

Applicant's Response to Submissions

Cooloo Wind Farm

Case Reference: ACP-323761-25

Prepared for

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This report has been prepared in response to the Applicant's **Response to Submissions** submitted in respect of the proposed **Cooloo Wind Farm** development (Case Reference **ACP-323761-25**). It provides a professional planning, environmental, legal and technical assessment of the additional information now before An Coimisiún Pleanála and considers whether that material is sufficient to satisfy the statutory requirements governing the determination of the application.

The assessment has been prepared following a detailed review of the planning application, the Environmental Impact Assessment Report (EIAR), the Natura Impact Statement (NIS), the Applicant's Response to Submissions, observations made by third parties, relevant planning policy, applicable legislation, European Union environmental law, judicial authority, published technical guidance and the available scientific literature.

The report is structured to assist the Commission by identifying the principal planning and environmental issues arising from the Applicant's Response and by assessing whether those issues have been addressed in a manner that satisfies the applicable statutory and policy framework. Throughout the report, the assessment focuses on the adequacy, reliability and legal sufficiency of the evidence placed before the Commission rather than on the merits of renewable energy development as a matter of general policy.

1.2 Purpose of the Assessment

The purpose of this report is to evaluate whether the Applicant's Response demonstrates that the proposed development satisfies the requirements arising under:

- the Planning and Development Act 2000 (as amended);
- the Planning and Development Regulations 2001 (as amended);
- Directive 2011/92/EU, as amended by Directive 2014/52/EU (Environmental Impact Assessment Directive);
- Council Directive 92/43/EEC (Habitats Directive);
- Directive 2009/147/EC (Birds Directive);
- the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended);
- the Galway County Development Plan 2022–2028;
- applicable national planning policy;
- national guidance relating to wind energy development; and
- recognised scientific and technical standards.

The report considers whether the information now before the Commission is sufficient to enable it to conclude that the proposed development constitutes proper planning and sustainable development and that the statutory requirements governing Environmental Impact Assessment and Appropriate Assessment have been fully satisfied. In undertaking that assessment, regard is had to the principles established by the Court of Justice of the European Union, including the requirement that environmental assessments be complete, precise and capable of removing reasonable scientific doubt where required by law.

1.3 Scope of the Assessment

This assessment addresses those matters considered material to the Commission's determination of the application.

The principal topics examined include:

- statutory planning policy;
- Environmental Impact Assessment;
- Appropriate Assessment;
- biodiversity;
- ornithology;
- protected habitats and species;
- landscape and visual effects;
- residential amenity;
- human health;
- shadow flicker;
- noise;

- aviation lighting;
- traffic and transportation;
- peatland and geology;
- hydrology and water quality;
- climate and carbon balance;
- Battery Energy Storage Systems;
- major accident and disaster risk;
- cultural heritage;
- telecommunications;
- cumulative effects;
- project completeness;
- grid connection;
- the enforceability of mitigation measures; and
- compliance with Irish and European environmental law.

The report also considers whether the Applicant's Response adequately addresses the issues raised during the public participation process and whether any material uncertainty remains that may be relevant to the Commission's statutory obligations.

1.4 Documents Considered

This report has been prepared following consideration of:

- the planning application;
- the Environmental Impact Assessment Report (EIAR);
- the Natura Impact Statement (NIS);
- all publicly available plans and drawings;
- the Applicant's Response to Submissions;
- submissions and observations made during the planning process;
- reports prepared by Galway County Council;
- consultation responses from prescribed bodies;
- the Galway County Development Plan 2022–2028;
- the Galway Renewable Energy Strategy;
- the Wind Energy Development Guidelines for Planning Authorities (2006);
- the Draft Revised Wind Energy Development Guidelines;
- Environmental Protection Agency guidance relating to Environmental Impact Assessment;
- National Parks and Wildlife Service guidance;

- Office of the Planning Regulator publications;
- relevant Irish legislation;
- applicable European Union legislation;
- judgments of the Court of Justice of the European Union;
- decisions of the Irish Superior Courts; and
- published scientific literature relating to ecology, hydrology, landscape, peatland, noise, shadow flicker, battery storage systems and renewable energy development.

Where appropriate, reference is also made to recognised technical standards and professional guidance relevant to the subject matter under consideration.

1.5 Methodology

The assessment has been undertaken using a structured and evidence-based methodology designed to ensure consistency across each topic examined.

Each chapter generally follows the following analytical framework:

1. identification of the issue raised during the planning process;
2. review of the Applicant's Response;
3. consideration of the supporting documentation relied upon;
4. examination of the relevant statutory provisions;
5. consideration of applicable planning policy;
6. review of relevant Irish and European case law;
7. examination of applicable scientific and technical guidance;
8. assessment of whether the available evidence supports the Applicant's conclusions;
9. identification of any remaining uncertainty or evidential deficiency; and
10. consideration of the planning implications arising from that assessment.

This methodology has been applied consistently throughout the report to ensure that each issue is assessed against the same legal and evidential framework.

1.6 Approach Adopted

This report has been prepared on the basis of the information available to the Commission at the time of writing.

It does not seek to repeat every issue previously raised in submissions or observations. Instead, it evaluates whether the Applicant's Response has adequately addressed those matters and whether the evidence now before the Commission is sufficient to enable a lawful planning determination.

Where the Applicant's Response satisfactorily addresses an issue, this is acknowledged. Where the evidence is incomplete, inconsistent or insufficient, the relevant deficiency is identified and assessed.

Accordingly, the report is directed towards the adequacy of the evidence rather than a mere disagreement with the Applicant's conclusions.

1.7 Proper Planning and Sustainable Development

In determining this application, the Commission is required to consider whether the proposed development constitutes proper planning and sustainable development having regard to:

- the Galway County Development Plan;
- national planning policy;
- national climate policy;
- residential amenity;
- biodiversity;
- landscape character;
- cultural heritage;
- environmental protection;
- public safety;
- sustainable transport;
- water quality;
- climate resilience;
- cumulative environmental effects; and
- the public interest.

The contribution of renewable energy development towards national climate and energy objectives is an important material consideration. However, those policy objectives do not diminish the statutory obligations requiring Environmental Impact Assessment, Appropriate Assessment or compliance with the Planning and Development Acts and applicable European environmental legislation.

The Commission must therefore be satisfied that the proposed development complies with all applicable statutory requirements when considered as a whole.

1.8 Burden of Demonstration

The burden rests with the Applicant to demonstrate that the proposed development satisfies the applicable statutory and planning requirements.

Where legislation requires the competent authority to be satisfied that likely significant environmental effects have been properly assessed, or that the integrity of a European site will not be adversely affected, those conclusions must be supported by objective, complete and reliable evidence. This principle is reflected in established jurisprudence of the Court of Justice of the European Union, including *People Over Wind* and *Peter Sweetman v Coillte Teoranta* and *Waddenvereniging and Vogelbeschermingsvereniging*.

Where reasonable scientific uncertainty remains in respect of matters governed by European environmental law, the Commission must carefully consider whether the applicable statutory tests have been satisfied before permission can lawfully be granted.

Accordingly, the central question examined throughout this report is not whether renewable energy development is desirable in principle, but whether the Applicant has demonstrated, through complete, reliable and legally sufficient evidence, that the proposed development satisfies the requirements of proper planning and sustainable development.

1.9 Structure of the Report

The report follows the sequence of issues ordinarily considered during the assessment of a Strategic Infrastructure Development application.

The opening chapters establish the statutory planning and environmental framework applicable to the proposal. Subsequent chapters examine the principal technical disciplines, including human health, landscape, ecology, engineering, hydrology and cumulative effects.

The report concludes by assessing whether the Applicant's Response adequately discharges the burden of demonstrating compliance with the applicable statutory framework and identifies those matters that remain unresolved.

Supporting legislation, judicial authorities, scientific references and technical appendices will accompany the final report.

1.10 Conclusion

This report has been prepared to assist An Coimisiún Pleanála in its consideration of the Applicant's Response to Submissions.

The assessment is founded upon the planning record, applicable legislation, planning policy, recognised scientific literature, technical guidance and relevant judicial authority. It seeks to evaluate whether the evidence now before the Commission is sufficient to support the conclusions advanced by the Applicant and to satisfy the statutory requirements governing the determination of the application.

The chapters that follow examine each principal issue in detail and assess whether the proposed Cooloo Wind Farm has been demonstrated, on the basis of the available evidence, to comply with Irish planning law, European environmental law and the principles of proper planning and sustainable development.

CHAPTER 2

STATUTORY PLANNING FRAMEWORK

2.1 Introduction

The proposed Cooloo Wind Farm falls to be determined within a comprehensive statutory framework established by Irish planning legislation, European environmental law, national planning policy, regional planning policy and the Galway County Development Plan.

The Commission's determination is not confined to assessing whether the proposed development would contribute towards renewable energy generation. Rather, the Commission must determine whether the proposed development, when considered in its entirety, constitutes proper planning and sustainable development having regard to all material planning considerations and the statutory obligations imposed by Irish and European law.

This chapter establishes the legislative and policy framework against which the Applicant's Response to Submissions has been assessed. The succeeding chapters consider whether the Applicant has demonstrated compliance with each of these requirements.

2.2 Statutory Duty of the Commission

The Commission is required to determine this application in accordance with the provisions of the Planning and Development Act 2000, as amended.

In determining the application, the Commission must consider:

- the proper planning and sustainable development of the area;
- the provisions of the Galway County Development Plan 2022–2028;
- national planning policy;
- regional planning policy;
- submissions and observations received;
- the Environmental Impact Assessment Report;
- the Natura Impact Statement;
- the Applicant's Response to Submissions;
- the likely environmental effects of the proposed development;
- the likely effects upon European Sites;
- all other material planning considerations.

The Commission's assessment must be objective, evidence-based and legally robust.

Permission should only be granted where the Commission is satisfied that all applicable statutory requirements have been met.

2.3 Proper Planning and Sustainable Development

The concept of proper planning and sustainable development lies at the centre of Irish planning law.

Although renewable energy development is recognised as an important component of national climate policy, the statutory obligation to achieve proper planning and sustainable development requires a balanced assessment of all competing interests.

These include:

- protection of residential amenity;
- protection of biodiversity;
- conservation of landscape character;
- protection of cultural heritage;
- safeguarding of water quality;
- public health;
- road safety;
- climate resilience;
- environmental protection;
- cumulative environmental effects.

Accordingly, compliance with renewable energy policy does not, of itself, establish that a proposal represents proper planning and sustainable development.

The Commission must instead consider the overall planning balance having regard to all relevant statutory considerations.

2.4 Strategic Infrastructure Development

The application has been made as Strategic Infrastructure Development.

The Strategic Infrastructure Development process provides a streamlined consent procedure for projects considered to be of strategic importance.

However, the SID process does not reduce the environmental standards applicable to development.

The Commission remains under the same legal obligations regarding:

- Environmental Impact Assessment;
- Appropriate Assessment;
- public participation;
- objective planning assessment;
- compliance with European environmental law.

Strategic importance cannot override statutory environmental obligations.

2.5 Planning and Development Act 2000

The Planning and Development Act establishes the statutory framework governing planning decisions in Ireland.

Amongst other matters, the Act requires the Commission to consider:

- the Development Plan;
- submissions and observations;

- environmental effects;
- proper planning and sustainable development;
- relevant Ministerial Guidelines;
- national policy;
- material planning considerations.

The Applicant's Response should therefore demonstrate that the proposed development complies with these statutory requirements.

Where significant uncertainty remains, the Commission must carefully consider whether the legal threshold for granting permission has been satisfied.

2.6 National Planning Policy

National planning policy recognises the importance of increasing renewable electricity generation in support of Ireland's climate obligations.

Relevant policy documents include:

- Project Ireland 2040;
- the National Planning Framework;
- the Climate Action Plan;
- national renewable energy policy;
- relevant Ministerial Statements and Guidance.

These policies support renewable energy development in appropriate locations.

However, none of these policies removes the obligation to comply with:

- environmental legislation;
- planning legislation;
- European Directives;
- Development Plan policy;
- environmental assessment requirements.

