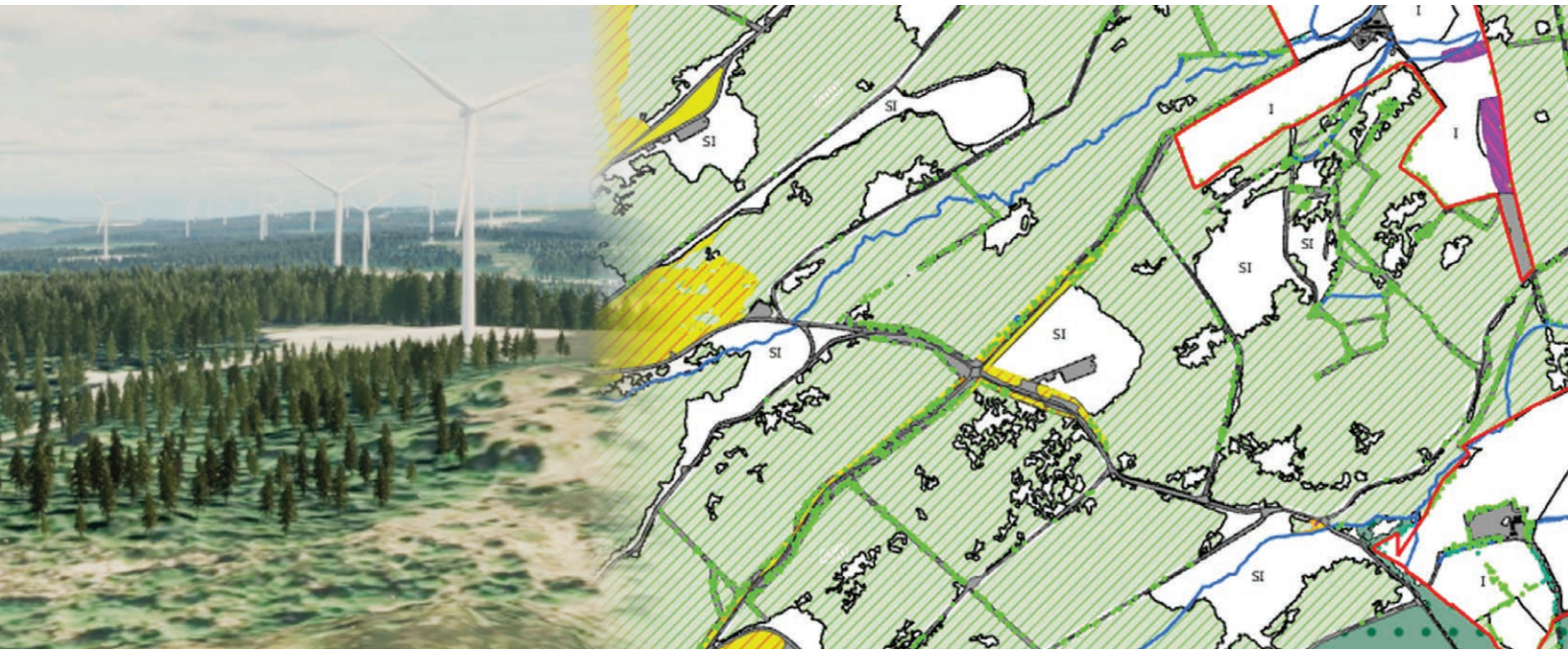
Case Study

Trydan Gwyrdd Cymru



Client:

Trydan Gwyrdd Cymru is a renewable energy company owned by the Welsh Government, dedicated to unlocking Wales' renewable energy potential and delivering lasting social, environmental, and economic benefits for people living and working in Wales today and for generations to come.

Industry:

Renewable Energy

Product:

National Tree Map™

"Tree coverage and height are key parameters in the assessment of ecological habitats, wind flow models and visual impact. Bluesky's National Tree Map™ (NTM™) has proved to be an incredibly valuable dataset as we evolve the design of our proposed wind farms within the woodland estate."

Russell Jordan,
Technical Lead, Trydan Gwyrdd Cymru

Summary:

Trydan Gwyrdd Cymru, established by the Welsh Government, faced significant time and cost challenges in assessing large forestry sites proposed for wind farm development, such as Clocaenog Dau, using traditional Phase 1 ecological survey methods. Working with consultants, the company used a suite of geospatial datasets, including Bluesky's National Tree Map™ (NTM™), to create a comprehensive desktop basedPhase 1 assessment, enabling focused field validation prior to full site surveys. The NTM™ data also supported the creation of a 3D interactive model, offering interested parties, including local communities a clear picture of how proposed turbines would integrate into the existing landscape.

Challenge:

The Welsh Government established Trydan Gwyrdd Cymru with a mission to deliver one gigawatt (1GW) of renewable energy projects across the Welsh Government estate by 2040. Many of the potential sites for these projects lie within extensive commercially operated forest areas, managed by Natural Resources Wales (NRW). The sites are elevated, with good wind resource, with separation from residential properties and national park boundaries making them well suited for wind development.

As the organisation progressed with several suitable development sites, including Glyn Cothi, Carreg Wen, and Clocaenog Dau, it became clear that traditional early-stage ecological surveys posed a significant challenge.

Solution:

Trydan Gwyrdd Cymru turned to consultants, including WSP, who developed a desktop Phase 1 ecology assessment using geospatial data. Central to this approach was Bluesky's National Tree Map™ (NTM™), which provided detailed information on tree locations, canopy extents and tree heights across the development sites. This allowed the team to classify and define the extents of woodland habitats without the need to send large survey teams into the field prior to the scheme design, significantly reducing both resource demand and cost while still producing an initial baseline dataset to build upon with further survey work.

For each project, Trydan Gwyrdd Cymru produced a detailed 3D interactive model, incorporating the proposed turbines alongside a realistic digital landscape populated with buildings, terrain, and trees generated from NTM™ data. These visuals were used for exhibitions and online consultation rooms, where the public could explore rendered images, viewpoint visualisations, and immersive video flythroughs showing how turbines would appear from surrounding homes, roads and public spaces. The visualisations facilitate Trydan Gwyrdd Cymru's aim to make designs more accessible to the citizens of Wales, encouraging involvement in the eventual publicly owned assets from the start of the design process.

Results:

By providing detailed canopy, location, and height data, the NTM™ dataset gave Trydan Gwyrdd Cymru an immediate and accurate understanding of the woodland structure across its development sites. This level of detail enabled the consultants to produce a far more complete desktop Phase 1 ecology assessment, significantly reducing both costs and timelines as field ecologists needed only to validate outputs prior to further work when the scheme design has evolved. Further leveraging NTM™ data within detailed 3D model significantly enhanced the public understanding and experience, giving communities a clear and realistic understanding of how the proposed wind farms would sit within the existing landscape.

Specification	
Layers	1. Canopy Polygons (Vector Polygon) - Representing individual trees or closely-grouped tree crowns 2. Idealised Crowns (Vector Polygon) - Crown polygons visualised as circles for ease of use 3. Height points (Vector Point) - Detailing the centre point and height of each canopy feature
Coverage	England, Wales & Scotland
Accuracy Z	± 1m rmse
Classification Criteria	Trees over 3m in height
Formats	Include: ESRI Shape & MapInfo, Geodatabase, DWG, KMZ
Standard Projection	British National Grid

Get in touch today at **info@woolpert.com**

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