

UWF Grid Connection EIA Report (2019)

Volume C2: EIAR Main Report

Chapter 2: The EIAR Process including Scoping



October 2019

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Appendix 2.1	Scoping of Other Projects or Activities for Cumulative Evaluations

Appendices referenced in this chapter can be found in **Volume C4 EIAR Appendices**.

Glossary of Terms

Term	Definition
Environmental Factors	The factors in the environment required to be identified, described and assessed during the EIA process. These are specified in Article 3 (1) of the EIA Directive as Population and Human Health; Biodiversity; Land; Soils; Water; Air; Climate; Material Assets; Cultural Heritage and Landscape.
Competent Authority	The body legally delegated to decide on the Planning Application
Competent Expert	Experts who are qualified and competent in their field of expertise
Consented Windfarm	Upperchurch Windfarm – 22 wind turbines, substation, windfarm roads and ancillary works, consented in August 2014 under Planning Reference: Tipperary County Council 13/51/0003, ABP PL 22.243040
Element	One of the 5 No. elements listed in 'Whole UWF Project' below.
Project Design Environmental Protection Measures	Mitigation Measures for environmental protection, incorporated into the design of the project.
Sensitive Aspect	Any sensitive receptor in the local environment which could be impacted by the project.
Whole UWF Project	Whole project made up of 5 No. elements – Element 1: UWF Grid Connection; and the Other Elements - Element 2: UWF Related Works, Element 3: UWF Replacement Forestry, Element 4: Upperchurch Windfarm and Element 5: UWF Other Activities.

List of Abbreviations

Abbreviation	Full Term
EDL	Ecopower Developments Limited
EIAR	Environmental Impact Assessment Report
UWF	Upperchurch Windfarm
UGC	Underground Cables

Executive Summary

Legislative Context

These application documents have been prepared in compliance with the requirements of the EIA Directive, meaning 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.

The EIA Report

In the EIA Report, the following environmental factors or topics are examined by competent experts - **Population; Human Health; Biodiversity; Land; Soils; Water; Air; Climate; Material Assets (Built Services); Material Assets (Roads); Cultural Heritage and Landscape**. These chapters describe the Baseline Characteristics of the Environment; Baseline Information sources; Evaluation methodology, Scoping and identification of Sensitive Aspects; Evaluation of each Sensitive Aspect which includes a description of the baseline environment, the relevant Project Design Environmental Protection Measures; an evaluation of the effects of UWF Grid Connection directly, indirectly and cumulatively with off-site projects (Other Elements of the Whole UWF Project) and other projects and activities; an evaluation of the whole project effects; Mitigation Measures for any significant effects, and Evaluation of Residual Impact; followed by a summary table with the predicted impacts for each Sensitive Receptor. An **Executive Summary (technical summary), including Sensitive Receptors; Summary Baseline and Summary Impact evaluation and values, is presented at the start of each chapter.**

Where available topic specific industry guidance and best practice has been used. Where there are no specific guidelines on evaluating the baseline environment and assessing the effects of the proposal on a specific environmental topic, the methodology used is a standardised EU methodology – the IMPERIA methodology. The terms used to describe effects are per EPA definitions from ‘EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports’ (draft August 2017).

Presentation of the EIA Report

Accessibility, legibility and clarity were the key considerations when organizing the layout of the EIA Report Chapters. In this **EIAR Main Report (Volume C2)**, the information in the Environmental Factor topic Chapters 6 to 17, is prepared by different **competent experts** but presented in the chapters using a **standardised structure with a pre-defined layout, terms and definitions; standard evaluation processes (including scoping) and standard descriptive methods and impact descriptions** in order to ensure that all likely and significant effects are clearly communicated, placed in context and easily cross-referenced.

- So that the information for the cumulative evaluation is clearly distinguishable from the information on the actual development being applied for, all cumulative information sections are highlighted in grey.
- **Mapping and Illustrations, including maps, plans, sections and diagrams** are presented in a **separate volume – Volume C3: EIAR Figures** so that they can be prepared at a scale that is legible and so that they do not distract from the flow of the text. **Volume B comprises the technical Planning Drawings.**
- **Appendices** have been used for including detailed or supplementary information and photographs that are not core to the EIA Report but which nonetheless provide a more detailed understanding, or technical scrutiny of important issues. These are contained in a **separate volume – Volume C4 EIAR Appendices.**
- A Technical **Executive Summary** is presented at the start of each chapter.
- A **Non-Technical Summary** is presented in a handy, short separate volume with figures included – **Volume C1: Non-Technical Summary.**

2 THE EIA REPORT PROCESS INCLUDING SCOPING

2.1 Legislative Context of EIA

2.1.1 The EIA Directive

The Environmental Impact Assessment (EIA) of projects is governed by the terms of European Union Directive 2011/92/EU (as amended by Directive 2014/52/EU (The Directive or The EIA Directive) on the assessment of the effects of certain public and private projects on the environment. 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. These application documents have been prepared in compliance with the EIA Directive and fulfil all the requirements of an Environmental Impact Assessment Report under the Directive.

The EIA Directive Article 1: Paragraph 2(a) defines 'project' as

- The execution of construction works or of other installations or schemes and
- Other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources.

The EIA Directive divides potential Projects into two lists;

- Annex I – where EIA is required in all cases.
- Annex II – where Member States shall determine whether an EIA is required.

UWF Grid Connection as a Project is not an Annex I or Annex II type project.

2.1.2 Screening for the requirement for EIA

UWF Grid Connection is part of a whole project – Whole Upperchurch Windfarm Project, which includes a Project described in Annex II: Paragraph 3. Energy Industry (i) Installations for the harnessing of wind power for energy production (wind farms).

Under Irish planning law, Part X (Ten): Environmental Impact Assessment of the Planning and Development Act 2000 (as amended) sets out the requirements under the Act, for environmental impact assessment on Projects of a Class listed in Part 2: Schedule 5 of the Planning and Development Regulations 2001 (as amended). Schedule 5: Paragraph 3 (i) lists 'Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts'.

Therefore screening was carried out to establish if an Environmental Impact Assessment (EIA) was required to be carried out by the consenting authority (the Competent Authority) on the subject development – UWF Grid Connection – because it is part of a whole project containing a windfarm which required EIA.