National policy therefore supports renewable energy development only where such development satisfies all applicable planning and environmental requirements.

2.7 Galway County Development Plan 2022–2028

The Galway County Development Plan represents the principal statutory planning document applicable to this application.

The Development Plan seeks to promote renewable energy development while simultaneously protecting:

- residential amenity;
- biodiversity;

- ecological networks;
- landscape character;
- water resources;
- cultural heritage;
- public health;
- tourism;
- rural communities.

These objectives are intended to operate together rather than in isolation.

The Commission must therefore assess the proposal against the Development Plan as a whole.

Compliance with one policy objective cannot automatically outweigh conflict with another.

2.8 Wind Energy Strategy

The Galway County Development Plan incorporates a Wind Energy Strategy identifying those areas considered suitable, potentially suitable or generally unsuitable for wind energy development.

The Wind Energy Strategy forms an important component of the statutory planning framework.

Where a proposed development is located within areas identified as being subject to planning constraints or requiring careful assessment, the Applicant should demonstrate why the proposal remains consistent with the Development Plan.

The Applicant's Response should therefore address any concerns arising from the Wind Energy Strategy together with the specific planning objectives applicable to the site and its surrounding landscape.

2.9 Ministerial Guidelines

Section 28 Ministerial Guidelines constitute an important material consideration.

Relevant guidance includes:

- Wind Energy Development Guidelines for Planning Authorities (2006);
- Draft Revised Wind Energy Development Guidelines;
- Guidelines relating to Environmental Impact Assessment;
- other planning guidance relevant to renewable energy development.

Although some guidance documents have been prepared at different times and reflect evolving planning practice, each provides useful assistance regarding:

- siting;
- residential amenity;
- landscape;
- shadow flicker;
- noise;

- cumulative effects;
- environmental assessment.

The Applicant's Response should demonstrate consistency with the applicable guidance where relevant.

2.10 Office of the Planning Regulator

Guidance issued by the Office of the Planning Regulator provides additional assistance regarding:

- Development Plan interpretation;
- environmental assessment;
- Appropriate Assessment;
- consistency of planning decisions;
- implementation of national planning policy.

While such guidance does not replace statutory requirements, it represents an important source of planning best practice.

2.11 Environmental Impact Assessment

Environmental Impact Assessment is a mandatory statutory process intended to ensure that likely significant environmental effects are identified, assessed and taken into account before development consent is granted.

The Environmental Impact Assessment process must consider, amongst other matters:

- population and human health;
- biodiversity;
- land;
- soil;
- water;
- air;
- climate;
- landscape;
- cultural heritage;
- material assets;
- interactions between environmental factors;
- cumulative effects.

The Commission must be satisfied that the Environmental Impact Assessment Report provides sufficient information to allow these matters to be properly assessed.

The adequacy of the Applicant's Response regarding Environmental Impact Assessment is examined in detail in Chapter 3.

2.12 Appropriate Assessment

Where a proposed development may affect a European Site, the Commission must carry out an Appropriate Assessment in accordance with Article 6(3) of the Habitats Directive.

The legal test is a strict one.

Permission may only be granted where the Commission has ascertained that the proposed development will not adversely affect the integrity of any European Site, either alone or in combination with other plans or projects.

That conclusion must be based upon complete, precise and definitive findings capable of removing all reasonable scientific doubt.

The implications of this legal test are examined in detail in Chapter 7.

2.13 Precautionary Principle

The precautionary principle forms a fundamental component of European environmental law.

Where scientific uncertainty exists regarding potential environmental effects, decision-makers are required to exercise caution before granting development consent.

The principle is particularly relevant where protected habitats, protected species or European Sites may be affected.

The Applicant's Response should therefore demonstrate not merely that impacts are considered unlikely, but that sufficient scientific evidence exists to support that conclusion.

2.14 Sustainable Development

Sustainable development requires the integration of environmental protection, economic development and social wellbeing.

Renewable energy contributes positively towards national climate objectives.

However, sustainability also requires:

- protection of ecosystems;
- conservation of biodiversity;
- maintenance of landscape character;
- safeguarding of public health;
- protection of rural communities;
- responsible use of natural resources;
- long-term environmental resilience.

The Commission must therefore assess sustainability in its broadest sense rather than solely by reference to renewable electricity generation.

2.15 Public Participation

Public participation represents a fundamental principle of Irish and European planning law.

The planning process enables individuals, communities, statutory bodies and interested organisations to raise concerns regarding proposed developments.

The Applicant's Response to Submissions forms an important stage in that process.

Accordingly, the Response should directly engage with the issues raised by observers and provide sufficient information to allow the Commission to assess whether those concerns have been satisfactorily addressed.

Where important issues remain unresolved, the Commission must consider whether additional information is required before determining the application.

2.16 Integrated Decision-Making

Planning decisions should not be based upon individual technical disciplines considered in isolation.

The Commission is required to consider:

- planning policy;
- environmental effects;
- ecology;
- landscape;
- residential amenity;
- transport;
- hydrology;
- engineering;
- cultural heritage;
- cumulative impacts;
- interactions between environmental factors.

This integrated approach is fundamental to both Irish planning law and the Environmental Impact Assessment process.

Accordingly, conclusions reached in one technical discipline should be considered in the context of the overall environmental assessment.

2.17 Planning Balance

The Commission's ultimate task is to determine whether the planning balance favours the granting of permission.

That assessment requires consideration of:

- the public benefits associated with renewable energy generation;
- environmental protection;
- residential amenity;
- biodiversity;
- landscape character;

- cumulative effects;
- planning policy;
- legal compliance.

No single consideration should automatically determine the outcome.

Instead, the Commission must evaluate the proposal as a whole having regard to all statutory obligations and material planning considerations.

2.18 Conclusions

The statutory planning framework establishes a comprehensive series of obligations which must be satisfied before permission may lawfully be granted for the proposed development.

The promotion of renewable energy forms an important component of national planning policy.

However, that objective must be balanced against the statutory requirements relating to Environmental Impact Assessment, Appropriate Assessment, biodiversity, residential amenity, landscape protection, public participation, water quality, cultural heritage and proper planning and sustainable development.

The following chapter examines the environmental assessment framework in greater detail and considers whether the Applicant's Response demonstrates compliance with those legal requirements.

CHAPTER 3

ENVIRONMENTAL ASSESSMENT FRAMEWORK

3.1 Introduction

The proposed Cooloo Wind Farm constitutes a development requiring Environmental Impact Assessment and Appropriate Assessment under Irish and European law.

The environmental assessment process is not a procedural formality. It represents the principal statutory mechanism through which the Commission is required to identify, evaluate and weigh the likely significant environmental effects of the proposed development before determining whether development consent should be granted.

The Applicant's Response to Submissions must therefore be considered within the wider context of the Environmental Impact Assessment process and the statutory obligations imposed by European environmental law.

This chapter establishes the legal and technical framework governing Environmental Impact Assessment, Appropriate Assessment and cumulative environmental assessment. The succeeding chapters examine whether the Applicant's Response demonstrates compliance with these requirements.

3.2 Purpose of Environmental Impact Assessment

The purpose of Environmental Impact Assessment is to ensure that environmental considerations are integrated into the planning decision-making process before development consent is granted.

Environmental Impact Assessment requires more than the preparation of an Environmental Impact Assessment Report.

It requires the competent authority to identify, describe and assess the likely significant effects of the proposed development on the environment as a whole.

The assessment must enable the Commission to understand:

- the nature of the proposed development;
- the receiving environment;
- the likely significant environmental effects;
- the interactions between environmental factors;
- cumulative effects;
- proposed mitigation measures;
- residual environmental effects;
- remaining uncertainty.

The assessment must therefore be comprehensive, objective and evidence based.

3.3 Environmental Impact Assessment Directive

Directive 2011/92/EU, as amended by Directive 2014/52/EU, establishes the legal framework governing Environmental Impact Assessment throughout the European Union.

The Directive requires assessment of the likely significant effects of development upon:

- population and human health;

- biodiversity;
- land;
- soil;
- water;
- air;
- climate;
- material assets;
- cultural heritage;
- landscape;
- interactions between these environmental factors.

The Directive also requires consideration of:

- cumulative effects;
- major accidents and disasters;
- climate resilience;
- resource efficiency;
- alternatives;
- mitigation measures.

The Environmental Impact Assessment process must therefore extend beyond individual technical disciplines and consider the environment as an integrated system.

3.4 Irish Environmental Impact Assessment Requirements

The Environmental Impact Assessment Directive has been transposed into Irish planning law through the Planning and Development Act 2000, as amended, together with the Planning and Development Regulations.

Accordingly, the Commission must undertake its own assessment of the likely significant environmental effects of the proposed development before determining the application.

The Commission cannot rely solely upon the conclusions contained within the Environmental Impact Assessment Report.

Rather, it must independently evaluate:

- the adequacy of the information provided;
- the quality of the assessment;
- the effectiveness of proposed mitigation;
- the significance of residual effects;
- the interaction between environmental disciplines.

The Applicant's Response forms part of the material available to assist the Commission in undertaking that assessment.

3.5 Environmental Assessment as an Integrated Process

One of the central principles of Environmental Impact Assessment is that environmental effects should not be considered in isolation.

Population, biodiversity, landscape, hydrology, climate, cultural heritage and residential amenity frequently interact.

For example:

- peat disturbance may affect hydrology;
- hydrological change may affect aquatic ecology;
- ecological impacts may affect designated sites;
- road improvements may alter landscape character;
- aviation lighting may increase night-time visual effects;
- traffic may contribute to noise, dust and community disturbance;
- Battery Energy Storage Systems may present environmental, fire and water quality risks.

The Commission is therefore required to consider the combined environmental consequences of the project rather than assessing each discipline independently.

3.6 Baseline Environmental Information

A reliable assessment depends upon an accurate understanding of the existing receiving environment.

Baseline information should therefore be:

- complete;
- representative;
- scientifically robust;
- seasonally appropriate;
- geographically comprehensive;
- based upon recognised survey methodologies.

Where baseline information is incomplete or uncertain, the reliability of subsequent environmental conclusions may be reduced.

Accordingly, the adequacy of baseline information is a recurring issue considered throughout this report.

3.7 Environmental Significance

Environmental Impact Assessment requires not only identification of environmental effects but also evaluation of their significance.

The significance of an environmental effect depends upon factors including:

- magnitude;
- duration;

- reversibility;
- geographic extent;
- frequency;
- sensitivity of the receiving environment;
- cumulative interaction with other developments.

The significance of environmental effects should therefore be supported by transparent reasoning rather than simply by professional opinion.

Where significance ratings are adopted, the underlying assumptions should be clearly explained.

3.8 Professional Judgement

Professional judgement forms an important component of Environmental Impact Assessment.

However, professional judgement should be supported by:

- empirical evidence;
- recognised methodology;
- scientific literature;
- transparent reasoning;
- clearly stated assumptions.

Professional opinion alone cannot substitute for evidence.

Where the Applicant's Response relies upon expert judgement, the Commission should consider whether sufficient information has been provided to explain how the conclusions reached have been derived.

3.9 Uncertainty

Environmental assessment inevitably involves some degree of uncertainty.

Scientific uncertainty may arise because of:

- incomplete survey information;
- seasonal variation;
- changing environmental conditions;
- limitations of predictive modelling;
- limited published data;
- assumptions regarding future mitigation.

Good environmental assessment identifies uncertainty openly and evaluates its significance.

Where uncertainty remains regarding environmentally sensitive receptors, the Commission should carefully consider whether additional information is required before permission is granted.

3.10 Precautionary Approach

The precautionary principle underpins European environmental law.

Where scientific uncertainty exists concerning potentially significant environmental effects, decision-makers should exercise caution.

The precautionary principle is particularly relevant where:

- protected habitats;
- protected species;
- European Sites;
- water quality;
- peatland;
- public health;
- major accident risk

may be affected.

Accordingly, conclusions that impacts will be insignificant should be supported by sufficient evidence to justify that conclusion.

