c) in carrying out any surveys which are reasonably required in connection with the construction of the Works; and
- (d) in the transfer pursuant to paragraph 14 to the local highway authority of the land and rights acquired by the undertaker.
- **21.**—(1) The undertaker must, within 3 months of the date of approval of the EMP (Third Iteration) under requirement 4(4), which must show the limits of responsibility for the operational maintenance of the Works, prepare a list of assets not previously forming part of the local highway for which the local highway authority will be responsible for maintenance following completion of the Works.

- (2) The undertaker must agree a schedule of items on the list agreed under sub-paragraph (1) which are Non-standard Highway Assets and those which should be considered as standard highway assets, having regard to the following criteria—
- (a) standard highway assets include—
- (i) carriageways surfaced in concrete asphaltic materials (non-pigmented binder and non-coloured aggregates);
- (ii) carriageways in shared surface roads, courtyards and housing squares surfaced in 200mm x 100mm x 80mm rectangular concrete block paving (optional);
- (iii) footway surfaced in concrete asphaltic materials (non-pigmented binder or coloured aggregates);
- (iv) footways adjacent to block paved carriageways also surfaced in 200mm x 100mm x 65mm thick concrete block paving (optional);
- (v) cycleways surfaced in concrete asphaltic materials (red pigmented binders and/or aggregates);
- (vi) pre-cast concrete kerbing;
- (vii) gully drainage, connection pipes and gravity draining highway carrier drains;
- (viii) galvanised pedestrian guard railing;
- (ix) standard highway lighting layouts, columns and lanterns;
- (x) standard illuminated and non-illuminated highway signs;
- (xi) passively safe sign posts where required for road safety;
- (xii) bollards and markers posts manufactured from plastic derivatives or recycled plastic/rubber;
- (xiii) road markings;
- (xiv) grass verges;
- (b) Non-Standard Highway Assets include—
- (i) any culvert, bridge, retaining wall or other structure
- (ii) special features such as noise fencing, vehicle restraint barriers, pedestrian guard railing, knee rails and fences, gates
- (iii) landscaping features such as planting, trees, hedging
- (iv) sustainable drainage systems ("SuDS") or non-standard highway drainage features such as—
- (aa) flow control devices and attenuation storage;
- (bb) SuDS including maintenance of any landscaping;
- (cc) oil or petrol interceptors including the disposal of contaminated waste;
- (dd) pumping stations and their energy charges; and
- (ee) watercourses and swales.

- (3) Where the schedule prepared under paragraph (2) cannot be agreed, the determination of the schedule will be referred to arbitration under article 53 (arbitration).
- (4) Following agreement of the schedule under sub-paragraph (2) or determination under subparagraph (3), the local highway authority must prepare a calculation of the Commuted Sum based on the maintenance the local highway authority considers to be required for the schedule of Non-Standard Highway Assets agreed under sub-paragraph (2) or determined under sub-paragraph (3) and must use reasonable endeavours to agree it with the undertaker.
- (5) The undertaker must be provided with a complete breakdown of the calculation of the Commuted Sum by the local highway authority under sub-paragraph (4) including any assumptions used.
- (6) Where the calculation prepared under sub-paragraph (4) cannot be agreed, the determination of the Commuted Sum will be referred to arbitration under article 53 (arbitration)
- (7) The undertaker must pay the Commuted Sum to the local highway authority in one instalment within 10 working days of the later of—
- (a) the date of completion of the authorised development; or
- (b) the date of agreement of the value of the Commuted Sum under sub-paragraph (4) or determination under sub-paragraph (6).
- **22.—**(1) The undertaker must not utilise the power granted by article 13(8) in respect of Works Local Highways until a Final Certificate has been issued in respect of the Works to those local highways and the schedule referred to by paragraph 22 is agreed between the undertaker and the local highways authority or pursuant to arbitration under article 53.
- (2) The undertaker must notify the local highway authority within 5 days of utilising the power under article 13(8) in respect of Works Local Highways.
- **23.—**(1) The undertaker must not utilise the power granted by article 13(8) in respect of Non-Works Local Highways until:
- (a) a joint inspection of the Non-Works Local Highways has been undertaken by the undertaker and the local highways authority; and
- (b) the local highways authority notifies the undertaker either:
- (i) that it considers that no defects are present within the Non-Works Local Highways; or
- (ii) that it considers that defects are present within the Non-Works Local Highways which it requires to be remediated; and
- (iii) those defects are remediated to the satisfaction of the local highways authority;
- (2) The undertaker must notify the local highway authority within 5 days of utilising the power under article 13(8) in respect of Non-Works Local Highways.
- (3) Within 28 days of the undertaker utilising its power under article 13(8) in respect of Non-Works Local Highways, the undertaker will deliver to the local highway authority all information relevant to the the safe use, maintenance, asset management, and operation of the local road including:

(c) health and safety information;
(d) all certificates and warranties in respect of the works;
(e) copies of statutory approvals, waivers, consents and conditions; and
(f) equipment test certificates.
(4) Within 28 days of the undertaker utilising its power under article 13(8) in respect of Non-Works Local Highways. the process set out in paragraph 22 must be carried out in respect of the Non-Works Local Highways.
<b>24</b> . The undertaker in carrying out any Works must, at its own expense, divert or protect all utilities as may be necessary to enable the Works to be properly carried out and all agreed alterations to existing services must be carried out to the satisfaction of the local highway authority.
<b>25.</b> The undertaker must procure warranties from the contractor and designer of the Works to the effect that all reasonable skill, care and due diligence will be exercised in designing and constructing that phase including the selection of materials, goods, equipment and plant, such warranties to be provided to the local highway authority before that phase commences.
<b>26.</b> Nothing in this Part of this Schedule prevents the local highway authority from carrying out any work or taking such action as deemed appropriate forthwith without prior notice to the undertaker in the event of an emergency or danger to the public.
<b>27.</b> If any part of the Works comprising a structure in, over or under any existing or intended highway is constructed otherwise than in accordance with the requirements of this Part of this Schedule, the local highway authority may by notice require the undertaker at its own expense to comply with the requirements of this Part of this Schedule or (if the undertaker so elects and the local highway authority in writing consents, such consent not to be unreasonably withheld) at the undertaker's expense to remove, alter or pull down the work and, where removal is required, to restore the site to its former condition to such extent and within such limits as the local highway authority reasonably requires.
28. The fact that any work or thing has been executed or done in accordance with a plan approved or deemed to have been approved by the local highway authority, or to its satisfaction, does not (in the absence of

(a) handover notes;

(b) as constructed details;

negligence on the part of the local highway authority, its officers, contractors or agents) relieve the undertaker

29. Any difference arising between the undertaker and the local highway authority under this Part of this Schedule (other than in difference as to the meaning or construction of this Part of this Schedule) will be

from any liability under the provisions of this Part of this Schedule.

resolved by arbitration under article 53 (arbitration).

From: ESP Utilities Group Ltd

To: A47 Blofield to North Burlingham

**Subject:** Reference: PE171876. Plant Not Affected Notice from ES Pipelines

**Date:** 11 May 2022 15:37:12

A47 Blofield to North Burlingham Case Team Planning Inspectorate

11 May 2022

Reference: A47B-SP029

Dear Sir/Madam,

Thank you for your recent plant enquiry at: A47 Blofield to North Burlingham

I can confirm that ESP Utilities Group Ltd has no gas or electricity apparatus in the vicinity of this site address and will not be affected by your proposed works.

ESP Utilities Group Ltd are continually laying new gas and electricity networks and this notification is valid for 90 days from the date of this letter. If your proposed works start after this period of time, please re-submit your enquiry.

## **Important Notice**

Please be advised that any enquiries for ESP Connections Ltd, formerly known as British Gas Connections Ltd, should be sent directly to us at the address shown above or alternatively you can email us at: PlantResponses@espug.com

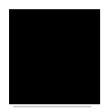
ESP have provided you with all the information we have to date however, there may be inaccuracies or delays in data collection and digitisation caused by a range of practical and unforeseeable reasons and as such, we recommend the following steps are taken as a minimum before work is commenced that involves the opening of any ground and reference made to HSG47 (Avoiding danger from underground services).

- A. Plans are consulted and marked up on site
- B. The use of a suitable and sufficient device to locate underground utilities before digging (for example the C.A.T and Genny)
- C. Trial holes are dug to expose any marked up or traced utilities in the ground
- D. If no utilities are shown on any plans and no trace is received using a suitable and sufficient device, trial holes are dug nonetheless using hand tools at the

location or at regular intervals along the location that the work is being carried out depending on the length of excavation work being undertaken E. All location work is carried out by individuals with sufficient experience and technical knowledge who may choose to control this activity under a Safe System Of Work

Yours faithfully,

Plant Protection Team **ESP Utilities Group Ltd** 



Bluebird House Mole Business Park Leatherhead KT22 7BA



The information in this email is confidential and may be legally privileged. It is intended solely for the addressee. Access to this email by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful.

From:
To: TRANSPORTINFRASTRUCTURE@dft.gov.uk; A47 Blofield to North Burlingham
Subject: FAO: SoST, planning officers : A47 Blofield to North Burlingham (A47BNB)
Date: 15 June 2022 07:21:39
Attachments:

Dear Secretary of State Transport, and DfT Planning Officers,

## A47 Blofield to North Burlingham (A47BNB) Norfolk County Council Local Transport Plan 4

(A47BNB) IP Registration 20027985

Please find attached a letter concerning the above NSIP DCO determination, along with two appendix documents, for your attention.

With best regards

Dr Andrew Boswell

## **± SCIENCE ± POLICY ± LAW ±**

Independent Scientist/Consultant, Climate Emergency Planning and Policy Fellowship "Exposing the flaws in carbon assessment and transport modelling for road schemes"

## A47 Blofield to North Burlingham

(A47BNB) IP Registration 20027985

**By email to:** TRANSPORTINFRASTRUCTURE@dft.gov.uk

SoST and DfT Planning Officers Department for Transport (DfT) London, SW1P 4DR

15<sup>th</sup> June 2022

Dear Secretary of State Transport, and DfT Planning Officers,

## A47 Blofield to North Burlingham (A47BNB) Norfolk County Council Local Transport Plan 4

I was an interested party at the planning examination of the A47BNB scheme. I am aware that the SoST will be considering his decision of the A47BNB this week.

I am writing to advise the SoST of the emerging Norfolk County Council Local Transport Plan 4. This provides targets and budgets for carbon reduction of the Norfolk transport sector from 2019 to 2037 which align with the trajectory in your department's Transport Decarbonisation Plan (TDP) (and the Net Zero Strategy). These emerging local targets are now a material consideration which the SoST must consider in his determination of the A47BNB scheme.

## **Background**

In November 2021, Norfolk County Council (NCC) adopted its LTP4 Strategy document. When adopting the LTP4 Strategy, the council stated that they would provide carbon targets for the transport system, compliant with the TDP in a later LTP4 Implementation Plan document. The NCC Cabinet meeting of 6 June 2022 resolved to approve and recommend to Full Council that the full Local Transport Plan, comprising the Local Transport Plan 4 Strategy and Implementation Plan (IP) is adopted in July 2022. The LTP4 (IP) sets annual decarbonisation targets for Norfolk transport between 2019 and 2037 (the end of the Sixth carbon budget).

The emergence of these local carbon targets for the transport sector in Norfolk within a statutory document under the Transport Act 2000 provides an indisputable set of local carbon budgets and targets against which the A47BNB should be assessed to comply with both the EIA guidance and the IEMA guidance.

## **Key points**

Key points which are unaddressed in the A47BNB Environmental Statement, and therefore make it inadequate under EIA Regulation 20, include:

A. Despite the adoption of the LTP4 Strategy in November 2021, before the close of the DCO examination, signalling that targets for local transport decarbonisation based on the TDP for Norfolk were to be published, the applicant has failed to even mention them, let

- alone assess the compliance of the A47BNB scheme with this emerging policy. This is all the more surprising as Norfolk County Council were a party at the examination.
- B. The published LTP4 (IP) targets<sup>1</sup> follow the <u>lower bound</u> of the NZS transport decarbonisation trajectory (as per Net Zero Strategy (NZS) Figure 21 and TDP Figure 2) which are for a fall in residual emissions from domestic transport emissions (excluding aviation and shipping) by around <u>34%</u> (range 34-45%) by 2030 and <u>65%</u> (range 65-76%) by 2035, <u>relative to 2019 levels.</u>
- C. The A47BNB scheme would introduce a significant one-off hit (increase) of construction and embedded emissions mid-decade, and then from 2025 would introduce *additional* year-on-year annual operation emissions. The context of these additional emissions is the local transport authority's policy to reduce transport sector emissions by 34% over 11 years, with annual year-on-year emission reductions of -4.32%, -4.52%, -7.44%, -7.62%, -9.49% in the 5 years 2026 2030, after the opening year. I reproduce the annual year-on-year reductions in the Norfolk LTP4 below.

Year	Target Emissions (ktCO₂)	Annual Reductions	
2019	Base 1,717.70	ktC0 <sub>2</sub>	%
2022	1,657.32	60.38	-3.52%
2023	1,636.25	21.07	-1.27%
2024	1,616.58	19.67	-1.20%
2025	1,591.30	25.28	-1.56%
2026	1,522.48	68.82	-4.32%
2027	1,453.66	68.82	-4.52%
2028	1,345.52	108.14	-7.44%
2029	1,242.99	102.53	-7.62%

Year	Target Emissions (ktCO₂)	Annual Reductions	
		ktC0 <sub>2</sub>	%
2030	1,125.01	117.98	-9.49%
2031	1,016.86	108.15	-9.61%
2032	903.10	113.75	-11.19%
2033	751.41	151.69	-16.80%
2034	669.95	81.46	-10.84%
2035	591.30	78.65	-11.74%
2036	530.90	60.40	-10.21%
2037	477.53	53.37	-10.05%

The annual carbon reduction targets in the Norfolk LTP4

- D. Put simply, the applicant has made no attempt to show how this "adds up". It is my view that it does <u>not</u> add up, and it is certainly quite clear that the applicant has not demonstrated in any form how the construction and operation of the A47BNB could comply with the carbon budgets and targets set in the LTP4. As above, the Environmental Statement does not even mention these targets, and, to my knowledge, the applicant has made no attempt to engage with them since the imminent development of them became NCC policy in November 2021.
- E. In the absence of a carbon emissions assessment in the Environmental Statement against the local targets in the LTP4, **the SoST cannot be satisfied** that the material provided by the applicant is sufficient for him to reach a reasoned conclusion on the significant effects of the proposed development on the environment.

<sup>&</sup>lt;sup>1</sup> Norfolk County Council cabinet papers, 6<sup>th</sup> June 2022

- F. Further, under NPSNN 4.3 and 4.4, "General Principle of Assessment":
  - "4.3 In considering any proposed development, and in particular, when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State 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.
  - 4.4 In this context, environmental, safety, social and economic benefits and adverse impacts, should be considered at national, regional and local levels. These may be identified in this NPS, or elsewhere."
- F. Here the NPSNN requires that environmental impacts (which include greenhouse gas emissions) should be considered at national, regional and local levels. The targets and budgets which should be considered for local carbon impacts assessment have been identified in the LTP4 but ignored by the applicant.

## EIA guidance and the IEMA guidance

The EU Commission website hosts an official webpage for the EIA Directive, which lists a number of Guidance documents. I made the relevant EIA guidance available to the examination, and attach more information as an appendix below.

Following the examination, in February 2022, IEMA released version 2 of their "Assessing greenhouse gas emissions and evaluating their significance" guidance. I attach more information as an appendix below.

Both sets of guidance promote the best practice for EIA and strongly recommend local assessment of the carbon emissions impacts of a scheme.

No local carbon impacts assessment has been made from the A47BNB against the best practice recommendations of the IEMA and EIA guidance, and the requirement of NPSNN 4.4 above.

As above, the Norfolk Local Transport Plan 4 provides the benchmark for such an assessment which must be carried out before the SoST determines the A47BNB scheme.

## **Further points**

At the examination, I gave evidence that the A47BNB Environmental Statement is inadequate under EIA regulation 20, regulation 14 and EIA Schedule 4. Very briefly, major issues include:

• no cumulative carbon assessment has been done in breach of the EIA regulations;

- the solus calculation made of the carbon emission impacts of the scheme, and used for the carbon assessment, is the wrong calculation, an underestimate, and not calculated against the real environmental baseline. The whole assessment is wrong as a result;
- there is an increase in carbon emissions resulting from the proposed scheme, although it is currently not calculated properly. Assessment has been based on an underestimate. It has, therefore, <u>not</u> been demonstrated that the scheme has no material impact on the ability of Government to meet its carbon reduction targets (NPSNN 5.18).
- there is a general issue of lack of data and algorithmic transparency, and lack of cooperation by the applicant to engage, relating to the traffic model issues.