2.1.2.1 Result of Screening for EIA

UWF Grid Connection is part of the Whole UWF Project, one element of which, Upperchurch Windfarm, did require that the competent authority carry out an environmental impact assessment. In order that a cumulative assessment of the Whole UWF Project, including the subject development UWF Grid Connection, be carried out at this stage by the competent authority, an EIA Report has been prepared.

2.2 The EIA Report

An environmental impact assessment thus screened in, the promotor (EDL) is obliged to prepare an environmental impact assessment report (EIA Report).

2.2.1 EIA Report Requirements under EIA Directive

The information to be provided in the EIA Report, is set out in Article 5 and also in Annex IIA and Annex IV of the EIA Directive. This EIA Report was compiled having regard to the generality of the EIA Directive and specifically to the requirements of Article 5; Annex IIA and Annex IV.

2.2.2 Guidance Documents for the EIA Report

This EIA Report has been prepared in accordance with the following Guidance Documents:

- **Directive 2011/92/EU (as amended by 2014/52/EU):** Article 5, Annex IIA and Annex IV (www.ec.europa.eu/environment/eia/pdf/EIA_Directive_informal.pdf)
- **Transposition of 2014 EIA Directive (2014/52/EU)** in the Land Use Planning and EPA Licensing Systems (Department of Housing, Planning, Community and Local Government, 2 May 2017). (www.housing.gov.ie/sites/default/files/publications/files/key_issues_in_transposition_of_2014_eia_directive_-_stakeholder_consultation_document_02may2017.pdf)
- **Guidance on the preparation of the EIA Report** (European Commission, 2017) (www.ec.europa.eu/environment/eia/eia-support.htm)
- **Guidance on Screening** (European Commission, 2017) (www.ec.europa.eu/environment/eia/eia-support.htm)
- **Guidance on Scoping** (European Commission, 2017) (www.ec.europa.eu/environment/eia/eia-support.htm)
- **Guidelines for the Assessment of Indirect and Cumulative Impacts** as well as Impact Interactions, (European Commission, 1999). (www.ec.europa.eu/environment/eia/eia-support.htm)
- **Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)** (EPA 2017) (www.epa.ie/pubs/advice/licensee/drafteiarguidelines.html)
- **Guidelines on the information to be contained in Environmental Impact Statements** (EPA 2002); (www.epa.ie/pubs/advice/ea/guidelines)
- **Advice Notes on Current Practice in the preparation of Environmental Impact Statements** (EPA 2003). Both at (www.epa.ie/pubs/advice/ea/guidelines)
- **Planning and Development Act 2000** (as amended) – Part X Environmental Impact Assessment
- **Planning and Development Regulations** (as amended) – Part 10 Environmental Impact Assessment
- **Chapter 3: The Scoping Consultations.**

2.2.3 The EIA Report Coordinators

An EIA Report Co-ordinator was appointed, who arranged for all the initial consultations, site investigations, development designs and technical investigation to be carried out; appointed engineering and scientific experts as 'The Project Design Team' to prepare the final project design; assembled the EIA Report Team of experts (which includes the project design team members) to prepare the specialist environmental factors or topic chapters for the EIA Report on the chosen design; co-ordinated communication across the members of the Project Design team and the EIA Report Team; co-ordinated the assembly and presentation of the EIA Report and carried out continuous reviews of the Report. Julie Brett of EDL is the EIA Report Co-ordinator for the UWF Grid Connection project.

2.2.4 The Project Design Team

In order to anticipate and avoid adverse effects on the environment, EDL engaged specialist engineering and environmental consultants for planning and design of UWF Grid Connection. The specialists considered the technical requirements according to ESB specifications and also alternative locations, technologies, layouts, processes and design mitigation measures. These specialists are competent experts¹ in their field of expertise and, are identified in Table 2.1 below.

Table 2-1: The Project Design Team

Team Member	Competence	Design Area
Ecopower Developments (EDL)	Windfarm planning and development specialists EIA practitioners	Supervision of overall design Alternatives Considered Project Design Environmental Protection Measures development. EIAR Co-ordinators
ESB Networks (ESBN)	Electrical Engineers	Review of the location, designs and processes for the main elements of the Mountphilips Substation and 110kV UGC
Highfield Energy	Electrical Engineers	High level electrical design and overview of the Mountphilips substation, including alternative locations for Mountphilips Substation
Transmission Links Ireland (TLI)	Utility Infrastructure Consultancy	Design of the Mountphilips 110kV Substation Design of the Mountphilips – Upperchurch 110kV Underground Grid Cable (110kV UGC) including alternative layouts and designs. Project Design Environmental Protection Measures development – Roads, Road Users and Built Services
INIS Environmental	Environmental Consultants specialising in ecology & environmental management	Alternatives Considered in relation to Biodiversity Project Design Environmental Protection Measures development for Biodiversity
Hydro Environmental Services (HES)	Environmental engineers and hydrogeologists	Alternatives Considered in relation to Soils and Water Project Design Environmental Protection Measures development for Soils and Water
Kilkenny Archaeology	Archaeologists	Alternatives Considered in relation to Cultural Heritage
James Powell	Conservation Archaeologist	Construction Methodology for parapet works on Anglesey Bridge NIAH Project Design Environmental Protection Measures development for Anglesey Bridge

2.2.5 The EIA Report Team

Including the Project Design Team, EDL engaged the services of additional suitably qualified and experienced Competent Experts to appraise the likely effects on all the Environmental Factors, of the UWF Grid Connection development as proposed, and to put forward additional Project Design Environmental

¹ Competent Experts: Article 5(3) Directive 2014/52/EU

Protection Measures and Additional Mitigation Measures (if required). The competency of these experts is summarised in Table 2-2 below.

