



Cush Wind Farm
Phase II

Environmental Impact Assessment Report

Glossary of Terms

Cush Wind Limited

ABBREVIATIONS AND ACRONYMS

Abbreviation	Meaning
A1–A5, B1–B7, C1–C4	Life-cycle stages defined in BS EN 15978: product and construction (A), use (B) and end of life (C)
AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
AANE	Airport Air Navigation Equipment
AAR	Annual Average Rainfall
ABP (ACP)	An Bord Pleanála (now An Coimisiún Pleanála); used as the prefix of planning case references
ACA	Architectural Conservation Area
ACoW	Archaeological Clerk of Works
AE	Actual Evaporation (actual evapotranspiration)
AH	Amenity and Heritage features (a visual receptor group)
ALAN	Artificial Lighting at Night
AM	Amplitude Modulation
AMOC	Atlantic Meridional Overturning Circulation
AMWG	Amplitude Modulation Working Group (Institute of Acoustics)
AOD / mAOD	Above Ordnance Datum / metres Above Ordnance Datum
AR5 / AR6	Fifth / Sixth Assessment Report of the IPCC
ARG UK	Amphibian and Reptile Groups of the UK
BAP	Biodiversity Action Plan
BCI	Bat Conservation Ireland
BERR	Department for Business, Enterprise and Regulatory Reform (UK)
BnM	Bord na Móna
BoCCI	Birds of Conservation Concern in Ireland (red, amber and green lists)
BOD	Biochemical (Biological) Oxygen Demand
BPF	Blade Passing Frequency
BS / BS EN / IS EN	British Standard / European Standard adopted in the UK / European Standard adopted in Ireland
CAP (CAP24, CAP25)	Climate Action Plan (2024, 2025 editions)
CCRA	Climate Change Risk Assessment
CDP	County Development Plan
CEBR	Centre for Economics and Business Research
CEMP	Construction Environmental Management Plan
CESSM	Civil Engineering Standard Method of Measurement
CFRAM	Catchment Flood Risk Assessment and Management
CGS	County Geological Site
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CLG	Department for Communities and Local Government (UK)
CMIP6 / CMIP7	Coupled Model Intercomparison Project, Phases 6 and 7
COD	Chemical Oxygen Demand
COFORD	National Council for Forest Research and Development
CP	Centres of Population (a visual receptor group)
CRM	Collision Risk Modelling (birds and turbines)
cSAC / cSPA	candidate Special Area of Conservation / candidate Special Protection Area

Abbreviation	Meaning
CSO	Central Statistics Office
DAERA	Department of Agriculture, Environment and Rural Affairs (Northern Ireland)
DAF	Department of Agriculture and Food
DAFOR	Plant abundance scale: Dominant, Abundant, Frequent, Occasional, Rare
DAU	Development Applications Unit (Department of Housing, Local Government and Heritage)
DECLG	Department of the Environment, Community and Local Government
DEFRA	Department for Environment, Food and Rural Affairs (UK)
DEHLG / DoEHLG	Department of the Environment, Heritage and Local Government
DfESNZ	Department for Energy Security and Net Zero (UK)
DHLGH / DoHLGH	Department of Housing, Local Government and Heritage
DHPCLG	Department of Housing, Planning, Community and Local Government
DO / DOC	Dissolved Oxygen / Dissolved Organic Carbon
DOMIN	Domin scale of vegetation cover and abundance
DSR	Designated Scenic Routes and Views (a visual receptor group)
EC	European Commission; also European Community in directive numbers
EC (water quality)	Electrical Conductivity
EC7	Eurocode 7 (IS EN 1997-1), geotechnical design
EcIA	Ecological Impact Assessment
ECMWF	European Centre for Medium-Range Weather Forecasts
ECOW	Ecological Clerk of Works
EEC	European Economic Community (in directive numbers)
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement (former name for an EIAR)
ELF	Extremely Low Frequency
EM	Environmental Manager
EMF	Electromagnetic Fields
EMS	Environmental Management System
EPA	Environmental Protection Agency
EQS	Environmental Quality Standards
ER	Effective Rainfall
ERA5	ECMWF Reanalysis v5 (climate dataset)
ESB	Electricity Supply Board
ESR	Effort Sharing Regulation (EU)
ETS	Emissions Trading Scheme (EU)
ETSU / ETSU-R-97	Energy Technology Support Unit (UK); its 1996 report The Assessment and Rating of Noise from Wind Farms
EU	European Union
EUROBATS	Agreement on the Conservation of Populations of European Bats
FoS	Factor of Safety
FPM	Freshwater Pearl Mussel
FPO	Flora (Protection) Order 2022, listing legally protected plants
FRA	Flood Risk Assessment
GAA	Gaelic Athletic Association
GC	Gouge Core (hand-held peat/subsoil probe)