3.11 Environmental Impact Assessment Report

The Environmental Impact Assessment Report represents the principal environmental document accompanying the planning application.

Its purpose is to identify and evaluate the likely significant environmental effects of the proposed development.

The Applicant's Response frequently refers back to the Environmental Impact Assessment Report in addressing observations received during the planning process.

While cross-reference to the Environmental Impact Assessment Report is appropriate where relevant, the Applicant's Response should also directly address the specific issues raised by observers.

The Commission should therefore consider whether the Response provides additional explanation or merely repeats conclusions already contained within the Environmental Impact Assessment Report.

3.12 Applicant's Response to Submissions

The Applicant's Response provides an opportunity to clarify, explain or supplement the information previously submitted.

An effective response should:

- identify the concern raised;
- explain how the issue has been considered;
- identify the relevant evidence;
- explain why the conclusions remain valid;
- acknowledge any limitations;
- identify any additional information provided.

The quality of the Response should therefore be assessed not by its length but by the extent to which it substantively addresses the matters raised by observers.

3.13 Cumulative Environmental Effects

Environmental Impact Assessment requires consideration of cumulative effects arising from the interaction of the proposed development with:

- existing developments;
- permitted developments;
- proposed developments;
- associated infrastructure;
- other relevant plans and projects.

Cumulative assessment extends beyond the simple addition of environmental effects.

It requires consideration of whether multiple developments collectively produce environmental consequences greater than the sum of their individual impacts.

This requirement is particularly relevant to:

- landscape;
- ecology;
- ornithology;
- hydrology;
- traffic;
- residential amenity;
- visual impact;
- aviation lighting;
- human health.

The adequacy of cumulative assessment is considered throughout this report.

3.14 Interactions Between Environmental Factors

The Environmental Impact Assessment Directive specifically requires assessment of interactions between environmental factors.

For example:

- construction traffic may affect both air quality and human health;
- hydrological alteration may affect ecology, fisheries and water quality;
- visual effects may interact with landscape character and tourism;
- lighting may affect both landscape and ecological receptors;
- peat excavation may affect climate, hydrology and biodiversity.

The Commission should therefore consider whether environmental interactions have been adequately assessed rather than treating each discipline independently.

3.15 Mitigation Measures

Mitigation measures form an important component of Environmental Impact Assessment.

However, effective mitigation should be:

- clearly described;
- technically feasible;
- enforceable;
- measurable;
- proportionate;
- capable of implementation;
- supported by evidence.

Mitigation should reduce environmental effects rather than merely postpone consideration of unresolved issues.

Where mitigation depends upon future investigation, future surveys or future management plans, the Commission should consider whether sufficient certainty exists at the time of determination.

3.16 Residual Environmental Effects

Following mitigation, the Applicant should identify any remaining residual environmental effects.

Residual effects should be assessed using the same transparent methodology applied to the original impact assessment.

The Commission should consider whether residual effects remain acceptable having regard to:

- planning policy;
 - environmental protection;
 - residential amenity;
 - cumulative effects;
 - statutory obligations.
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3.17 Monitoring

Environmental monitoring may assist in confirming whether predicted environmental effects occur during construction or operation.

Monitoring may also assist in evaluating the effectiveness of mitigation measures.

However, monitoring should not be regarded as a substitute for adequate environmental assessment prior to the granting of planning permission.

Where important environmental questions remain unresolved, these should normally be addressed before consent is granted rather than through post-consent monitoring.

3.18 Environmental Information Before the Commission

The Commission's determination must be based upon the entirety of the environmental information available.

This includes:

- the planning application;
- the Environmental Impact Assessment Report;
- the Natura Impact Statement;
- technical appendices;
- submissions and observations;
- prescribed body responses;
- the Applicant's Response;
- planning reports;
- applicable legislation;
- planning policy;
- scientific evidence.

The Commission should therefore consider whether the collective body of information provides a sufficiently reliable basis upon which to determine the application.

3.19 Standard of Environmental Assessment

The environmental assessment process should provide the Commission with information that is:

- complete;
- transparent;
- scientifically reliable;
- internally consistent;
- capable of independent verification;
- sufficient to support informed decision-making.

Where information falls below that standard, the Commission should consider whether additional information or clarification is necessary before reaching a determination.

3.20 Conclusions

Environmental Impact Assessment is intended to provide the Commission with a comprehensive understanding of the likely environmental consequences of the proposed development before planning permission is granted. It appears to fall short of this requirement

The following chapters examine each environmental discipline individually while recognising the integrated nature of the environmental assessment process. Particular consideration is given to whether the Applicant's Response adequately addresses the matters raised by observers and whether the information now before the

Commission is sufficient to satisfy the applicable statutory requirements governing Environmental Impact Assessment and environmental decision-making.

CHAPTER 4

CRITICAL REVIEW OF THE APPLICANT'S RESPONSE TO SUBMISSIONS

4.1 Introduction

The purpose of this chapter is to assess the adequacy of the Applicant's Response to Submissions lodged during the statutory public consultation process.

The Commission invited observations from prescribed bodies, public authorities, community organisations and members of the public to assist in identifying matters requiring further consideration before determining the application. The Applicant was subsequently afforded an opportunity to respond to those observations.

The Commission must now determine whether that response has adequately addressed the matters raised and whether the additional information provided enables a fully informed planning decision.

This chapter does not repeat the detailed technical assessments contained in later chapters. Rather, it evaluates the quality, scope and adequacy of the Applicant's Response as a planning document.

4.2 Purpose of an Applicant's Response

An Applicant's Response performs an important function within the planning process.

Its purpose is not merely to defend the planning application or repeat conclusions already contained within the Environmental Impact Assessment Report or Natura Impact Statement.

Instead, it should:

- identify the issue raised;
- engage directly with the substance of the concern;
- explain the evidence relied upon;
- address any deficiencies identified by observers;
- clarify matters of uncertainty;
- provide additional information where necessary;
- assist the Commission in determining whether the statutory tests have been satisfied.

Accordingly, the quality of a response should be assessed by the extent to which it advances the Commission's understanding of the issues rather than by its volume or complexity.

4.3 General Assessment

Having reviewed the Applicant's Response in its entirety, it is acknowledged that a substantial amount of technical material has been provided and that many observations have been addressed individually.

However, the response adopts a number of recurring approaches which, in the opinion of the authors, limit its effectiveness as an aid to the Commission's determination.

These recurring themes are considered below.

4.4 Reliance upon Existing Documentation

A recurring feature of the Applicant's Response is reliance upon the conclusions already contained within the Environmental Impact Assessment Report, Natura Impact Statement and supporting technical reports.

Cross-reference to previously submitted documentation is entirely appropriate where it provides a complete answer to the issue raised.

However, in numerous instances the response simply refers the reader back to existing documentation without explaining why the concerns expressed by observers do not alter the conclusions previously reached.

Where a specific concern has been identified during public participation, the response should demonstrate why that concern has been adequately considered rather than merely directing the reader to earlier chapters of the application documentation.

The Commission should therefore distinguish between:

- genuine clarification; and
 - repetition of existing conclusions.
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4.5 Reliance upon Professional Opinion

The Applicant's Response frequently refers to the opinions of specialist consultants.

Professional expertise forms an essential component of modern environmental assessment and the contribution of qualified specialists is acknowledged.

However, environmental conclusions should be supported by transparent reasoning as well as professional judgement.

Where conclusions are expressed without sufficient explanation of the methodology, assumptions or evidential basis upon which they depend, the Commission may find it difficult to evaluate the robustness of those conclusions independently.

Throughout this report, particular attention is therefore given to the relationship between professional opinion and the supporting evidence upon which that opinion relies.

4.6 Reliance upon Future Mitigation

Another recurring feature of the Applicant's Response is reliance upon mitigation measures to address identified environmental effects.

Mitigation forms an accepted component of Environmental Impact Assessment.

However, mitigation should not become a substitute for adequate assessment.

Where important environmental questions remain unresolved, reliance upon future management plans, monitoring programmes, construction methodologies or operational controls may not provide sufficient certainty at the time of determination.

The Commission should therefore distinguish between:

- impacts demonstrated to be acceptable before mitigation; and
- impacts considered acceptable only because of future mitigation measures.

This distinction is particularly relevant to ecology, hydrology, shadow flicker, construction management and Battery Energy Storage Systems.

4.7 Reliance upon Future Surveys

The Applicant's Response also proposes additional survey work in relation to certain environmental matters.

Further survey work may assist in refining construction methodology or operational management.

However, baseline environmental information should normally be sufficient before development consent is granted.

Where additional surveys are required in order to determine the significance of environmental effects, this may indicate that the existing information is incomplete.

The Commission should therefore consider whether the proposed future surveys supplement an already adequate assessment or whether they seek to resolve matters that ought properly to have been addressed during the planning application stage.

4.8 Compartmentalisation of Environmental Effects

The Applicant's Response generally addresses technical disciplines separately.

While this reflects the structure of the Environmental Impact Assessment Report, environmental effects are experienced cumulatively by the receiving environment and by nearby residents.

For example:

- noise;
- shadow flicker;
- aviation lighting;
- visual effects;
- construction traffic;
- ecological disturbance;
- road alterations;
- hydrological change

may each be considered individually within technical chapters but may combine to produce a materially different overall environmental effect.

The Commission should therefore assess the cumulative interaction between environmental disciplines rather than considering each topic in isolation.

4.9 Treatment of Cumulative Effects

The assessment of cumulative effects represents one of the most important aspects of Environmental Impact Assessment.

While cumulative assessment is addressed within the Applicant's Response, it is frequently considered on a discipline-by-discipline basis.

The Commission should also consider cumulative effects from the perspective of:

- nearby residents;
- protected habitats;
- protected species;
- local communities;
- the wider landscape;
- the receiving environment as a whole.

This broader perspective reflects the integrated nature of Environmental Impact Assessment required by European law.

4.10 Site-Specific Issues

Many submissions made by local residents identify concerns arising from detailed knowledge of the receiving environment.

Such observations frequently relate to:

- local hydrology;
- wildlife activity;
- seasonal flooding;
- traffic movements;
- landscape character;
- historical land use;
- community facilities;
- local heritage.

Local observations should not be discounted simply because they are anecdotal.

Rather, they should be evaluated to determine whether they identify matters requiring further investigation.

The Applicant's Response would have been strengthened by more extensive engagement with site-specific evidence provided by local observers.

4.11 Scientific Uncertainty

Environmental assessment frequently involves predictive modelling and scientific judgement.

The existence of uncertainty does not invalidate an assessment.

However, uncertainty should be clearly identified, its implications explained and, where necessary, addressed through additional evidence.

Where the Applicant concludes that environmental effects will be insignificant despite acknowledged uncertainty, the Commission should consider whether the evidential basis for that conclusion is sufficiently robust.

4.12 Transparency

Transparency is fundamental to effective environmental assessment.

The Applicant's Response should enable the Commission to understand:

- what information has changed;
- what information remains unchanged;
- why conclusions have been maintained;
- how concerns raised by observers have influenced the assessment.

Where responses rely upon cross-references to extensive technical documentation without identifying the reasoning supporting the conclusions reached, transparency may be reduced.

4.13 Burden of Demonstration

The planning process requires the Applicant to demonstrate that the proposed development satisfies the applicable statutory requirements.

The role of observers is to identify matters requiring further consideration.

Accordingly, the Commission's assessment should focus upon whether the Applicant has provided sufficient evidence to support the conclusions advanced rather than upon whether observers have proved those conclusions to be incorrect.

Throughout this report, consideration is therefore given to whether the evidence submitted enables the Commission to reach the conclusions sought by the Applicant.

4.14 Matters Requiring Further Examination

Having reviewed the Applicant's Response, the following issues are considered to warrant detailed examination in the chapters which follow:

- compliance with the Galway County Development Plan;
- Environmental Impact Assessment;
- Appropriate Assessment;
- cumulative environmental effects;
- residential amenity;
- landscape and visual impact;
- shadow flicker;
- operational noise;
- aviation lighting;
- biodiversity;
- ornithology;
- protected species;
- peatland;
- hydrology;

- water quality;
- traffic and transportation;
- Battery Energy Storage Systems;
- major accident risk;
- grid connection;
- decommissioning.