Table 2-2: The EIA Team (Chapters and Appendices)

EIA Chapter	Competent Expert
EIA Report Co-ordinator Chapters 1-5, 18, 19 Executive Summary Non-technical Summary	Julie Brett Lead Assessor (Dip. EIA) Philomena Kenealy (Dip. EIA) Project Managers in EIA and AA Reporting; leaders of a multi-disciplinary team which have completed site investigations, assessments and planning applications on 20 windfarm projects on-shore in Ireland.
Chapter 6: Population	John Lawler, (M. Econ. Sc. Hons), Ciara Morley (Ph.D. Finance) EY-DKM Economic Advisory Services (EY-DKM)
Chapter 7: Human Health	Tara Barratt (MSc Environmental Technology), Dr Andrew Buroni (PhD International Health and Impact Assessment methods and best practice) RPS
Chapter 8: Biodiversity	Howard Williams BSc CEnv MCIEEM CBiol MRSB MIFM; Chris Cullen Dip. Eng. Dip. Ecol. ACIEEM; Dr. Alex Copland BSc PhD; Jennifer Pearson BA MSc ACIEEM; Donncha Ó Catháin BSc (Hons) MSc GCIEEM; Peter O Connor MSc. QCIEEM; Gyr Penn Bird Surveyor; Timothy Gallagher Ecologist/ Mammologist - Inis Environmental Consultants
Chapter 9: Land	Andy Dunne (B.Agr.Sc M.Sc(Agr)) Environmental Agricultural Engineering Consultancy (EAEC)
Chapter 10: Soils	David Broderick (BSc, H. Dip Env Eng, MSc): Hydrogeologist; Michael Gill (P. Geo., B.A., B.A.I., M.Sc., Dip. Geol, MIEI): Environmental Engineer and Hydrogeologist of Hydro-Environmental Services (HES)
Chapter 11: Water	As per Soils above
Chapter 12: Air	Air Quality - Ciara Nolan BSc (Hons) in Energy Systems Engineering and Master in Applied Environmental Science of AWN Consultancy Noise & Vibration - Peter Barry (BAgr Sc.MSc) Electromagnetic Fields - John McAuley MSc (Hons) in Engineering; Lewis Brien (B (Hons) in Electronics of CEI (Compliance Engineering Ireland)
Chapter 13: Climate	Ciara Nolan BSc (Hons) in Energy Systems Engineering and Master in Applied Environmental Science of AWN Consultancy
Chapter 14: Material Assets (Built Services)	Electricity Network: Ruairí Geary and David Tarrant, Chartered Engineers; Daithí Barrett - Lead Environmental Scientist, with Transmission Links Ireland (TLI Group) Communication Network: Kevin Hayes Master of Electronic Engineering Software Design Engineer, al Bridges. Water Supply Network: David Broderick Hydrogeologist, HES; David Tarrant, Chartered Engineers, TLI Group
Chapter 15: Material Assets (Roads)	Ruairí Geary and David Tarrant, Chartered Engineers; TLI Group
Chapter 16: Cultural Heritage	Cóilín Ó Drisceoil (MA MIAI) and Barry Fitzgibbon (MA MIAI) Kilkenny Archaeology
Chapter 17: Landscape	Richard Barker MLArch Landscape Architecture. Macro Works Consultancy
Chapter 18: Interaction of the Foregoing	Julie Brett, EIA Coordinator, (Dip.EIA)

2.2.6 Cumulative Evaluation

2.2.6.1 Cumulative Evaluation Requirements

Under the EIA Directive, the totality of a project must be considered which includes off-site projects and other projects and other activities.

2.2.6.2 What are Cumulative Impacts?

Cumulative impacts are the addition of many neutral or significant effects, including effects of other projects, to create larger, more significant effects.

While a single activity may itself result in a neutral impact, it may, when combined with other impacts (neutral or significant), result in a cumulative impact that is collectively significant. For example, effects on water quality due to construction activity may be neutral for the subject development, however it may be necessary to assess the cumulative impacts taking account of construction activities for other off-site, secondary or other projects or activities.

2.2.6.3 Cumulative Projects

Off-Site Projects are integral to the primary project, i.e. they are required for the primary project to operate.

UWF Grid Connection is part of a whole project which comprises the following elements – Element 1: UWF Grid Connection, Element 2: UWF Related Works, Element 3: UWF Replacement Forestry, Element 4: Upperchurch Windfarm (UWF) and Element 5: UWF Other Activities. Elements 2, 3, 4 and 5 are off-site projects relevant to the Subject Development – UWF Grid Connection.

Secondary projects are projects that may arise largely because of the existence of the principal project, though they are usually not carried out by the promoter of the principal project.

There are no known Secondary projects, which may arise because of the existence of UWF Grid Connection, therefore no secondary projects are scoped in for consideration of cumulative impacts.

Other Projects or Activities are existing, consented or proposed projects (which are not related/connected to the subject development) located in the area which by addition could create larger, more significant effects. A total of 10 No. other projects and 3 No. activities have been scoped in for consideration in the EIAR, as described in [Section 2.3.3](#).

2.3 Scoping for Content and Extent of the EIA Report

According to 'EC 2017 Guidance on Scoping', scoping is the process of determining the content and extent of the information to be submitted to the Competent Authority to ensure that the environmental assessment is focused on the project's most significant effects on the environmental factors. Scoping was carried out throughout the whole EIA Report preparation process for UWF Grid Connection.

2.3.1 Key Activities in the preparation of the EIA Report

The key activities involved in the preparation of this EIA Report included:

- A preliminary description of the proposed development was prepared by EDL
- Scoping by competent experts and consultation with environmental authorities and local and regional authorities, other interested parties and the public, to define the EIA Report content.
- Scoping following the results of consultation to finalise the particulars of the development, identify potentially significant effects on environmental factors and consider alternative options to those particulars.
- The final particulars thus established, a description of the final proposed development was prepared by EDL which included the final proposed characteristics of the Project including the Environmental Protection Measures designed into the Project; the life-cycle stages including construction and operation phases; the use of natural resources including Land, Biodiversity, Water and Soils; and expected residues, emissions, and waste from the Project. The particulars of related projects and other projects and activities are described.
- This is followed by the 12 No. topic specific chapters (Chapters 6 – 17) covering Population; Human Health; Biodiversity; Land; Soils; Water; Air; Climate; Material Assets (Built Services); Material Assets (Roads); Cultural Heritage and Landscape. These were prepared by topic specific experts. These chapters describe the Baseline Characteristics of the Environment; Baseline Information sources; Evaluation methodology, Scoping and identification of Sensitive Aspects; the potential for interaction with other Factors was considered; Evaluation of each Sensitive Aspect consisting of a description of the baseline environment, the relevant Project Design Environmental Protection Measures; and evaluation of effects (including direct, indirect, and cross-factor effects) on individual Sensitive Receptors directly from the UWF Grid Connection and in combination with off-site projects, secondary projects and other projects and activities; an evaluation of the effects of the Whole UWF Project; any mitigation measures for significant effects and the evaluation of Residual Impact, followed by a summary table with all predicted impacts for each Sensitive Receptor. An Executive Summary (technical summary), including Sensitive Receptors; Summary Baseline and Summary Impact evaluation and values, completes each chapter.
- The Interaction of the Foregoing (Chapter 18) was then finalised.
- Chapter 19 – A schedule of Mitigation Measures is presented. Monitoring Arrangements for the project was prepared by the EIA Co-Ordinator, based on the survey and monitoring requirements which form part of project design or best practice measures.
- A Non-Technical summary of the information contained in the EIA Report was prepared, by the EIA Co-ordinator.
- The EIA Report was reviewed, by the EIA Co-ordinator, for compliance with the Directive and completeness of the EIA Report.

