

# Nature+Energy

## POLICY BRIEF

FOR BIODIVERSITY ENHANCEMENT AND  
RESTORATION ON ONSHORE WINDFARMS IN  
IRELAND

Resilience

# Authors/Affiliations

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## EXECUTIVE SUMMARY

Through the development of sectoral guidelines and site-specific biodiversity action plans, the Nature+Energy Project identified both policy gaps and policy synergies for the protection and enhancement of biodiversity on Ireland's windfarms. Gaps include a lack of uniformity in the biodiversity focus of regional policy contexts, outdated ecological guidelines for wind energy development, unstandardised and underutilised biodiversity data, and the absence of ecological guidance for biodiversity monitoring, restoration and enhancement during windfarm operation. New sectoral guidelines and site-specific biodiversity action plans developed by the Nature+Energy Project align with the action-based approaches to biodiversity protection, restoration and enhancement promoted in Ireland's 4<sup>th</sup> National Biodiversity Action Plan and in some County Development Plans, Local Authority Climate Action Plans and county-level Biodiversity Action Plans. Action-based plans are likely to be more effective in terms of biodiversity conservation, enhancement and restoration because they involve targeted and measurable interventions linked to specific biodiversity needs. Policy alignment between the Nature+Energy sectoral guidelines and site-specific biodiversity action plans has the potential to motivate industry to implement biodiversity actions even if not yet legally required to do so. Engaging with local socio-cultural contexts via a place-based and inclusive approach is a key pathway towards achieving biodiversity restoration and enhancement on Irish windfarms. Such engagement can help to inspire stewardship and a sense of connection with nature by reflecting the interconnections and relationships of mutual care between nature and people through the richness of both natural and cultural heritage.

The **key messages** from this policy brief are as follows:

- Policy synergies at national and regional levels support industry to enhance biodiversity, but barriers and gaps still exist and improvement is needed.
- Absence of cohesive national-level guidance undermines the potential for the wind energy industry to contribute towards biodiversity-related policies and objectives.
- Updated ecological guidelines for wind energy development are urgently needed.
- The policy focus should be broadened beyond bat and bird species to reflect a systems approach that includes all potential windfarm habitats and biodiversity across all species.
- Data sharing with the National Biodiversity Data Centre should be required as a condition of planning and/or as a planning scoring criterion.
- Guidance and incentives are needed to encourage and support the wind energy industry to take biodiversity-positive actions at operational stage.
- Acknowledgement and inclusion of local socio-cultural contexts play a key role in biodiversity restoration and enhancement.

## Background

The Nature+Energy Project<sup>1</sup>, a collaboration between Trinity College Dublin, Maynooth University, Wind Energy Ireland and nine industry partners developed tools and approaches to enhance and restore biodiversity on windfarms. This included the development of site-specific biodiversity action plans for nine case study sites and a set of biodiversity guidelines for the windfarm sector. The nine exemplar windfarm sites spanned eight counties (Galway, Wexford, Leitrim, Roscommon, Meath, Cork, Kilkenny and Donegal) and were representative of the range of habitats within which windfarms are typically sited in Ireland. The biodiversity focus of Nature+Energy goes beyond bat and bird species and includes sectoral guidelines for all biodiversity potentially present on Irish windfarms, including a range of habitats. The guidelines and biodiversity action plans produced by the project apply to all stages of wind energy, including development, construction, operation, and decommissioning. The process of developing the sectoral guidelines and site-specific action plans revealed both policy gaps and policy synergies for the protection and enhancement of biodiversity on Ireland’s windfarms. The urgent need to address these policy gaps is reflected in Recommendation 1 from the Report of the Citizens’ Assembly on Biodiversity Loss: *“The State must take prompt, decisive and urgent action to address biodiversity loss and restoration and must provide leadership in protecting Ireland’s biodiversity for future generations”*<sup>2</sup>. Recommendation 17 identifies the need for leadership from the Irish business community on biodiversity loss: *“The Irish business community needs to engage with biodiversity and show leadership in the same way that they have begun to engage with the issue of the climate crisis”*<sup>3</sup>.

By encouraging industry to take action to engage with biodiversity, Recommendation 17 aligns with Objective 1 of the National Biodiversity Action Plan to *“Adopt a Whole-of-Government, Whole-of-Society Approach to Biodiversity”*. The proposed actions to achieve this objective include *“providing support for communities, citizen scientists and business”*. Although there are policy synergies that can support industry to take actions that protect, restore and enhance biodiversity, there are significant policy barriers and gaps that must be addressed to facilitate industry in contributing towards this objective and, more generally, towards meeting the targets of the EU Nature Restoration Law<sup>4</sup>.