Each of these matters is considered individually in the subsequent chapters.

4.15 Summary

Having reviewed the Applicant's Response as a whole, several general observations emerge.

The Response provides a comprehensive summary of the Applicant's position and demonstrates considerable technical input across a wide range of environmental disciplines.

However, the assessment also indicates a recurring reliance upon:

- conclusions previously reached within the application documentation;
- future mitigation measures;
- future monitoring;
- professional opinion;
- compartmentalised assessment of environmental disciplines.

The Commission must therefore determine whether these approaches provide sufficient evidence to satisfy the statutory requirements governing Environmental Impact Assessment, Appropriate Assessment and proper planning and sustainable development.

The succeeding chapters examine each technical discipline in detail and assess whether the information now before the Commission enables those statutory requirements to be satisfied.

CHAPTER 5

HUMAN HEALTH AND RESIDENTIAL AMENITY

5.1 Introduction

The protection of human health and residential amenity represents one of the fundamental objectives of the Irish planning system and is an integral component of Environmental Impact Assessment.

The Environmental Impact Assessment Directive, as amended by Directive 2014/52/EU, specifically requires the assessment of likely significant effects on **population and human health**, reflecting the increasing recognition that environmental impacts extend beyond physical infrastructure to include the quality of life, wellbeing and living conditions of affected communities.

The proposed development is located within an established rural landscape characterised by dispersed housing, agricultural activity and long-established family homes. Consequently, the Commission must consider not only the engineering feasibility of the proposal but also its potential effects upon those who live, work and recreate within the receiving environment.

This chapter examines whether the Applicant's Response adequately addresses the concerns raised regarding human health and residential amenity and whether the information before the Commission is sufficient to support the conclusions reached.

5.2 Statutory Context

Protection of residential amenity is embedded throughout the Planning and Development Act 2000, the Environmental Impact Assessment Directive, the Galway County Development Plan and the Wind Energy Development Guidelines.

These instruments collectively require consideration of matters including:

- operational noise;
- construction noise;
- shadow flicker;
- visual dominance;
- aviation lighting;
- traffic disturbance;
- dust and air quality;
- vibration;
- public safety;
- cumulative environmental effects;
- overall living conditions.

The Commission must therefore consider the combined effect of these matters upon nearby residents rather than assessing each topic in isolation.

5.3 Population and Human Health

The Environmental Impact Assessment Directive recognises population and human health as a distinct environmental factor requiring assessment.

Human health extends beyond the absence of disease and includes the physical, mental and social wellbeing of affected communities.

Accordingly, assessment should consider:

- environmental quality;
- residential living conditions;
- access to community facilities;
- environmental stressors;
- quality of the surrounding landscape;
- disturbance arising during construction and operation;
- cumulative environmental burden.

The Applicant's Response should therefore demonstrate that these matters have been considered comprehensively.

5.4 Residential Amenity

Residential amenity encompasses the reasonable enjoyment of private homes and surrounding property.

In the context of wind energy development this includes consideration of:

- operational noise;
- construction disturbance;
- visual impact;
- shadow flicker;
- aviation obstruction lighting;
- traffic;
- dust;
- vibration;
- cumulative effects.

No individual factor necessarily determines whether residential amenity has been adversely affected.

Rather, the Commission should consider the combined effect of all relevant environmental influences experienced by residents throughout the operational life of the development.

5.5 Operational Noise

Operational noise remains one of the principal concerns associated with wind energy development.

The Applicant's Response concludes that operational noise levels will comply with the applicable assessment criteria.

The Commission should nevertheless consider:

- the assumptions adopted within the noise modelling;

- background noise measurements;
- representative monitoring locations;
- meteorological conditions;
- topographical influences;
- tonal characteristics;
- amplitude modulation;
- cumulative noise from neighbouring developments.

Particular attention should be given to whether the Applicant has adequately addressed concerns relating to rural night-time background conditions, where relatively small increases in environmental noise may become more perceptible.

5.6 Construction Noise

Construction activities inevitably generate temporary environmental disturbance.

Likely sources include:

- excavation;
- rock breaking where required;
- heavy goods vehicles;
- cranes;
- concrete works;
- road improvements;
- turbine assembly.

Although temporary in duration, construction noise may significantly affect nearby residents if not properly managed.

The Commission should therefore consider:

- duration of construction activities;
- working hours;
- proximity of residential receptors;
- proposed mitigation measures;
- complaint procedures;
- monitoring arrangements.

5.7 Shadow Flicker

Shadow flicker arises where rotating turbine blades intermittently obstruct sunlight under particular meteorological and seasonal conditions.

The Applicant's Response concludes that shadow flicker effects can be appropriately managed through operational mitigation.

The Commission should consider:

- identification of all potentially affected dwellings;
- modelling assumptions;
- seasonal variations;
- effectiveness of proposed mitigation;
- monitoring arrangements;
- response procedures;
- cumulative shadow flicker where relevant.

Reliance upon operational shutdown systems should be supported by clearly defined implementation and verification procedures.

5.8 Visual Amenity

Visual impact forms an important element of residential amenity.

Residents experience proposed developments continuously throughout the operational life of the project rather than only from designated viewpoints selected for landscape assessment.

Accordingly, the Commission should consider:

- principal views from dwellings;
- outdoor amenity areas;
- cumulative turbine visibility;
- changes to rural character;
- proximity to residential properties;
- visual dominance;
- sequential views during daily travel.

Visual amenity is considered in greater detail in Chapter 6.

5.9 Aviation Obstruction Lighting

Modern wind turbines require aviation obstruction lighting for aviation safety purposes.

The introduction of permanent night-time lighting has the potential to alter the character of rural landscapes and the residential experience of nearby communities.

The Commission should therefore consider:

- visibility of aviation lighting;
- intensity of lighting;

- synchronisation;
- cumulative visibility;
- potential mitigation technologies;
- duration of illumination.

Where lighting is proposed throughout the operational life of the development, its contribution to cumulative residential effects should be assessed.

5.10 Traffic and Community Disturbance

Construction traffic may affect residential amenity through:

- increased heavy goods vehicle movements;
- temporary road closures;
- delays;
- dust;
- noise;
- vibration;
- road safety concerns.

Particular consideration should be given to:

- local road geometry;
- school transport;
- agricultural traffic;
- pedestrians;
- cyclists;
- emergency access.

The adequacy of the proposed Traffic Management Plan is examined further in Chapter 8.

5.11 Dust and Air Quality

Construction activities have the potential to generate dust emissions arising from:

- excavation;
- road construction;
- material handling;
- vehicle movements;
- stockpiles.

The Applicant proposes standard construction mitigation measures.

The Commission should consider whether these measures are proportionate having regard to:

- nearby residential properties;
 - prevailing wind conditions;
 - duration of construction;
 - seasonal agricultural activity.
-

5.12 Mental Wellbeing

Environmental Impact Assessment recognises that environmental change may influence human wellbeing.

Residents have expressed concerns regarding:

- landscape change;
- visual dominance;
- cumulative environmental effects;
- night-time lighting;
- prolonged construction activity;
- alteration of the established rural environment.

While individual perceptions may vary, such concerns should be acknowledged as relevant components of the overall assessment of residential amenity.

The Commission should therefore consider whether the cumulative environmental effects have been evaluated from the perspective of those living within the receiving environment.

5.13 Community Facilities

The receiving environment includes community assets such as:

- schools;
- churches;
- graveyards;
- sports facilities;
- local roads;
- walking routes;
- community gathering places.

Assessment of human health should extend beyond individual dwellings to include the wider community environment.

The Commission should therefore consider whether these receptors have been adequately assessed within the Applicant's Response.

5.14 Vulnerable Receptors

Certain receptors may be more sensitive to environmental change.

These include:

- children;
- older persons;
- persons with disabilities;
- individuals working from home;
- educational facilities;
- healthcare settings.

Where such receptors occur within the receiving environment, assessment should recognise their potentially greater sensitivity to prolonged environmental disturbance.

5.15 Cumulative Residential Effects

Individual environmental effects may each be considered acceptable when assessed independently.

However, residents experience the combined effects of:

- operational noise;
- shadow flicker;
- visual change;
- aviation lighting;
- construction activity;
- traffic;
- ecological change;
- landscape alteration.

The Commission should therefore evaluate cumulative residential effects rather than considering each environmental factor separately.

5.16 Applicant's Response

The Applicant's Response addresses many of the concerns raised regarding residential amenity.

However, the Response frequently relies upon:

- compliance with technical standards;
- conclusions contained within the Environmental Impact Assessment Report;
- operational mitigation measures;
- future monitoring.

The Commission should consider whether these responses sufficiently address the cumulative experience of residents over the anticipated operational lifetime of the proposed development.

5.17 Assessment

Having reviewed the Applicant's Response, it is acknowledged that substantial technical information has been provided regarding operational noise, shadow flicker, traffic and construction impacts.

Nevertheless, the Commission should consider whether sufficient emphasis has been placed upon:

- cumulative residential effects;
- long-term environmental change;
- interaction between environmental disciplines;
- rural character;
- site-specific residential circumstances.

These matters are fundamental to determining whether residential amenity has been adequately protected.

5.18 Findings

The following observations arise from this assessment:

1. Human health should be considered in its broad environmental context.
 2. Residential amenity extends beyond compliance with individual technical standards.
 3. Cumulative environmental effects require careful consideration.
 4. Operational mitigation should not substitute for comprehensive assessment.
 5. Community facilities and vulnerable receptors warrant particular consideration.
 6. The combined environmental experience of nearby residents should form an integral part of the Commission's planning balance.
-

5.19 Conclusions

Protection of human health and residential amenity remains a central consideration in determining whether the proposed development constitutes proper planning and sustainable development.

While the Applicant's Response provides substantial technical information regarding individual environmental disciplines, the Commission should consider whether the cumulative effects experienced by nearby residents have been sufficiently evaluated.

The following chapter examines landscape and visual assessment in greater detail, including the interaction between landscape character, visual amenity, aviation lighting and cumulative wind energy development.

CHAPTER 6

LANDSCAPE AND VISUAL ASSESSMENT

6.1 Introduction

Landscape is one of the defining characteristics of County Galway and represents a significant environmental, cultural and economic resource. It provides the setting within which communities live, work and recreate and contributes to local identity, heritage and sense of place.

The proposed Cooloo Wind Farm would introduce a series of large-scale wind turbines, associated infrastructure and permanent aviation lighting into an existing rural landscape. While landscape change is an inevitable consequence of wind energy development, the Commission must determine whether the nature, scale and cumulative extent of that change remains acceptable having regard to the statutory planning framework and the principles of proper planning and sustainable development.

This chapter examines the Applicant's Response in relation to landscape and visual impact and considers whether the information before the Commission provides a sufficiently robust basis upon which to conclude that the proposed development is acceptable.

6.2 Legislative and Policy Context

Landscape protection is recognised within:

- the Planning and Development Act 2000, as amended;
- the Environmental Impact Assessment Directive;
- the European Landscape Convention;
- the National Planning Framework;
- the Galway County Development Plan 2022–2028;
- the Wind Energy Development Guidelines for Planning Authorities.

These instruments recognise that landscape is more than a visual resource. It is an environmental asset that contributes to biodiversity, cultural heritage, tourism, recreation and the quality of life of those living within it.

The Commission must therefore assess landscape effects within this broader context.

6.3 Landscape Character

Landscape character reflects the distinctive combination of landform, vegetation, settlement pattern, watercourses, cultural heritage and land use that distinguishes one area from another.

The receiving landscape surrounding the proposed development is characterised by:

- dispersed rural settlement;
- agricultural land;
- hedgerows and mature trees;
- peatland and wetland features;
- gently undulating topography;
- historic field patterns;
- local roads of rural character.

The Applicant's assessment concludes that the landscape possesses the capacity to accommodate the proposed development.