2.3.2 Scoping for Receptors and Effects

Scoping to identify the likely receptors of significant impacts from the Project was carried on through all iterations of the Project from initial design; through to alternatives; inclusion of environmental protection measures in the project design and finally during examination of the final design of the Project.

The scoping process considered topic specific publications; legislation or regulatory controls relevant to the project; information from the Competent Authority and the Local Authority and from Statutory Bodies and NGOs and other parties who were likely to have either or both, thematically specific or area specific concerns; Landowner and Community feedback; competent expert fieldwork and desktop studies and Design Team walkover surveys on site.

The Scoping process followed the same pattern irrespective of Project design stage;

- **Identification of a Study Area:** The receiving environment relevant for each topic was scoped using a combination of industry guidance and competent expert's knowledge and expertise, to delineate a study area boundary where effects could arise.
- **Scoping to identify Receptors:** All Receptors within this Study Area likely to be affected by the project were identified using a combination of field surveys; desktop surveys of information mapping including designated sites information and mapping; industry guidance on protection standards for the environmental topics and the competent expert's knowledge and expertise.
- **Scoping to identify Impact Pathways:** The Conceptual Site Model technique was used by the Competent Experts to identify likely source-pathway-receptor links to these Receptors (see Table 2.3 below).
- **Receptors which are likely to be affected** were then examined for magnitude of impact. If impacts are likely to occur then the Receptor was included as a Sensitive Receptor, for evaluation for significance of effects, in the topic chapter.
- **Discussions were held with the EIA Coordinator** wherein it was decided in which topic chapters certain Sensitive Aspects or Impacts Pathways would be evaluated, and cross-factor effects were considered.

The terms used in this EIA Report to describe impacts/ source/ pathway/ receptor are defined in Table 2-3.

Table 2-3: Definition of Terms – Source, Pathway, Receptor (EPA, August 2017)

Term	Description
Effect/Impact	A change resulting from the implementation of a project
Source	The activity or place from which an effect originates
Pathway	The route by which an effect is conveyed between a source and a receptor.
Receptor	Any element in the environment which is subject to impacts, i.e. a Sensitive Aspect

2.3.2.1 Scoping out of effects

During all stages of EIA preparation, the competent experts also scoped out (excluded) potential effects to Receptors. This was because either:

- there will be no potential for effect, or
- the effect is not likely to take place, or
- the effect will be Neutral

Note: EPA define 'Neutral' as 'No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error'. In this EIA Report, the terms 'less than imperceptible' and 'no measurable effect' have the same meaning as 'Neutral'.

2.3.3 Scoping for Cumulative Effects

There are three cumulative studies in this EIA Report

- A cumulative evaluation of the UWF Grid Connection in-combination with any of the other Elements of the Whole UWF Project or with any relevant Other Projects & Activities
- A cumulative evaluation of the Whole UWF Project (whether the Other Elements interact or not)
- A cumulative evaluation of the Whole UWF Project with any relevant Other Projects and Activities.

2.3.3.1.1 Cumulative Evaluation of UWF Grid Connection with the Whole UWF Project Elements

All of the other Elements of the Whole UWF Project are scoped in (included) for cumulative evaluation in the Environmental Factor topic chapters, and are included in the initial cumulative scoping for each Sensitive Aspect.

The competent expert's evaluations start from certain basic assumptions for the other elements:

- The evaluation is based on the description of UWF Related Works; UWF Replacement Forestry; and UWF Other Activities Elements provided in this **EIAR Chapter 5: Description of the Development: Section 5.6.1 and Appendix 5.3; 5.4 and 5.6.**
- The evaluation of the cumulative effects of the consented Upperchurch Windfarm is based on the 2014 An Bord Pleanála Inspectors Report, the 2013 windfarm planning application EIS; the 2013 Reply to Further Information and additional information submitted. It is assumed that the Upperchurch Windfarm will be constructed incorporating all mitigation measures and planning conditions imposed by the Board's 2014 Order to Grant Permission. **Note:** The topic specific competent experts did not carry out a new evaluation of the Upperchurch Windfarm, rather they relied on the effects of the Upperchurch Windfarm (with all mitigation measures) as have been already established and deemed acceptable, by An Bord Pleanála. Impact information and impact significance is drawn from the Board's assessment, from the reasons and considerations and planning conditions as set out in the Board's Order and from the EIS, Reply to Further Information and additional information submitted during the planning process in 2013/2014. A compiled description of Upperchurch Windfarm is provided in this EIAR **Chapter 5: Description of the Development: Section 5.6.1 and Appendix 5.5.**

2.3.3.1.2 Additional matters taken into consideration during cumulative evaluations

- The effect of the passage of time since the Board's 2014 assessment on the baseline environment of Upperchurch Windfarm is also considered, and presented in the Cumulative (baseline) Information for each Sensitive Aspect in each of the Environmental Factor topic chapters;
- Impacts which were assessed for Upperchurch Windfarm were automatically included for evaluation in relation to UWF Grid Connection;
- In the event of any new impact pathway being identified during the course of UWF Grid Connection evaluations, then this new impact pathway was examined for Upperchurch Windfarm and the Other Elements also, so that the cumulative whole project impact with UWF Grid Connection could be determined for this new impact.

2.3.3.1.3 Cumulative effects with Other Projects and Activities

A 15km area around the footprint of all Elements of the Whole UWF Project was drawn, and research of other large projects within this area was carried out. This research, carried out by Construction Information Services (CIS), one of Ireland's leading research companies, and by the EIA Coordinators Ecopower Developments, covered the period from January 2011 to May 2018. To cover all projects which may have received planning (and an additional extension of duration) in the intervening period, to October 2019, a further search was conducted by the EIA Coordinators Ecopower Developments. In addition to this, the

EIAR Team's knowledge of the area added existing projects such as existing windfarms, to the list. Activities in the area surrounding the works were also considered.

