

# EnBW He Dreiht Offshore Wind Farm Case Study

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Applying the SUSJIP methodology to  
assess lifecycle carbon emissions

# EnBW He Dreiht Offshore Wind Farm Case Study

## Applying the SUSJIP Offshore Wind Carbon Footprinting Methodology

EnBW is one of the largest integrated energy companies in Germany and Europe, and supplies electricity, gas, water and heat together with products and services related to energy and infrastructure to its customers.

We are committed to delivering a secure and sustainable energy supply. By reducing our carbon footprint, decarbonizing our conventional power plants, and expanding renewable energy power plants and connecting them to the grid, we contribute to the continuous transformation of the energy infrastructure.

As a founding member of the Sustainability Joint Industry Programme (SUSJIP) along with the Carbon Trust and other offshore wind developers, EnBW has contributed to the development of a harmonised, industry-specific methodology for calculating the carbon footprint of offshore wind projects.



To support internal learning and contribute to the collective development of the methodology, EnBW applied the SUSJIP Offshore Wind Carbon Footprinting Guidance to the He Dreiht offshore wind farm as an illustrative case. This application helped strengthen methodological understanding, improve transparency around lifecycle boundaries and assumptions, and support alignment with emerging industry practice.

## Context and motivation

Offshore wind plays a central role in EnBW's transformation toward a climate-neutral energy system. While offshore wind generation already has a substantially lower lifecycle carbon footprint than conventional generation technologies, EnBW recognises that achieving long-term decarbonisation ambitions requires a clear understanding of emissions across the entire value chain, including materials, construction, operations, and end-of-life phases.

Against this backdrop, consistent and credible lifecycle carbon assessment becomes increasingly important—not only for internal learning, but also for transparent communication with stakeholders and alignment across the sector. Generic LCA standards do not offer a unified or transparent basis for selecting emission factors. As a result, developers must navigate a wide range of databases and methodological choices, a process that is time-consuming and often results in low confidence in the selected factors. The low confidence is compounded given that different developers may apply materially different emission factors to the same activities or products, limiting comparability of results.

The development of the SUSJIP methodology responds directly to this challenge by establishing a common, sector-tailored approach for assessing offshore wind lifecycle emissions.

## Illustrative application at the project level

As part of its participation in SUSJIP, EnBW applied the SUSJIP Offshore Wind Carbon Footprinting Methodology to the **He Dreiht offshore wind project**, located roughly 90 km off the island of Borkum in the German North Sea. The project, scheduled to be fully operational in the summer of 2026, features 64 Vestas wind turbines with fixed monopile foundations and is designed to generate 960MW of power.

The assessment was conducted as a **prospective, project-level carbon footprint calculation**, covering the full lifecycle stages defined by the SUSJIP guidance, from pre-construction through end-of-life, using available project data and documented assumptions. The SUSJIP methodological framework is aligned with established international standards for product carbon footprinting and lifecycle assessment.

## Key insights

The SUSJIP Methodology helps in conducting hotspot analysis within the project. This enabled EnBW to identify the most carbon-intensive lifecycle stages and components. This insight proved valuable for internal discussions, guiding the development of targeted design and procurement strategies aimed at decarbonizing future offshore wind projects. By focusing on these hotspots, EnBW can prioritize efforts and resources to achieve meaningful reductions in lifecycle emissions across our entire portfolio.

- **Methodological clarity** : The SUSJIP guidance offered a clear and structured framework for defining system boundaries, lifecycle modules, and reference flows, helping reduce ambiguity compared to generic LCA approaches.

- **Transparency and documentation** : The emphasis on explicit assumptions and data quality documentation supported a more transparent assessment process and made limitations easier to communicate.
- **Data Quality**: The methodology prioritises the collection and use of primary data from actual suppliers for an offshore wind farm. When that data is unavailable, the methodology uses a pre-defined and easily accessible set of emissions factors. This reduced uncertainty and increased confidence in assigning values to the complex features of an offshore wind farm.
- **Comparability and alignment** : Using a shared industry methodology supports greater consistency across offshore wind carbon footprint studies, facilitating benchmarking and peer dialogue.
- **Common language** : The SUSJIP taxonomy and structure helped establish a common terminology for discussing lifecycle emissions with internal and external stakeholders.

These learnings reinforced the value of an industry-backed, harmonised approach to offshore wind carbon footprinting.

## Closing statement on collaboration and contribution

EnBW's collaboration with the Carbon Trust and industry peers through SUSJIP has supported the development and testing of a robust, sector-specific carbon footprinting methodology for offshore wind. Applying the guidance to He Dreiht contributed practical feedback to the programme, helping refine assumptions, clarify methodological choices, and strengthen confidence in the overall framework.



By participating in SUSJIP and piloting the methodology in an illustrative context, EnBW supports the creation of a shared foundation for more transparent and comparable carbon footprint assessments across the offshore wind sector. Because of the high level of maturity of the methodology, EnBW is promoting the use of this methodology internally and throughout the offshore wind industry.



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