The Commission should independently consider whether the magnitude of the proposed turbines is compatible with the established landscape character and whether the Applicant has adequately demonstrated that conclusion.

6.4 Landscape Capacity

Landscape capacity refers to the ability of a landscape to accommodate development without unacceptable adverse effects upon its character.

Capacity depends upon numerous factors including:

- landscape sensitivity;
- topography;
- scale;
- existing development;
- visibility;
- cumulative change;
- proximity of receptors.

Large wind turbines represent one of the most visually prominent forms of development within the rural landscape.

Accordingly, conclusions regarding landscape capacity should be supported by clear and transparent assessment.

6.5 Landscape Sensitivity

The sensitivity of a landscape is influenced by:

- its natural characteristics;
- scenic quality;
- tranquillity;
- cultural associations;
- ecological importance;
- recreational value;
- settlement pattern.

The Commission should consider whether the Applicant's Response fully addresses these factors and whether sufficient weight has been given to the characteristics that contribute to the existing landscape.

6.6 Visual Assessment Methodology

Visual Impact Assessment seeks to identify the likely effects of development upon people experiencing the landscape.

Typical visual receptors include:

- residents;
- road users;
- walkers;
- recreational users;
- visitors;
- community facilities.

The Commission should consider whether the methodology adopted by the Applicant adequately reflects the range of receptors likely to experience the proposed development throughout its operational life.

6.7 Viewpoints

Representative viewpoints form an important component of Landscape and Visual Impact Assessment.

The Applicant has selected viewpoints intended to represent the range of likely visual experiences.

The Commission should consider:

- whether the viewpoints adequately represent nearby residential properties;
- whether seasonal variations have been considered;
- whether important community locations have been included;
- whether cumulative visibility has been adequately illustrated.

Particular attention should be given to viewpoints experienced by residents on a daily basis rather than solely to publicly accessible viewpoints.

6.8 Residential Visual Amenity

Residential receptors experience the proposed development continuously rather than during occasional visits.

Assessment of residential visual amenity should therefore consider:

- principal windows;
- gardens;
- outdoor amenity areas;
- approach roads;
- sequential views;
- visual dominance;
- relationship between turbines and dwellings.

The Commission should consider whether the Applicant's Response adequately distinguishes between general landscape effects and the specific visual experience of nearby residents.

6.9 Visual Dominance

Visual dominance depends not only upon visibility but also upon:

- turbine scale;
- viewing distance;
- elevation;
- skyline location;
- movement of blades;
- relationship to surrounding landform.

A development may remain visible over considerable distances while exerting significantly greater visual influence upon nearby receptors.

The Applicant's Response should therefore demonstrate that visual dominance has been appropriately assessed rather than relying solely upon visibility mapping.

6.10 Sequential Views

Visual experience changes as people travel through the receiving landscape.

Residents, visitors and road users may encounter the proposed development from multiple viewpoints during daily activities.

Sequential visual assessment assists in understanding:

- changing turbine visibility;
- cumulative landscape perception;
- duration of views;
- relationship between the development and surrounding settlements.

The Commission should consider whether sequential views have been adequately represented.

6.11 Aviation Obstruction Lighting

The proposed development will require aviation obstruction lighting throughout its operational life.

Although required for aviation safety, such lighting introduces an additional landscape element distinct from daytime visual assessment.

Night-time effects may include:

- alteration of dark rural skies;
- increased visual prominence;
- cumulative lighting effects;
- effects upon landscape character.

The Applicant's Response should therefore demonstrate that both daytime and night-time landscape effects have been comprehensively assessed.

6.12 Cumulative Landscape Effects

The assessment of cumulative landscape effects is of particular importance where existing, permitted or proposed wind energy developments occur within the wider area.

The Commission should consider:

- intervisibility between developments;
- cumulative turbine numbers;
- overlapping Zones of Theoretical Visibility;
- sequential visibility;
- cumulative aviation lighting;
- overall landscape character.

The cumulative experience of multiple developments may differ substantially from the effects of each individual development considered separately.

6.13 Landscape and Cultural Heritage

Landscape frequently contributes to the setting of archaeological sites, historic structures, graveyards and places of cultural importance.

Visual change may therefore influence not only landscape character but also appreciation of cultural heritage assets.

The Commission should consider whether the Applicant's Response adequately addresses these relationships where relevant.

6.14 Landscape and Tourism

The rural landscape forms an important component of County Galway's tourism resource.

Visitors experience the landscape through:

- scenic routes;
- walking trails;
- heritage attractions;
- rural accommodation;
- recreational facilities.

The Commission should consider whether potential effects upon the wider tourism landscape have been adequately assessed.

6.15 Applicant's Response

The Applicant's Response maintains that the proposed development can be accommodated within the receiving landscape without unacceptable adverse effects.

The assessment relies upon:

- Landscape and Visual Impact Assessment;

- viewpoint analysis;
- photomontages;
- Zone of Theoretical Visibility mapping;
- cumulative assessment;
- professional landscape judgement.

These documents provide an important evidential basis for the Applicant's conclusions.

The Commission must nevertheless determine whether the information provided adequately reflects the experience of those living within and using the receiving landscape.

6.16 Assessment

Having reviewed the Applicant's Response, it is recognised that substantial work has been undertaken to assess landscape and visual effects.

However, several matters require careful consideration, including:

- the relationship between landscape character and turbine scale;
- residential visual amenity;
- cumulative landscape effects;
- aviation lighting;
- sequential views;
- long-term alteration of rural character.

Landscape assessment inevitably involves professional judgement.

Accordingly, conclusions regarding significance should be supported by transparent reasoning and clearly explained methodology.

6.17 Findings

The following observations arise from this assessment:

1. Landscape assessment should consider both character and visual effects.
 2. Residential visual amenity requires separate consideration from general landscape assessment.
 3. Aviation lighting represents a permanent landscape effect and should be assessed accordingly.
 4. Cumulative landscape effects extend beyond simple visibility mapping.
 5. Sequential visual experience contributes significantly to public perception of landscape change.
 6. Landscape capacity should be evaluated having regard to the scale, prominence and operational life of the proposed turbines.
-

6.18 Conclusions

Landscape and visual impact represent central planning considerations in the assessment of large-scale wind energy development.

The Applicant's Response provides a detailed Landscape and Visual Impact Assessment supported by technical documentation and visual representations.

The Commission must nevertheless determine whether the evidence demonstrates that the proposed development can be accommodated without unacceptable effects upon landscape character, residential visual amenity and the cumulative experience of the wider rural landscape.

The following chapter examines ecological and Appropriate Assessment issues, including protected habitats, protected species, European Sites and compliance with the requirements of Irish and European environmental law.

CHAPTER 7

ECOLOGY AND APPROPRIATE ASSESSMENT

7.1 Introduction

The ecological assessment of the proposed Cooloo Wind Farm is one of the most significant aspects of the Commission's determination. Unlike many other planning considerations, ecological effects may engage mandatory statutory obligations arising under Irish and European environmental law. Where those obligations are engaged, the Commission must be satisfied that the legal tests established by the Habitats Directive, the Birds Directive and associated Irish legislation have been fully met before development consent may lawfully be granted.

The proposed development is located within a rural landscape containing agricultural land, peatland, hedgerows, wetlands, drainage networks, watercourses and habitats capable of supporting a range of protected species. The assessment must therefore extend beyond the immediate turbine footprints and consider the wider ecological function of the receiving environment.

This chapter examines whether the Applicant's Response adequately addresses the ecological concerns raised during the planning process and whether the information now before the Commission enables the statutory requirements relating to biodiversity, protected species and European Sites to be satisfied.

7.2 Legislative Framework

The ecological assessment of the proposed development is governed by a comprehensive legal framework including:

- the Habitats Directive (Council Directive 92/43/EEC);
- the Birds Directive (Directive 2009/147/EC);
- the Planning and Development Act 2000, as amended;
- the European Communities (Birds and Natural Habitats) Regulations 2011, as amended;
- the Wildlife Acts 1976–2023;
- the Environmental Impact Assessment Directive;
- the Galway County Development Plan 2022–2028.

These legislative provisions require the protection of biodiversity and impose specific obligations where protected habitats, protected species or European Sites may be affected.

7.3 Appropriate Assessment

Article 6(3) of the Habitats Directive requires that any plan or project likely to have a significant effect on a European Site, either individually or in combination with other plans or projects, must be subject to Appropriate Assessment.

Development consent may only be granted where the competent authority has ascertained that the proposal will not adversely affect the integrity of any European Site having regard to its conservation objectives.

This is a precautionary legal test and requires conclusions to be supported by complete, precise and definitive findings capable of removing reasonable scientific doubt.

The Commission must therefore independently consider whether the Natura Impact Statement and the Applicant's Response provide sufficient information to satisfy this legal requirement.

7.4 Precautionary Principle

The precautionary principle is fundamental to environmental decision-making where scientific uncertainty exists.

Where uncertainty remains regarding the potential effects of a development on protected habitats or species, the Commission must proceed with caution.

The Applicant's Response should therefore demonstrate not merely that adverse effects are considered unlikely, but that sufficient evidence exists to exclude such effects with the level of certainty required by law.

This principle is particularly relevant where ecological impacts depend upon predictive modelling, future mitigation or assumptions regarding species behaviour.

7.5 Biodiversity

The Environmental Impact Assessment Directive recognises biodiversity as a distinct environmental receptor requiring comprehensive assessment.

Biodiversity assessment extends beyond the identification of individual species and includes consideration of:

- habitat diversity;
- ecological connectivity;
- ecosystem function;
- species interactions;
- habitat fragmentation;
- cumulative ecological effects.

The Commission should therefore consider whether the Applicant's Response addresses biodiversity at an ecosystem level as well as at the level of individual receptors.

7.6 Baseline Ecological Surveys

Reliable ecological assessment depends upon accurate baseline information.

Ecological surveys should be:

- undertaken using recognised methodologies;
- seasonally appropriate;
- of sufficient duration;
- representative of the receiving environment;
- capable of identifying protected species and habitats.

Where baseline information is incomplete or uncertain, subsequent ecological conclusions may also become uncertain.

The Commission should therefore consider whether the Applicant has demonstrated that the ecological baseline provides an adequate foundation for the conclusions reached.

7.7 Habitats

The receiving environment comprises a range of habitats contributing to ecological diversity and connectivity.

Assessment should consider:

- habitat quality;
- habitat rarity;
- ecological function;
- habitat fragmentation;
- direct habitat loss;
- indirect effects;
- hydrological relationships.

The ecological importance of habitats is not determined solely by their area but also by the ecological functions they perform within the wider landscape.

The Commission should therefore consider whether the Applicant's Response adequately addresses both direct and indirect effects upon habitat integrity.

7.8 Ecological Connectivity

Ecological connectivity enables species to move between habitats for feeding, breeding, shelter and seasonal migration.

Features contributing to ecological connectivity may include:

- hedgerows;
- treelines;
- watercourses;
- drainage channels;
- woodland;
- wetlands;

- field boundaries.

Development may affect ecological connectivity even where direct habitat loss is limited.

The Commission should therefore consider whether ecological corridors have been adequately identified and protected.

7.9 Ornithology

Bird populations represent one of the principal ecological receptors associated with wind energy development.

Potential effects include:

- collision risk;
- displacement;
- barrier effects;
- habitat loss;
- disturbance;
- cumulative impacts.

Assessment should therefore consider both direct mortality and behavioural responses that may alter habitat use or movement patterns.

The Applicant's Response should demonstrate that these effects have been comprehensively evaluated.

7.10 Hen Harrier

Hen Harrier is a species of high conservation importance and requires particular consideration.

Assessment should address:

- breeding activity;
- wintering activity;
- foraging habitat;
- commuting routes;
- roost locations where relevant;
- collision risk;
- displacement;
- cumulative effects.

The Commission should consider whether the Applicant's Response adequately demonstrates that the proposed development will not adversely affect the conservation status of the species or its use of the wider landscape.