The following changes from the previous application for UWF Grid connection (2018), are relevant to this 2019 application:

- The Newport Distributer Road was excluded as planning permission has expired on this project;
- Newport Town Park was included as this project was consented by An Bord Pleanála in April 2019;
- A planning search of plans submitted to Clare, Tipperary and Limerick county councils from May 2018 to October 2019 resulted in 7 No. projects being included for scoping for potential cumulative impacts – these comprise forestry entrances at Cappamore, CummerBeg and Knockshanbrittas, a quarry at Curraghduff, a glamping park at Lackamore, and a biorefinary facility in Moyne, near Thurles, along with the aforementioned Newport Town Park;
- Smaller developments such as agricultural developments, which were scoped in the previous 2018 application and which were found not to have potential to cause noticeable cumulative impacts mainly due to the small scale of these developments and separation from the project, have been scoped out from consideration in this 2019 EIAR.

In total, 23 No. Projects and 3 No. Activities were identified which were considered to have potential to cause cumulative effects and were scoped in relation to each Sensitive Aspect of the Environment.

This list was examined for the geographical or 'spatial' boundary and the temporal or 'time frame' boundary relevant for each environmental factor and was scoped to identify the projects likely to have a measureable cumulative effect. These projects were brought forward for cumulative evaluation in the topic specific chapters. In total, 12 No. of Other Projects and 3 No. Activities were brought forward for cumulative evaluation in the Main EIAR. These are the Other Projects or Activities identified on [Figure CE 2.1](#), as per:

- Killonan to Nenagh 110kV Overhead Line
- Shannonbridge – Killonan 220kV Overhead Line
- Potential Bunkimalta Windfarm and Consented Grid Connection
- Consented Castlewaller Windfarm and Potential Grid Connection
- Existing Milestone Windfarm
- All operating wind turbines in the Irish State
- Existing Rear Cross Quarry
- Existing Foilnahan Mast
- Existing Cummermore Communications Pole
- Proposed Quarry at Curraghduff
- Consented Newport Town Park
- Activity – Forestry
- Activity – Agriculture
- Activity – Turf Cutting

Relevant Volume C4 EIAR Appendix

[Appendix 2.1 Scoping of Other Projects & Activities for Cumulative Evaluations.](#)

Relevant Volume C3 EIAR Figure

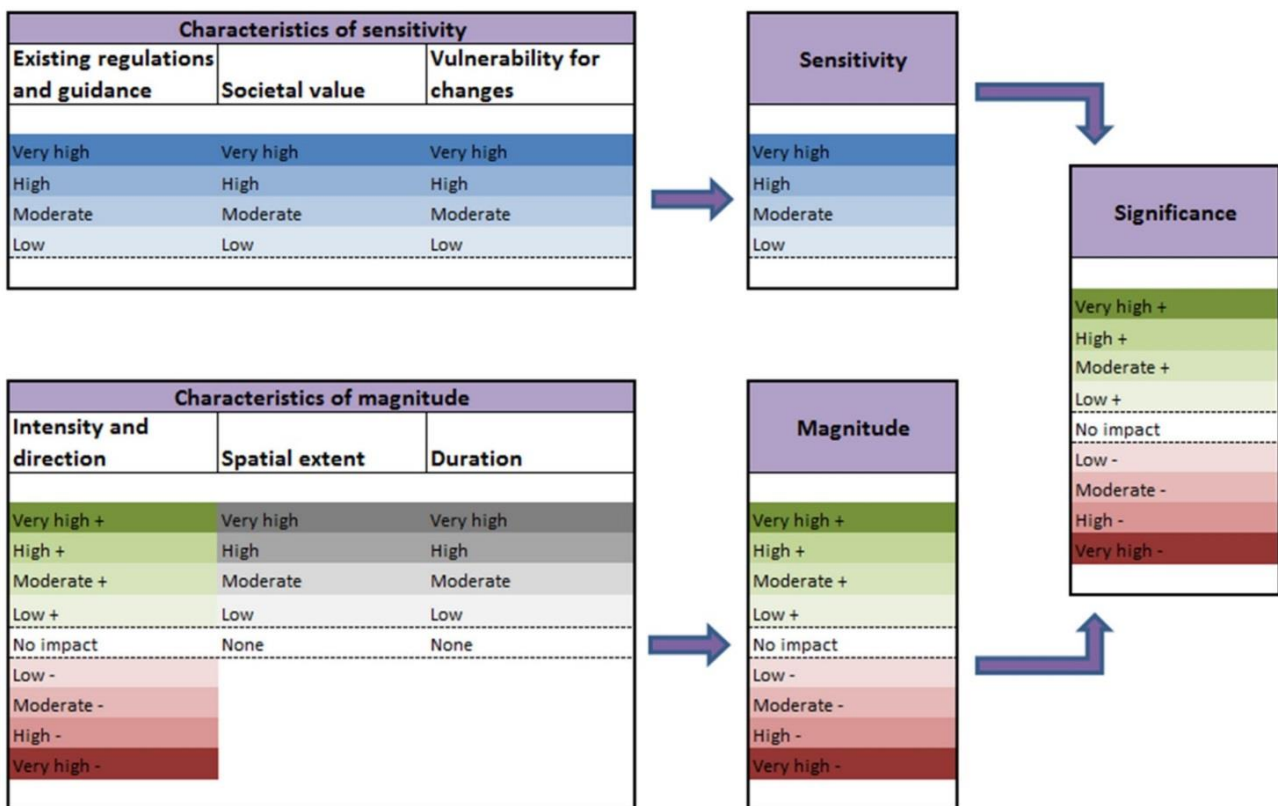
[Figure CE 2.1: Other Projects or Activities Scoped In for Cumulative Evaluation in the Environmental Factor topic chapters](#)

2.4 Methodology used to describe Baseline Environment and to Evaluate Impacts

For environmental factor topics, where there are no specific guidelines on evaluating the baseline environment and assessing the effects of a development on that factor, the methodology used in this EIA Report is a standardised EU methodology – the IMPERIA methodology². The IMPERIA methodology is described below.