## The Three Norfolk A47 schemes

The issues of no local carbon assessment against the emerging Norfolk Local Transport Plan 4, and the lack of a cumulative carbon assessment, apply to all three Norfolk A47 schemes which are before ethe SoST for determination: that is, A47 Blofield to North Burlingham, A47 North Tuddenham to Easton, and A47 - A11 Thickthorn Junction

In the circumstances, with the imminent adoption of the LTP4 in July by Norfolk County Council, the DCO approvals for these schemes should be deferred until a local carbon assessment against the LTP4 annual carbon emission targets has been made by the applicant.

I am grateful for your consideration of this letter.

Yours sincerely

Dr Andrew Boswell, Climate Emergency Planning and Policy (CEPP)

## **Attachments provided as separate documents:**

- 1) IEMA GUIDANCE, ASSESSING GREENHOUSE GAS EMISSIONS AND EVALUATING THEIR SIGNIFICANCE, February 2022
- 2) EIA GUIDANCE

#### 1 APPENDIX: EIA GUIDANCE DOCUMENTS

- The EU Commission website hosts an official webpage for the EIA Directive<sup>2</sup>, which lists a number of Guidance documents.
- Following the enactment of the reviewed EU EIA Directive "DIRECTIVE 2014/52/EU" in 2014, three guidance documents were published in 2017 on the screening<sup>3</sup>, scoping<sup>4</sup> and EIA report writing<sup>5</sup> stages.
- Each of these 2017 guidance documents state that they "aim[s] 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 decisionmaking".
- Under "Climate change mitigation: Project impacts on climate change" on page 39 of the EIA report writing guidance, it states:

"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."

Whilst for cumulative effects<sup>6</sup> at page 50:

"[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 <u>be</u> **local, regional or global**, while the frequency or temporal scale includes past, present and future impacts on a specific environment or region." (our emphasis)

- The guidance is promoted by the EU and identifies that Competent Authorities reviewing the EIA Report and using the information for decision-making, as one of its target audiences.7
- From the same official webpage for the EIA Directive, further 2013 guidance is provided on "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment". This guidance predates the 2014 Directive and was produced during the time of the 2011 EIA Directive "DIRECTIVE 2011/92/EU". The guidance was implemented for the European Commission under Study Contract No



<sup>&</sup>lt;sup>7</sup> See "HOW TO USE THIS GUIDANCE DOCUMENT" section

07.0307/2010/580136/ETU/A3 with Members of the Commission Group of EIA/SEA National Experts and staff from three Directorate-Generals of the Commission<sup>8</sup>. It reflects the view of the Commission services of the best EIA practice, including those with transposed national regulations like the UK.

8 Section 4.4.2 of this guidance states:

"Judging an impact's magnitude and significance must be context-specific. For an individual project — e.g. a road project — <u>the contribution to GHGs may be insignificant on the global scale, but may well be significant on the local/regional scale, in terms of its contribution to set GHG-reduction targets."</u> (my emphasis)

- 9 The Applicant claims that the results of its appraisal of differential emissions against national budgets reveals an insignificant effect against national carbon budgets. (I do not agree as the assessment has not used the correct solus quantification, and no cumulative assessment has been made). The guidance rightly suggests that carbon emissions assessed at a local/regional scale may well be significant.
- I have not been able to find any UK specific guidance relating to the EIA Regs that would provide different advice to the existing guidance on the official EU Commission webpage for the EIA Regs. And in fact, the next section shows how the recent IEMA Guidance does entirely support the EIA Guidance in strongly recommending local and regional carbon assessment. It is rational to apply guidance which was written to "focus[es] on ensuring that the best possible information is made available during decision-making" under the EIA Directive within the UK. Failure to even consider such guidance, as is the case in the applicant's A47BNB Environmental Statement, is irrational.

## 2 APPENDIX: UPDATED IEMA GUIDANCE ASSESSING GREENHOUSE GAS EMISSIONS AND EVALUATING THEIR SIGNIFICANCE

- Following the examination, in February 2022, IEMA released version 2 of their "Assessing greenhouse gas emissions and evaluating their significance" guidance, supplied at Appendix D. The Institute of Environmental Management & Assessment (IEMA) state that they are the professional home of over 18,000 environment and sustainability professionals from around the globe.
- 12 The guidance is geared towards best practice in EIA compliance:

Milieu Ltd, Collingwood Environmental Planning Ltd and Integra Consulting Ltd. The main authors were Jennifer McGuinn and Guillermo Hernandez from Milieu Ltd; Ric Eales, William Sheate and Jonathan Baker from Collingwood Environmental Planning; and Jiri Dusik from Integra Consulting. Maria Partidario of the Technical University of Lisbon and Helen Byron of the Royal Society for the Protection of Birds/Birdlife UK provided advice. Additional contributions about climate change were collected during the JASPERS workshops (March-April 2012). The text was also revised by Jiri Dusik. Members of the Commission Group of EIA/SEA National Experts (in particular, Paolo Boccardi, Susanna Eberhartinger-Tafill, Paul Fortuin, Aurora Hernando Garcinuno, Anna Kieniewicz, Gabrielle McKeown, Koen Maertens, Tadhg O'Mahony, Martine Moris, Kees Van Muiswinkel, Rainer Persidski, Claire Piens, Matthias Sauer, Roel Teeuwen, Adrian Vecino Varela) and staff of the European Commission's Directorate-General for Climate Action (Vaidotas Kuodys, Sami Zeidan), Directorate-General for Humanitarian Aid and Civil Protection (Yordanka Mincheva, Thomas de Lannoy) and Directorate-General for Environment (Stephanos Ampatzis, Szilvia Bosze, Marco Fritz, Milena Novakova and Przemyslaw Oginski) also Contributed''

The front-page states "This document benefited from Study Contract No 07.0307/2010/580136/ETU/A3, implemented for the European Commission by

"The aim of this guidance is to assist greenhouse gas (GHG) practitioners (hereinafter referred to as 'practitioners') with addressing GHG emissions assessment, mitigation and reporting in statutory and non-statutory Environmental Impact Assessment (EIA)." [from the Introduction]

13 The IEMA guidance supports several broad issues which I have highlighted as missing in the applicant's Environmental Statement, as follows:

## 2.1 IEMA: Contextualising a project's carbon footprint

- In the section above, I lay out how local, national and regional assessment of carbon emissions is supported by the guidance documents to the EIA Regulations. The IEMA guidance provides further support for this. The relevant section in this guide is section 6.4, "Contextualising a project's carbon footprint".
- With respect to the applicant's Environmental Statement where only an assessment is made against the carbon budget for the entire UK economy, IEMA say:

"The **starting** point for context is therefore the percentage contribution to the national or devolved administration carbon budget as advised by the CCC. However, the contribution of most individual projects to national-level budgets will be small and so **this context will have limited value**." [my emphasis]

16 The guide goes on to state:

"<u>It is good practice to draw on multiple sources of evidence</u> when evaluating the context of GHG emissions associated with a project."

And identifies "local or regional carbon budgets developed by local authorities and researchers (e.g. the Tyndall Centre at the University of Manchester)" as "<u>a more</u> <u>pertinent scale for individual projects</u> and local decision-making", and reflective of "regional factors such as concentration of industry"). [my emphasis]

## 2.2 Local policies

- 17 The applicant has only undertaken the "starting point" in the IEMA guidance assessment against national carbon budgets.
- 18 Therefore, local policies and carbon budgets should be considered, and assessment of carbon impacts made against them, when they exist. IEMA provide helpful elaboration as below in the diagram clipped below:

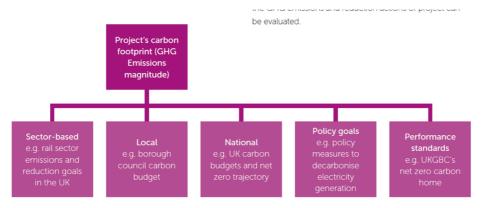


Figure 6: Good practice approaches for contextualising a project's GHG emissions

## 2.3 Aside on environmental factors under the EIA Regulations

- 19 At other NSIP DCO examinations (eg: A57 Links road) the applicant has introduced a confusion in the discussion on local and regional policies and targets.
- 20 The confusion is between the environment impacts themselves (in this case global GHG emissions) and the measurement of them, and assessment against budgets or thresholds. With GHGs, the environmental receptor is the global atmosphere and there is no local receptor in that sense. Indeed the IEMA guidance makes this clear.
- However, that does not mean that quantified budgets, targets or thresholds at local and regional levels are not important. As the guidance says, it is good practice to have multiple sources of evidence to contextualise a scheme's carbon footprint, and local or regional carbon budgets provide a more pertinent scale for individual projects. Clearly assessment against local targets and budgets is also more precise first, numerically, in essence the signal is less "hidden in the noise", and second, that unique local transport characteristics and policies may be considered as part of the assessment process. The applicant has failed to grasp this, and to provide this more precise benchmarking, despite the IEMA guidance on this for EIA practitioners.
- 22 The Norfolk Local Transport Plan 4 now provides the relevant benchmark for IEMA compliant local assessment of carbon emissions from the A47BNB scheme.

<END OF LETTER>









# 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).

© European Union, 2017

Reproduction is authorised provided the source is acknowledged.

Paper ISBN 978-92-7974373-3 KH-04-17-939-EN-C doi:10.2779/8247 PDF ISBN 978-92-7974374-0 KH-04-17-939-EN-N doi:10.2779/41362

#### Cover:

©iStockphoto/Si-Gal ©iStockphoto/Juffin

**Disclaimer:** The information and views set out in this publication are those of the author(s) and Do not necessarily reflect the official opinion of the Commission. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made of the information contained therein. The examples described in this document represent the views of the authors and are based on information gathered by the authors. The references used to develop these illustrative examples should always be considered as the most accurate and complete sources of information.

This document benefited from Specific Contract No 070201/2016/729522/SER/ENV.D.1 under Framework Contract No ENV.F.1/FRA/2014/0063, implemented for the European Commission by COWI A/S and Milieu Ltd. The main authors were: Adrien Lantieri, Zuzana Lukacova, Jennifer McGuinn, and Alicia McNeill from Milieu Ltd

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

## **TABLE OF CONTENTS**

GLOSSAI	RY OF TE	RMS	5
LIST OF A	BBREVIA	ATIONS	7
PREFACE			
		nim of the Guidance Documents?	
Who	can use	e the Guidance Documents?	9
Who	prepare	ed the Guidance Documents?	9
How	canlge	et a copy of the Guidance Documents?	9
EIA:	concep <sup>.</sup>	t and stages	10
GUIDAN	CE ON TI	HE PREPARATION OF THE ENVIRONMENTAL IMPACT ASSESSMENT	
		his Guidance Document	
PART A -	OVERVI	EW OF THE LEGISLATIVE REQUIREMENTS FOR THE PREPARATION OF	F THE
		REQUIREMENTS FOR THE PREPARATION OF THE EIA REPORT	
		CHANGES FOR THE PREPARATION OF THE EIA REPORT	
		CAL GUIDANCE ON THE PREPARATION OF THE EIA REPORT	
1 THE		PRT'S CONTENT REQUIREMENTS	
1.1		t Description	
1.2		ne scenario	
	1.2.1	The notion of Baseline	
	1.2.2	Carrying out the Baseline assessment	
	1.2.3	Baseline: In a nutshell	
1.3		nmental factors	
	1.3.1	Scope of environmental factors covered by the Directive	
	1.3.2	Impacts related to Climate change	
	1.3.3	Impacts related to risks of major accidents and disasters	
	1.3.4	Impacts related to biodiversity	
	1.3.5	Impacts related to the use of natural resources (depletion risk	
		resource use considerations)	
	1.3.6	Environmental factors: In a nutshell	
1.4		ing effects on the environment	
	1.4.1	Legal framework of significant effects	
	1.4.2	Significance in the context of the preparation of the EIA Repo	
	1.4.3	Cumulative effects	
	1.4.4	Assessing effects on the environment: In a nutshell	
1.5		atory assessment of Alternatives	
	1.5.1	The notion of Alternatives	
	1.5.2	Identifying Alternatives	
	1.5.3	Assessing Alternatives	
	1.5.4	Mandatory assessment of Alternatives: In a nutshell	
1.6	_	tion and Compensation Measures	
	1.6.1	Mitigation and Compensation Measures: In a nutshell	57

	1.7	Monito	ring	.57
		1.7.1	Legislative requirements for EIA monitoring	.57
		1.7.2	Objectives of Monitoring Measures	
		1.7.3	Developing Monitoring Measures	.60
		1.7.4	Monitoring: In a nutshell	.62
2	QUAL		HE EIA REPORT	
	2.1	Format	and presentation of the EIA Report	. 63
		2.1.1	The qualities of a good EIA Report	
		2.1.2	The Non-Technical Summary	
	2.2	The co	mpetence of expertise and quality control	
		2.2.1	Legal requirements	
		2.2.2	Experts used by Developers	
		2.2.3	Quality control by Competent Authorities	. 68
		2.2.4	The competence of expertise and quality control: in a nutshell	
3	CONS		NS AND DECISION-MAKING	
	3.1		tations on the EIA Report	
		3.1.1	Legislative requirements for consultations	
		3.1.2	Consultations and 'reasonable time-frames'	
		3.1.3	Consultations: in a nutshell	
	3.2		n-making: Reasoned Conclusion and Development Consent	
		3.2.1	Legislative requirements on decision-making	
		3.2.2	Reasoned Conclusion	
		3.2.3	Time-frames concerning decision-making	
		3.2.4	Decision-making on the EIA Report: in a nutshell	
PAI			REPORT CHECKLIST	
1			N	
2	INSTR			
			ring the relevance of the checklist questions	
			ng the sufficiency of the information provided	
_			ion of necessity for supplementary information	
3		EVIEW CI	HECKLIST	
	NEXES		WITH OTHER BUILDING THAT IN TO	
AN			/ITH OTHER EU INSTRUMENTS	
			Hada Dira alima	
			oitats Directives	
			vork Directivegy Framework Directive	
	Ambie	eni Ali G	Quality Directive and Heavy Metal in Ambient Air Directive	110
			sions Directiveive	
			an Networks in transport, energy and telecommunication	
A NI			RELEVANT GUIDANCE AND TOOLS	
ΑN	IAEY II.	- OITER	RELEVANT GUIDANCE AND TOOLS	123

## **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

## 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.

## Screening

(as appropriate)

The Competent Authority makes a decision about whether EIA is required. At the end of this stage, a Screening Decision must be issued and made public.



## Scoping

(as appropriate)

The Directive provides that Developers may request a Scoping Opinion from the Competent Authority which identifies the content and the extent of the assessment and specifies the information to be included in the EIA Report.



**EIA Report** 

The Developer, or the expert(s) on his behalf, carries out the assessment. The outputs of the assessment are presented in the EIA Report which contains: information regarding the project, the Baseline scenario, the likely significant effect of the project, 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.



Information and Consultation

The Competent Authority makes the EIA Report available to authorities with environmental responsibilities, local and regional authorities and to other interested organisations and the public for review. They are given the opportunity to comment on the project and its environmental effects.



Decision Making and Development Consent The Competent Authority examines the EIA report including the comments received during consultation and issues a Reasoned Conclusion on whether the project entails significant effects on the environment. This must be incorporated into the final Development Consent decision.



Information on Development Consent

The public is informed about the Development Consent decision.



Monitoring (as appropriate)

During construction and operation phase of the project the Developer must monitor the significant adverse effects on the environment identified as well as measures taken to mitigate them.

GUIDANCE ON THE ASSESSMENT REPORT	PREPARATION	OF	THE	ENVIRONMENTAL	IMPACT

### 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' 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.

<sup>&</sup>lt;sup>1</sup> 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

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;

<sup>&</sup>lt;sup>2</sup> 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 Project<sup>3</sup>;
  - •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)<sup>4</sup> 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.

<sup>&</sup>lt;sup>3</sup> For example, such a requirement is already included in the French legislation concerning EIAs.

# 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)

#### 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 proposals<sup>5</sup>. 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 substances<sup>6</sup> or the Directive establishing a Community framework for the nuclear safety of nuclear installations<sup>7</sup>. 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.

<sup>&</sup>lt;sup>5</sup> 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.

<sup>&</sup>lt;sup>6</sup> 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.

<sup>&</sup>lt;sup>7</sup> 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 lead 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 Owendalulleegh 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

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 services, the loss and degradation of habitats, the loss of species diversity, and the loss of genetic diversity.

<sup>&</sup>lt;sup>8</sup> 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 2008<sup>9</sup>, 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;

<sup>&</sup>lt;sup>9</sup> 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 Helcom<sup>10</sup> 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 planning<sup>11</sup> 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.

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,

# 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 environmental 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 Straßwalchen 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 edition 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 States<sup>12</sup> 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.