7.11 Merlin

Merlin is a protected raptor associated with open habitats and is potentially sensitive to disturbance and habitat alteration.

Assessment should consider:

- breeding territories;
- foraging behaviour;
- habitat availability;
- displacement;
- cumulative effects.

Where Merlin activity has been recorded within the receiving environment, the Commission should consider whether sufficient information has been provided regarding likely operational effects.

7.12 Kestrel

Kestrel remains a widespread but increasingly vulnerable species within parts of Ireland.

Potential effects include:

- collision risk;
- habitat alteration;
- changes in prey availability;
- cumulative landscape effects.

Assessment should therefore consider species-specific behaviour rather than relying solely upon general raptor assessment.

7.13 Barn Owl

Barn Owl is particularly sensitive to changes affecting:

- hunting habitat;
- rough grassland;
- commuting routes;
- road mortality;
- disturbance.

The Commission should consider whether the Applicant's Response adequately addresses both operational and construction-related effects upon the species where suitable habitat exists.

7.14 Curlew

Curlew remains one of Ireland's most threatened breeding bird species.

Assessment should consider:

- breeding habitat;
- feeding habitat;
- disturbance;

- displacement;
- hydrological change;
- cumulative habitat loss.

Where suitable habitat occurs within or adjacent to the development area, the precautionary principle assumes particular importance.

7.15 Greenland White-fronted Goose and Other Migratory Birds

The receiving landscape may be used by migratory species during seasonal movements.

Assessment should consider:

- flight paths;
- feeding areas;
- roosting sites;
- collision risk;
- barrier effects;
- cumulative effects.

The Commission should be satisfied that these matters have been adequately addressed having regard to available survey information and published guidance.

7.16 Bats

All bat species occurring in Ireland receive strict legal protection.

Wind energy developments may affect bats through:

- collision;
- barotrauma;
- habitat loss;
- disturbance of commuting routes;
- lighting;
- fragmentation of ecological corridors.

Assessment should therefore consider:

- species present;
- activity levels;
- habitat associations;
- turbine location;
- operational mitigation;
- cumulative effects.

Where operational curtailment is proposed, the Commission should consider whether sufficient detail has been provided regarding implementation and long-term monitoring.

7.17 Badger

Badger populations may be affected by:

- sett disturbance;
- habitat loss;
- increased traffic;
- construction activity;
- fragmentation of foraging habitat.

The Applicant's Response should demonstrate that sufficient survey work has been undertaken and that appropriate protective measures have been identified where required.

7.18 Otter

Otter is protected under both Irish and European legislation.

Potential impacts include:

- disturbance;
- watercourse modification;
- pollution;
- increased traffic;
- construction activity;
- habitat alteration.

Assessment should consider both direct and indirect effects arising throughout the construction and operational phases.

7.19 Aquatic Ecology

Watercourses associated with the proposed development may support a range of aquatic species and ecological communities.

Assessment should consider:

- sediment release;
- drainage alteration;
- water quality;
- fisheries;
- macroinvertebrates;
- hydrological connectivity.

The Commission should consider whether proposed mitigation measures adequately address these matters throughout the lifetime of the project.

7.20 Peatland and Wetland Ecology

Peatland and wetland habitats perform important ecological functions including:

- biodiversity support;
- carbon storage;
- water regulation;
- habitat connectivity.

Disturbance of these habitats may result in ecological effects extending beyond the immediate development footprint.

Assessment should therefore consider both direct habitat loss and wider hydrological consequences.

7.21 Invasive Species

Construction activities have the potential to facilitate the spread of invasive plant species through soil movement and machinery.

The Applicant's Response should identify:

- existing invasive species where present;
 - proposed biosecurity measures;
 - monitoring arrangements;
 - remediation procedures.
-

7.22 Hydrology and Ecology

Ecological receptors are closely linked to hydrological conditions.

Changes in drainage patterns may influence:

- wetlands;
- aquatic habitats;
- protected species;
- downstream ecological receptors.

The Commission should therefore consider hydrology and ecology as interdependent disciplines rather than independent technical assessments.

7.23 Cumulative Ecological Effects

Ecological assessment should consider the interaction between the proposed development and:

- existing wind farms;

- permitted developments;
- proposed developments;
- grid infrastructure;
- road improvements;
- other relevant projects.

Species may experience cumulative effects through:

- repeated disturbance;
- progressive habitat fragmentation;
- cumulative collision risk;
- reduced habitat availability;
- increasing landscape barriers.

The Commission should therefore consider whether cumulative ecological assessment has been undertaken at an appropriate geographic scale.

7.24 Applicant's Response

The Applicant's Response addresses ecological matters through reference to:

- the Natura Impact Statement;
- ecological surveys;
- ornithological assessment;
- habitat assessment;
- species surveys;
- proposed mitigation;
- monitoring measures.

The Applicant concludes that the proposed development will not result in unacceptable ecological effects.

The Commission must determine whether those conclusions are supported by sufficient evidence having regard to the applicable statutory requirements.

7.25 Assessment

Having reviewed the Applicant's Response, it is acknowledged that extensive ecological survey work has been undertaken and that detailed technical documentation accompanies the planning application.

However, the Commission should consider:

- the adequacy of baseline surveys;
- the treatment of cumulative ecological effects;
- reliance upon future mitigation;
- ecological connectivity;

- long-term habitat change;
- species-specific assessment;
- hydrological interactions.

These matters are fundamental to determining whether the ecological assessment satisfies the requirements of Irish and European environmental law.

7.26 Findings

The following observations arise from this assessment:

1. Ecological assessment should be considered at both site and landscape scale.
2. Appropriate Assessment requires conclusions capable of removing reasonable scientific doubt.
3. Ecological connectivity represents an important component of biodiversity assessment.
4. Species-specific assessment should be supported by transparent methodology.
5. Hydrology and ecology should be considered as integrated environmental systems.
6. Cumulative ecological effects require particular attention where multiple developments occur within the wider landscape.
7. Reliance upon future mitigation should not replace comprehensive baseline assessment.

7.27 Conclusions

Ecology and Appropriate Assessment represent fundamental components of the statutory decision-making process.

The Applicant's Response provides extensive ecological information supported by specialist reports and technical assessment.

The Commission must nevertheless determine whether the evidence now before it demonstrates, to the standard required by Irish and European law, that the proposed development will not adversely affect biodiversity, protected species, ecological connectivity or the integrity of any European Site.

The following chapter examines the engineering and technical aspects of the proposed development, including transport, hydrology, peat stability, Battery Energy Storage Systems, grid connection, construction methodology and major accident risk.

CHAPTER 8

ENGINEERING AND TECHNICAL ASSESSMENT

8.1 Introduction

The proposed Cooloo Wind Farm comprises not only wind turbines but also a substantial programme of civil engineering works, permanent infrastructure and associated construction activities extending across the site and its surrounding transport network.

These works include turbine foundations, crane hardstands, internal access roads, site drainage, electrical infrastructure, substation development, communications systems, construction compounds, borrow pit activities where applicable, grid connection infrastructure and the proposed Battery Energy Storage System (BESS).

The engineering elements of the project are fundamental to the environmental assessment because they have the potential to influence hydrology, peat stability, ecology, landscape, residential amenity, traffic, public safety and cumulative environmental effects.

This chapter examines whether the Applicant's Response adequately addresses the principal engineering and technical issues raised during the planning process and whether the information before the Commission is sufficient to support the conclusions reached.

8.2 Engineering Design

The Applicant's Response explains the engineering principles adopted in developing the proposed layout and associated infrastructure.

The Commission should consider whether the engineering design:

- responds appropriately to the characteristics of the site;
- minimises environmental disturbance;
- avoids unnecessary excavation;
- protects watercourses;
- limits habitat fragmentation;
- provides safe construction access;
- facilitates long-term maintenance.

Engineering decisions influence environmental outcomes throughout the lifetime of the development and should therefore be considered alongside ecological and planning considerations.

8.3 Site Access

Construction of the proposed development will require the transportation of large turbine components, heavy construction plant and substantial quantities of construction materials.

The Applicant's Response identifies the proposed access arrangements and associated road improvements.

The Commission should consider:

- suitability of the proposed haul route;
- geometric constraints;
- bridge capacities;
- junction improvements;
- visibility;
- road safety;
- effects upon local residents.

The adequacy of access arrangements should be assessed having regard to the duration and intensity of construction traffic.

8.4 Construction Traffic

Construction traffic represents one of the most significant temporary effects associated with large-scale wind energy development.

Potential impacts include:

- increased Heavy Goods Vehicle movements;
- abnormal loads;
- temporary road closures;
- traffic delays;
- road wear;
- dust;
- vibration;
- disruption to local communities.

The Commission should consider whether the proposed Traffic Management Plan adequately addresses these matters.

Particular attention should be given to:

- schools;
- agricultural traffic;
- emergency services;
- pedestrians;
- cyclists;
- public transport;
- cumulative construction traffic associated with other developments.

8.5 Abnormal Loads

Delivery of turbine components requires the transportation of exceptionally large loads through the local road network.

The Applicant's Response should demonstrate that:

- route assessments have been completed;
- engineering constraints have been identified;
- temporary works have been minimised;
- public safety has been adequately considered;
- reinstatement proposals are appropriate.

The Commission should also consider the cumulative effect of repeated abnormal load movements during the construction programme.

8.6 Internal Roads

The construction of permanent internal access roads may influence:

- hydrology;
- drainage;
- peat stability;
- habitat connectivity;
- landscape character.

Road alignment, drainage design and earthworks should therefore be considered in conjunction with the ecological and hydrological assessments.

The Commission should consider whether the Applicant's Response adequately demonstrates that permanent infrastructure has been designed to minimise environmental effects.

8.7 Turbine Foundations

Wind turbine foundations represent substantial engineering structures requiring excavation, concrete placement and ground preparation.

Foundation design should consider:

- ground conditions;
- peat depth;
- groundwater;
- settlement;
- slope stability;
- drainage.

The Commission should be satisfied that foundation construction will not give rise to unacceptable environmental consequences either during construction or operation.

8.8 Geology and Ground Conditions

The engineering assessment should demonstrate an adequate understanding of:

- geological conditions;
- subsoil characteristics;
- groundwater;
- rock profile;
- peat distribution.

Ground investigations should provide sufficient information to support engineering design and environmental assessment.

Where significant uncertainty remains regarding subsurface conditions, the Commission should consider whether additional investigation is required before development consent is granted.

8.9 Peat Stability

Where peat occurs within the development area, engineering assessment should address:

- peat depth;
- peat stability;
- excavation methods;
- drainage effects;
- spoil management;
- slope stability;
- long-term settlement.

Peat failure has the potential to generate significant environmental consequences including habitat damage, sediment release and downstream pollution.

Accordingly, the Commission should consider whether the Applicant's Response demonstrates that peat stability has been comprehensively assessed.

8.10 Hydrology

Construction activities have the potential to alter existing drainage patterns through:

- excavation;
- road construction;
- drainage works;
- foundation construction;
- temporary dewatering.

The Applicant proposes engineering measures intended to manage these effects.

The Commission should consider whether these measures adequately address:

- construction runoff;
- sediment transport;
- flood risk;
- downstream water quality;
- cumulative hydrological effects.

Hydrological assessment should be considered alongside ecological assessment because of the close relationship between water and biodiversity.

8.11 Water Quality

Protection of water quality represents a fundamental environmental objective.

Potential construction risks include:

- sediment release;
- concrete washout;
- fuel spills;
- lubricant leaks;
- accidental contamination;
- erosion.

The Applicant's Response should demonstrate that:

- pollution prevention measures are clearly defined;
 - emergency response procedures are established;
 - monitoring arrangements are appropriate;
 - mitigation remains effective during extreme weather events.
-

8.12 Drainage Design

Drainage infrastructure should be designed to:

- maintain existing catchment characteristics where practicable;
- prevent erosion;
- reduce sediment transport;
- protect receiving waters;
- accommodate climate-related rainfall events.

The Commission should consider whether the proposed drainage strategy has been integrated with the wider hydrological assessment.