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<sup>1</sup> <https://www.marei.ie/research/projects/natureenergy/>

<sup>2</sup> Report of the Citizens’ Assembly on Biodiversity Loss 2023, p13

<sup>3</sup> Ibid., p14

<sup>4</sup> Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869

## Policy Synergies and Barriers

### KEY MESSAGE

**Policy synergies and barriers at national and regional levels support industry to enhance biodiversity, but barriers and gaps still exist and improvement is needed.**

*Lack of a cohesive action-based approach in biodiversity focus of regional policy contexts*

We assessed the alignment of site-specific and sectoral biodiversity actions with the relevant regional, national and international policy contexts. The policy documents analysed for each study site included the relevant County Development Plan, Local Authority Climate Action Plan and, where available, the county-level Biodiversity Action Plan. Awareness of policy alignment has the potential to motivate industry to be ‘ahead of the game’ by implementing biodiversity actions even if not yet legally required to do so. Our analysis reveals a lack of a cohesive action-based approach in the biodiversity focus of County Development Plans and Local Authority Climate Action Plans<sup>5</sup>. In particular, action-based plans are likely to be more effective in terms of biodiversity conservation, enhancement and restoration (Table 1).

A more cohesive and aligned action-based approach to biodiversity loss and restoration across the next round of County Development Plans and Local Authority Climate Action Plans will be essential to support the goals and targets of Ireland’s forthcoming National Restoration Plan and to align with the “*Whole-of-Government, Whole-of-Society Approach to Biodiversity*” in Objective 1 of the National Biodiversity Action Plan. This would also provide more consistent encouragement and motivation at the county level for non-state actors, such as the wind energy industry, community groups, and local businesses to implement sectoral and site-specific biodiversity action plans that contribute to the targets of the relevant County Development Plan, Local Authority Climate Action Plan and county-level Biodiversity Action Plan, and thereby to contribute to meeting the targets of the Nature Restoration Law and Ireland’s forthcoming Nature Restoration Plan<sup>6</sup>. Other impediments to understanding and enhancing biodiversity on Irish windfarms are set out below.

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<sup>5</sup> King E., Brennan R., Stout J.C., Donohue, I. & Buckley Y.M. (forthcoming). Co-developing biodiversity guidelines for the onshore wind energy industry. Pre-print available at:

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=6064391](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=6064391)

<sup>6</sup> Ibid.

**Table 1.** The lack of a cohesive action-based approach in the biodiversity focus of regional policy contexts. Here, a sample of 6 of the 42 biodiversity actions from the Nature+Energy sectoral guidelines are mapped onto a selection of regional plans from Galway, Meath, Cork and Wexford. The action-based plans in Galway and Cork provide examples of a supportive policy context for biodiversity enhancement.

N+E Sectoral Biodiversity Action Plan	Galway County Development Plan	Galway County Heritage & Biodiversity Plan	Meath County Development Plan	Cork County Development Plan	Cork Climate Action Plan	Wexford County Development Plan	Wexford Climate Action Plan
<b>Maintain bat buffers</b>	Objective				Action		
<b>Monitor and report invasive species</b>	Objective	Objective		Objective	Objective and Action	Objective	Objective
<b>Marsh fritillary habitat</b>		Action and Objective		Objective	Goal, Objective Action		Action
<b>Forestry to bog restoration</b>	Objective	Action		Objective	Goal		
<b>Wildlife-friendly hedgerow cutting regime</b>	Objective	Action and Objective	Policy and Objective		Action	Objective	Objective
<b>Manage to become wet grassland</b>	Objective		Policy		Action		Objective

**KEY MESSAGES**

**Absence of cohesive national-level guidance undermines the potential for the wind energy industry to contribute towards biodiversity-related policies and objectives.**