Abbreviation	Meaning
GCoW	Geotechnical Clerk of Works
GCR	Grid Connection Route
GDG	Guideline Development Group (WHO)
GES	Galetech Energy Services
GFDRR	Global Facility for Disaster Reduction and Recovery (ThinkHazard tool)
GGBS	Ground granulated blast-furnace slag
GHG	Greenhouse Gas
GHGA	Greenhouse Gas Emissions Assessment
GIS	Geographic Information System
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, Third Edition (2013)
GPG	Good Practice Guide (IOA, 2013) on applying ETSU-R-97
GSI	Geological Survey Ireland
GWB	Groundwater Body
GWS	Group Water Scheme
HA	Hydrometric Area
HDD	Horizontal Directional Drilling
HDPE	High-Density Polyethylene
HDV	Heavy Duty Vehicle
HGV	Heavy Goods Vehicle
HMP	Habitat Management Plan
HRA	Habitats Regulations Assessment (UK equivalent of AA)
HSE	Health Service Executive
I-LOFAR	Irish Low Frequency Array
IAA	Irish Aviation Authority
IAQM	Institute of Air Quality Management (UK)
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICE	Inventory of Carbon and Energy (Circular Ecology database)
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICOMOS	International Council on Monuments and Sites
IEC	International Electrotechnical Commission
IEF	Important Ecological Feature
IEMA	Institute of Environmental Management & Assessment (now ISEP)
IFI	Inland Fisheries Ireland
INNS	Invasive Non-Native Species
IOA	Institute of Acoustics (UK)
IPC	Integrated Pollution Control
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
ISEP	Institute of Sustainability and Environmental Professionals
ISMP	Invasive Species Management Plan
ISO	International Organization for Standardization
IT3 / IT4	WHO Air Quality Guidelines Interim Targets 3 and 4
ITM	Irish Transverse Mercator (coordinate system)
IUCN	International Union for Conservation of Nature
IVC	Irish Vegetation Classification

Abbreviation	Meaning
IWeBS	Irish Wetland Bird Survey
JNCC	Joint Nature Conservation Committee (UK)
KV	Key Views (a visual receptor group)
LCA (carbon)	Life Cycle Assessment / Lifecycle Carbon Assessment
LCA (landscape)	Landscape Character Area; also Landscape Character Assessment
LCT	Landscape Character Type
LCU	Landscape Character Unit
LCV	Local Community Views (a visual receptor group)
LGV	Light Goods Vehicle
LIA	Landscape Impact Assessment
LiDAR	Light Detection and Ranging (laser topographic survey)
LLV	Lower Limiting Value (noise)
LSA	Local Study Area; its extent is defined in the relevant assessment chapter
LULUCF	Land Use, Land-Use Change and Forestry
LVIA	Landscape and Visual Impact Assessment
MAC	Maximum Acceptable Concentration
MR	Major Routes (a visual receptor group)
NAF	National Adaptation Framework
NBDC	National Biodiversity Data Centre
NCCRA	National Climate Change Risk Assessment
NCMP	Noise Complaint Monitoring Programme
ND	Not Determined
NDCs	Nationally Determined Contributions (Paris Agreement)
NG3 / NG4	EPA Guidance Notes for Noise (wind turbines at licensed sites / licence applications, surveys and assessments)
NHA / pNHA	Natural Heritage Area / proposed Natural Heritage Area
NHMRC	National Health and Medical Research Council (Australia)
NIAH	National Inventory of Architectural Heritage
NIEA	Northern Ireland Environment Agency
NIFM	National Indicative Fluvial Mapping
NIS	Natura Impact Statement
NMI	National Museum of Ireland
NML	Noise Monitoring Location
NMS	National Monuments Service
NMVOC	Non-Methane Volatile Organic Compounds
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority (now TII)
NSL	Noise Sensitive Location
NSR	Noise Sensitive Receptor
NWCPO	National Waste Collection Permit Office
OAM	Other (or Excess) Amplitude Modulation
OCC	Offaly County Council
OD	Ordnance Datum (Malin Head reference level for heights)
OFCOM	Office of Communications (UK)
Offaly CDP	Offaly County Development Plan 2021–2027
OPW	Office of Public Works

