



**WIND VALUE**

An Opportunity for Climate Action and for Energy Communities

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***End of Life Decisions for Wind Farms:***  
**An Opportunity for Climate Action and for Energy Communities**

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**Report: Second Wind Value Conference**  
**End-of-Life Choices for Wind Farms**

**Month 27/48, May 2024**

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# Contents

- Executive Summary** **2**
  
- 1 Introduction** **3**
  
- 2 Participants** **3**
  
- 3 Presentations** **4**
  - 3.1 Introduction, Paul Leahy . . . . . 4
  - 3.2 BladeBridge Turbine Repurposing, Angie Nagle . . . . . 4
  - 3.3 Wind Value: End of Life Issues for Wind Farms, Dorcas Mikindani . . . . . 4
  - 3.4 Planning is Optional, Peter Deeney . . . . . 5
  - 3.5 Factors Shaping End-of-Life Decisions of Ageing Wind Infrastructure in Italy, Carla De Laurentis . . . . . 5
  - 3.6 The Ageing Portfolio of Wind Farms in Ireland, Jim Hughes . . . . . 5
  - 3.7 UK Experiences of Repowering, Life-Extension and Decommissioning, Rebecca Windemer 5
  
- 4 Relevant Conclusions for Wind Value** **5**

The Wind Value project is based in the Environmental Research Institute of University College Cork (UCC), Ireland. The PI, Peter Deeney, may be found at the Cleaner Production Promotion Unit, G0.3, Environmental Research Institute, Ellen Hutchins Building, Lee Road, Cork T23 X10. The Research Team comprises: Luca Bernardi, Kevin Campbell, Qianhui Chen, Peter Deeney, Claire Ducourtieux, Niall Dunphy, Fabian Gogolin, Paul Leahy, Benoit Mayol, Dorcas Mikindani, John O'Brien and Rebecca Windemer. The DOI for this report is **10.5281/zenodo.14004426**

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## Executive Summary

This research project seeks to estimate a financial valuation for onshore wind farms in Ireland. It will develop decision support tools which will assist wind farm managers to decide between decommissioning, repowering and life-extension for the end-of-life of a wind farm. This research will also assist local communities who may be interested in buying part or all of their local wind farm. The conference allowed research and industry experts to assist in the work of the Wind Value project.

## Funding Acknowledgement

The [Second Wind Value Conference](#) was funded by the [Irish Research Council](#) Pathway Programme IRC\*21/PATH-A/9348.





Figure 1: Conference Participants

## 1 Introduction

The [First Wind Value Conference](#), organized by the [Wind Value](#) research group, was held the Ellen Hutchins Building, Lee Road, Cork on Friday 27th May 2022.

The conference looked at issues relating to the end-of-life of a wind farm, with particular interest in the disposal, recycling or repurposing of the wind turbine blades.

## 2 Participants

There were 20 people in the room and between 32 and 43 online. The graph in [Figure 2](#) is based on the bookings up to the day before the conference, and shows that 79% of those registered were from industry the rest being academics. The businesses in attendance in the room included: [Arup](#), [Enercon](#), [ESB](#), [Gaia Talent](#), [Glenside Environmental](#), [MKO](#), [North Channel Wind](#), [NTR](#), [Orsted](#), [LP3](#), [RWE](#), a Cork legal firm, [SSE](#) and [Statkraft](#). The academics attending were from [UCC](#), [University of West of England](#) and [MTU](#). Online attendance was requested by the following industry groups: [ABO Energy](#), [AFRY](#), [Atlantic Consult](#), [Bute Energy](#), [DTRE](#), [EDF](#), [Energy Pro](#), [ESB](#), [Future Energy Ireland](#), [Galetech Energy Services](#), [GE Verona](#), [Industrial Recyclers](#), [MARA](#), [MKO](#), [Neoen](#), [NTR](#), [Orsted](#), [LP3](#), [RWE](#), [Schroders Finance](#), [SEAI](#), [SLR Consulting](#), [SSE](#); with academics from [DTU](#), [EPRI](#), [University of Leeds](#), [UCC](#), [University of Galway](#), and [University of the West of England](#).