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

Milieu Ltd COWI A/S 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	<ul> <li>Impact avoidance by:</li> <li>Changing means or techniques, not undertaking certain Projects or components that could result in adverse impacts.</li> <li>Changing the site, avoiding areas that are environmentally sensitive.</li> <li>Putting in place preventative measures to stop adverse effects from occurring.</li> </ul>
Measures to reduce	<ul> <li>Impact minimisation by:</li> <li>Scaling down or relocating the Project.</li> <li>Redesign elements of the Project.</li> <li>Using a different technology.</li> <li>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).</li> </ul>
Measures to offset	Offset or compensate for residual adverse impacts that cannot be avoided or further reduced in one area with improvements elsewhere with:  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) 3<sup>rd</sup> 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  $35^{13}$  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.

<sup>&</sup>lt;sup>13</sup> 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 Directive<sup>14</sup>.

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

-

<sup>&</sup>lt;sup>14</sup> 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 requir	rements for other EU environmental legislation
Appropriate assessment (Habitats Directive)	<ul> <li>Monitoring is considered good practice.</li> <li>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).</li> </ul>
SEA	<ul> <li>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)).</li> <li>The EIA Report shall include 'a description of the measures envisaged concerning monitoring' (Annex I (i)).</li> <li>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.</li> <li>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.</li> </ul>
IED	<ul> <li>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.</li> <li>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)).</li> <li>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.</li> </ul>
WFD	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).

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

# 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 expost 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 ar	nd listing
Benefits	Drawbacks
<ul> <li>Experts have same minimum level of knowledge as peers;</li> <li>Suitability checked using application criteria;</li> <li>Developers can easily find suitable experts;</li> <li>Added transparency to the process of selecting experts.</li> </ul>	<ul> <li>Limits the use of specialist experts not on the list;</li> <li>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);</li> <li>List must be updated regularly;</li> <li>List must possess enough experts with a knowledge of each local level and each type of impact.</li> </ul>

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 exam	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 (Moniteur Belge)	Brussels Government in Council  Annual publication of the list of accredited individuals/companies in Official Journal (Moniteur Belge)			
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	<ul> <li>Temporary or permanent withdrawal under different circumstances:</li> <li>disrespect of the Walloon Code of Environment</li> <li>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.</li> </ul>	Temporary or permanent withdrawal under different circumstances:  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.

-

<sup>&</sup>lt;sup>15</sup> 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 (*Instituto 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: Example	s of quality review in	Cyprus, France, Italy (	and the Netherlands	
Member State and body	Cyprus EIA Committee (Επιτροπή Εκτίμησης Περιβαλλοντικών Επιπτώσεων) <sup>16</sup>	France General Council of Environment and Sustainable Development (CGEDD) acting as Environmental Authority <sup>17</sup>	Italy Technical Commission for environmental impact assessment <sup>18</sup>	Netherlands 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	responsible for EIA Screening examines the content of each EIA Report consults the Competent Authority with regard to any EIA issues	Acts as Competent Authority for certain Projects (and all plans and programmes, cf. SEA).  Oversees the EIA process:  responsible for EIA Scoping issues an opinion on the quality of the EIA Report	Acts as an advisory body:  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.	During or after preparation of the EIA Report:  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.

<sup>&</sup>lt;sup>16</sup> The creation of the Committee is provided under Article 5 of the main law on EIA (Law 140(I)/2005 – as amended).

Milieu Ltd COWI A/S

<sup>&</sup>lt;sup>17</sup> Autorité environnementale du Conseil général de l'Environnement et du Développement durable

<sup>18</sup> 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 appointment 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 possible<sup>19</sup>.

At the Member State level, there may be national time limits established for challenging the decision that must be complied with.

<sup>&</sup>lt;sup>19</sup> A. Andrusevych, T. Alge, C. Konrad (eds), Case Law of the Aarhus Convention Compliance Committee 2004-2011, 2<sup>nd</sup> 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 Milieu Ltd

#### 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

SE	CTION 1 DESCRIPTION OF TH	E PRO	JECT	
	Review Question			What further information is needed?
		5	oly Spe	
		var	aate SSe	
o Z		Relevant?	Adequately Addressed?	
			ĂĂ	
	pjectives and Physical Characteristics of the Pr	oject		
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			
1.4	Part C of the Scoping Guidance Document in this series)  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?			

SEC	SECTION 1 DESCRIPTION OF THE PROJECT				
	Review Question			What further information is needed?	
		ıt?	ely ed?		
		var	uat		
No.		Relevant?	Adequately Addressed?		
	The second secon	ш	Α̈́Α		
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:				
The Siz	ze of the Project		1		
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				
1.17	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				
1.22	people or businesses, have the numbers and				
	other characteristics of those displaced been				
	described?				

SEC	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	ш	ĕĕ	
	type, volume, temporal pattern, and geographical distribution of new traffic generated or diverted as a consequence of the			
Dona don	Project been described?			
	ction 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?  • 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)  • during construction;  • during operation;  • during decommissioning.			

SE	SECTION 1 DESCRIPTION OF THE PROJECT				
ON	Review Question	Relevant?	Adequately Addressed?	What further information is needed?	
1.31	Have the Project's environmentally relevant social and socio-economic implications been discussed? Will employment be created or lost	ш.	<b>44</b>		
	as a result of the Project, for instance?     during construction;     during operation;     during decommissioning.				
1.32	Have the access arrangements and the number of traffic movements involved in bringing workers and visitors to the Project been estimated?  • during construction; • during operation; • during decommissioning.				
1.33	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)				
Residu	les and Emissions		<u> </u>		
1.34	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)  • during construction; • during operation; • during decommissioning.				
1.35	Have the composition and toxicity, or other hazards from all solid wastes produced by the Project, been discussed?				
1.36	Have the methods for collecting, storing, treating, transporting, and finally disposing of these solid wastes been described?				
1.37	Have the locations for the final disposal of all solid wastes been discussed, in consideration with the Waste Management Plan(s) concerned?				
1.38	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)  understand during construction; during operation; during decommissioning.				

SE	SECTION 1 DESCRIPTION OF THE PROJECT				
	Review Question		۸.	What further information is needed?	
		ınt?	tely sed		
		Relevant?	qua		
No		Re	Adequately Addressed?		
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				
4 44	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)				
	during construction;				
	<ul><li>during operation;</li><li>during decommissioning.</li></ul>				
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				
1.47	storing these emissions been described?  Have the locations for the storage of all				
1.47	emissions identified and the characteristics of				
	the storage unit been identified? (e.g. type of				
4 40	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?		]		

SE	CTION 1 DESCRIPTION OF TH	E PRO	JECT		
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?	
Risks	of Accidents and Hazards				
1.52	<ul> <li>Have any of the risks associated with the Project been discussed?</li> <li>risks from handling of hazardous materials;</li> <li>risks from spills fire, explosion;</li> <li>risks of traffic accidents;</li> <li>risks from breakdown or failure of processes or facilities;</li> <li>risks from exposure of the Project to natural disasters (earthquake, flood, landslide etc.).</li> </ul>				
1.53	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.)				
1.54	Is there a plan in place detailing the preparedness for an emergency (e.g. suggested as part of the EIA Report's Mitigation measures)?				
1.55	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?				
Other	Other Questions on Description of the Project				

	SECTION 2 DESCRIPTION OF ENVIRONMENTAL FACTORS LIKELY TO BE AFFECTED BY THE PROJECT				
	Review Question	Relevant?	Adequately Addressed?	What further information is needed?	
N O		ď	ă ă		
Baselii	ne: 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 C	ollection 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				
ON	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 Environme	ent 		

	CTION 3 DESCRIPTION OF THE I	LIKELY	' SIGI	NFICANT EFFECTS OF THE
Ö	Review Question	Relevant?	Adequately Addressed?	What further information is needed?
Scopin	g 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?			
Predict	tion 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 SIGNFICANT EFFECTS OF THE PROJECT				
O	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				

	SECTION 3 DESCRIPTION OF THE LIKELY SIGNFICANT EFFECTS OF 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 <a href="http://europa.eu.">http://europa.eu.</a> <a href="http://europa.eu.">environment/eia/eia-support</a>			
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?			
Predict	ion of Effects on Human Health and Sustainab	le Develo	pment I	ssues
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?			
	tion 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 SIGNFICANT 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 C	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?				

SEC	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		

SEC	SECTION 5 DESCRIPTION OF MITIGATION				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?	
		œ	4 4		
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 C	Questions on Mitigation	-	1		

SEC	SECTION 5 DESCRIPTION OF MITIGATION				
No.	Review Question	Relevant?	Adequately Addressed?	What further information is needed?	

SEC	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 0	Questions on Monitoring Measures				

SEC	SECTION 7 QUALITY				
	Review Question	Relevant?	Adequately Addressed?	What further information is needed?	
No.		Re	A A		
	of presentation	ı	ı		
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-Te	chnical 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?				

SE	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?				
Expert	ise				
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 cost<sup>20</sup>, 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;

<sup>&</sup>lt;sup>20</sup> 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	Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment		
Relevant EU guidance:	<ul> <li>Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive;</li> </ul>		
	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;		
	<ul> <li>Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs).</li> </ul>		

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> <li>Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna</li> </ul>
Birds Directive	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> <li>Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive;</li> <li>Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs)</li> <li>Commission guidance on Managing Natura 2000 sites: the provisions of Article 6 of Directive 92/43/EEC</li> </ul>
	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		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> <li>Commission guidance document on Streamlining environmental assessments conducted under Article 2(3) of the EIA Directive</li> </ul>
		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 (MFSD) 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	For	mal 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 EU guidance:	•	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> <li>Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives</li> </ul>			
Relevant I guidance:	EU	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	■ Directive 2010/75/EU of the European Parliament and the Council on industrial emissions
Relevant EU guidance:	<ul> <li>Guidance under Article 13(3)(c) and (d) of the IED;</li> <li>Commission Communication on the elaboration of baseline reports under Article 22(2) of the IED.</li> </ul>

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 EU guidance:	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:

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	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	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> <li>Regulation (EU) No 347/2013 Of The European Parliament and of The Council</li> <li>of 17 April 2013 on guidelines for trans-European energy infrastructure.</li> </ul>
Connecting Europe Facility: financing for TENs	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> <li>Commission guidance on Streamlining environmental assessment procedures for energy infrastructure Projects of Common Interest (PCIs).</li> </ul>

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	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	United National Economic Commission for Europe Convention on Environmental Impact Assessment in a Transboundary context.
	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.

	•	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 =	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**

•	A. Andrusevych, T. Alge, C. Konrad (eds), Case Law of the Aarhus Convention Compliance Committee 2004-2011, 2nd edition
•	Chartered Institute of Ecology and Environmental Management, Guidelines for ecological impact assessment in the UK and Ireland, Terrestrial, Freshwater, and Coastal, January 2016
•	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
•	Commission, Assessment of resource efficiency indicators and targets
•	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)
•	Commission, DG Climate Action, Non-paper, Guidelines for Project Managers: Making vulnerable investments climate resilient
	Conservation of Figure 1 and 1 and 1 ACCED and all linear size at the second to a second time at
•	Commission Final report on MSFD and licencing and permitting
	Commission guidence decument on Non energy mineral sytraction and Netura 2000
	Commission guidance document on Non-energy mineral extraction and Natura 2000
•	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)
•	Commission guidance document no 7. Monitoring under the Water Framework Directive
•	Commission guidance document no 20. Exemptions to the Environmental Objectives
•	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
-	inland waterway development and management in the context of the EU Birds and Habitats
	inland waterway development and management in the context of the EU Birds and Habitats Directives  Commission guidance on Aquaculture and Natura 2000, Sustainable aquaculture activities in the



- Commission Support assessment tools, Tools developed to support the assessment of the marine environment under the MSFD
- Commission Staff Working Document, Better Regulation Guidelines
- European Environment Agency Land and Ecosystem Accounting European Topic Centre Terrestrial Environment, LEAC methodological guidebook

EMEC, Environmental impact assessment (EIA) guidance for developers at the European Marine **Energy Centre** European Investment Bank, Methodologies for the Assessment of Project GHG Emissions and **Emission Variations** Global Marine Environment Protection, Initiative Global Marine Information System, Environmental Marine Information System IEMA Quality Mark Article: 'What are the changes of that' - Probability and its Role in Determining Impact Significance Imperia (EU LIFE+ funded project), Improving Environmental Assessment by Adopting Good Practices and Tools of Multi-criteria Decision Analysis Jalava, K., et al., (2010) Quality of Environmental Impact Assessment: Finnish ElSs and the opinions of EIA professionals, Impact Assessment and Project Appraisal, 28:1, 15-27 Justice and Environment, Good Examples of EIA and SEA Regulation and Practice in five European Union Countries, 2008 Lawrence D.: Significance Criteria and Determination in Sustainability-Based Environmental Impact Assessment Netherlands Commission for Environmental Assessment & CBD-Ramsar-CMS, Voluntary Guidelines on biodiversity-inclusive Environmental Impact Assessment OSPAR, Assessment of the Environmental Impact of Offshore Wind-farms Renewables Grid Initiative, Good Practice of the Year 2016 award RPS, Environmental impact assessment practical guidelines toolkit for marine fish farming Schmidt, M., Glasson, J., Emmelin, L. and Helbron, H., Standards and Thresholds for Impact Assessment, 2008. Scottish Natural Heritage, A handbook on environmental impact assessment: Guidance for Competent Authorities, Consultees and others involved in the Environmental Impact Assessment Process in Scotland

http://www.snh.gov.uk/publications-data-and-research/publications/search-thecatalogue/publication-detail/?id=2098

- Sixth Framework Programme, Specific Targeted Research or Innovation Project Risk Assessment D
   3.2 Report WP 3
- Slootweg, Roel; Kolhoff, Arend, Generic approach to integrate biodiversity considerations in screening and scoping for EIA
- UK Environment Agency: Environmental Impact Assessment (EIA), A handbook for Scoping projects
   <u>https://www.gov.uk/government/publications/handbook-for-scoping-projects-environmental-impact-assessment</u>
- UK Department of Energy & Climate Change, Guidance notes on the offshore petroleum production and pipelines (assessment of environmental effects) regulations 1999 (as amended), October 2011
  <a href="https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/193705/eiaguidancenote.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/193705/eiaguidancenote.pdf</a>
- UNFCCC, Highlights of the contribution of the Nairobi work programme, Assessing climate change impacts and vulnerability, making informed adaptation decisions





Institute of Environmental Management & Assessment (IEMA) Guide:

Assessing Greenhouse Gas Emissions and Evaluating their Significance

2nd Edition



# Contents

Ackno	wledgements	3
List of	Abbreviations / Glossary	4
1	Introduction	5
2	Mitigation	9
3	Screening	12
4	Scoping	13
5	GHG Emissions Assessment Methodology	15
6	Significance	23
7	Communication / Reporting	31
Apper	ndix A – Potential Stakeholders and Sources of GHG Information	33
Apper	ndix B – Standards for GHG Emissions Assessment	35

## Acknowledgements

## Working group

This practitioner's guide has been developed by IEMA and EIA professionals working for organisations registered to the EIA Quality Mark

The project was co-authored by the GHG Working Group, coordinated by Arup along with the assistance of Rufus Howard and Nick Blyth of IEMA.

The Working group is composed of:

James Blake (Turley)

Tom Dearing (RPS)

Caroline Dinnage (Stantec)

Roz Griffiths (Arup)

Kirsten Leggatt (Sweco / Arup)

Emma Marsland (Arup)

Michael Pantling-Skeet (Ramboll)

Joe Parsons (RHDHV)

Tom Peacock (Buro Happold)

James Peet (WSP)

Andrew Tasker (RPS)

George Vergoulas (Arup)

Joanna Wright (LUC)

#### **About IEMA**

The Institute of Environmental Management  $\vartheta$  Assessment (IEMA) is the professional home of over 18,000 environment and sustainability professionals from around the globe. We support individuals and organisations to set, recognise and achieve global sustainability standards and practice. We are independent and international, enabling us to deliver evidence to governments, information to business, inspiration to employers and great stories to the media that demonstrate how to transform the world to sustainability.