2.4.1 Overview of the IMPERIA Methodology

In the framework developed under the EC LIFE project - IMPERIA, the evaluation of impact significance uses a replicable, multi-criteria decision analysis, where the sensitivity of the receptor (i.e. the sensitivity of a Sensitive Aspect of the environment) and the magnitude of the change caused by a project are rated using sub-criteria or scales, and then the overall significance is evaluated using a matrix.



The criteria for determining the overall sensitivity of a receptor and magnitude of the change (impact) to the receptor, is provided in the tables below. The matrix for determining the significance of the impact to the receptor is provided after these tables.

² Improving Environmental Assessment by Adopting Good Practices and Tools of Multi-criteria Decision Analysis (IMPERIA 1.8.2012-31.12.2015) (LIFE 11 ENV/FI/905 <https://www.jyu.fi/science/en/bioenv/research/natural-resources-and-environment/imperia-project>)

2.4.2 Criteria for Evaluating the Sensitivity of a Receptor

Sensitivity of the receptor is a description of the characteristics of the receptor or aspect of the environment which will be affected by the development. It is a measure of 1) existing regulations and guidance, 2) societal value and 3) vulnerability for the change. The sensitivity of a receptor is estimated in its current state prior to any change implied by the project.

Existing regulations and guidance describes whether there are any such objects in the impact area, which have some level of protection by law or other regulations (e.g. prohibition against polluting groundwater and Natura areas), or whose conservation value is increased by programs or recommendations (e.g. landscapes designated as nationally valuable).

Societal value describes the value of the receptor to the society and depending on the type of impact may be related to economic values (e.g. water supply), social values (e.g. landscape or recreation) or environmental values (e.g. natural habitat). Societal value measures general appreciation from the point of view of society. When relevant, the number of people impacted is taken into account.

Vulnerability for the change describes how liable the receptor is to be influenced or harmed by changes to its environment.

Sensitivity	Criteria Existing regulations/guidance	Criteria Societal value	Criteria Vulnerability to change
Low	Few or no recommendations which add to the conservation value of the impact area, and no regulations restricting use of the area (e.g. zoning plans).	The receptor is of small value or uniqueness. The number of people impacted is small.	Even a large external change would not have substantial impact on the status of the receptor. There are only few or none vulnerable receptors in the area.
Moderate	Regulation sets recommendations or reference values for an object in the impact area, or the project may impact an area conserved by a national or an international program.	The receptor is valuable and locally significant but not very unique. The number of people impacted is moderate.	At least moderate changes are needed to substantially change the status of the receptor. There are some vulnerable receptors in the area.
High	The impact area includes an object that is protected by national law or an EU directive (e.g. Natura 2000 areas) or international contracts which may have direct impact on the feasibility of the proposed development.	The receptor is unique and valuable to society. It may be deemed nationally significant and valuable. The number of people impacted is large.	Even a small external change could substantially change the status of the receptor. There are many vulnerable receptors in the area.
Very High	The impact area includes an object that is protected by national law or an EU directive (e.g. Natura 2000 areas) or international contracts which may prevent the proposed development.	The receptor is highly unique, very valuable to society and possibly irreplaceable. It may be deemed internationally significant and valuable. The number of people affected is very large.	Even a very small external change could substantially change the status of the receptor. There are very many vulnerable receptors in the area.

The **overall sensitivity of a receptor** is assessed by the competent expert on the basis on his/her assessment of the components of sensitivity. A general guide for deriving the overall sensitivity is to pick the maximum of existing regulations and guidance and societal value and then adjust that value depending on the level of vulnerability.

Determining the Overall Sensitivity of a Receptor	
Low	The receptor has minor social value, low vulnerability for the change and no existing regulations and guidance. Even a receptor which has major or moderate social value may have low sensitivity if it's not liable to be influenced by the development.
Moderate	The receptor has moderate value to society, its vulnerability for the change is moderate, regulation may set reference values or recommendations, and it may be in a conservation program. Even a receptor which has major social value may have moderate sensitivity if it has low vulnerability, and vice versa.
High	Legislation strictly conserves the receptor, or it is very valuable to society, or very liable to be harmed by the development.
Very High	Legislation strictly conserves the receptor, or it is irreplaceable to society, or extremely liable to be harmed by the development. Even minor influence by the proposed development is likely to make the development unfeasible.

2.4.3 Criteria for Evaluating the Magnitude of an Impact

Magnitude of the impact describes the characteristics of changes the planned project is likely to cause. Magnitude is a combination of 1) intensity and direction, 2) spatial extent, and 3) duration. Assessment of magnitude evaluates the likely changes affecting the receptor *without* taking into account the receptors sensitivity to those changes.

Intensity describes the physical dimension of a development. The direction of the impact/change is either positive (green) or negative (red).

Magnitude	Criteria – Intensity & Direction
Very High	The proposal has an extremely beneficial effect on nature or environmental load. A social change benefits substantially people's daily lives
High	The proposal has a large beneficial effect on nature or environmental load. A social change clearly benefits people's daily lives.
Moderate	The proposal has a clearly observable positive effect on nature or environmental load. A social change has an observable effect on people's daily lives
Low	An effect is positive and observable, but the change to environmental conditions or on people is small
No impact	An effect so small that it has no practical implication. Any benefit or harm is negligible.
Low	An effect is negative and observable, but the change to environmental conditions or on people is small
Moderate	The proposal has a clearly observable negative effect on nature or environmental load. A social change has an observable effect on people's daily lives and may impact daily routines
High	The proposal has a large detrimental effect on nature or environmental load. A social change clearly hinders people's daily lives.
Very High	The proposal has an extremely harmful effect on nature or environmental load. A social change substantially hinders people's daily lives

Spatial extent describes the geographical reach of an impact area, or the range within which an effect is observable. Duration describes the length of time during which an impact is observable and it also takes other related issues such as timing and periodicity into account. These are relevant for impacts which aren't observable all the time such as periodic impacts.

Magnitude	Criteria Spatial Extent	Criteria Duration
Low	Impact extends only to the immediate vicinity of a source. Typical range is < 1 km.	An impact whose duration is at most one year, for instance during construction and not operation. A moderate-term impact may fall into this category if it's not constant and occurs only at periods causing the least possible disturbance
Moderate	Impact extends over one municipality. Typical range is 1-10 km	An impact lasts from one to a number of years. A long-term impact may fall into this category if it's not constant and occurs only at periods causing the least possible disturbance
High	Impact extends over one region. Typical range is 10-100 km	An impact lasts several years. The impact area will recover after the project is decommissioned.
Very High	Impact extends over several regions and may cross national borders. Typical range is > 100 km.	An impact is permanent. The impact area won't recover even after the project is decommissioned.