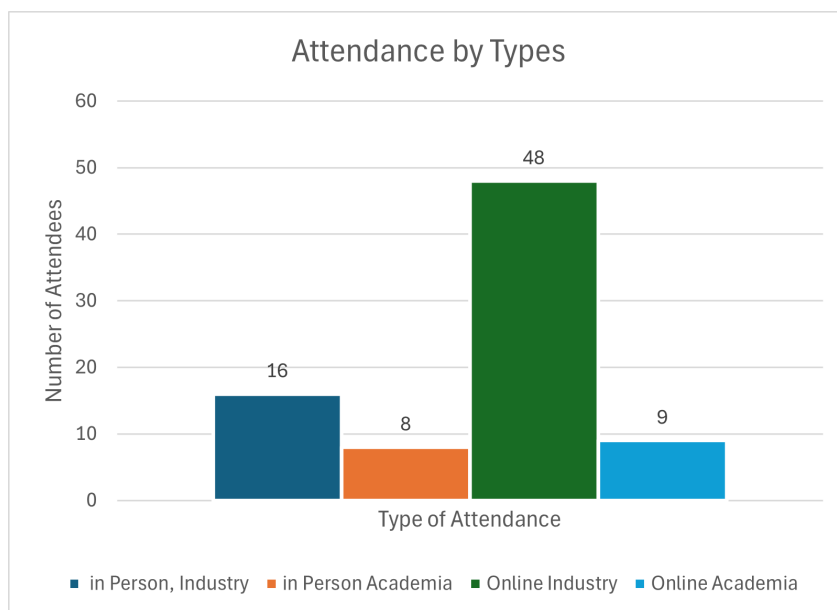


Figure 2: Types of Attendance

### 3 Presentations

The speakers included international experts from academia and industry. There follows short summaries of their presentations, and where available, links to the slides and videos of their presentations.

#### 3.1 Introduction, Paul Leahy

When wind farms are repowered or decommissioned the blades must be removed and dealt with. Today's presentations begin with an account of repurposing of wind turbine blades by an Irish company, BladeBridge. Following this we have presentations on the Wind Value project itself, financial modelling of the work done before investments are made, and then accounts from Italy, Ireland and the UK dealing with planning and repowering. Dr Leahy is a senior lecturer in UCC and a member of the Wind Value Research Team. [Profile at UCC](#), [Slides](#), [Video](#).

#### 3.2 BladeBridge Turbine Repurposing, Angie Nagle

Update on progress of the BladeBridge company since the first BladeBridge in Ireland (second in the world) was installed on the Miltown Youghal Greenway. Dr Nagle is CEO of the BladeBridge company which grew from the Re-Wind research project. [Profile at BladeBridge](#), [Slides](#).

#### 3.3 Wind Value: End of Life Issues for Wind Farms, Dorcas Mikindani

A standard way to compare the value of investments is to use net present value (NPV) which looks at projected income and expenditure. An advance on this is to add the value of the ability of the owner of a business to make decisions, which are valued using real options. Ms Mikindani's slides were presented on the day by her PhD supervisor, Peter Deeney. She is the PhD researcher in the Wind Value Research Team. The video in the link was recorded by her after the conference. [Profile at Wind Value](#), [Slides](#), [Video](#).

### **3.4 Planning is Optional, Peter Deeney**

The work done in preparation for a large investment may be modelled as a call option on the cashflows coming from this investment. In a new application of real options valuation based on previous work on R&D valuation, the worth of preparatory work is calculated for initial construction, life extension and repowering. Dr Deeney leads the Wind Value Research project. [Profile at UCC](#), [Website](#), [Slides](#), [Video](#).

### **3.5 Factors Shaping End-of-Life Decisions of Ageing Wind Infrastructure in Italy, Carla De Laurentis**

It is estimated that there will be over 1 GW of wind generation to reach its end of life in Italy from 2028 onwards. The factors influencing the decision to decommission, extend life or repower are considered in this presentation. Dr De Laurentis is a senior lecturer in the University of the West of England. This presentation uses a joint paper with Dr Windemer (see below Section 3.7. [Profile at UWE](#), [Slides](#), [Video](#).

### **3.6 The Ageing Portfolio of Wind Farms in Ireland, Jim Hughes**

Ireland's first wind farms have now reached their end-of-life. The effect of Ireland's regulatory and planning system on wind farms' second lives was discussed by Mr Hughes, Director for Energy and Planning at Fehily Timoney, Cork. It was suggested that there should be bespoke development standards for repowering and life extension of existing wind farms. [Profile at Fehily Timoney](#), [Slides](#), [Video](#).

### **3.7 UK Experiences of Repowering, Life-Extension and Decommissioning, Rebecca Windemer**

UK wind farms facing the end of their planning consent will frequently apply for planning permission for repowering or life extension, decommissioning is not the most common outcome. Dr Windemer presented her research on the experience of repowering in the UK wind industry. She is a member of the Wind Value research team and works at Regen, a not-for-profit centre for energy expertise. [Profile at Regen](#), [Slides](#).

## **4 Relevant Conclusions for Wind Value**

The event achieved the following objectives of the Wind Value project :

- Updated the repurposing opportunities for wind turbine blades since the first conference. Showing that the income from selling used turbines for scrap was less than the cost of decommissioning. On the other hand there is a vibrant second hand market for turbines, for example [MWPS](#).
- Discussed the various influences on the end-of-life choices for wind farms, and allowed input from industry experts.
- Emphasised that most wind developers will take a "wrap around" contract from OEMs placing the repair cost risk with the OEM.
- Explained that a developer will approach several OEMs and allow the OEM to select which specific turbine model to use. Then choose between the turbines presented.
- Compared the situations in Ireland, UK and Italy.

- Presented Wind Value's research to a wide audience of industry professionals.
- Introduced several of the wind value team to people with industry experience.

## **Acknowledgments**

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