Join us at

# List of Abbreviations / Glossary

BaU - Business as Usual

**BIM** – Building Information Modelling

**BREEAM** – Building Research Establishment Environmental Assessment Method

**CEEQUAL** – Civil Engineering Environmental Quality assessment scheme

**CEMP** – Construction Environmental Management Plan

**CEN** – European Committee for Standardization

Climate change – changes in general weather conditions over 30 years (seasonal averages and extremes)

Climate Change Adaptation – the process that a receptor or project must go through to ensure it maintains its resilience to climate change

Climate Change Resilience – a measure of ability to respond to changes in climate. If a receptor or project has a good climate change resilience, it is able to respond to the changes in climate in a way that ensures it retains much of its original function and norm

**CCC** – Climate Change Committee

**DBEIS** − Department for Business, Energy & Industrial Strategy

**DEFRA** − Department for Environment, Food & Rural Affairs

**DfT** – Department for Transport

EIA - Environmental Impact Assessment

EMP – Environmental Management Plan

**EPD** – Environmental Product Declaration

ES - Environmental Statement

**F-gases** – a group of greenhouse gases called fluorinated gases, consisting of HFCs, PFCs and SF6

**GHG** - Greenhouse Gases

GHG practitioner – an environmental consultant with specific experience and knowledge pertaining to GHG modelling and reporting; not to be confused with EIA practitioners who typical have a wider EIA delivery role overseeing the coordination of all environmental topics in an ES

IA – Impact Assessment

**IEMA** – the Institute of Environmental Management and Assessment

IPCC - Intergovernmental Panel on Climate Change

kWh - kilowatt-hour

LCA – Life Cycle Assessment is a cradle-to-grave or cradle-to-cradle analysis technique to assess environmental impacts associated with all the stages of a product's life, which is from raw material extraction through materials processing, manufacture, distribution, and use.

**LICR** – Large Infrastructure Carbon Rating

**LPA** – Local Planning Authority

**LULUCF** – Land Use, Land-Use Change and Forestry

**TCFD** – Task Force on Climate-related Financial Disclosures

tCO<sub>2</sub>e - tonnes of carbon dioxide equivalent

**UK** - United Kingdom

**UNFCCC** – United Nations Framework Convention on Climate Change

**WBCSD** – World Business Council for Sustainable Development

**WRI** – World Resource Institute

## I – Introduction

#### 1.1 The aim of this guidance

The aim of this guidance is to assist greenhouse gas (GHG) practitioners (hereinafter referred to as 'practitioners') with addressing GHG emissions assessment, mitigation and reporting<sup>1</sup> in statutory and non-statutory Environmental Impact Assessment (EIA). It is a revision of the 2017 IEMA guidance on Assessing Greenhouse Gas Emissions and Evaluating their Significance<sup>2</sup> (Box 1 lists the key updates from the 2017 version of the guidance). It complements IEMA's latest guide on Climate Change Resilience and Adaptation<sup>3</sup> published in 2020 and builds on the Climate Change Mitigation and EIA overarching principles (as in the previous version of the GHG Guidance). The requirement to consider this topic has resulted from the 2014 amendment to the EIA Directive (2014/52/EU), the Town and Country Planning (Environmental Impact Assessment) Regulations 20174 and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017<sup>5</sup>, hereafter referred to as the 'EIA Regulations'.

A lot has changed since 2017. Climate change has moved up the national and international agenda with local authorities across the UK declaring a climate change emergency. The UK's legally binding Climate Change Act 2008<sup>6</sup> was amended in 2019<sup>7</sup> in response to the Paris Agreement, setting a new and challenging target to reduce UK GHG emissions to net zero by 2050, accounting for residual emissions which are offset. Devolved administrations in Scotland and Wales have also set net zero targets. In December 2020, the UK Government's independent advisors, the Climate Change Committee (CCC), set the sixth<sup>8</sup> carbon budget at 965 million tCO<sub>2</sub>e from 2033 to 2037, which has since been enshrined in to law. There is a distinct requirement for deeper cuts in emissions across all sectors of the economy to meet the net zero target according to the CCC.

- 1 Note: Statutory EIA reports are called 'Environmental Statements' in England, Wales and Northern Ireland and 'Environmental Reports' in Scotland.
- 2 IEMA (2017) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at:
- 3 IEMA (2020) Climate Change Resilience and Adaptation. Available at:
- 4 UK Legislation (2017) The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/571/contents/made
- 5 UK Legislation (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/contents/made
- 6 UK Legislation (2008) Climate Change Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents
- 7 UK Legislation (2019) The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654
- 8 UK Legislation (2021) The Carbon Budget Order 2021. Available at: https://www.legislation.gov.uk/uksi/2021/750/contents/made

#### Box 1: Key updates to the 2017 guidance

Mitigation has taken a much more prominent role within the EIA. It is no longer an element to be considered towards the later stages of the EIA process (after scoping, emissions assessment and significance determination). Instead, mitigation should be considered from the outset and throughout the project's lifetime, whilst also helping to deliver proportionate EIAs. Mitigation is addressed first in the guidance (Section II) but also as part of the GHG Assessment Methodology (Section V).

The guidance presents more nuanced levels of significance. The 2017 guidance stated that "...in the absence of any significance criteria or defined threshold, it might be considered that all GHG emissions are significant...". This update of the guidance does not change IEMA's position (or the science) that all emissions contribute to climate change, however specifically in the EIA context it now provides relative significance descriptions to assist assessments. Section VI describes five distinct levels of significance which are not solely based on whether a project emits GHG emissions alone, but how the project makes a relative contribution towards achieving a science-based 1.5°C aligned transition towards net zero

In November 2021 Glasgow hosted COP26 – widely regarded as the most important climate summit since the 2015 Paris Agreement and acknowledging the urgency (as evidenced by latest IPCC reports), the Glasgow Climate Pact was agreed. This set the agenda on climate change for the next decade. Pledges made to further cut emissions, and a plan set to reduce the use of coal and phase-out fossil fuel subsidies are some of the commitments made at COP26. The nations present at COP26 collectively agreed to work to reduce the 'emissions gap' and to ensure that the world continues

to advance during the present decade, so that the rise in the average temperature is limited to 1.5°C.

With climate change taking centre stage, projects are increasingly scrutinised and challenged for not mitigating GHG emissions in line with the net zero ambition and the associated required pace of reductions<sup>9</sup>. This critical change is known as the transition imperative. EIA Climate chapters are receiving a lot more attention with clients, project developers and stakeholders often asking: 'what do we need to do and how can we be net zero?'. Addressing significance and contextualising projects' emissions is an increasingly challenging exercise, especially under a tapestry of national and sectoral carbon targets and budgets, regional and local plans and sectors all on different pathways. This guide aims to provide practitioners with the best advice on how to tackle these questions.

Through a working group facilitated by Arup on behalf of IEMA, this guidance helps practitioners take an informed approach to the treatment of GHG emissions within an EIA. It sets out areas for consideration at all stages of the assessment and offers methodological options that can be explored. It highlights some of the challenges to the assessment, such as establishing study boundaries and what constitutes significance. However, this guidance is not a prescriptive 'how to' guide and will be updated as the process of incorporating GHG assessment in EIA continues to mature.

#### 1.2 EIA and project linkage

EIAs can often be undertaken in silo, separate from the full design process, resulting in an accounting exercise rather than realising the full potential of the GHG emissions reduction opportunity. This can be addressed by delivering the EIA in close cooperation with the project design team.

<sup>9</sup> The pace of reduction should align with a credible 1.5°C transition scenario (for example Science Based Targets Initiative Net Zero or Tyndall Centre aligned carbon budget)

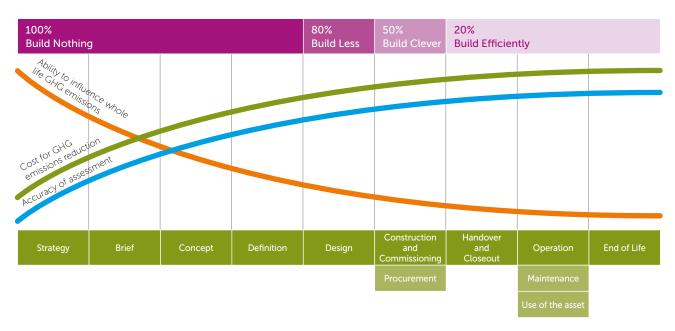


Figure 1: The ability to effect change to achieve GHG emissions reduction for the project reduces over time. This makes it important that the emissions reduction is considered from the outset or at the earliest practical point. (Source: Infrastructure Carbon Review & PAS 2080).

Early stakeholder engagement is fundamental to maximising GHG emissions savings. GHG reductions are likely to be greater if mitigation is considered at project inception and throughout all subsequent work phases: planning, construction and operation stages – enabling mitigation measures to be identified and implemented throughout the life cycle of the proposed project. Examples of stakeholders can be found in Appendix A. Figure 1 illustrates how the potential to achieve GHG emissions reduction declines with time over a project life cycle.

The interaction between the design process and EIA process is underpinned by four key principles:

- 1. Early, effective and ongoing interaction
- 2. Appropriate stakeholder engagement
- 3. Managing consenting risk
- 4. A clear narrative

For further detail on these principles and ensuring that GHG mitigation measures are built in rather than bolted on at a later stage, refer to IEMA's EIA guide on Shaping Quality Development<sup>10</sup>.

The need to ensure that GHG mitigation measures are implemented does not end at the pre-application EIA stage, but extends after consent has been granted to the proposed project. To ensure that GHG mitigation measures are carried forward, the development of Environmental Management Plans (EMP) and Construction Environmental Management Plans (CEMP) are the primary mechanisms. For further information refer to IEMA's EIA guide to Delivering Quality Development<sup>11</sup>.

The scope of this document is presented in Figure 2.

- 10 IEMA (2015) Environmental Impact Assessment Guide to Shaping Quality Development. Available at:
- 11 IEMA (2016) Environmental Impact Assessment Guide to Delivering Quality Development. Available at:

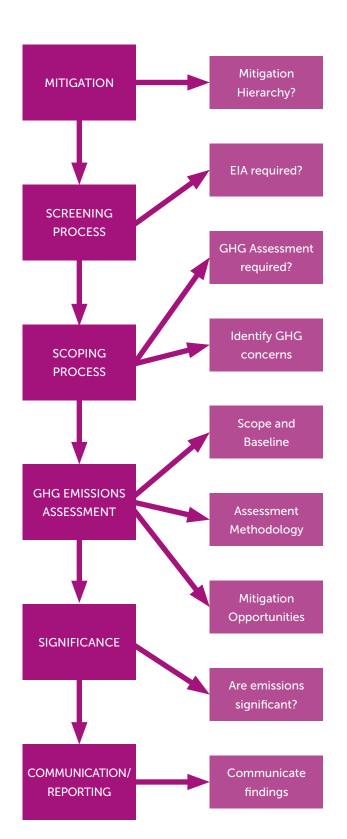


Figure 2: Scope of this guide

- Early mitigation is a key aspect of an EIA as it enables maximum GHG reduction
- PAS 2080, EIA GHG emissions mitigation and IEMA GHG hierarchy provide a structure for effective mitigation
- Screening establishes whether an EIA is required for 'Annex II' developments
- 'Annex I' developments by definition require an EIA
- Where an EIA is to be undertaken based on other factors, it is envisaged that the assessment would include GHG emissions assessment as a matter of routine as a precautionary approach
- Engage with stakeholders (e.g. local planning authorities, clients etc)
- Consider the nature of the project what is the project's purpose?
- Identify key contributing GHG sources or activities where possible
- Establish the scope and methodology of the GHG assessment
- Step 1: Set the scope and boundaries of the assessment: System Boundaries and the Temporal Boundaries.
- Step 2: Develop the baseline: Current, Future and Alternative
- Agree the calculation and data collection method
- Calculate which activities are included/excluded
- Gather activity data for the proposed project
- Assign GHG emission factors
- Assess the data quality in line with PAS 2080
- Once the magnitude of emissions have been determined mitigation measures should be proposed
- Assessment should be proportional to the project size and type
- All GHG emissions from projects will contribute to climate change and may be considered significant.
   This is in line with IEMA's Climate Change Principles.
- How should the GHG topic be reported in the wider EIA process?
- Is it a separate topic/chapter or can elements be integrated into relevant 'conventional' topics?

## II – Mitigation

#### 2.1 Early design mitigation

It is important that project designers incorporate measures to reduce GHG emissions at an early stage. This means evaluating what GHG emissions reduction measures may be appropriate to include in the design. Mitigation should be considered at all stages of design development – from optioneering through to detailed design, not just as a part of the EIA process (see Figure 1). To successfully address GHG emissions at an early stage, it is good practice to ensure there is a 'carbon coordinator' within the design team, who focuses on promoting GHG saving opportunities and ensures GHG reduction is a focus of the design team.

GHG mitigation is best achieved by taking a planned and focused approach following the IEMA GHG management hierarchy principles<sup>12</sup>. There are many different variations on the use of hierarchies in environmental management and assessment, with the commonality that they set out a graded structure of interventions with generally more favourable options presented over others. Such structures typically start with first avoiding or reducing harm, before suggesting compensations. Depending on the proposed project and contextual setting, the practical outcomes of this can be many and diverse. In addition to mitigations listed in IEMA's GHG Management Hierarchy, BS EN ISO 14064-1: 2019<sup>13</sup> on GHG quantification and reporting provides an example list of GHG mitigation interventions such as:

- Energy demand and use management
- Energy efficiency
- Technology or process improvements
- GHG capture and storage in, typically, a GHG reservoir

- Management of transport and travel demands
- Fuel switching or substitution
- Afforestation
- Waste minimisation
- Alternative fuels and raw materials (AFR) use to avoid landfilling or incinerating the wastes
- Refrigerant management

#### 2.2 Mitigation hierarchy

For EIA GHG emissions mitigation, PAS 2080 also provides a useful structure for working through and identifying potential opportunities and interventions. The IEMA GHG Management Hierarchy<sup>14</sup> (see Figure 3) provides a similar structure set out as **eliminate**, **reduce**, **substitute** and **compensate**. A variation of these steps is set out below and can be followed by practitioners in the EIA to identify opportunities that direct GHG mitigation action for a project:

- Do not build: evaluate the basic need for the proposed project and explore alternative approaches to achieve the desired outcome/s
- Build less: realise potential for re-using and/or refurbishing existing assets to reduce the extent of new construction required
- Design clever: apply low carbon solutions (including technologies, materials and products) to minimise resource consumption and embodied carbon during the construction, operation, user's use of the project, and at end-of-life
- Construct efficiently: use techniques (e.g. during construction and operation) that reduce resource consumption and associated GHG emissions over the life cycle of the project
- 12  $\,$  IEMA (2020) Pathways to Net Zero: Using the IEMA GHG Management Hierarchy.
- 13 BS EN ISO 14064-1: 2019 Greenhouse gases Part 1: specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals.
- 14 IEMA (2014) Position Statement on Climate Change and Energy. Available at

## IEMA Greenhouse Gas Management Hierarchy (updated 2020)

#### Eliminate

- Influence business decisions/use to prevent GHG emissions across the lifecycle
- Potential exists when organisations change, expand, rationalise or move busines
- Transition to new business model, alternative operation or new product/service

#### Reduce

- Real and relative (per unit) reductions in carbon and energy
- Efficiency in operations, processes, fleet and energy managemen
  - Optimise approaches (eg technology) and digital as enablers

#### Substitute

- Adopt renewables/low-carbon technologies (on site, transport etc)
- Reduce carbon (GHG) intensity of energy use and of energy purchased
- Purchase inputs and services with lower embodied/embedded emissions

#### Compensate

- Compensate 'unavoidable' residual emissions (removals, offsets etc)
- Investigate land management, value chain, asset sharing, carbon credits
- Support climate action and developing markets (beyond carbon neutral)

Updated from original IEMA GHG Management Hierarchy, first published in 2009

Figure 3: IEMA GHG Management Hierarchy

 Offset and remove emissions: as a complementary strategy to the above, adopt off-site or on-site means to offset and/or sequester GHG emissions to compensate for GHG emissions arising from the project

#### 2.3 Offsetting residual emissions

Multiple terms are used to describe how offsets are used to mitigate residual emissions, and projects may sometimes be promoted as 'carbon neutral' or 'net zero'. It is important that the EIA is clear in defining any terms used. Figure 3 above sets out the position of carbon offsets (referred to as 'Compensate' in Figure 3) in the mitigation hierarchy. There is a distinction between carbon offsets that provide a financial payment to avoid emissions and offsets that remove and sequester atmospheric GHG emissions, and this should be communicated transparently where offsetting is assessed in an ES chapter.

The October 2021 IEMA's Net Zero Explained report<sup>15</sup> summarises the concept of net zero, its origin and science behind the definition. The report also links to alternative sites providing some clarity behind evolving definitions, such as net zero, carbon neutral and zero carbon. The UNFCCC's Race to Zero Lexicon<sup>16</sup> provides the following definitions:

- Net Zero: "When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period." Net zero is achieved where emissions are first reduced in line with a 'science-based' trajectory with any residual emissions neutralised through offsets.
- Carbon Neutral: "When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period... irrespective of the time period or magnitude of offsets required."
- 15 IEMA (2021) Net Zero explained. Available at:
- 16 UNFCCC (2021) Race to Zero Lexicon. Available at:

 Absolute Zero or Zero Carbon: "When no GHG emissions are attributed" to an activity or project without the need for offsets.