Abbreviation	Meaning
OS / OSI	Ordnance Survey / Ordnance Survey Ireland
OUV	Outstanding Universal Value (UNESCO World Heritage)
PAS 2080	Publicly Available Specification 2080, carbon management in infrastructure
PE	Potential Evapotranspiration
PLHRAG	Peat Landslide Hazard and Risk Assessments: Best Practice Guide (Scottish Government, 2017)
PM10 / PM2.5	Particulate matter less than 10 / 2.5 microns in diameter
PPV	Peak Particle Velocity
PRA	Preliminary Roost Assessment (bats)
PRF (PRF-I / PRF-M)	Potential Roost Feature for bats; PRF-I suits individual bats, PRF-M multiple bats
pSAC / pSPA	proposed Special Area of Conservation / proposed Special Protection Area
PSCS	Project Supervisor for the Construction Stage
PSMP	Peat and Spoil Management Plan
PSR	Primary Surveillance Radar
QI	Qualifying Interest (habitat or species for which an SAC or SPA is designated)
RC	Rotary Core (drillhole), e.g. RC-01
RCC	Roscommon County Council
RCDP	Roscommon County Development Plan
RCP	Representative Concentration Pathway (RCP4.5 medium, RCP8.5 high emissions)
RED III	Renewable Energy Directive (EU) 2023/2413
RESS	Renewable Electricity Support Scheme
RHA	Recorded Historic Archaeological dataset
RHAT	River Hydromorphology Assessment Technique
RMP	Record of Monuments and Places
RPA	Root Protection Area (trees)
RPS	Record of Protected Structures
RSA	Road Safety Audit
RSES	Regional Spatial and Economic Strategy
RTE / 2rn	Raidió Teilifís Éireann / its transmission network company
RTIA	Radio Telescope Impact Assessment
S.I.	Statutory Instrument
SAC	Special Area of Conservation
SCI	Special Conservation Interest (bird species for which an SPA is designated); also Site of Community Importance
SEA	Strategic Environmental Assessment
SEAI	Sustainable Energy Authority of Ireland
SECs	Sectoral Emissions Ceilings
SEL	Sound Exposure Level (also L _{Ax})
SEPA	Scottish Environment Protection Agency
SID	Strategic Infrastructure Development
SM4BAT-FS	Wildlife Acoustics Song Meter 4 BAT Full Spectrum (static bat detector)
SMR	Sites and Monuments Record
SNH	Scottish Natural Heritage (now NatureScot)
SO	Sound-optimised turbine operating mode used to reduce noise emissions
SPA	Special Protection Area
SSNL	Site-Specific Noise Limits

Abbreviation	Meaning
SSR	Secondary Surveillance Radar
SuDS / SUDS	Sustainable Drainage Systems (also Sustainable Urban Drainage Systems)
SW1–SW4	Surface water sampling locations
SWMP	Surface Water Management Plan
TA Luft	German Technical Instructions on Air Quality Control (dust deposition standard)
TDR	Turbine Delivery Route
TGN	Technical Guidance Note (Landscape Institute)
TII	Transport Infrastructure Ireland
TNAC	Total Noise Assessment Criteria
TON	Total Oxidised Nitrogen
TP	Trial Pit (e.g. TP-T01)
TPH	Total Petroleum Hydrocarbons
TSO	Transmission System Operator (EirGrid)
TSS	Total Suspended Solids
TTA	Traffic and Transport Assessment
UAV	Unmanned Aerial Vehicle (drone)
UGL	Underground Electricity Line
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPS	Uninterruptible Power Supply
UTC	Coordinated Universal Time
VDI	Verein Deutscher Ingenieure (Association of German Engineers)
VIA	Visual Impact Assessment
VP	Vantage Point in ornithological surveys; Viewpoint in landscape and visual assessment, depending on context
VRP	Viewshed Reference Point
VWT	Vincent Wildlife Trust
WEDG	Wind Energy Development Guidelines
WEI	Wind Energy Ireland
WFD	Water Framework Directive
WHO	World Health Organization
WSA	Wider Study Area; its extent is defined in the relevant assessment chapter
ZoI	Zone of Influence
ZoN	Zone of Archaeological Notification
ZTV	Zone of Theoretical Visibility