2.4.4 Deriving the overall magnitude of the change from components of magnitude

Magnitude of the change is a comprehensive synthesis of its component factors. In a case, where intensity, spatial extent and duration all get the same value, the magnitude would also be given this value. In other cases, intensity is be taken as a starting point, and the assessment is then adjusted based on spatial extent and duration to obtain an overall level of magnitude. The aim is that the overall assessment captures the characteristics of an effect. The table below describes some example descriptions of different categories for the magnitude of the change.

Determining the Overall Magnitude of the Change/Effect	
Very High	The proposal has beneficial effects of very high intensity and the extent and the duration of the effects are at least high.
High	The proposal has beneficial effects of high intensity and the extent and the duration of the effects are high.
Moderate	The proposal has clearly observable positive effects on nature or people's daily lives, and the extent and the duration of the effects are moderate.
Low	An effect is positive and observable, but the change to environmental conditions or on people is small
No impact	No change is noticeable in practice. Any benefit or harm is negligible.
Low	An effect is negative and observable, but the change to environmental conditions or on people is small.
Moderate	The proposal has clearly observable negative effects on nature or people's daily lives, and the extent and the duration of the effects are moderate.
High	The proposal has harmful effects of high intensity and the extent and the duration of the effects are high
Very High	The proposal has harmful effects of very high intensity and the extent and the duration of the effects are at least high.

2.4.5 Assessing the significance of an impact

The assessment of the overall significance uses the matrix below, where positive impacts are in green and negative in red. The matrix is based on the **magnitude of the change** affecting a receptor and on the **sensitivity of the receptor** to those changes.

The values obtained from the table are indicative because the most relevant dimensions for characterising an impact are dependent on the type of impact. Thus, some discretion from the expert is required, in particular in cases, where the one component is low and the other one high or very high.

Determining the Overall Significance of an Impact										
Impact Significance		Magnitude of change								
		Very High	High	Moderate	Low	No Impact	Low	Moderate	High	Very High
Receptor Sensitivity	Low	Significant*	Moderate*	Slight	Imperceptible	No Impact/Neutral	Imperceptible	Slight	Moderate*	Significant*
	Moderate	Significant	Significant	Moderate	Slight	No Impact/Neutral	Slight	Moderate	Significant	Significant
	High	Profound	Significant	Significant	Moderate*	No Impact/Neutral	Moderate*	Significant	Significant	Profound
	Very High	Profound	Profound	Significant	Significant*	No Impact/Neutral	Significant*	Significant	Profound	Profound

* Especially in these cases, significance might get a lower estimate, if sensitivity or magnitude is near the lower bound of the classification

Note on Terms used in 'Determining the Overall Significance of an Impact' Table: The Significance rating ascribed in the Table above have been refined from the ARVI tool, to provide a more nuanced understanding of the significance and also to be compatible with the terms used throughout this EIA Report, which have been informed by the EPA Guidelines on Information to be contained in EIAR (2017) for description of effects – See following Section 2.5 Descriptive Terminology used in this EIA Report.

In the above Table - Low has been refined as Slight or Imperceptible depending on context; High has been renamed as Significant; Very High has been renamed as Profound and No Impact is understood to also mean Neutral effect, which is defined in the EPA Guidelines as 'no effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error'

2.5 Descriptive Terminology Used in this EIA Report

Terms that have a widely accepted meaning are used consistently throughout this EIA Report. Specialised or technical terms are listed in the Glossary of Terms at the beginning of every topic chapter (Chapter 6 - 17). The terms 'effect' and 'impact'; 'appraised' 'considered' and 'evaluated' ; 'indirect impact' and 'secondary impact' are used interchangeably in this EIA Report.

The terms used to describe effects are EPA definitions taken from the latest relevant guidance per;

- EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (draft August 2017);

The standard descriptive EPA terminology for Effects which is used in this EIA Report is set out below, for;

- Probability
- Significance
- Extent and Context
- Quality
- Duration and Frequency
- Type of Effects

Table 2-4: Definition of Probability of Effects

Probability of Effect	Description
Likely Impact	The effects that are specifically predicted to take place - based on an understanding of the interaction of the proposed project and the receiving environment or the effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project, if all mitigation measures are properly implemented.

Source: EPA (draft August 2017) Guidelines on the information to be contained in EIA Reports

Table 2-5: Definition of Quality of Effects

Quality of Effect	Description
Positive Effect	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities)
Neutral Effect	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/Adverse Effect	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

Source: EPA (draft August 2017) Guidelines on the information to be contained in EIA Reports

Extent and Context: Extent refers to the 'size' or 'amount' of an impact, determined on a quantitative basis and the 'context' which refers to whether the effect is unique or, perhaps, commonly or increasingly experienced.

Table 2-6: Definition of the Extent and Context of Effects

Extent and Context	Description
Extent	The size of the area, the number of sites and the proportion of a population affected by an effect
Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)

Source: EPA (draft Sept. 2015) *Revised Guidelines on the information to be contained in EIS*

Table 2-7: Definition of the Duration and Frequency of an Impact

Duration of Effect	Description
Momentary Effects	Effects lasting from seconds to minutes
Brief Effects	Effects lasting less than a day
Temporary Effects	Effects lasting less than a year
Short-term Effects	Effects lasting one to seven years
Medium-term Effects	Effects lasting seven to fifteen years
Long-term Effects	Effects lasting fifteen to sixty years
Permanent Effects	Effects lasting over sixty years
Frequency of Effects	How often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)

Source: EPA (draft August 2017) *Guidelines on the information to be contained in EIA Reports*

Table 2-8: Definition of Significance of Effects

Significance of Effect	Description
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Effect	An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics


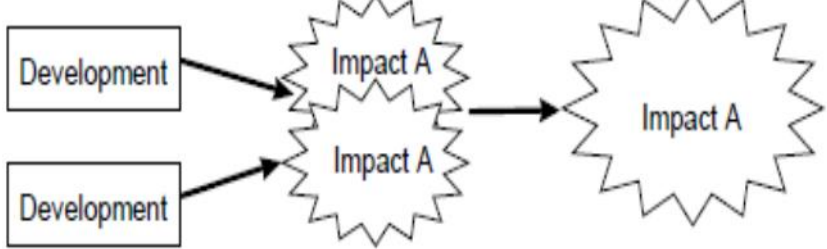
Source: EPA (draft August 2017) *Guidelines on the information to be contained in EIA Reports*

2.5.1 Types of Effects

Direct effects are those that result from direct cause-effect consequences of interactions between the environmental factor and the Project.