After following the mitigation hierarchy, projects can seek to compensate residual emissions by the use of either carbon credits (purchased from credible eligible schemes) or by removals within the organisation or entity itself (e.g. nature based solutions on owned land or land with partners). In order to avoid significant adverse effects, mitigation and compensation (if required) would need to be implemented at a magnitude and in a timescale that is consistent with measures required to achieve a 1.5°C compatible trajectories, as discussed in Section VI on determining significance of effects.

## III - Screening

The purpose of screening is to establish whether or not an EIA is required for 'Schedule 2' developments (Schedule 1 developments by definition require an EIA). The EIA Regulations require specific information at the screening stage. This includes the consideration of likely significant effects of the proposed project on the environment, taking into account the following:

- The magnitude and spatial extent of the impact (e.g. the geographical area and size of the population likely to be affected)
- The nature of the impact
- The transboundary nature of the impact
- The intensity and complexity of the impact
- The probability of the impact
- The expected onset, duration, frequency and reversibility of the impact
- The cumulation of the impact with the impact of other existing and/or approved projects
- The possibility of effectively reducing the impact

Applying screening criteria (Schedule 3) will allow a judgement to be made on whether there is potential for likely significant environmental effects to arise which may trigger the need for an EIA. Occasionally, this may apply to only a very limited number of topics, for example in a sensitive location for a relatively small-scale project. Generally, however, where an EIA is required, it is common for there to be several topics that require assessment. As the assessment of most topic areas is well established (e.g. ecology, water, heritage), it is usually clear cut which topics trigger the need for EIA.

#### Sensitivity of receptor(s)

GHG emissions are not geographically limited. They have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. The receptor for GHG emissions is the global atmosphere. The receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources.

It is always good practice to consider whether the effects associated with GHG emissions are likely to be significant enough to trigger an EIA. At the screening stage, proposed mitigation measures that the developer has committed to which aim to avoid or prevent significant adverse effects, may be taken into account when determining whether significant effects are likely to occur.

It should be noted that, as with most environmental topics, there are likely to be only limited cases in which GHG emissions alone are the decisive factor in whether an EIA is needed for a particular project, but in almost all cases GHG emissions are likely to be a relevant factor at the screening stage.

For proposed projects where the need for an EIA has been screened out, it is still important that its GHG emissions are minimised wherever possible, as emissions of any scale contribute cumulatively to global climate change. Undertaking a proportionate assessment of GHG emissions on non-EIA projects is therefore good practice to support decisions that reduce GHG emissions.

## IV - Scoping

#### 4.1 Introduction

The scoping process should be used to determine the approach to considering GHGs within the ES. The approach should be proportionate<sup>17</sup> to the proposed project and may, in some cases, not require an ES chapter where it can be justified that GHGs can be addressed within upfront sections of the ES (see further detail in Section V: Methodology, Section VI: Significance and Section VII: Communication/Reporting). Additionally, ES chapters may differ in scope or assessment detail on a project-by-project basis. The scoping process should therefore consider both the scope of the EIA and the scope of the GHG assessment.

The scoping process should provide an explanation of the likely significant effects of a proposed project. Section VI: Significance sets out the principles in determining likely significant GHG effects which should be reviewed at the scoping stage.

The following should be considered when determining a proportionate approach:

- The type, size, location and temporal scale of the proposed project
- Whether other assessment work has already considered life cycle GHG emissions
- Whether mitigation has already been agreed with the design team, particularly if this is beyond minimum policy requirements
- Whether the proposed project has specific goals or aspirations (e.g. achieving BREEAM certification)

In selecting or developing an approach for an EIA GHG emissions assessment, the aim should be to deliver a robust, proportionate, appropriate and consistent assessment.

During scoping, it is also important to set out in principle the methodological approach that will be taken to assessing project GHG emissions. This means documenting in outline aspects such as baseline setting, assessment approach, how significance will be determined and strategies for mitigation. These are commonly recorded in a project scoping report, and this can form a useful first record of the approach to delivering the GHG emissions assessment. Each of these steps for the EIA are addressed in the following sections, which should be consulted for further detail.

#### 4.2 Stakeholder engagement

Stakeholder engagement is an important part of undertaking an EIA, especially during the scoping stage. It will provide useful information and support the goals of the GHG emissions assessment.

Stakeholder engagement will provide the practitioner better contextual understanding of the project including on key issues, opportunities, constraints and information pertinent to the assessment. Stakeholders will include clients, project developers and statutory consultees who all have an interest and influence on the project.

Depending on the nature of the proposed project, GHG emissions can be discussed during public consultation. Initial consultation with the project team and wider EIA topic specialists may also reveal parallel activities where input from the GHG assessment would be beneficial. For example, clients may wish to report on the sustainability performance of their projects using assessment schemes such as PAS 2080, CEEQUAL and BREEAM. Being able to report on the proposed project's GHG performance will help with such assessments. It may be sensible that a single GHG assessment is carried out which provides evidence for the EIA's GHG scope as well as CEEQUAL or BREEAM assessment requirements. Depending on contractual agreements there are efficiencies to be gained in minimising effort and avoiding duplication of work.

17 IEMA (2017) Delivering Proportional EIA. Available at:

Other project management decisions may include the desire to manage the project in an integrated manner, combining 3D models with performance data (including environmental data) such as BIM (Building Information Modelling).

## 4.3 Benefits and challenges of raising GHG emissions as part of project scoping

By going through the scoping process, the practitioner gains an early and informed understanding of the project's impact and potential sources of GHG emissions. This provides an opportunity to influence and even mitigate GHG emissions early in the design process as well as consider emissions from alternative options.

The challenge at the scoping stage is that there is often limited project information available from the design team at this early stage, resulting in a qualitative-based decision and professional judgement from the practitioner. Nevertheless, by engaging with key stakeholders, the practitioner should be able to define the boundaries of the GHG assessment (see Section 5.3), as well as start to form a view of where the majority of emissions are likely to arise from and appropriate mitigation strategies.

Where the competent authority (e.g. LPA) provides a scoping opinion, the subsequent ES must be 'based on' the expectations set out in the opinion, including any reference to GHG assessment. This underlines the importance of the scoping stage; however, case law has established that the ES can also adapt to development design evolution that occurs post-scoping.

# V – GHG emissions assessment methodology

#### 5.1 Introduction

There are many different assessment methods available for measuring and quantifying GHG emissions associated with the built and natural environment. These range from general guidance to formal standards, and many will be appropriate for use in EIA depending on the goals and scope of the assessment required. There is ample GHG quantification guidance in the public domain. However, undertaking an EIA is different to other GHG assessments as the total net impact of the proposed project must be quantified. Therefore, any assessment should follow the principles set out below (see Section 5.2). A list of relevant methods can be found in Appendix B.

Given the wide variation of working situations and the particular aims and objectives of the EIA process, this guidance does not recommend a particular approach. Rather, it sets out advice for the key common components necessary for undertaking a GHG emissions assessment. This guidance does, however, outline a framework of six steps that an assessment should incorporate, which are set out in Section 5.3.

## 5.2 GHG quantification principles

- GHG quantification within EIA should follow the principles outlined in key documents such as the GHG Protocol Corporate Standard, BS EN ISO 14064-2 or PAS 2080 (see Appendix B) – Relevance, Completeness, Consistency, Transparency and Accuracy
- The assessment should seek to quantify the difference in GHG emissions between the proposed project and the baseline scenario (the alternative project/solution in place of the proposed project).
   Assessment results should reflect the difference in whole life net GHG emissions between the two options

- The assessment must include all material emissions (defined by magnitude, see Section 5.3, Step 3 for the exclusion threshold), direct or indirect (based on the point above), during the whole life of the proposed project. The boundary of the assessment should be clearly defined, in alignment with best practice
- The assessment should seek to present a reasonable worst case
- Any exclusions, limitations, assumptions and uncertainties should be justified and reported where appropriate

#### 5.3 Six Steps of GHG emissions assessment

In developing the approach, the aim should be to deliver a robust, proportionate, appropriate and consistent assessment. The following six steps outline the framework a GHG emissions assessment should incorporate:

- 1. Set the scope and boundaries of the GHG assessment
- 2. Develop the baseline
- 3. Decide upon the emissions calculation methodologies
- 4. Data collection
- 5. Calculate/determine the GHG emissions inventory
- 6. Consider mitigation opportunities and repeat steps 4 & 5

The following sections explore these aspects in more detail. The contextualisation of emissions and determination of significance is addressed in Section VI: Significance.

## Step 1: Set the scope and boundaries of the GHG assessment

In the first instance the assessment should set out the rationale for the assessment and its scope, as well as provide background and context. This will normally incorporate a description of the proposed project, its purpose and activities, the system boundary to apply and life cycle stages scoped in and out (including justification) of the assessment.

#### System boundaries

All material existing sources and removals of GHG emissions prior to project construction and operation (i.e. without the project) should be identified and clearly described.

EIAs should use data that is consistent with and report using the modular approach (Figure 4). A detailed and complete GHG emissions assessment typically covers all life cycle modules.

As projects vary in size, so does the scale of GHG assessments in the spirit of delivering proportionate EIAs. Certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance.

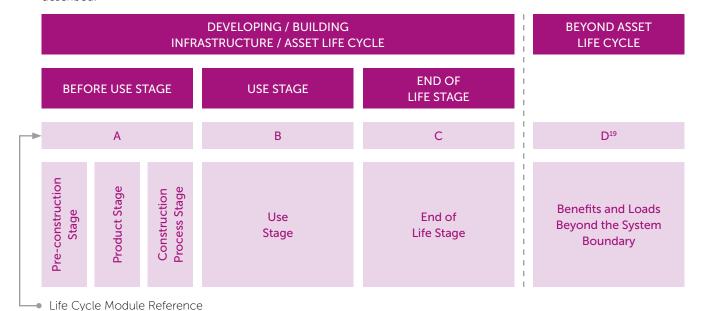


Figure 4: Modular approach of life cycle stages and modules for EIA GHG emissions assessment; the module references are widely used in construction GHG emissions assessment and reduction activities. The figure provides a simplified presentation of the modular approach that can be used for boundary definition and the gathering and reporting of information associated with the assessment. A more detailed presentation of this structure can be found in PAS 2080 and BS EN 15978<sup>20</sup>.

- 18 'For clarity, Module D in Figure 4 (Benefits and Loads Beyond the System Boundary) refers to wider impacts that may not be appropriate to attribute (in part or whole) to the project when calculating net impacts within the study boundary but are nevertheless relevant context to consider. Examples include the benefits of a project sending waste materials for recycling rather than disposal (which is properly attributed to the user of recycled products, but still relevant to acknowledge) or where a major project such as an airport or rail line might affect regional or national travel patterns and emissions (properly attributable to a wider group of transport users, but relevant to acknowledge in the project context).'
- 19 BS EN 15978:2011 Sustainability of construction works, Assessment of environmental performance of buildings, Calculation method

#### Temporal boundaries

A reference study period shall be chosen as the basis for the GHG emissions assessment, and this should be based on the expected service life of the construction asset. Additional assistance is available in ISO 15686-1<sup>20</sup>, RICS Whole life Carbon Assessment<sup>21</sup> and TAG GHG Assessment guidance<sup>22</sup>.

#### Step 2: Develop the baseline

A baseline is a reference point against which the impact of a new project can be compared against; sometimes referred to as 'business as usual' (BaU) where assumptions are made on current or future GHG emissions. Baseline can take the form of:

- A. GHG emissions within the boundary of the GHG quantification but without the proposed project; or
- B. GHG emissions arising from an alternative project design and/or BaU for a project of this type.

The ultimate goal of establishing a baseline is being able to assess and report the net GHG impact of the proposed project.

#### Current baseline

The current baseline represents existing GHG emissions from the assessment prior to construction and operation of the project under consideration. This may include emissions from existing projects (e.g. energy consumption from a building which is scheduled for refurbishment, demolition or replacement) and infrastructure (e.g. current operational and end-user emissions of a road due to be upgraded).

Depending on the nature of the project, in addition to the project baseline, it may also be necessary to establish a sectoral baseline. For example, baseline emissions from BaU power generation would also be important to consider due to the interconnected nature of the electricity grid. This will equally apply to other project types that have wider interlinkages beyond a site level, e.g. many transport, industrial and waste projects.

It may not always be possible to report on current baseline emissions, particularly with projects situated in areas with no physical development or activity. In this instance there would be zero GHG emissions to report at a site level, although particular attention should be paid where changes in land use are expected. For example, land use and land-use change such as woodland creation can sequester carbon over their lifetime and therefore contribute to climate change mitigation. Their disturbance or removal through construction will release previously sequestered GHG emissions.

- $20 \quad \text{ISO 15686-1:2011} \\ \text{Buildings and constructed assets} \text{Service life planning} \text{Part 1: General principles and framework} \\$
- 21 RICS (2021) Whole Life Carbon Assessment for the Built Environment, 1st edition. Available at:
- 22 Department for Transport (2021) TAG unit A3 environmental impact appraisal.

  Available at: https://www.gov.uk/government/publications/tag-unit-a3-environmental-impact-appraisal

#### Future baseline

Future baseline should capture both operational<sup>23</sup> and user<sup>24</sup> GHG emissions irrespective of their source (i.e. direct and indirect emissions). The distinction between operational and user GHG emissions is important. For example, an existing motorway will have operational emissions (i.e. lighting, maintenance, upgrades) as well as user emissions associated with vehicles travelling along the route. Current baseline travel patterns should be assessed as projected change (e.g. changes in mode share, increased efficiency in vehicles and trip numbers). With regards to energy supply and demand (e.g. electricity use in a commercial building), future baseline should report on operational GHG emissions and how these may change over time (e.g. based on occupancy changes, UK grid decarbonisation projection scenarios or the adoption of renewables).

Box 2 lists potential sources of information which can be considered when establishing future baseline emissions.

Box 2: Potential sources of information on GHG and energy projections (see Appendix A for further details)

- Modelled or projected future scenarios and pathways to net zero published by authoritative bodies such as the CCC<sup>25</sup>
- The Department for Business, Energy & Industrial Strategy (previously DECC)<sup>26</sup>
- The Department for Transport (DfT) TAG (the Transport Analysis Guidance) – Data Book<sup>27</sup>
- BEIS Electricity emissions to 2100 factor projections<sup>28</sup>
- GHG emissions from the operation of existing buildings can be estimated using published benchmarks (e.g. CIBSE Guide F – Energy Efficiency in Buildings (2012) or BSRIA Rules of Thumb Guidelines for Building Services (5th Edition, 2011)) where primary data such as annual metered energy consumption is not available
- GHG emissions associated with other sources or activities such as playing fields may be harder to estimate. It may be appropriate to assume zero baseline GHG emissions in such cases to ensure a reasonable worse-case approach to establishing the net GHG effect of the project. It could in such cases be important to also quantify (estimate) emissions release from the land used change and soil disturbance
- 23 PAS 2080:2016 Carbon Management in Infrastructure defines operational carbon as GHG emissions associated with the operation of infrastructure required to enable it to operate and deliver its service
- 24 PAS 2080:2016 Carbon Management in Infrastructure defines user carbon as GHG emissions associated with Users' utilisation of infrastructure and the service it provides during operation
- 25 Climate Change Committee (2020) The Sixth Carbon Budget. Available at:
- 26 The Department for Business, Energy & Industrial Strategy.

  Available at: https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy
- 27 The Department for Transport (2021) Transport Analysis Guidance (TAG). Available at: https://www.gov.uk/guidance/transport-analysis-guidance-tag
- 28 The Department for Business, Energy & Industrial Strategy (2021) Energy and emissions projections Net Zero Strategy Baseline. Available at: https://www.gov.uk/government/collections/energy-and-emissions-projections

#### Alternative baselines

Alternative baselines can be used to supplement the analysis and address uncertainty. For example, it may be unclear what baseline to adopt and compare a proposed project against if the site is 'empty' (i.e. the project is not replacing an existing development). For example: different locations, designs or layouts for building developments; or alternative energy generation options in the instance of a wind or solar farm proposal. However, a realistic worse-case baseline should still be used for assigning significance.

In many instances, alternatives may not have been considered by the developer. Ideally, alternatives would have been considered earlier in the project life cycle, and the EIA is viewed as the platform for improving the preferred design. Nevertheless, where alternative baselines were considered, even a qualitative assessment of their GHG impact would be acceptable as part of the overall assessment.

#### Step 3: Assessment methodology

Once the scope and baseline is set, the calculation method can be agreed along with data collection. The methodology should result in a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case. In most cases, the assessment should use activity data and emissions factors. However, where possible, it may be preferable to generate bespoke emissions factors (e.g. through mass balance calculations) or use actual monitored data. The methodology chosen should follow best practice guidance, such as the GHG protocol, and it is not the aim of this guidance to provide this.

#### Inclusions & exclusions

The project boundary should include its spatial extent and life cycle stages relevant to the scope of the assessment. Activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions; all exclusions should be clearly stated.

