Base Load Power Hub (BLPH)

MANUFACTURERS RECORD BOOK (FINAL DOSSIER) INDEX

FOR CHECK AND GLOBES VALVES

Document Number: 1724000799-QC-LIS-00009

Document Class: 2

03	18/12/2024	Accepted for construction (AFC)	F.coos	S.Driussi	I.Benati
02	02/10/2024	Accepted for construction (AFC)	E.Desinano	S.Driussi	I.Benati
01	09/09/2024	Issue for Review (IFR)	E.Desinano	S.Driussi	I.Benati
00	31/05/2024	Issue for Review (IFR)	E.Desinano	S.Driussi	G.Vadori
Rev.	Date	Description	Prepared	Reviewed	Approved

F.R.I. SRL

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Issue for Review (IFR)
02	Accepted for Costruction (AFC)
03	Accepted for Costruction (AFC)

HOLDS LIST

No.	Description
1	
2	
3	
4	

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Table of contents

1 INTRODUCTION 5

1.1 PROJECT OVERVIEW 5

1.1.1 Project Location 5

1.1.2 Project Concept 6

2 DOCUMENT SCOPE 8

2.1 REFERENCES 8

2.2 DEFINITIONS AND ABBREVIATIONS 8

3 DESIGN DOSSIER 9

3.1 GENERAL ARRANGEMENT DRAWINGS 9

3.2 DATASHEET 9

4 PART 2: CERTIFICATION DOSSIER 10

4.1 INSPECTION AND TEST PLAN 10

4.2 NDE PROCEDURES 10

4.3 VALVE TEST/FAT PROCEDURES 10

4.4 COATING PROCEDURES 10

4.5 WELD PROCEDURES & WELD MAP & WELDER QUALIFICATION 10

4.6 OPERATIONS & MAINTENANCE MANUAL 10

4.7 TRACEABILITY SHEET AND MATERIAL CERTIFICATES (IN ACCORDANCE WITH INSPECTION AND TEST PLAN) 10

4.8 MARKING DRAWINGS (NAMEPLATE DRAWINGS) 10

4.9 NON-DESTRUCTIVE TESTING CERTIFICATES/REPORTS 10

4.10 DIMENSIONAL CONTROL CERTIFICATES/REPORTS 10

4.11 PAINTING CERTIFICATES 10

4.12 NCR'S AND WAIVERS REPORTS (IF APPLICABLE) 10

4.13 NDR QUALIFICATIONS 10

4.14 COMPLIANCE WITH CE MARKING 10

4.15 PRESSURE AND FUNCTION TEST REPORTS 10

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

4.16 QUALIFICATION TESTING (FUGITIVE EMISSION TESTING) 10
4.17 PRODUCTION TEST RESULT RECORDS 10
4.18 Inspection release notes (IRN) 10

List of Figures

Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map 5
Figure 2 - Wind Park Details 6
Figure 3 – BLPH Concept 6