Indirect and cumulative impacts and impact interactions are also considered. The definitions presented below have been used in the appraisals of the various environmental factors in the Environmental Topic Chapters 6-17.

Table 2-9: Definition of Indirect, Cumulative and Impact Interaction

Type of Effect	Description
Indirect Effects (also called Secondary Effects)	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway. 
Cumulative Effects	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects. 

Source: EPA (draft August 2017) Guidelines on the information to be contained in EIA Reports

Graphics from EC (May 1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions: Section 2.1

Table 2-10: Definition of Other Types of Effects

Type of Effect	Description
'Do Nothing' Effects	The environment as it would be in the future should the subject project not be carried out.
'Worst Case' Effects	The effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable Effects	When the full consequences of a change in the environment cannot be described.
Reversible Effects	Effects that can be undone, for example through remediation or restoration
Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SO _x and NO _x to produce smog).

Source: EPA (draft August 2017) Guidelines on the information to be contained in EIA Reports

2.6 Presentation of the EIA Report

In this EIA Report the Coordinators' aim is to set out the herein environmental information in a rational and systematic format so that the EIA Directive requirements are shown to be addressed. This has been achieved through management by the lead assessor during the whole EIAR process in order to keep the focus on evaluating the likely effects on important or sensitive environmental receptors. Accessibility, legibility and clarity were the key considerations during chapter review and editing. The result is an EIA Report that is concise and well integrated across the specialist chapters.

To achieve this concise and focused style, the key presentation techniques deployed were;

- The **Non-Technical Summary is presented in a handy, short, separate volume with figures** included. **Volume C1: Non-Technical Summary.**
- An **Executive Summary (technical)**, including Sensitive Receptors evaluated; Summary Baseline and Summary Impact evaluation and values, is presented in **Volume C2: Main EIA Report** at the end of each chapter.
- In the **Main EIA Report**, the information in the Environmental Factor topic Chapters 6 – 17 is prepared by various experts but presented in the chapters using a standardised structure with a pre-defined layout, terms and definitions; standard evaluation processes (including scoping) and standard descriptive methods and impact descriptions in order to ensure that all likely and significant effects are clearly communicated, placed in context and **easily cross-referenced**.
- **The impacts are evaluated by Sensitive Aspect;**
- Every Environmental Factor chapter is set out in the following manner;
 - **Section X.1:** (*'X' being the chapter number, e.g. Section 6.1 in the Population chapter*): comprises an introduction to the topic, a list of the Sensitive Aspect (receptors); overview of the development, the authors; sources of baseline information; and methodology for evaluation.
 - **Section X.2 – X.X** (*depending on how many Sensitive Aspects are Evaluated*): comprises an evaluation of the Sensitive Aspects including the study area; baseline characteristics including a description of cumulative projects; relevant project design measures; evaluation of impacts (Section X.X.4) including cumulative evaluations; mitigation; residual impact; application of best practice measures, and summary table.
 - **Final Section** - a technical **Executive Summary of the Topic Chapter**.
- To help readers navigate to various individual Sensitive Aspects and their descriptions/evaluations, an **individual colour code is used for each Sensitive Aspect** throughout the topic chapter. The colour-codes have been applied to section headings; tables; and on sidebars on the edge of the page.
- The impacts are evaluated for the Project as it is described in Chapter 5: Description of Development. At the conception of the Project, the design team evaluated the potential or likely significant effects of the development on the receiving environment. The potential for significant adverse effects were avoided, by integrating **Project Design Environmental Protection Measures** into the fundamental design of the development. **The development, as described in Chapter 5, is the final iteration of the project including these project design measures.** It is this final iteration that is examined in Chapters 6 to 17, for effects on the prescribed environmental factors, by the topic competent experts.
- **Appendices** have been used for including detailed or supplementary information and photographs that is not core to the EIA Report but which nonetheless provide a more detailed understanding, or technical scrutiny of significant issues. Appendices are cross referenced in the text of the EIA Report where relevant. These appendices are contained in a separate volume - **Volume C4: EIAR Appendices;**

- **Mapping and Illustrations**, including maps, plans, sections and diagrams are presented in a separate volume so that they can be prepared at a scale that is legible and so that they do not distract from the flow of the text. Illustrations are cross referenced in the text of the EIA Report where relevant. These illustrations are contained in a separate volume – **Volume C3: EIAR Figures**. Planning Drawings are presented in a separate volume – **Volume B**.
- **Red Font** is used to **cross reference** to the **location** of all appendices, illustrations and references to interacting environmental factors in other chapters of the EIA Report.
- At the beginning of each chapter is a **table of contents**, **lists of figures**, and **list of appendices**, to make the EIA Report easier to navigate.
- A **Glossary of Terms** and **list of abbreviations** (if required), is located under the table of contents, figures and appendices for each chapter.
- **Red Font** is also used for indicating the **relevant Chapter** in the page header.
- **EPA evaluation criteria and definitions** are used across all the topic Chapters. EIA Report Descriptive Terminology is set out in **Section 2.5 above**.

2.6.1 Presentation of Cumulative Evaluations in the EIA Report topic chapters

So that the information for the **cumulative evaluation** is clearly distinguishable from the information on the subject development, all information on other projects (other elements of the Whole UWF Project or Other Projects & Activities) which facilitated the cumulative evaluation is highlighted in light grey.

In the evaluation sections of each environmental topic chapter, the cumulative information appears greyed out but the cumulative evaluation at the bottom of each evaluation table appears again with white background, as it serves as the cumulative evaluation of the whole project.

Please Note: In some instances, the Subject Development will not cause any effects by itself, and therefore cannot have a cumulative effect. However, the Other Elements are considered because the UWF Grid Connection is part of a whole project. Therefore, the cumulative information and evaluations for the Other Elements of the Whole UWF Project are included in order to present the totality of the project.