#### Step 4: Data collection

#### Project activity data

To calculate GHG emissions of a proposed project it is necessary to gather data on the activities occurring and associated GHG emissions factors. It is important that data for both these aspects, and particularly the activity data, is specific to the proposed project.

Activity data consists of information that defines and describes the size, magnitude and physical nature of the proposed project. It will take many different forms, including material specifications and quantity, energy and water demand, waste generation, transportation distances and modes, and works techniques/ technologies.

#### GHG emission factors

GHG emission factors are a value for 'GHG emissions per unit of activity'. Examples of this are:

- HGV: kg CO₂e / tonne.km
- UK electricity grid: kg CO₂e / kWh
- Concrete: kg CO₂e / tonne

GHG emission factors vary in their scope and coverage and will be representative of a single process/activity or multiple of these, sometimes incorporating multiple life cycle stages. Care should be taken to select and reference the right factors for the proposed project.

When undertaking a study, it is often necessary to apply multiple GHG factors for the same activity or material particularly when the assessment is studying a life cycle with a long time period. This may be appropriate when future GHG emissions for that activity are expected to

change; this might occur, for example, when accounting for reduced GHG emissions associated with a national electricity grid and the benefit this brings to demand side GHG emissions of using electric trains.

For examples of sources of GHG factors refer to Appendix A.

#### Data quality

The following aspects, in line with PAS 2080<sup>29</sup>, should be considered when collecting assessment data:

- Primary (measured), secondary (estimated) or benchmarks
- Age (age of data, and the period over which they have been collected)
- Geography (the region or country from where the data have originated)
- Technology (whether the data are specific to a particular technology or mix of many)
- Methodology (the approach applied to gather or calculate the data)
- Competency (proficiency of entity that developed the data)

Baseline GHG emissions from the operation of existing buildings can be estimated using published benchmarks (e.g. CIBSE Guide F – Energy Efficiency in Buildings (2012) or BSRIA Rules of Thumb Guidelines for Building Services (5th Edition, 2011)) where primary data (e.g. annual metered energy consumption) is not available.

Baseline GHG emissions associated with other sources or activities such as agricultural fields may be harder to estimate. It may be appropriate to assume zero baseline GHG emissions in such cases to ensure a reasonable worse-case approach to establishing the net GHG effect of project proposals.

#### Types of data

The type of data used by the practitioner will vary depending on how detailed the project design is. Most assessments are based on design-stage information, hence activity data specific to the project should in theory be available from the engineering and design teams. If this is not the case, an alternative approach would be to fall back on generic or publicly available information that best represents the project and its activities.

Studies undertaken as part of the planning application for the proposed project outside of EIA process can provide a useful source of information for GHG assessments, for example:

- BREEAM Pre-assessment (especially RIBA 2 evidence for Mat 01 Construction Materials LCA)
- Energy Statement
- Whole Life Carbon Assessment (e.g. London Plan)
- Circular Economy Statement (e.g. London Plan)
- Sustainability Statement

#### Step 5: Calculate GHG emissions inventory

#### GHG emissions calculation method

Quantification of the GHG emissions for an EIA may be associated with either a measured or calculated approach or a combination of both for the emissions associated with the project. It is expected that in almost all cases a calculated approach for quantifying GHG emissions will be taken because an EIA is completed in advance of supply chain mobilisation and associated construction works.

29 PAS 2080:2016 Carbon Management in Infrastructure.

When undertaking a quantification calculation the formula for determining a GHG emission (or removal value), associated with the construction works, should have the following structure:

## GHG emission factor $\times$ Activity data = GHG emission or removal

Calculations may be taken at different scales reflecting specific activities, components or elements of construction. Therefore, individual calculations should be summed to form a GHG emissions inventory for the quantification as a whole.

#### Study uncertainty

Uncertainty can arise from quality of data, study boundaries and period of assessment, and can never be eliminated from a study. Uncertainty should be considered and if it significantly affects the outcome of the study, additional steps should be taken to reduce it and provide confidence in results. As a reminder, a relevant, complete, consistent, transparent and accurate assessment of the reasonable worst case must be undertaken despite uncertainties.

Uncertainty can be considered by:

- Testing upper and lower limits
- Testing for different inclusions and exclusions
- Modifying study period
- RAG (red, amber, green) rating input data based on data quality criteria presented above
- If the scale of uncertainty provides findings that are likely to change any decision based on the data, then it should be appropriately reduced.

#### Cumulative GHG emissions

The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally, anthropogenic and otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area of, for example, 10km would be included.

For example, air pollutant emissions are dispersed and diluted after emission and only the cumulative contributions of other relatively nearby sources contribute materially to the pollutant concentration, and hence effect, at a particular sensitive receptor in the study area. Due to the persistence of GHGs in the atmosphere, that same dispersion effect contributes to the global atmospheric GHG emissions balance. There is no greater local climate change effect from a localised impact of GHG emission sources (or vice versa).

All global cumulative GHG sources are relevant to the effect on climate change, and this should be taken into account in defining the receptor (the atmospheric concentration of GHGs) as being of 'high' sensitivity to further emissions.

Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.

The contextualisation of GHG emissions, as discussed in Section 6.4, should incorporate by its nature the cumulative contributions of other GHG sources which make up that context. Where the contextualisation is geographically – or sector-bounded (e.g. involves contextualising emissions within a local authority scale carbon budget, or a sector level net zero carbon roadmap), then the consideration of cumulative contributions to that context will be within that boundary.

#### Step 6: Mitigation opportunities

Once the magnitude of emissions has been determined (as discussed in Section 5.3, Step 4), mitigation measures (as discussed in Section 2) should be proposed. Any mitigation measures that are committed to need to be included within the assessment. This means recollecting new activity data where this has changed due to mitigation measures, and new emissions calculations need to be undertaken. Steps 4 & 5 should be repeated as necessary.

#### 5.4 GHG assessment and proportionality

GHG emissions should be assessed and reported as part of a good practice approach to EIA.

Projects will vary by type and size, and so will GHG emissions. An effective scoping exercise ensures that a balance is struck between the amount of GHG emissions emitted or saved by the project and the effort committed to the actual GHG assessment. For example, if most impacts occur during a project's construction phase and operational impacts are negligible, then the GHG assessment can reflect this. A high-level or qualitative GHG assessment for certain project elements or activities can be carried out as long as it is justified and agreed during the scoping stage with stakeholders. This will help contribute towards delivering a proportionate assessment.

It should also be recognised that qualitative assessments are acceptable, for example: where data is unavailable or where mitigation measures are agreed early in the design phase with design and engineering teams.

## VI – Significance

#### 6.1 Introduction

IEMA's 2010 principles on climate change mitigation and EIA identify climate change as one of the defining environmental policy drivers and that action to reduce GHG emissions is essential. Specifically, three overarching principles are particularly relevant in considering the aspect of significance<sup>30</sup>:

- 1. The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect
- 2. The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality)
- GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit<sup>31</sup>; as such any GHG emissions or reductions from a project might be considered to be significant<sup>32</sup>

This document builds on those principles as follows:

- When evaluating significance, all new GHG
  emissions contribute to a negative environmental
  impact; however, some projects will replace
  existing development or baseline activity that has a
  higher GHG profile. The significance of a project's
  emissions should therefore be based on its net
  impact over its life time, which may be positive,
  negative or negligible
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages

 Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered

The guidance in this document provides further detail of how those principles can be applied, particularly how the net effect of a project and its beneficial or adverse effects can be evaluated in the context of emission reductions on a trajectory towards net zero.

#### 6.2 Background to significance

The goal of the Paris Agreement is to limit global temperature rise to well below 2°C, aiming for 1.5°C, compared with pre-industrial levels, in order to stand a greater chance of avoiding severe adverse effects from climate change.

The UK has set a legally binding GHG reduction target for 2050 with interim five-yearly carbon budgets which define a trajectory towards net zero. The 2050 target (and interim budgets set to date) are, according to the CCC, compatible with the required magnitude and rate of GHG emissions reductions required in the UK to meet the goals of the Paris Agreement, thereby limiting severe adverse effects. Further budgets are set by the devolved administrations in Wales and Scotland, which are also in line with advice from the CCC. Carbon budgets allow for continuing economic activity, including projects in the built environment, in a controlled manner.

To meet the 2050 target and interim budgets, action is required to reduce GHG emissions from all sectors, including projects in the built and natural environment. EIA for any proposed project must therefore give proportionate consideration to whether and how that project will contribute to or jeopardise the achievement of these targets.

- 30 IEMA (2010) Climate Change Mitigation & EIA. Available at:
- 31 There is a global GHG emission budget that defines a level of dangerous climate change, and any GHG emission that contributes to exceedance of that budget or threatens efforts to stay within it can be considered as significant.
- 32 The third principle is related to the IPCC carbon budget definition. The IPCC's Sixth Assessment Report (WG1: The Physical Science Basis, Table SPM.2) indicates that the remaining global carbon budget from 2020 that provides a two-thirds likelihood of not exceeding 1.5°C heating is 400 GtCO<sub>2</sub>; for an 87% likelihood it is 300 GtCO<sub>2</sub>.

However, it is important to note that:

- (a) The UK's and devolved administrations' GHG targets incorporate a staged set of reductions between the present day and 2045 or 2050, defined by five-yearly carbon budgets. A continuing, but, over time, reduced level of GHG emissions is compatible with national and international climate change commitments. Going above and beyond these commitments and achieving net zero at an earlier date is strongly desirable and a high priority.
- (b) The necessary level and rate of GHG emission reductions will be unevenly distributed across different economic sectors, activities and types of projects. Net zero for the UK in 2050 (and in the interim) will include some activities with net negative emissions and some with residual emissions greater than zero.

A key goal of EIA is to inform the decision maker about the relative severity of environmental effects such that they can be weighed in a planning balance. Therefore, it is essential to provide context for the magnitude of GHG emissions reported in the EIA in a way that aids evaluation of these effects by the decision maker.

The crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050<sup>33</sup>.

Often a project will cause a change in GHG emissions compared to the baseline which should be assessed, as discussed in Sections 5.3. When setting this impact into context to determine significance, it is important to consider the net zero trajectory in line with the Paris Agreement's 1.5°C pathway<sup>34</sup>.

The timing of reductions is critical due to the cumulative effect of GHG emissions in the atmosphere. Achieving net zero or very low emissions by 2025 instead of 2040 would avoid 15 years of cumulative heating.

The specific context for an individual project and the contribution it makes must be established through the professional judgement of an appropriately qualified practitioner, drawing on the available guidance, policy and scientific evidence<sup>35</sup>.

The following principles are a guide to determining significance.

#### 6.3 Significance principles and criteria

Figure 5 illustrates how to determine significance depending on the project's whole life GHG emissions and how these align with the UK's net zero compatible trajectory. The following section provides further explanation on the different levels of significance and should be read in conjunction with Figure 5.

- 33 (or other date as defined in targets for devolved administrations or as may be defined for the UK or specific economic sectors in future).
- 34 IEMA (2021) Net Zero explained. Available at:
- 35 At the time of publication, the applicable evidence is that provided by the IPCC and UNFCCC, supporting the commitments defined in the Paris Agreement, and in the UK that provided by the CCC with regard to GHG budgets and policies that are compatible with the UK's Paris Agreement commitments. Evidence will continue to be developed, for example, through the IPCC's Sixth Assessment Report, future international treaty negotiations and further advice of the CCC or other expert bodies, and the practitioner must evaluate the prevailing evidence at the time.

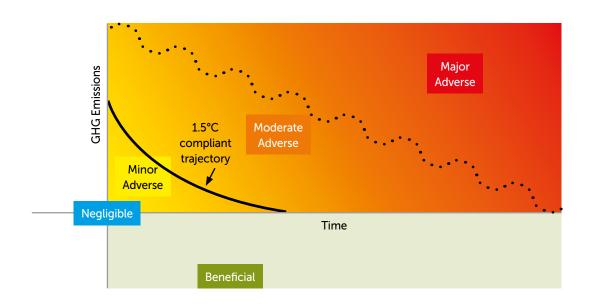


Figure 5: Different levels of significance plotted against the UK's net zero compatible trajectory<sup>36</sup>

A project that follows a 'business-as-usual' or 'do minimum' approach and is not compatible with the UK's net zero trajectory, or accepted aligned practice or areabased transition targets, results in a **significant adverse** effect. It is down to the practitioner to differentiate between the 'level' of significant adverse effects e.g. 'moderate' or 'major' adverse effects (see Box 3 for an example of such a differentiation).

A project that is compatible with the budgeted, science-based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and 'good practice' reduction measures to achieve that has a **minor adverse** effect that is **not significant**. It may have residual emissions but is doing enough to align with and contribute to the relevant transition scenario, keeping the UK on track towards net zero by 2050 with at least a 78% reduction by 2035<sup>37</sup> and thereby potentially avoiding significant adverse effects.

A project that achieves emissions mitigation that goes substantially beyond the reduction trajectory, or substantially beyond existing and emerging policy compatible with that trajectory, and has minimal residual emissions, is assessed as having a **negligible** effect that is **not significant**. This project is playing a part in achieving the rate of transition required by nationally set policy commitments.

A project that causes GHG emissions to be avoided or removed from the atmosphere has a **beneficial** effect that is **significant**. Only projects that actively reverse (rather than only reduce) the risk of severe climate change can be judged as having a beneficial effect.

<sup>36</sup> Ideally, the curve will be quantitative, derived from a set of carbon budgets that show the rate of reduction to be achieved; but where this is not available, it will need to be evaluated qualitatively based on policy goals and advice of expert guidance bodies on the actions needed to achieve the necessary rate of reductions.

<sup>37</sup> or other science-based 1.5°C compatible trajectory as may be defined for a specific sector or local area, as applicable

For the avoidance of doubt, a 'minor adverse' or 'negligible' non-significant effect conclusion does not necessarily refer to the *magnitude* of GHG emissions being carbon neutral (i.e. zero on balance) but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5°C compatible trajectory, and achieving net zero by 2050<sup>38</sup>. A project's impact can shift from significant adverse to non-significant effects by incorporating mitigation measures that substantially improve on business-as-usual and meet or exceed the science-based emissions trajectory of ongoing but declining emissions towards net zero.

A 'minor adverse' effect or better is therefore a high bar and indicates exemplary performance where a project meets or exceeds measures to achieve net zero earlier than 2050. However, in the context of the severe threat of climate change, such an effect cannot be judged as significant beneficial – this category is reserved for projects with effects that directly or indirectly remove or avoid GHG emissions in the without-project baseline.

An example of how these principles may be applied in practice is given in Box 3.

#### Box 3: Examples of significance criteria

For the avoidance of doubt IEMA's position that all emissions contribute to climate change has not changed. This Box 3 provides practitioners with examples of how to distinguish different levels of significance. Major or moderate adverse effects and beneficial effects are **considered to be significant**. Minor adverse and negligible effects are **not considered to be significant**.

**Major adverse:** the project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.

**Moderate adverse:** the project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the LIK's trajectory towards net zero.

**Minor adverse:** the project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the LJK's trajectory towards net zero.

**Negligible:** the project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.

**Beneficial:** the project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

38 or other date as defined in targets for devolved administrations or as may be defined for the UK or specific economic sectors in future.

A modification to this approach is required for the very largest-scale developments, those that in themselves have magnitudes of GHG emissions that materially affect the UK's or a devolved administration's total carbon budget. (An indicative threshold of 5% of the UK or devolved administration carbon budget in the applicable time period is proposed, at which the magnitude of GHG emissions irrespective of any reductions is likely to be significant. A project that meets this threshold can in itself materially affect achievement of the carbon budget.

Practitioners should note that existing policy and regulation may in some cases lag behind the necessary levels of GHG emission reductions (or types of actions to achieve those) that are compatible with the UK's or devolved administrations' targets and with a sciencebased 1.5°C compatible trajectory towards net zero. Meeting the minimum standards set through existing policy or regulation cannot necessarily be taken as evidence of avoiding a significant adverse effect, and it is recommended that practitioners consider and have reference also to emerging policy/standards and the quidance of expert bodies such as the CCC on necessary policy developments, particularly for multi-phased projects with long timescales. This must be evaluated by the practitioner as part of the evidence base used in the assessment of effects. References to 'existing' and 'emerging' policy in the principles of significance and example criteria above must be interpreted with this in mind.

In following this guidance, the practitioner is contextualising the project to understand whether committed mitigation represents best endeavours, to avoid significant adverse effects in line with the principles and example criteria defined above.

The assessment process for GHG emissions will therefore require a review of the current and emerging policy/regulatory position together with a review of expert scientific advice from bodies such as the CCC or IPCC about where existing policy or regulation is insufficient or not, relative to the science.

It bears reiterating that an ES should inform decision makers about both adverse and beneficial effects, so that all significant effects can be weighed in decisions. Where the fundamental reason for a proposed project is to combat climate change (e.g. a wind farm or carbon capture and storage project) and this beneficial effect drives the project need, then it is likely to be significant.