**Updated ecological guidelines for wind energy development are urgently needed.**

The Wind Energy Development Guidelines currently in force in Ireland date from 2006. They have been under review since 2013, when initial draft proposals were published for public consultation by the Department of Environment, Community and Local Government. The draft guidelines from December 2019 do not reflect changes in windfarm development methodology and technology. Their primary focus is on addressing aspects including noise, visual amenity setback, shadow flicker, community consultation obligations, community dividend, and grid connections during the development and construction stages<sup>7</sup>. A review of Irish Environmental Impact Assessment Reports showed that Irish developers rely on guidance from other jurisdictions, such as Scotland’s NatureScot guidance documents, for up-to-date ecological guidance and a best practice methodology for windfarm development<sup>8</sup>. The December 2019 draft guidelines are undergoing significant revisions that have not yet been finalised or published, despite the issue being raised on multiple occasions in the Dáil<sup>9</sup>. On 8 October 2025, the Minister for State John Cummins stated that the guidelines are “currently subject to a focused review by my Department considering matters such as noise, setback distance, shadow flicker, community obligation, community dividend and grid connections.... [M]y Department is working towards concluding the finalisation of a review of the guidance as a priority”<sup>10</sup>. This provides no firm indication of when the

<sup>7</sup> Draft Revised Wind Energy Development Guidelines December 2019

<https://assets.gov.ie/static/documents/draft-revised-wind-energy-development-guidelines-december-2019-385c92c2-16f9-4511-80bf.pdf>

<sup>8</sup> NatureScot regularly publishes updated versions of its guidance. See for example:

<https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms>

<https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management>

<https://www.nature.scot/doc/biodiversity-metric-scotlands-planning-system#biodiversity-enhancement-in-scotland>

<https://www.nature.scot/doc/developing-nature-guidance>

<sup>9</sup> See <https://www.oireachtas.ie/en/debates/question/2025-04-29/1234> (29 Apr 2025);

<https://www.oireachtas.ie/en/debates/question/2025-06-10/858> (10 Jun 2025);

<https://www.oireachtas.ie/en/debates/question/2025-06-19/308> (9 Jun 2025).

<sup>10</sup> <https://www.kildarestreet.com/debates/?id=2025-10-08a.68&s=speaker%3A445>

revised guidelines are likely to be issued for public consultation. The failure to have cohesive national level guidance on wind energy development significantly undermines the potential for the wind energy industry to contribute towards biodiversity-related policies, objectives and actions across all scales of governance. The Report on The Citizen’s Assembly for Biodiversity provides a stark overview, noting that “[c]urrent negative outcomes associated with onshore wind farms include inappropriate siting, habitat loss and fragmentation, displacement of species, and injury/mortality of species. There is currently very little understanding of the impacts on insects. We need to find ways to monitor impacts and mitigate negative outcomes. On the positive side wind farms could assist in the restoration of habitats and could be co-located on intensively farmed land” (p104).

*Unstandardised and underutilised biodiversity data*

#### KEY MESSAGES

**The policy focus should be broadened beyond bat and bird species to reflect a systems approach that includes all potential windfarm habitats and biodiversity across all species.**

**Data sharing with the National Biodiversity Data Centre should be required as a condition of planning and/or as a planning scoring criterion.**

Environmental regulations require windfarm developers to collect substantial amounts of biodiversity data, in particular during the planning, design and construction of windfarms. As this work tends to be done by a variety of contractors using different methods and data formats, these biodiversity data are not standardised. Difficulties can also arise even when the same methods are used in surveys, such as transect walks, passive-acoustic recorders, vantage point surveys and roost surveys for gathering data on birds and bats. There is often significant variation in the application of these shared methods, such as time of deployment, survey duration and sampling frequency. This variation hinders comparison across datasets<sup>11</sup>.

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<sup>11</sup> King, E., Gorman, C.E., Stout, J.C., Buckley, Y.M. & Donohue, I. (2025) Biodiversity biases in research and practice: Lessons from the Irish onshore wind sector. *Ecological Solutions and Evidence* 6: e70147. <https://doi.org/10.1002/2688-8319.70147>;

Conkling, T. J., Loss, S. R., Diffendorfer, J. E., Duerr, A. E. & Katzner, T. E. (2021) Limitations, lack of standardization, and recommended best practices in studies of renewable energy effects on birds and bats. *Conservation Biology*, 35(1), 64-76. <https://doi.org/10.1111/cobi.13457>

It is common for biodiversity survey data for wind farm projects not to be shared. There is no requirement to upload biodiversity survey data to a public database (e.g., the National Biodiversity Data Centre) in standardised and easily searchable formats such as excel or shape files. If survey data are shared, they are frequently recorded only as ecological reports in .pdf format that are difficult to search and extract data from and tend to lack georeferencing of exact locations of habitats and species surveyed. Methodologies, where mentioned, also tend to lack detail. This lack of standardisation and availability of data leads to time and cost inefficiencies from repeat surveys that cannot be compared, preventing the creation of harmonised datasets and limiting expansion of Irish wind energy-biodiversity research networks and understanding<sup>12</sup>. Sensitivities in data sharing in a competitive wind energy environment need to be recognised and carefully managed, for example through data standards and practices that are co-designed by ecologists in partnership with the wind energy industry to ensure that needs are met for both research access and protection of industry-sensitive data.