8.13 Battery Energy Storage System

The proposed Battery Energy Storage System represents an important element of the overall project.

The Commission should consider:

- site layout;
- fire safety;
- thermal runaway;
- emergency response;
- containment of contaminated firewater;
- hazardous materials;
- operational monitoring;

- end-of-life management.

Where the Applicant's Response relies upon compliance with future operational standards, the Commission should consider whether sufficient site-specific assessment has been provided.

8.14 Major Accident and Disaster Risk

The Environmental Impact Assessment Directive requires consideration of major accident and disaster risks where relevant.

Potential risks associated with the proposed development may include:

- turbine failure;
- blade throw;
- fire;
- battery incidents;
- pollution events;
- severe weather;
- flooding;
- transportation accidents.

The Applicant's Response should demonstrate that these matters have been assessed using recognised methodologies and that appropriate emergency planning has been identified.

8.15 Fire Safety

Fire safety considerations extend beyond individual turbines to include:

- Battery Energy Storage Systems;
- transformers;
- electrical infrastructure;
- construction compounds;
- vegetation fires.

The Commission should consider:

- access for emergency services;
- water supply;
- emergency procedures;
- containment measures;
- communication arrangements.

Particular attention should be given to the interaction between fire risk and environmentally sensitive receptors.

8.16 Telecommunications

Wind turbines have the potential to affect telecommunications infrastructure through physical obstruction or electromagnetic interference.

The Applicant's Response should demonstrate that relevant service providers have been consulted where necessary and that appropriate mitigation has been identified should interference occur.

8.17 Grid Connection

The proposed development depends upon connection to the national electricity network.

The Commission should consider whether:

- the grid connection has been adequately described;
- associated environmental effects have been assessed;
- cumulative impacts have been considered;
- project-wide environmental effects have been evaluated.

Where elements of the grid connection are subject to separate consent procedures, the Commission should nevertheless consider the relationship between the principal development and associated infrastructure.

8.18 Construction Environmental Management

Construction Environmental Management Plans provide an important framework for controlling environmental effects during construction.

Such plans typically address:

- pollution prevention;
- ecological protection;
- traffic management;
- noise;
- dust;
- waste management;
- emergency response.

The Commission should distinguish between environmental effects that have already been assessed and those proposed to be managed through future construction documentation.

8.19 Waste Management

Construction and operation will generate a variety of waste streams.

Assessment should consider:

- excavation materials;
- construction waste;
- hazardous materials;
- packaging;

- end-of-life infrastructure;
- battery replacement where applicable.

The Applicant's Response should demonstrate compliance with the waste hierarchy and relevant environmental legislation.

8.20 Decommissioning

Wind energy developments have a finite operational life.

The engineering assessment should therefore consider:

- removal of turbines;
- removal of foundations where appropriate;
- restoration of disturbed land;
- removal of electrical infrastructure;
- waste disposal;
- long-term environmental monitoring.

The Commission should also consider whether appropriate financial provision exists to ensure that decommissioning can be completed without imposing future liabilities upon the public.

8.21 Climate Resilience

Engineering design should account for changing climatic conditions throughout the operational life of the development.

Consideration should include:

- increased rainfall intensity;
- flood risk;
- wind loading;
- drainage capacity;
- resilience of critical infrastructure.

The Commission should consider whether climate resilience has been adequately incorporated into the engineering assessment.

8.22 Applicant's Response

The Applicant's Response provides substantial technical information regarding engineering design, construction methodology and operational management.

The Response relies upon:

- engineering reports;
- hydrological assessment;
- transport assessment;

- construction management proposals;
- drainage design;
- environmental management measures.

The Commission must determine whether these documents adequately demonstrate that engineering aspects of the development have been fully assessed and that associated environmental effects have been satisfactorily addressed.

8.23 Assessment

Having reviewed the Applicant's Response, it is recognised that significant engineering work has been undertaken in support of the application.

Nevertheless, the Commission should carefully consider:

- the interaction between engineering design and environmental protection;
- long-term maintenance obligations;
- reliance upon future management plans;
- cumulative engineering impacts;
- climate resilience;
- emergency response arrangements;
- integration between engineering and ecological assessments.

Engineering design should not be considered independently of the environmental consequences arising from its implementation.

8.24 Findings

The following observations arise from this assessment:

1. Engineering assessment should be integrated with environmental assessment.
 2. Construction impacts require consideration alongside operational effects.
 3. Hydrology, peat stability and drainage remain closely interconnected.
 4. Grid connection and associated infrastructure should be considered within the overall environmental context of the development.
 5. Battery Energy Storage Systems require detailed site-specific assessment of fire safety and environmental protection.
 6. Decommissioning should be addressed as an integral component of the project lifecycle.
 7. Construction Environmental Management Plans should support, rather than replace, comprehensive environmental assessment undertaken prior to consent.
-

8.25 Conclusions

The engineering and technical aspects of the proposed Cooloo Wind Farm extend well beyond the construction of wind turbines and encompass a broad range of permanent infrastructure and associated environmental considerations.

The Applicant's Response provides detailed technical documentation addressing engineering design and construction methodology.

The Commission must nevertheless determine whether the engineering information now before it demonstrates that the proposed development can be constructed, operated and ultimately decommissioned without giving rise to unacceptable environmental effects and in a manner consistent with the principles of proper planning and sustainable development.

The following chapter considers whether, when the planning, environmental, ecological and engineering evidence is viewed collectively, the Applicant has discharged the burden of demonstrating that the statutory requirements for the grant of planning permission have been satisfied.

CHAPTER 9

WHETHER THE APPLICANT HAS DISCHARGED THE BURDEN OF DEMONSTRATING COMPLIANCE WITH THE STATUTORY REQUIREMENTS

9.1 Introduction

The preceding chapters have considered the principal planning, environmental, ecological and engineering issues arising from the proposed Cooloo Wind Farm and the Applicant's Response to Submissions.

This chapter brings those assessments together.

Its purpose is not to revisit every technical discipline in detail, but to consider whether the information now before **An Coimisiún Pleanála**, viewed as a whole, demonstrates that the statutory requirements governing the grant of planning permission have been satisfied.

The Commission's task is not to determine whether every conceivable environmental effect has been eliminated. Rather, it must determine whether the Applicant has provided sufficient evidence to enable the Commission to reach the conclusions required by Irish planning law and European environmental law.

Where uncertainty remains regarding matters subject to mandatory statutory assessment, the Commission must consider whether the legal threshold for granting development consent has been achieved.

9.2 The Applicant's Responsibility

The planning process places responsibility upon the Applicant to provide sufficient information to enable the competent authority to determine the application.

This responsibility includes demonstrating that:

- the proposed development constitutes proper planning and sustainable development;
- Environmental Impact Assessment has been completed in accordance with statutory requirements;
- Appropriate Assessment requirements have been satisfied;
- likely significant environmental effects have been adequately assessed;
- mitigation measures are realistic, effective and capable of implementation;
- cumulative environmental effects have been properly considered.

The burden does not rest upon observers to demonstrate that the development will inevitably give rise to unacceptable effects.

Rather, it rests upon the Applicant to demonstrate, by reference to reliable evidence, that the statutory requirements governing development consent have been met.

9.3 Standard of Assessment

Throughout this report the Applicant's Response has been assessed against four principal questions.

First, has the issue raised by observers been directly addressed?

Second, is the conclusion supported by adequate technical evidence?

Third, is the assessment consistent with the applicable legal and planning framework?

Fourth, does the information enable the Commission to reach the conclusions required by statute?

This approach recognises that the Commission's determination must be evidence-based and capable of withstanding careful legal and technical scrutiny.

9.4 General Observations

Having reviewed the Applicant's Response in its entirety, several general observations emerge.

The Applicant has provided an extensive body of technical information supported by specialist reports across a wide range of disciplines.

The Response demonstrates significant professional input and seeks to address the observations received during public consultation.

However, the assessment also reveals a number of recurring characteristics that appear consistently throughout the documentation.

These include:

- reliance upon conclusions already contained within the original application documentation;
- reliance upon professional judgement without always explaining the underlying evidential basis;
- reliance upon future mitigation and management measures;
- reliance upon future monitoring;
- compartmentalised treatment of environmental disciplines;
- limited consideration of the cumulative experience of environmental receptors.

These observations do not necessarily invalidate the conclusions reached by the Applicant.

They do, however, require careful consideration when determining whether the statutory requirements have been fully satisfied.

9.5 Environmental Impact Assessment

The Environmental Impact Assessment process requires the Commission to consider the likely significant effects of the proposed development on the environment as a whole.

The preceding chapters have identified several matters where further consideration may be warranted, including:

- cumulative environmental effects;
- interactions between environmental disciplines;
- long-term operational impacts;
- the relationship between engineering design and environmental protection;
- the treatment of residual environmental effects.

The Commission should therefore consider whether the Environmental Impact Assessment, viewed in its entirety, provides sufficient information to support the conclusions advanced by the Applicant.

9.6 Appropriate Assessment

Appropriate Assessment is subject to a distinct and more stringent legal test.

The Commission may only grant permission where it has ascertained that the proposed development will not adversely affect the integrity of any European Site, either alone or in combination with other plans or projects.

This conclusion must be based upon complete, precise and definitive findings.

Where uncertainty remains regarding ecological effects relevant to European Sites, the Commission should carefully consider whether the legal threshold established by Article 6(3) of the Habitats Directive has been satisfied.

9.7 Planning Policy

The proposed development must be assessed against the Galway County Development Plan as a whole.

The Development Plan supports renewable energy development while simultaneously seeking to protect:

- landscape character;
- residential amenity;
- biodiversity;
- water resources;
- cultural heritage;
- rural communities.

The Commission should therefore consider whether the Applicant has demonstrated consistency with the full range of Development Plan objectives rather than relying upon renewable energy policy in isolation.

9.8 Human Health and Residential Amenity

The assessment undertaken in Chapter 5 identifies a number of environmental factors capable of influencing residential amenity.

These include:

- operational noise;
- shadow flicker;
- aviation lighting;
- visual impact;
- construction activity;
- traffic;
- cumulative environmental effects.

The Commission should consider the combined effect of these influences upon nearby residents throughout the operational life of the development.

9.9 Landscape

Landscape assessment requires consideration of both landscape character and visual amenity.

The Commission should consider whether:

- turbine scale;
- landscape sensitivity;
- cumulative visibility;
- residential visual experience;
- aviation lighting;
- sequential views

have been sufficiently assessed within the Applicant's Response.

9.10 Ecology

Ecological assessment extends beyond individual species and encompasses the functioning of the wider landscape.

The Commission should consider whether sufficient information has been provided regarding:

- biodiversity;
- ecological connectivity;
- protected species;
- hydrological relationships;
- cumulative ecological effects;
- long-term habitat function.

These matters are central to determining whether the proposed development complies with Irish and European environmental legislation.

9.11 Engineering

The engineering assessment demonstrates the complexity of the proposed development.

The Commission should consider whether:

- engineering design;
- hydrology;
- peat stability;
- traffic;
- construction management;
- Battery Energy Storage Systems;
- decommissioning

have been sufficiently integrated with the wider environmental assessment.

9.12 Cumulative Assessment

One of the recurring themes throughout this report concerns cumulative assessment.

Environmental effects rarely occur independently.

Residents experience multiple environmental changes simultaneously.

Similarly, ecological receptors may respond to the interaction of:

- habitat change;
- disturbance;
- hydrology;
- landscape alteration;
- construction activity;
- operational infrastructure.

The Commission should therefore consider whether cumulative assessment adequately reflects the combined environmental consequences of the proposed development.

9.13 Future Mitigation

Future mitigation measures appear throughout the Applicant's Response.

Such measures may represent an appropriate means of reducing environmental effects.

However, where future mitigation is relied upon to establish environmental acceptability, the Commission should consider whether sufficient information exists regarding:

- implementation;
- effectiveness;
- enforceability;
- monitoring;
- contingency arrangements.

Mitigation should provide confidence rather than introduce further uncertainty.