#### 6.4 Contextualising a project's carbon footprint

The context of a project's carbon footprint determines whether it supports or undermines a trajectory towards net zero. Determining that trajectory and the position of a project within it, however, is the challenge for practitioners.

It is down to the practitioner's professional judgement on how best to contextualise a project's GHG impact.

The UK has a defined national carbon budget and budgets set by devolved administrations which have been determined as being compatible with net zero and international climate commitments. The starting point for context is therefore the percentage contribution to the national or devolved administration carbon budget as advised by the CCC. However, the contribution of most indivdual projects to national-level budgets will be small and so this context will have limited value.

The available contextual information base is rapidly developing and will continue to grow in the coming years as developments such as sector initiatives, locally set carbon budgets and the Task Force on Climate-Related Financial Disclosures (TCFD) and transition risk scenario analysis progress.

Existing government policy will in many cases define goals and necessary action for GHG emissions reduction that is compatible with national climate commitments. However, it is also essential to evaluate this in the context of expert advice/commentary on policy gaps and emerging policy recommendations.

Industry bodies for many sectors crucial to reducing GHG emissions have published analyses, strategies and net zero compatible reduction trajectories for their sectors. This can provide useful and highly specific evidence of what constitutes the necessary type and rate of GHG reduction actions for a particular project type.

For example, the Green Construction Board<sup>39</sup> has calculated carbon budgets for each of the UK built environment sectors. Similarly, the CCC<sup>40</sup> has determined a UK wide carbon budget broken down into the following key sectors: surface transport, buildings, manufacturing and construction, electricity generation, fuel supply, agriculture and land use, land-use change and forestry (LULUCF), aviation, shipping, waste, F-gases, and greenhouse gas removals. Researchers at the Tyndall Centre at the University of Manchester have proposed local authority scale carbon budgets that are compatible with the UK's commitments under the Paris Agreement<sup>41</sup>. Further examples of sectoral strategies and budgets are given in Figure 6 below.

The good practice approach included in Figure 6 below provides an example of how to contextualise your project's carbon footprint against pre-determined carbon budgets or against emerging policy and performance standards where a budget is not available.

Where quantified carbon budgets or a net zero trajectory is lacking, a more qualitative or policy-based approach to contextualising emissions to evaluate significance may be necessary. In these instances, uncertainty and the likelihood of effect should be discussed.

It is good practice to draw on multiple sources of evidence when evaluating the context of GHG emissions associated with a project. The practitioner should be aware that sources of evidence are still emerging, subject to revision as understanding develops and innovation occurs, and in some cases will be contested and conflicted. Professional judgement will therefore be vital in integrating these sources of evidence and evaluating them. Table 1 sets out further sources of contextual information against which the GHG emissions and reduction actions of project can

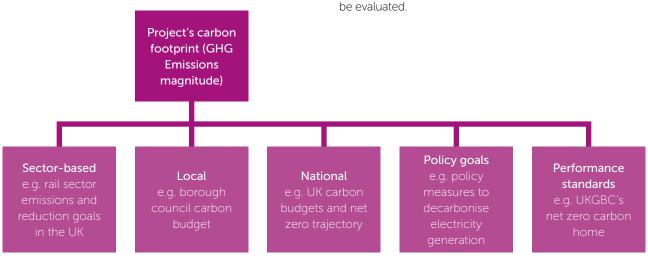


Figure 6: Good practice approaches for contextualising a project's GHG emissions

- 39 The Green Construction Board (2015) Green Construction Board Low Carbon Routemap for the Built Environment. Available at:
- 40 Climate Change Committee (2020) The Sixth Carbon Budget: The UK's path to Net Zero. Available at:
- 41 Tyndall Centre for Climate Change Research (2022) Quantifying the implications of the United Nations Paris Agreement for local areas. Available at

Table 1: Sources of contextual information against which projects can be evaluated.

Context	Advantages	Limitations		
National or devolved administration carbon budget and NDC	Clearly defined and based on robust scientific evidence	Too high level for most individual projects		
Local or regional carbon budgets developed by local authorities and researchers (e.g. the Tyndall Centre at the University of Manchester <sup>42</sup> )	<ul> <li>A more pertinent scale for individual projects and local decision-making</li> <li>Will reflect regional factors such as concentration of industry</li> </ul>	<ul> <li>Effects of GHG emissions are not geographically circumscribed, so a geographic budget (below a national budget defined based on negotiated NDCs to commitments to a global budget agreed through the UNFCCC) is not very meaningful</li> <li>Displacing GHG emissions from one local authority or region to another within the UK has no benefit</li> <li>It's unclear whether emerging local authority or regional budgets will add up coherently to the UK budget</li> </ul>		
Sectoral budgets or reduction strategies	<ul> <li>These are available for many crucial sectors (e.g. the Energy Transitions Commission<sup>43</sup> presents net zero strategies for a wide range of sectors)</li> <li>They often contain detailed, staged measures (and several scenarios) for GHG reductions with interim targets, providing a clearly defined trajectory</li> </ul>	There is a risk that some sectoral strategies represent a lobbying position rather than science-based target setting		
Current and future GHG emissions intensity of an activity	<ul> <li>This provides useful context in cases where a project is meeting an established demand, such as for electricity generation, and may have a GHG benefit by displacing a legacy source (e.g. renewable generators displacing gas-fired baseload)</li> </ul>	<ul> <li>This would not be applicable context for absolute emissions changes, (e.g. construction emissions or land-use change at a site level), so would need to be combined with other sources of information</li> </ul>		
Existing and emerging national and local policy or regulation	<ul> <li>This is extensive, providing context for all development types</li> <li>It will often provide relatively detailed and specific goals and implementation measures</li> <li>Policy should be compatible with the UK's national GHG commitments and actions to achieve those</li> </ul>	<ul> <li>There can be significant policy gaps or policy lag</li> <li>It will not always be clear that compliance with policy measures, or a subset of them, amounts to a net zero carbon compatible trajectory</li> </ul>		
Expert advice of guidance bodies Voluntary performance standards (e.g. the UK Green Building Council's 'Net Zero Carbon Building' framework <sup>44</sup> )	<ul> <li>Extensive publications and strategies are available, providing context for all development types</li> <li>Considerable reliance can be placed on the advice of the CCC, which has the statutory duty of advising the government on policy that is necessary to achieve national climate commitments</li> <li>Expert advice of guidance bodies can identify existing policy/regulatory gaps</li> <li>Expert advice of guidance bodies can be used as a source to define what constitutes achievable best practice for many development types</li> <li>Voluntary performance standards provide a framework for evaluating what constitutes best practice for emissions performance, and the means to predict and then monitor this</li> </ul>	<ul> <li>Guidance and advice may be contested or conflicting</li> <li>There is a risk that some guidance represents a lobbying position rather than science-based GHG reductions</li> </ul>		
Company-specific TCFD reporting, transition risk assessments or Science-Based Targets	This can provide context that is highly specific to the project in question, where the developer has already set science-based targets and/or undertaken climate risk assessments with scenario analysis that includes a best practice measures / minimum climate risk scenario	This may not be available for the majority of projects		

- 42 Tyndall Centre for Climate Change Research (2022) Quantifying the implications of the United Nations Paris Agreement for local areas. Available at:
- 43 Energy Transitions Commission (2022) A global coalition of leaders from across the energy landscape committed to achieving net zero emissions by mid-century. Available at:
- 44 UKGBC (2019) Net Zero Carbon Buildings: A Framework Definition. Available at:

#### 6.5 Embedded or committed mitigation

When determining significance, any embedded/ committed mitigation measures that form part of the design should be considered.

It is valuable and strongly encouraged for GHG emissions mitigation to be considered and embedded at the earliest stages of design, where the greatest influence can be achieved, as discussed in Section II and in IEMA's 'Pathways to Net Zero: GHG Management Hierarchy' quidance<sup>45</sup>.

Where embedded/committed mitigation is relied upon in the assessment of effects, the practitioner must form a clear judgement that this mitigation is:

- 1. Evidenced in the design for the project
- A committed goal that is secured, e.g. forming part of the description of development, a specific planning condition/requirement, or a legal agreement
- 3. Realistic and achievable to deliver

In some cases, mitigation commitments (especially in the form of targets or commitments to actions at a later design stage) may not offer sufficient certainty at the time of undertaking the assessment that the practitioner can rely upon in judging the significance of effects.

In this case, the significance of effects should initially be stated without this mitigation, and it should then fall into the assessment of additional mitigation and residual effects.

#### 6.6 Additional mitigation and residual effects

Where the initial assessment identifies significant adverse effects, additional mitigation should be considered to reduce these effects to an acceptable and non-significant level where feasible.

As a matter of good practice, available mitigation to reduce non-significant effects or further enhance beneficial effects should also be considered where possible.

As noted above, where there is embedded mitigation in the form of project commitments to GHG emission reductions but the details of this are not secured within the project design at the time of assessment, further detail of the potential mitigation measures to achieve that commitment can also be considered within the additional mitigation section and assessment of residual effects.

The assessment of potential residual effects, with incorporation of additional mitigation, must be expressed in conditional terms. The residual effects would depend on the additional mitigation recommendations being accepted, secured and delivered in practice. An example of appropriate wording would be:

"Residual effects: with the implementation of [the additional mitigation measures as set out above] and the achievement of [measurable GHG emissions goal] the residual effect could be [reduced to not significant / negligible / beneficial]".

45 IEMA (2020) Pathways to Net Zero: Using the IEMA GHG Management Hierarchy November 2020. Available at:

## VII - Communication / Reporting

When reporting on GHG emissions assessment in EIA, the text should conform to Schedule 4: Information for inclusion in environmental statements, of the EIA Regulations document.

## 7.1 Where should GHG emissions be reported within an ES chapter?

There are three main ways in which GHG emissions can be reported on within an ES chapter. These are as follows:

- Within a GHG emissions ES chapter that focuses on the effects of the proposed project on climate change only
- Within an integrated climate change ES chapter that focuses on both the effects of the proposed development on climate change and of the effects of climate change on the proposed development (i.e. climate change resilience and adaptation)
- It may be proportionate for a section in the project description or an appendix to provide information on GHG emissions to support a conclusion about whether these are significant, without a full ES chapter

Regardless of where GHG emissions are reported within the ES chapter, it is crucial that the assessment is transparent and a conclusion on the significance of effects is reached and clearly stated.

## 7.2 How does reporting on GHG emissions fit with related EIA topics?

The effects of potential future climate change based on the net GHG impact from a project are likely to be interrelated with other key EIA topics. To ensure consistency is provided throughout the ES, the GHG team will need to liaise with other key EIA topics including (but not limited to):

- Logistics/Transport (Transport Assessment)
- Resources and waste management (construction and demolition)

- Noise/vibration and air quality (construction activities, hours of work, fuel uses, list of plant and energy use)
- Ecology, landscaping and Sustainable Urban
   Drainage Systems (green infrastructure and land-use change)

## 7.3 What should be included when reporting on GHG emissions within an ES chapter?

Consistent reporting of GHG emissions in EIA will highlight the importance of accounting for GHG emissions from project inception. It will encourage clients, project developers and engineering design teams to consider the impacts of GHG emissions during early design stages. It is suggested that a brief introduction to climate change and the role of GHG emissions as a contributing factor is included where the effects of GHG emissions are reported within the ES chapter. This will help explain the interrelationship between GHG emissions and climate change with other relevant topics to the readers. This may further be supported with relevant links to documents and information on the topic.

When reporting on GHG emissions and mitigation in EIA, the following steps should be presented where available:

- Baseline emissions: the existing and future emissions within the assessment boundary without construction and operation of the project
- Net emissions (Year 1 and lifetime): the direct and indirect emissions of the project during the first year of operation and for the full lifetime of the project expressed as a change compared to the current and/ or future baseline
- Significance: a significance value should be assigned to effects based on the criteria set out
- Further mitigation: the GHG reductions that could be achieved through the application of further mitigation (this will be expressed conditionally and may be quantitative or qualitative)
- Residual effects: a new significance value is assigned to effects taking account the further mitigation measures that have been outlined

## 7.4 What are the challenges associated with reporting on GHG emissions in EIA?

There are a number of challenges, difficulties and opportunities associated with integrating GHG assessment into EIA practice. These challenges and ways to overcome them are presented below:

- The possible effects identified from a GHG emissions assessment can be interlinked with other EIA topic chapters. Therefore, it is important to liaise with other EIA topic specialists where necessary (e.g. transport, waste management, air quality) and indeed with practitioners providing assessments such as energy modelling and BREEAM/CEEQUAL. This also needs to be considered when reporting on significant effects within the ES.
- GHG emissions associated with a proposed project are often reported as a whole life figure that takes account of both construction and operation. This whole life approach is often at odds with the subheadings set out in ES chapter templates provided by EIA co-ordinators. However, due to the nature of GHG emissions, it is good practice to include a section that reports on the whole life GHG emissions associated with the proposed project, alongside the sections that assess construction and operation effects in isolation. Additionally, if there is other data or information that needs to be included that doesn't fit into the provided ES chapter template, then additional sub-sections should be added in order to present all the data from the GHG emissions assessment; to inform the EIA and account for the possible effects on future climate change.

- It is challenging to identify fixed numerical thresholds against which to identify the significance of a proposed project regarding the net change in GHG emissions. The GHG assessment should therefore present context for the GHG emissions as discussed in Section VI: Significance.
- Where GHG assessment is used to inform early design stages, it is vital to get stakeholders to understand the importance of minimising the GHG contribution of a project and designing a project that will limit the net change in future GHG emissions.

# Appendix A – Potential Stakeholders and Sources of GHG Information

#### A1 Potential stakeholders, sources of environmental information and carbon tools

Source	Description
Climate Change Committee (CCC)  – The Sixth Carbon Budget <sup>46</sup>	The CCC reports on UK carbon budgets, by sector, and reductions that need to be achieved if the UK is to achieve its carbon reduction target of net zero by 2050.  This includes reports for GHG emissions by UK industrial sector: surface transport, buildings, manufacturing and construction, agriculture & LULUCF, aviation, shipping, waste, F-gases and GHG removals.  Reports for the UK's electricity and fuel supply are also reported.
The Department for Business, Energy & Industrial Strategy (previously DECC) <sup>47</sup>	The UK Government regularly reports on UK energy and emissions projections by source: agriculture, business, energy supply, industrial processes, land-use change, public, residential, transport and waste management.  Currently, GHG emissions reach back to 1990 and project into the future up until 2035 and 2040 (for the 2019 projections).
The Department for Business, Energy & Industrial Strategy (previously DECC) <sup>48</sup> UK greenhouse gas emissions statistics	The UK Government also reports on GHG emissions from a geographical perspective, by UK local authority. Current and historical emissions are available which may be used to establish current baseline emissions.
The Department for Transport (DfT) TAG (the Transport Analysis Guidance) – Data Book <sup>49</sup>	TAG provides UK transport modelling values and information including projections on how the UK's modal mix (diesel, petrol, electric) is expected for change over time, current and future fuel efficiency projections (litres or kWh per kilometre travelled) up to 2050.  Also reported are carbon dioxide emissions per litre of fuel burnt or kWh used for: petrol, diesel, gas oil and electricity used on road and rail travel.