*Absence of ecological guidance for biodiversity monitoring, restoration and enhancement during windfarm operation*

#### **KEY MESSAGE**

**Guidance and incentives are needed to encourage and support the wind energy industry to take biodiversity-positive actions at operational stage.**

Although the EU's Environmental Impact Assessment Directive<sup>13</sup> requires the developer to assess potential impacts at the development stage, ecological guidance and requirements have traditionally been lacking for the operational stage<sup>14</sup>. This is changing, with developers increasingly required to implement operational stage monitoring for sensitive species as a condition of their planning consent<sup>15</sup>. The recommended biodiversity actions and sectoral guidelines developed by Nature+Energy address this gap by providing evidence-based pathways for the wind energy industry to contribute to habitat and biodiversity restoration and enhancement at both development and operational stages, in addition to directly addressing the monitoring of impacts and

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<sup>12</sup> King E., Brennan R. Stout J.C., Donohue, I. & Buckley Y.M. (forthcoming). Co-developing biodiversity guidelines for the onshore wind energy industry. Pre-print available at:

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=6064391](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=6064391)

<sup>13</sup> Directive 2011/92/EU as amended by Directive 2014/52/EU

<sup>14</sup> Ibid.

<sup>15</sup> IFC. (2023). *Post-construction bird and bat fatality monitoring for onshore wind energy facilities in emerging market countries. Good practice handbook and decision-support tool*. International Finance Corporation. <https://www.ifc.org/content/dam/ifc/doc/2023/handbook-post-construction-bird-bat-fatality-monitoring-onshore-wind-ems.pdf>

mitigation of negative outcomes in relation to biodiversity. However, there is a clear need for positive incentives to motivate industry to implement these guidelines and recommended biodiversity actions. Examples could include windfarm biodiversity payment schemes (these would need to be carefully designed to avoid disqualification of participating farmers from EU-funded payments for environmental actions) and ensuring policy alignment of biodiversity actions across County Development Plans, Local Authority Climate Action Plans and county-level Biodiversity Action Plans.

*The importance of engaging with local socio-cultural contexts*

**KEY MESSAGE**

**Acknowledgement and inclusion of local socio-cultural contexts play a key role in biodiversity restoration and enhancement.**

Sociocultural context is increasingly acknowledged in policy contexts as integrated with biodiversity and connection to place as key to stewardship. For example, Ireland’s National Biodiversity Action Plan recognises that “*landowners, farmers, fishers, foresters and local communities are in many aspects the most important players in biodiversity issues*”<sup>16</sup>. The importance of a place-based and inclusive approach is also recognised in NatureScot’s guidance on “*Developing with Nature*”<sup>17</sup>. For each of its nine case study sites, the Nature+Energy Project explored the local socio-cultural contexts that reflect the interconnections between nature and people through the richness of both natural and cultural heritage. This includes stories and place names that reflect traditions, language, and ecological knowledge that help preserve both cultural identity and environmental awareness, while deepening engagement and fostering a sense of shared stewardship. Understanding biodiversity and cultural heritage through local stories of lived experience and the etymology of place names is one way of creating space for a different starting point for conversations about the biodiversity, climate and pollution crises. These examples from the Nature+Energy Project, documented in the Biodiversity Action Plan for each study site, can help to inspire stewardship and a sense of connection with nature by framing humans as participants in an interdependent web of life, rather than protectors or destroyers that control natural resources. Acknowledging these connections between people and place also has the potential to open up locally rooted possibilities for worlds to emerge where humans and other species co-exist and flourish together, by bringing our attention to human-nature relationships of mutual care.

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<sup>16</sup> Ireland’s 4th National Biodiversity Action Plan 2023-2030, p36

<sup>17</sup> <https://www.nature.scot/doc/developing-nature-guidance#Take+a+placed-based+and+inclusive+approach>