SUSTAINABILITY JOINT INDUSTRY PROGRAMME

Offshore wind industry product carbon footprinting guidance

Technical summary

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Introduction

The Sustainability Joint Industry Programme (SUSJIP) consortium has produced the Offshore Wind (OSW) Industry Product Carbon Footprint (PCF) guidance with the aim to harmonise PCF calculations across the OSW industry in alignment with international carbon footprinting standards, the *GHG Protocol Product Standard*, and *ISO 14067*. The PCF of an OSW development quantifies life cycle greenhouse gas (GHG) emissions and removals, helping developers identify emissions hotspots, plan reduction interventions, and communicate their environmental impact.

Goal and scope

Goal: The goals of the PCF assessment is to measure and report the life cycle carbon footprint of an OSW development. This may be done to support a variety of different applications, including meeting regulatory reporting requirements, identifying carbon hotspots and designing decarbonisation interventions.

Scope: A PCF assessment of an OSW development, built for renewable electricity generation, covering the full life cycle of the infrastructure development.

Assessment steps

The *OSW Industry PCF guidance* provides standardised guidance for a PCF assessment in the sector, enabling assessors to apply a standard and consistent methodology.

Timing of the assessment

PCF assessments can be conducted at various stages of an offshore wind development's life cycle to support different goals. The guidance defines two primary types of assessments: *Design-stage PCF* and *Operational PCF*. A design-stage PCF is conducted before the development is fully operational and is typically used during design, planning, or early construction phases to inform decisions on technology and materials that can influence the carbon footprint. In contrast, an operational PCF is performed after the development is fully commissioned and operational, capturing the real-world carbon emissions across the asset's life cycle.

Defining System Boundaries:

The *OSW industry PCF guidance* defines a standard system boundary that shall include all life cycle activities associated with the infrastructure development, including preconstruction, construction, operation, decommissioning, and end-of-life:

- A0-A5 (Pre-construction and Construction): Activities include land preparation, material extraction and manufacturing, transportation to site and construction.
- B1-B8 (Use Stage): Activities during the operational life of the OSW development, including maintenance and repairs.
- C1-C5 (End-of-Life): Activities including decommissioning, waste processing, and final disposal.
- D1-D2 (Benefits Beyond the System Boundary): Optional inclusion of avoided emissions or benefits arising from beyond the system boundary activities such as recycling or exporting electricity.

More detailed guidance on recommended activities is also provided in Appendix 1 of the guidance.

Functional unit:

The functional unit of the assessment shall be 1 kWh of electricity, net , generated at the OSW development and delivered at the PoI with the grid at the onshore substation, with [PRACTITIONER DEFINED] MW installed capacity, [PRACTITIONER DEFINED] % capacity factor, [PRACTITIONER DEFINED] years of expected service life.

Data quality and uncertainty:

Data collection should prioritise high-quality, specific data for accurate reporting. The guidance encourages primary data collection from suppliers of goods and services but acknowledges the potential need for secondary data in early-stage assessments. Uncertainty in the data is assessed, and higher uncertainty is expected in design-stage assessments.

Reporting and verification

Reporting results:

Results shall be reported in terms of GHG emissions per unit of electricity delivered at grid ($kgCO_2/kWh$) and total emissions (tCO_2e), broken down by life cycle stage, asset and component.

Verification:

Verification is not a mandatory requirement for PCF assessments made using this guidance, however, it is strongly recommended, particularly where the assessment will be used as the basis for a public disclosure. The guidance recommends independent verification based on recognised assurance standards to validate the carbon footprint assessment results.