<sup>46</sup> Climate Change Committee (2020) Sixth Carbon Budget. Available at:

<sup>47</sup> Department for Business, Energy & Industrial Strategy (2021) Energy and emissions projections. Available at: https://www.gov.uk/government/collections/energy-and-emissions-projections

<sup>48</sup> Department for Business, Energy  $\theta$  Industrial Strategy (2018) UK greenhouse gas emissions statistics. Available at: https://www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

<sup>49</sup> Department for Transport (2021) TAG data book. Available at: https://www.gov.uk/government/publications/tag-data-book

Source	Description
The Green Construction  Board – Infrastructure Carbon  Review, Technical Report <sup>50</sup>	The GCB has developed a tool that allows stakeholders to model policy changes associated with the built environment and visualise what this means in terms of GHG emissions.  Also available is the Low Carbon Routemap report <sup>51</sup> which explores various GHG emissions projections for both building and infrastructure at the UK level.
Inventory of Carbon and Energy (ICE) – University of Bath: Sustainable Energy Research Team <sup>52</sup>	The Inventory of Carbon and Energy (ICE) database is a leading embodied energy and carbon database for building materials.
The Department for Business, Energy & Industrial Strategy (previously DECC) <sup>53</sup> – Government emission conversion factors for greenhouse gas company reporting	The Government conversion factors for greenhouse gas reporting are suitable for use by UK based organisations of all sizes, and for international organisations reporting on UK operations.
Examples of publicly available carbon assessment tools. The list of carbon tools is non – exhaustive and constantly changing. It is up to the practitioner's professional judgement to decide which tool is most appropriate for the project at hand. It is perfectly appropriate to develop bespoke assessment sheets which may provide more flexibility and transparency.	<ul> <li>Scottish Government Windfarm Carbon Assessment tool<sup>54</sup></li> <li>Environment Agency Carbon Planning Tool<sup>55</sup></li> <li>RSSB Carbon Tool<sup>56</sup></li> <li>National Highways Carbon Tool<sup>57</sup></li> <li>MacKay Carbon Calculator<sup>58</sup></li> <li>Transport Scotland: Carbon Management System (CMS)</li> </ul>

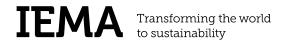
- 50 The Green Construction Board (2013) Infrastructure Carbon Review Technical Report. Available at:
- 51 Institution of Civil Engineers (nd.) Low Carbon Concrete Routemap. Available at:
- 52 Circular Ecology (2019) Embodied Carbon The ICE Database. Available at:
- 53 Department for Business, Energy & Industrial Strategy (2021) Government conversion factors for company reporting of greenhouse gas emissions. Available at: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting
- 54 Scottish Government (2018) Carbon calculator for wind farms on Scottish peatlands: factsheet. Available at: https://www.gov.scot/publications/carbon-calculator-for-wind-farms-on-scottish-peatlands-factsheet
- 55 Environment Agency (2016) Carbon planning tool. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/571707/LIT\_7067.pdf
- 56 RSSB (2021) Rail Carbon Tool. Available at:
- 57 National Highways (2021) Carbon emissions calculation tool. Available at:
- 58 Department for Business, Energy & Industrial Strategy (2020) Carbon calculator. Available at: https://www.gov.uk/guidance/carbon-calculator

## Appendix B – List of Standards\*

- BRE IMPACT LCA standard allows the embodied carbon, life cycle environmental (LCA) and life cycle cost (LCC) performance of buildings to be measured and compared in a standardised way.
- BS EN 15686-1:2011 Buildings and construction assets – service life planning, general principles and framework.
- BS EN 15804:2012 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.
- BS EN 15978:2011 Sustainability of construction works, Assessment of environmental performance of buildings, Calculation method.
- BS EN ISO 14021:2016 Environmental labels and declarations. Self-declared environmental claims (Type II environmental labelling).
- BS EN ISO 14025:2006 Environmental Labels and Declarations. Quantified environmental performance declarations (Type III Environmental Labelling) – guiding principles and procedures.
- BS EN ISO 14044:2006 Environmental Management. Life cycle assessment. Requirements and guidelines.
- BS EN ISO 14064-1:2018 guidance on reporting GHG emissions at an organisational level.
- BS EN ISO 14065:2020 guidance on principles and requirements for bodies performing validation and verification of environmental information statements.
- BS EN ISO 14604-2:2018 guidance on reporting GHG emissions at the project level.
- ENCORD: the European Network for Construction Companies for Research and Development – a network for active members from the construction industry who have published a 'Construction CO<sub>2</sub>e Measurement Protocol'.

- Greater London Authority draft Whole Life-Cycle Carbon Assessments Guidance.
- PAS 2050:2011 Specification for the assessment of the life cycle greenhouse gas emissions of goods and services.
- PAS 2070:2013 Specification for the assessment of greenhouse gas emissions of a city.
- PAS 2080:2016 Carbon Management in Infrastructure – the world's first standard for managing infrastructure GHG emissions.
- PD CEN ISO/TS 14067:2018 Greenhouse gases.
   Carbon footprint of products. Requirements and guidelines for quantification and communication.
- RICS (2021) Whole Life Carbon Assessment for the Built Environment. 1st edition.
- UK Green Building Council Net Zero Carbon Buildings: A Framework Definition.
- WRI GHG Protocol the World Resource Institute
   (WRI) and the World Business Council for Sustainable
   Development (WBCSD) partnered to develop
   internationally recognised guidance and standards
   on GHG accounting and reporting, and includes
   advice on:
  - Corporate Standards;
  - Corporate Value Chain (Scope 3);
  - Product Life Cycle assessments;
  - Project Protocol (The GHG Protocol for Project Accounting);
  - GHG Protocol for Cities; and
  - Agricultural Guidance.

<sup>\*</sup>Please note this list is not exhaustive, and subject to updates

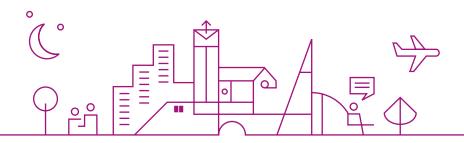




#### **About IEMA**

IEMA is the professional body for everyone working in environment and sustainability. We're committed to supporting, encouraging and improving the confidence and performance, profile and recognition of all these professionals. We do this by providing resources and tools, research and knowledge sharing along with high-quality formal training and qualifications to meet the real world needs of members from their first steps on the career ladder, right to the very top. We believe that, together, we can change perceptions and attitudes about the relevance and vital importance of sustainability as a progressive force for good. Together, we're transforming the world to sustainability.

Join us at iema.net





From:
To: A47 Blofield to North Burlingham

Cc:
Subject: A47 Blofield - Letter to Secretary of State - Norfolk County Council Protective Provisions

**Date:** 15 June 2022 14:07:01

#### Dear sir

Further to National Highways' letter to the Secretary of State regarding Norfolk County Council's request for Protective Provisions dated 1 June 2022, Norfolk County Council confirms that the council and the Applicant have reached agreement and the request for protective provisions by Norfolk County Council is hereby withdrawn. The parties confirm that all outstanding matters have now been resolved and Norfolk County Council is satisfied on matters relating to the future maintenance of assets to be transferred to the council on satisfactory completion of the Proposed Development.

### Tom McCabe, Executive Director

Community and Environmental Services County Hall, Martineau Lane, Norwich. NR1 2DH

Pronouns I use: he, him, his (Please feel free to share the pronouns you use if you wish





--

To see our email disclaimer click here <a href="http://www.norfolk.gov.uk/emaildisclaimer">http://www.norfolk.gov.uk/emaildisclaimer</a>

From: To:

TRANSPORTINFRASTRUCTURE@dft.gov.uk

Cc: A47 Blofield to North Burlingham

Subject:

A47 North Burlingham to Blofield (A47BNB)

**Date:** 15 June 2022 15:29:40

To: Secretary of State for Transport (SoST) and DfT Planning Officers Department for Transport (DfT), London, SW1P 4DR

TRANSPORTINFRASTRUCTURE@dft.gov.uk

Dear Secretary of State and DfT Planning Officers,

# Re: A47 Blofield to North Burlingham (A47BNB) Scheme and the Norfolk County Council Local Transport Plan 4

I understand the SoST is considering an imminent decision on the A47 North Burlingham to Blofield (A47BNB) DCO application.

Although I have not previously commented on carbon emissions for this scheme, it is a subject on which I have been in correspondence with Norfolk County Council (NCC) for some considerable time.

NCC Cabinet at a meeting on the 6th June 2022 resolved to recommend to the next full council meeting in July adoption of the Norfolk Local Transport Plan 4 Strategy and Implementation Plan. The LTP4 (IP) sets annual decarbonisation targets for domestic road transport for the county between 2022 and 2037.

NH (formerly HE) has continued to argue on numerous applications that it has not been possible to appraise carbon emissions for individual roads at local/regional level.

I refer to a NH Deadline 10 submission (REP10-005) in February 2022 for the A47 North Tuddenham to Easton (A47NTE) scheme which at paragraph 3.3.6 sets out what would be required to provide a baseline for any appraisal as;

To conduct an impact assessment at a local or regional scale some form of baseline would need to be identified, and that baseline would need to comprise:

- a) A forecast of carbon emissions from all cumulative sources relevant to the geographic / sectoral scale being adopted;
- b) A forecast which addresses the time frame relevant to the proposed road Proposed Development;
- c) A forecast which reflects existing government policy to attain the 6th carbon budget and net zero 2050; and
- d) A forecast which does not include carbon emissions from the proposed

road Proposed Development (to avoid double counting).

I would suggest that by the adoption of LTP4 in July this criteria will be established under the Local Transport Plan against which the all the A47 schemes including A47 BNB can and

should be assessed.

This is a crucial element the applicant failed to consider in the original A47BNB submission

under its Environmental considerations and was unable to adequately address during the

examination when given the opportunity during the hearings.

I believe the DCO for this scheme should be deferred until a local carbon assessment

singularly and cumulatively with other concurrent projects against the LTP4 targets has

been submitted by the applicant.

Yours sincerely,

Bryan Robinson

Project Interested Party Registration Number: 20027997

From: MAYHEW, Jerome

**Sent:** 18 March 2022 16:32

**To:** DFT Ministers <DFT.Ministers@dft.gov.uk> **Subject:** A47 Blofield to North Burlingham

Dear Sir/Madam,

#### RE: A47 Blofield to North Burlingham

Mr Mayhew's constituent, Mr Chris Gates, has recently contacted him to raise his concerns over National Highways proposals for the A47 Blofield to North Burlingham. In essence, Mr Gates is concerned that the current proposals will leave residents highlight dependent on their cars and has asked that this is brought before the Secretary of State before he pronounces.

The email below our signature fully explains Mr Gates concerns.

Yours faithfully,

Office of Jerome Mayhew MP Member of Parliament for Broadland

#### Good Morning, Jerome

I learned from the online EDP that the Inspector expects to get his report in to Grant Shapps next week - and that his findings/recommendations only get made public at the time The Secretary of State pronounces.

Thus we have no idea if our request for an underpass or trackway onwards to Acle are part of those findings until it's too late to protest if they're not.

Can we put before Mr Shapps our earnest request that provision is made, that without them the Communities of Lingwood and Burlingham (particularly Burlingham) face eternal car dependancy for the simplest of shopping or exercise and our children will never be able to walk, bike or scoot to school? We would ask with the greatest respect that he rejects the application from the Highways Agency until/unless those reasonable access provisions are made.

#### Yours,

Chris Gates, Chair Burlingham Cottage Gardeners

UK Parliament Disclaimer: this e-mail is confidential to the intended recipient. If you have received it in error, please notify the sender and delete it from your system. Any unauthorised use, disclosure, or copying is not permitted. This e-mail has been checked for viruses, but no liability is accepted for any damage caused by any virus transmitted by this e-mail. This e-mail address is not secure, is not encrypted and should not be used for sensitive data.

This email has originated from external sources and has been scanned by DfT's email scanning service.

From: Richard Hawker

Sent: 15 June 2022 08:19

To: TRANSPORTINFRASTRUCTURE <TRANSPORTINFRASTRUCTURE@dft.gov.uk>

Subject: A47 Blofield to North Burlingham dualling project

F.A.O. The Secretary of State for Transport

15 June 2022

Dear sir,

## A47 Blofield to North Burlingham dualling, Norfolk, Project no TR 010040

I am an Interested Party for the above project.

I understand that the situation with regard to carbon emissions has changed since the Applicant submitted this application. Local targets, against which this project must be assessed, are now available in the Norfolk Local Transport plan LTP4.

This situation surely demands a deferral of the decision on the project until that reassessment is done and a further consultation launched; otherwise the application must surely be in breach of legislation.

Please defer a decision on this project and call for a reassessment and consultation.

Thank you.

Yours sincerely,

Richard Hawker



This email has originated from external sources and has been scanned by DfT's email scanning service.

## A47 Blofield to North Burlingham (A47BNB) Project

Interested Party Registration Number: 20027593 Date: 15/06/2022

To:

Secretary of State for Transport (SoST) and DfT Planning Officers Department for Transport (DfT), London, SW1P 4DR TRANSPORTINFRASTRUCTURE@dft.gov.uk

From: Cllr Jan Davis, Brundall Ward, Broadland District Council

Dear Secretary of State and DfT Planning Officers,

# Re: A47 Blofield to North Burlingham (A47BNB) Scheme and the Norfolk County Council Local Transport Plan 4

I understand the SoST is considering a decision on the A47 Blofield to North Burlingham (A47BNB) scheme. Since I last gave my contribution to the hearings on this scheme the Norfolk County Council Cabinet at a meeting on the 6<sup>th</sup> June 2022 resolved to recommend to the next full council meeting adoption of the Norfolk Local Transport Plan 4 Strategy and Implementation Plan.

The LTP4 (IP) sets annual decarbonisation targets for Norfolk transport between **2019** and **2037**. That is, we are already well into the third carbon budget period (2018-22) covered by this plan which continues through to the end of the sixth carbon budget (2033-37).

The establishment of local carbon budgets for the Norfolk transport sector under the Transport Act 2000, provides the local carbon budgets against which the A47BNB scheme should be assessed. This is a crucial element the applicant failed to consider in the original A47BNB submission and was unable to adequately address during the examination when given the opportunity during the hearings.

The LTP4 now provides local carbon emissions targets against which the A47BNB scheme can be assessed. This is a requirement that should have been included in the original Environmental Impact Assessment but was omitted and can now be rectified.

I believe the DCO for this scheme should be deferred until a local carbon assessment against the LTP4 has been made and submitted by the applicant.

Yours sincerely,

Cllr Jan Davis (he/him) Member for Brundall Ward, Broadland District Council From:
To: A47 Blofield to North Burlingham

Cc:
Subject: RE: A47 Blofield to North Burlingham - Anglian Water submission on deferment

**Date:** 21 June 2022 18:34:28

#### Dear Rachel

We write further to the letter sent by National Highways (NH) on 16 June regarding the points of disagreement between NH and Anglian Water.

The issues mirror issues which we have sought to address in other NH projects. In an effort to resolve those issues on receipt of the 31 May 2022 consultation for the A428 Black Cat to Caxton Gibbett scheme, Anglian Water contacted National Highways to seek to progress the unresolved matters.

To recap, a meeting was arranged for Friday 10<sup>th</sup> June and at the meeting Anglian Water team proactively concluded a number of points such that NH were asked to draft a joint response to that consultation. We received a draft response yesterday (14<sup>th</sup> June) and sought to clarify a number of points so that the Secretary of State and those advising him on the decision were clear on the joint steps and position Anglian Water and NH had agreed. NH advised Anglian Water y that they are unable now to agree a joint response on the A428 Black Cat scheme and A47 North Tuddenham schemes.

With reference to the NH letter of 16 June Anglian Water confirms that we have not reached agreement on the Protective Provisions regarding deferment. Anglian Water understands that NH are not able to agree to the clarifications Anglian Water sought on this point. The clarifications National Highways were unable to agree are:

- a. On A14 Cambridge to Huntingdon Improvement Scheme DCO issued in 2016 there was no deferment on Anglian Water diversions.
- b. The parties agree that renewal under this Schedule only applies to assets within, under or along existing highways (like NRSWA). There is no deferment on assets within green field locations outside of the existing highway.

We now note that NH has agreed that deferment will not be applied by NH to works by Cadent Gas for the A47 Blofield scheme. Anglian Water has not been provided with an explanation by NH why they are taking a different approach to deferment between two statutory undertakers.

Anglian Water will be making further independent submissions to the Secretary of State on the legal basis for deferment not to apply for all diversion works and the different approach being taken by National Highways to Anglian Water than to other parties on other schemes. We note though for the A47 Blofield scheme the date for the Secretary of State decision is 22 June 2022.

#### **Darl Sweetland DMS, MRTPI**

## **Anglian Water Services Limited**

Lancaster House, Lancaster Way, Ermine Business Park, Huntingdon, Cambridgeshire, PE29 6XU



## **Our Purpose**

To bring environmental and social prosperity to the region we serve through our commitment to



From:
To:
A47 Blofield to North Burlingham
Cc:
Subject:
Anglian Water response
Date:
22 June 2022 09:51:57

Importance: High

#### **Dear Sirs**

I refer to Anglian Water's e-mail sent last night at 18:34.

National Highways relies on its previous submissions in this regard, but would wish to correct one point raised by Anglian Water.

Deferment of renewal provisions <u>ARE</u> in fact included in the agreed Cadent Protective Provisions at paragraph 42(5) of Schedule 9.

Accordingly, National Highways are not seeking to treat Anglian Water any differently from any other statutory undertaker.

#### Regards

Nikki Rowley-Todd Project Manager A47 Blofield to N.Burlingham Regional Investment Programme (East) National Highways | Woodlands | Manton Lane | Bedford | MK41 7LW



This email may contain information which is confidential and is intended only for use of the recipient/s named above. If you are not an intended recipient, you are hereby notified that any copying, distribution, disclosure, reliance upon or other use of the contents of this email is strictly prohibited. If you have received this email in error, please notify the sender and destroy it.

National Highways Limited | General enquiries: 0300 123 5000 | National Traffic Operations Centre, 3 Ridgeway, Quinton Business Park, Birmingham | info@nationalhighways.co.uk

Registered in England and Wales no 9346363 | Registered Office: Bridge House, 1 Walnut Tree Close, Guildford, Surrey GU1 4LZ

Consider the environment. Please don't print this e-mail unless you really need to.