9.14 Future Monitoring

Monitoring plays an important role in environmental management.

However, monitoring should normally confirm the effectiveness of assessment rather than compensate for uncertainty existing at the time of determination.

The Commission should therefore distinguish between:

- monitoring undertaken to verify predicted effects; and
 - monitoring intended to identify effects that have not yet been adequately assessed.
-

9.15 Transparency

The planning process depends upon transparent environmental assessment.

The Commission should be able to understand:

- the evidence relied upon;
- the assumptions adopted;
- the reasoning supporting conclusions;
- the effectiveness of mitigation;
- the significance of residual effects.

Transparency assists both public confidence and effective decision-making.

9.16 Overall Assessment

Having considered the Applicant's Response together with the planning documentation and supporting technical reports, it is recognised that the application has been accompanied by a substantial body of environmental information.

Nevertheless, the Commission must determine whether that information collectively provides a sufficiently reliable basis upon which to conclude that:

- the proposed development represents proper planning and sustainable development;
- Environmental Impact Assessment has been satisfactorily completed;
- Appropriate Assessment requirements have been fulfilled;
- the environmental effects of the development have been adequately identified and assessed;
- cumulative impacts have been appropriately considered.

The Commission's determination should ultimately be based upon the quality and completeness of the evidence rather than the quantity of documentation submitted.

9.17 Principal Findings

The principal findings arising from this assessment are as follows:

1. The Applicant has provided an extensive body of technical information addressing the principal environmental disciplines relevant to the proposed development.
2. The Applicant's Response demonstrates considerable professional input and responds to a wide range of issues raised during the public consultation process.
3. The Response frequently relies upon existing application documentation together with future mitigation and monitoring measures.
4. The Commission should carefully consider whether cumulative environmental effects have been adequately addressed across all technical disciplines.
5. The relationship between engineering, ecology, hydrology and residential amenity should be considered as an integrated assessment.
6. Appropriate Assessment requires a particularly high evidential standard where European Sites may be affected.

7. The Commission should be satisfied that all conclusions relied upon in determining the application are supported by complete, transparent and reliable evidence.
-

9.18 Conclusions

The Applicant's Response represents an important stage in the statutory planning process and provides significant additional information to assist the Commission in determining the application.

The Commission must now consider whether the planning record, viewed as a whole, demonstrates compliance with the requirements of Irish planning legislation, European environmental law, the Galway County Development Plan and the principles of proper planning and sustainable development.

Where the Commission concludes that the information before it is complete, reliable and legally sufficient, it may proceed to determine the application.

Where material uncertainty remains in relation to matters requiring statutory assessment, the Commission must consider whether additional information is required or whether the legal requirements governing the grant of planning permission have not yet been satisfied.

CHAPTER 10

CONCLUSIONS

10.1 Introduction

This report has examined the Applicant's Response to Submissions in the context of the proposed Cooloo Wind Farm (Case Reference ACP-323761-25).

The assessment has been undertaken by reference to:

- the Planning and Development Act 2000, as amended;
- the Planning and Development Regulations 2001, as amended;
- the Environmental Impact Assessment Directive;
- the Habitats Directive;
- the Birds Directive;
- the European Communities (Birds and Natural Habitats) Regulations 2011, as amended;
- the Galway County Development Plan 2022–2028;
- relevant national planning policy;
- published technical guidance;
- applicable Irish and European case law;
- the planning documentation available to the Commission.

The purpose of the assessment has been to determine whether the Applicant's Response provides sufficient information to enable the Commission to conclude that the proposed development satisfies the statutory requirements governing the grant of planning permission.

10.2 Overall Assessment

The Applicant has submitted an extensive body of technical documentation in support of the proposed development.

The Applicant's Response addresses a broad range of issues raised by observers and prescribed bodies and provides additional explanation across numerous technical disciplines.

The preparation of detailed reports by qualified specialists is acknowledged, as is the significant amount of survey work, modelling and engineering assessment undertaken during the preparation of the application.

The Commission must nevertheless determine whether the evidence now before it is sufficient to satisfy the statutory obligations imposed by Irish planning law and European environmental legislation.

The determination of this application should therefore be based upon the adequacy, reliability and completeness of the evidence rather than the volume of documentation submitted.

10.3 Proper Planning and Sustainable Development

The proposed development must be considered within the broader context of proper planning and sustainable development.

Renewable energy development is recognised as an important national objective and contributes towards climate policy and energy security.

However, these important public benefits do not displace the statutory requirement to demonstrate that a particular development:

- accords with the Development Plan;
- protects residential amenity;
- safeguards biodiversity;
- complies with Environmental Impact Assessment requirements;
- satisfies the requirements of Appropriate Assessment;
- avoids unacceptable environmental effects.

The planning balance therefore requires consideration of both the public benefits of renewable energy and the environmental consequences arising from the specific proposal under consideration.

10.4 Environmental Impact Assessment

Environmental Impact Assessment requires the Commission to consider the likely significant effects of the proposed development upon the environment as a whole.

Throughout this report attention has been drawn to the importance of:

- cumulative assessment;
- interactions between environmental disciplines;
- transparency of reasoning;
- adequacy of baseline information;
- residual environmental effects;
- reliance upon mitigation.

The Commission should be satisfied that the Environmental Impact Assessment enables a comprehensive understanding of the likely environmental consequences of the proposed development before determining the application.

10.5 Appropriate Assessment

Appropriate Assessment represents one of the most significant legal considerations arising within this application.

The Commission must be satisfied that the proposed development will not adversely affect the integrity of any European Site, either alone or in combination with other plans or projects.

This conclusion must be based upon complete, precise and definitive findings capable of removing reasonable scientific doubt.

Where such certainty cannot be achieved from the information before the Commission, careful consideration should be given to the legal implications arising under Article 6(3) of the Habitats Directive.

10.6 Human Health

The assessment of human health extends beyond compliance with individual technical standards.

The Commission should consider the combined influence of:

- operational noise;
- shadow flicker;

- visual change;
- aviation lighting;
- construction disturbance;
- traffic;
- cumulative environmental effects.

Human health should therefore be assessed within the broader context of residential amenity and environmental quality.

10.7 Landscape

Landscape assessment requires consideration of:

- landscape character;
- visual amenity;
- cumulative visibility;
- aviation lighting;
- sequential views;
- residential experience.

The Commission should consider whether the proposed development can be accommodated within the receiving landscape without giving rise to unacceptable long-term effects upon landscape character or visual amenity.

10.8 Ecology

Ecological assessment should consider the receiving environment as an interconnected ecological system.

The report has identified the importance of:

- biodiversity;
- protected species;
- habitat connectivity;
- hydrology;
- peatland;
- cumulative ecological effects;

- Appropriate Assessment.

The Commission should be satisfied that these matters have been comprehensively assessed and that the applicable legal requirements have been met.

10.9 Engineering

Engineering assessment should not be viewed independently from environmental assessment.

Construction methodology, drainage, hydrology, peat stability, transport, Battery Energy Storage Systems, fire safety and decommissioning all influence the environmental performance of the proposed development.

The Commission should therefore consider whether the engineering proposals adequately support the environmental conclusions reached by the Applicant.

10.10 Cumulative Effects

One of the recurring themes identified throughout this report concerns cumulative environmental effects.

The Commission should consider not only the significance of individual environmental disciplines but also the interaction between:

- landscape;
- ecology;
- hydrology;
- residential amenity;
- transport;
- construction activity;
- operational infrastructure.

This integrated assessment is fundamental to Environmental Impact Assessment and to the broader concept of sustainable development.

10.11 The Applicant's Response

The Applicant's Response represents a significant body of work prepared in response to observations received during the planning process.

It provides additional explanation across numerous technical disciplines and seeks to demonstrate that the proposed development satisfies the applicable planning and environmental requirements.

The Commission must now determine whether those explanations, when considered together with the planning record as a whole, provide sufficient evidence to support the conclusions advanced.

That determination ultimately depends upon the quality, completeness and reliability of the information before the Commission.

10.12 Principal Conclusions

Having reviewed the planning documentation and the Applicant's Response, the following principal conclusions are respectfully submitted for the Commission's consideration.

Planning Framework

The proposal should be assessed against the Galway County Development Plan in its entirety, balancing renewable energy objectives with the protection of landscape, biodiversity, residential amenity and environmental quality.

Environmental Assessment

The Environmental Impact Assessment should be considered as an integrated assessment recognising the interaction between environmental disciplines and cumulative environmental effects.

Appropriate Assessment

The Commission should be satisfied that the information before it satisfies the legal requirements of Article 6(3) of the Habitats Directive before granting development consent.

Residential Amenity

Residential amenity should be assessed having regard to the cumulative influence of operational, visual and construction-related effects over the anticipated operational life of the development.

Landscape

Landscape assessment should consider the combined influence of turbine scale, cumulative visibility, aviation lighting and long-term landscape change.

Ecology

Ecological assessment should address biodiversity, habitat connectivity, protected species and cumulative ecological effects at both site and landscape scale.

Engineering

Engineering design should be considered together with its environmental consequences throughout construction, operation and eventual decommissioning.

10.13 Final Observations

The planning system seeks to reconcile national infrastructure objectives with the protection of environmental quality and the interests of local communities.

Renewable energy development represents an important component of national policy.

Equally, the statutory safeguards established through Irish planning legislation and European environmental law exist to ensure that such development proceeds only where the applicable legal and environmental standards have been satisfied.

The Commission's determination should therefore reflect both of these important public interests.

10.14 Conclusion

This report has sought to assist **An Coimisiún Pleanála** by providing a structured planning, environmental and technical assessment of the Applicant's Response to Submissions.

The assessment has been undertaken objectively and with reference to the planning documentation, applicable legislation, planning policy, technical guidance and relevant legal principles.

It is respectfully submitted that the Commission should determine the application having regard to the entirety of the planning record, the statutory planning framework and the environmental obligations arising under Irish and European law.

Where the Commission concludes that the evidence before it is complete, reliable and legally sufficient, it may proceed to determine the application in accordance with its statutory responsibilities.

Where the Commission concludes that material uncertainty remains in relation to matters requiring statutory assessment, it should consider the implications of that uncertainty in reaching its final determination.

CHAPTER 11

REQUESTED DECISION

11.1 Introduction

This report has examined the Applicant's Response to Submissions across the principal planning, environmental, ecological and engineering disciplines relevant to the proposed Cooloo Wind Farm.

The purpose of this final chapter is to summarise the matters which, in the opinion of the authors, require consideration by **An Coimisiún Pleanála** before determining the application.

11.2 Primary Request

The Commission is respectfully requested to determine the application only after being satisfied that:

- all statutory requirements have been fulfilled;
 - the Environmental Impact Assessment is complete and legally compliant;
 - the Appropriate Assessment requirements of Article 6(3) of the Habitats Directive have been fully satisfied;
 - the proposed development constitutes proper planning and sustainable development;
 - the evidence before the Commission provides a complete, reliable and legally sufficient basis for determination.
-

11.3 Matters Requiring Particular Consideration

The Commission is respectfully requested to give particular consideration to:

- compliance with the Galway County Development Plan;
 - cumulative environmental effects;
 - residential amenity;
 - landscape and visual impact;
 - aviation obstruction lighting;
 - ecological connectivity;
 - protected species;
 - hydrology;
 - peat stability;
 - construction impacts;
 - Battery Energy Storage Systems;
 - major accident risk;
 - long-term environmental management;
 - project-wide integration of associated infrastructure.
-

11.4 Alternative Outcomes

Should the Commission conclude that material uncertainty remains regarding any matter requiring statutory assessment, it is respectfully submitted that consideration should be given to whether:

- additional information is required;
 - further environmental assessment is necessary;
 - additional conditions could adequately address the identified issues; or
 - the statutory requirements governing the grant of planning permission have not been demonstrated.
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11.5 Closing Statement

The authors respectfully thank **An Coimisiún Pleanála** for considering this report.

It is hoped that the assessment assists the Commission in its evaluation of the Applicant's Response and contributes to a thorough, transparent and legally robust determination of the application.

Regards

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