TECHNICAL TERMS AND DEFINITIONS

Term	Definition
2000 Act	The Planning and Development Act 2000 (as amended)
2006 Guidelines	Wind Energy Development Guidelines for Planning Authorities (DEHLG, 2006)
Aarhus Convention	International agreement guaranteeing public access to environmental information, participation in decisions and access to justice
Amenity hours (quiet periods)	Times when people expect quiet outdoors: evenings 18:00–23:00, Saturday afternoons 13:00–18:00 and all day Sunday 07:00–18:00
Amplitude modulation	Regular rise and fall in turbine noise level linked to blade rotation; "other" or "excess" AM is the less common, more noticeable form
An Coimisiún Pleanála	The national planning body, formerly An Bord Pleanála
Annex	Supporting technical report or drawing contained in Volume II of the EIAR

Term	Definition
Appropriate Assessment	Assessment of whether a project could adversely affect the integrity of a European (Natura 2000) site; Stage 1 is screening, Stage 2 is informed by an NIS
Attenuation	Holding back surface water runoff so it is released at controlled, pre-development (greenfield) rates
Background noise	Existing noise at a receptor without the wind farm, measured as LA90 against wind speed
Baseline	The existing condition of the environment against which effects are assessed
Biosecurity	Measures that stop invasive species, pathogens or contaminated material spreading on machinery, footwear and materials
Capacity factor	Actual annual electricity output as a proportion of the maximum possible output at continuous rated capacity
Carbon budget	Legally set cap on total national GHG emissions over a five-year period
Carbon payback period	Time a turbine needs to generate enough energy to offset the emissions from its manufacture, installation and decommissioning
Catchment / sub-catchment	Land area draining to a particular river or lake
Clerk of Works	Specialist who supervises works on site (ecological, archaeological or geotechnical)
Climate neutrality / net zero	Balance between GHG emissions and removals; Irish law targets this by 2050
Collision risk	The likelihood of birds or bats colliding with turbine components
Community benefit fund	Fund paid by the Developer to support local community projects, per Wind Energy Ireland best practice
Competent authority	The authority responsible for undertaking the relevant environmental assessment and determining the application; Offaly County Council for this planning application
Cumulative effects	Combined effects of the project with other existing, permitted or proposed developments
Cush Wind Farm Phase I	The permitted eight-turbine Cush Wind Farm and its associated infrastructure
Cush Wind Farm Phase II	The proposed three-turbine extension to Cush Wind Farm Phase I and associated infrastructure assessed in this EIAR
Cut-in / cut-out wind speed	The wind speeds at which a turbine starts generating electricity and stops generating for safety, respectively
Decommissioning	Removal of the wind farm at the end of its operational life and reinstatement of the site
Developer	Cush Wind Limited, the applicant for Cush Wind Farm Phase II
Dimension range	The turbine dimensions within which the final turbines will be selected, as described and assessed in the EIAR
Direct / indirect effect	Direct: caused by the project itself. Indirect (secondary): caused through a pathway away from the site or by a knock-on change
Displacement	Birds or other animals avoiding an area because of turbines, people or disturbance, effectively losing that habitat
Do-Nothing scenario	What would happen to the environment if the project did not go ahead
Draft 2019 Guidelines	Draft Revised Wind Energy Development Guidelines (2019), not yet adopted
Drumlin	A low, elongated hill formed from glacial till
Duration of effects	Momentary (seconds–minutes), brief (<1 day), temporary (<1 year), short-term (1–7 years), medium-term (7–15 years), long-term (15–60 years), permanent (>60 years)
Ecological valuation	Rating of a habitat or species' importance on a geographic scale: International, National, County, Local (higher) or Local (lower)

Term	Definition
Effect vs impact	An impact is the action causing change (e.g. removing a hedgerow); an effect is the outcome of that change on the environment. The EIAR reports effects
Embedded mitigation (mitigation by design)	Measures built into the project layout and design to avoid effects before assessment
Embodied carbon	Total GHG emissions released to produce a material, good or service
EPA significance descriptors	Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant and Profound, in increasing order of importance
Flood Zone A / B / C	Areas of high, moderate and low probability of flooding, respectively, as defined in the flood risk assessment
Galros Bog Rehabilitation Plan	Bord na Móna's plan for rehabilitation of Galros Bog, with which the proposed wind farm has been designed to integrate; the draft plan is provided at Annex 6.2
Groundwater recharge	Portion of rainfall that infiltrates to replenish groundwater
Habitat Management Plan	A plan setting out measures for the protection, restoration, enhancement and management of habitats
Herpetofauna	Amphibians and reptiles
Hub height	Height from ground level to the centre of the turbine rotor; the proposed hub-height range is 111.6m–120.9m
Hydrological connectivity	A water pathway (stream, drain or groundwater) linking the site to a downstream habitat or designated site
Important Ecological Feature	Habitat or species valued highly enough, and at risk of significant effect, to need specific assessment (CIEEM, 2024)
Infrasound	Sound at frequencies below 20Hz
Instream works window	Period when works in watercourses are permitted to protect spawning fish: 1 July to 30 September (IFI)
Invasive species	Non-native plants or animals that spread and harm native biodiversity, including those in the Third Schedule of the Birds and Habitats Regulations
Jointing plinth	A concrete slab within the underground electricity-line trench used to facilitate cable jointing
Landscape character	The distinct pattern of elements (landform, land cover, settlement) that makes one landscape different from another
Landscape sensitivity	Combination of a landscape's value and its susceptibility to the type of change proposed
Likely significant effects	Effects that are both probable and important enough to inform the planning decision; the focus of the EIAR
Low frequency noise	Sound in the range of roughly 20–200Hz
Magnitude of change	Scale, extent and nature of a change, independent of receptor sensitivity
Mitigation	Measures to avoid, prevent, reduce or offset likely significant adverse environmental effects
Monitoring	Checks during construction and operation that mitigation is working and limits are met
Nacelle	Housing on top of the tower containing the drive train and generator
Natura 2000 / European site	EU network of SACs and SPAs designated under the Habitats and Birds Directives
Non-Technical Summary	Separate plain-language summary of the EIAR for the public
Peat instability (peat slide)	Significant mass movement of a body of peat
Photomontage	Computer-generated image showing the turbines superimposed on a photograph from a viewpoint
Pre-Application Consultation	Consultation undertaken before submission of a planning application to discuss the proposal, relevant requirements and assessment matters

Term	Definition
Q-value	EPA biological water quality rating based on river invertebrates, from Q1 (bad) to Q5 (high)
Ramsar site	Wetland of international importance designated under the Ramsar Convention
Receptor	Person, property, place or environmental feature that could be affected
Recorded Monument	Archaeological site listed in the RMP and protected under the National Monuments Acts
Red / amber list	BoCCI conservation status for birds: red is highest concern (e.g. rapid decline), amber is moderate concern
Renewable energy development	Development involving the generation of energy from renewable sources, including wind energy
Residual effect	Effect that remains after mitigation is applied
Reversible / irreversible effect	Whether the affected environment can recover once the activity stops
Ringfort	Circular enclosure surrounded by banks and ditches, typically an early medieval farmstead
Roost	Place where bats or birds rest or shelter, e.g. a tree cavity, building or bridge
Rotor diameter	Diameter of the circle swept by the turbine blades; the proposed rotor-diameter range is 158m–175m
Scoping	Early stage deciding which topics and methods the EIAR should cover, informed by consultation
Screening	Stage deciding whether EIA (or Appropriate Assessment) is required
Setback	Separation distance between a turbine and dwellings; the Draft 2019 Guidelines propose 4 times tip height
Setting (heritage)	Surroundings in which a heritage asset is experienced and which contribute to its significance
Shadow flicker	Flickering effect when rotating blades pass between the sun and a window; 2006 Guidelines limit is 30 hours/year or 30 minutes/day within 500m. The Developer commits to eliminating it at dwellings, workplaces and schools by automatic turbine shutdown
Switch room	The building accommodating the electrical switchgear, control equipment and associated facilities serving the proposed wind farm
Tip height	The maximum height from ground level to the tip of a turbine blade at its highest position; the proposed range is 199.1m–200m
Tonality	A noise characteristic with a distinct audible tone, usually from mechanical components
Townland	The smallest traditional land division in Ireland
Transboundary effects	Significant effects crossing a national boundary, which require consultation under the Espoo Convention; none are likely for this project
Transect	Fixed survey route walked or driven to record species, e.g. bat activity transects
Translocation	Moving habitat material or species to a suitable receptor area
Vantage point survey	Timed watches from fixed locations to record bird flight activity over the survey area
Visual amenity	The overall pleasantness of the views people enjoy
Wildlife Acts	Wildlife Act 1976 (as amended), the main Irish law protecting wild species
Wireframe	Computer-generated line drawing of turbines on terrain, used to check visibility
Worst-case scenario	Assessment assumption giving the greatest likely effect
Zone of Influence	Distance over which ecological features could be significantly affected by the project; varies by feature and pathway