List of tables

Table 1 - Reference Documents 8
Table 2 - Definitions and Abbreviations 8

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

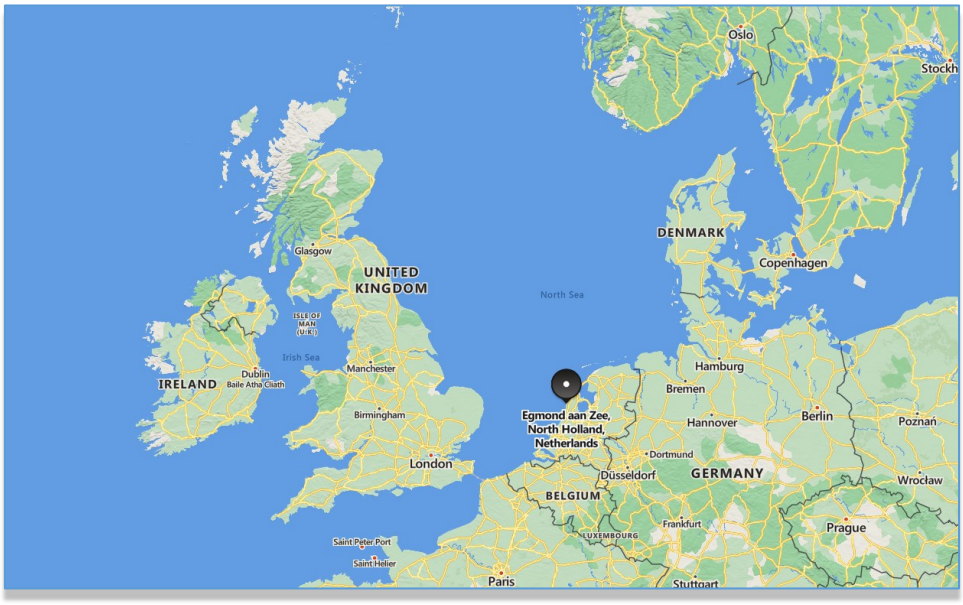


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

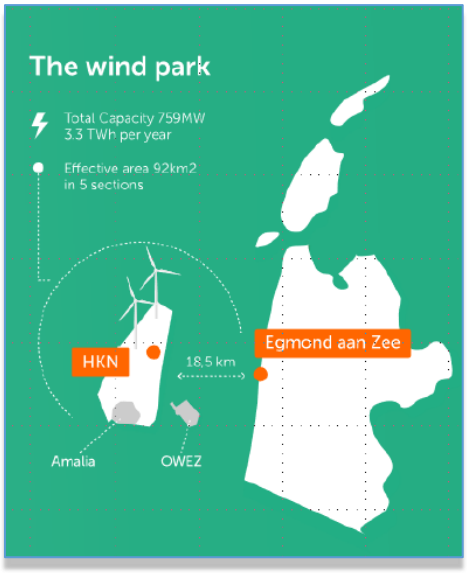


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

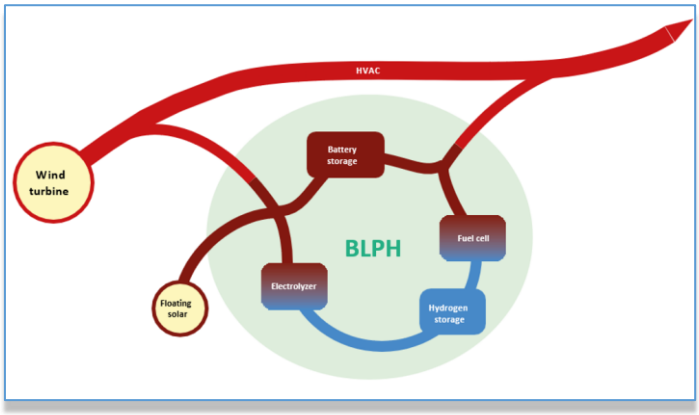


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

2 DOCUMENT SCOPE

The document's scope is to define the index of final record book.

2.1 REFERENCES

Doc. No.	Description
123A90-DDL-PP-SP-70000	Piping Material Classes
123A90-DDL-MAT-SP-60006	Coating and Painting Specification
123A90-DDL-PP-DS-70003	Manual Valve Data Sheets
Appendix 1 extracted from doc. 123A90-DDL-PP-LIS-70002	Gate, Globe & Check Valves MTO
123A90-DDL-PP-SP-70030	TSS - Manual Valves & Strainers
1724000799-QC-DB-00008	Factory acceptance test procedure

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project

Table 2 - Definitions and Abbreviations

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

3 DESIGN DOSSIER

3.1 GENERAL ARRANGEMENT DRAWINGS 1724000799-PP-DD-00003

3.2 DATASHEET 1724000799-PP-DS-00004

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

4 PART 2: CERTIFICATION DOSSIER

4.1 INSPECTION AND TEST PLAN 1724000799-QC-ITP-00002

4.2 NDE PROCEDURES 1724000799-NDT-PRO-00006

4.3 VALVE TEST/FAT PROCEDURES 1724000799-QC-PRO-00007

4.4 COATING PROCEDURES 1724000799-MAT-PRO-00005

4.5 WELD PROCEDURES & WELD MAP & WELDER QUALIFICATION

4.6 OPERATIONS & MAINTENANCE MANUAL 1724000799-PP-LIS-00010

4.7 TRACEABILITY SHEET AND MATERIAL CERTIFICATES (IN ACCORDANCE WITH INSPECTION AND TEST PLAN)

4.8 MARKING DRAWINGS (NAMEPLATE DRAWINGS) 1724000799-PP-DD-00003

4.9 NON-DESTRUCTIVE TESTING CERTIFICATES/REPORTS 1724000799-NDT-PRO-00006

4.10 DIMENSIONAL CONTROL CERTIFICATES/REPORTS

4.11 PAINTING CERTIFICATES

4.12 NCR'S AND WAIVERS REPORTS (IF APPLICABLE)

4.13 NDR QUALIFICATIONS

4.14 COMPLIANCE WITH CE MARKING

4.15 PRESSURE AND FUNCTION TEST REPORTS

4.16 QUALIFICATION TESTING (FUGITIVE EMISSION TESTING)

4.17 PRODUCTION TEST RESULT RECORDS

4.18 INSPECTION RELEASE NOTES (IRN)

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy