Base Load Power Hub (BLPH)

TITLE

Offshore schedule

Document Number: 123A90-PML-LIS-03066

Document Class: 3

00	17/12/2025	Issue for Information (IFI)	F. Falsetti	M. Roncoroni	M. Brunelli
Rev.	Date	Description	Prepared	Reviewed	Approved

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 Information (IFI)

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

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

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 Attachments

Attachment 1 – Offshore schedule 8

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.

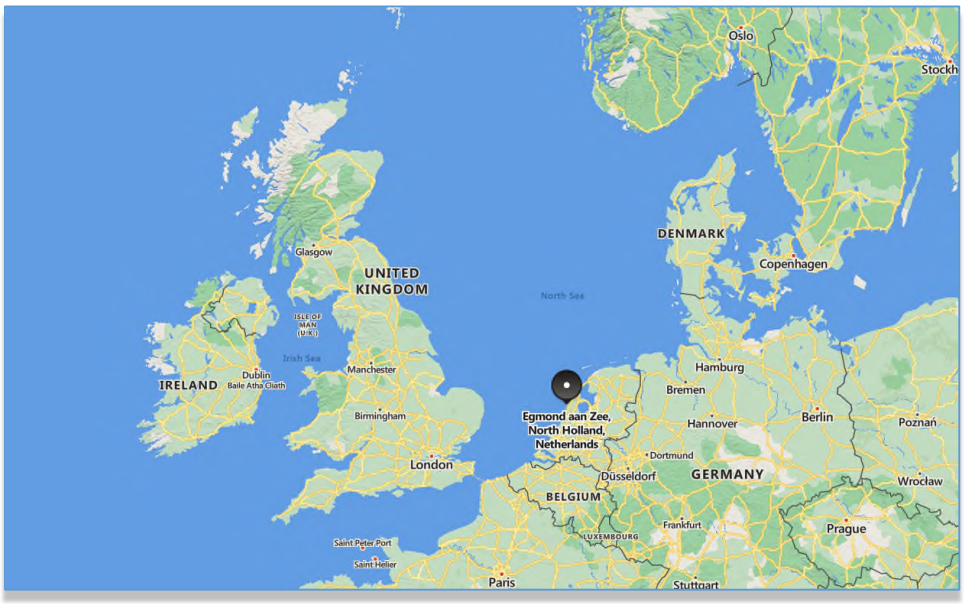


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

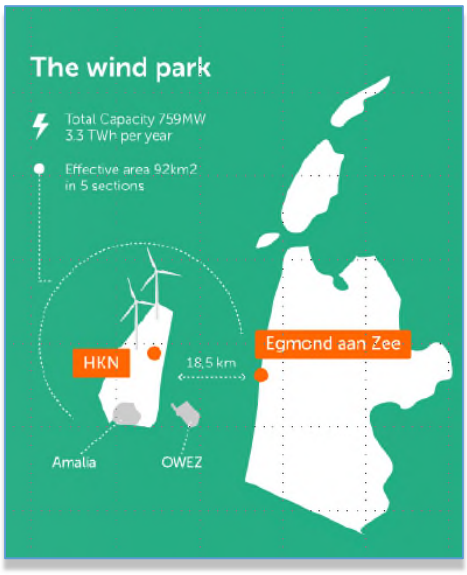


Figure 2 - Wind Park Details

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.

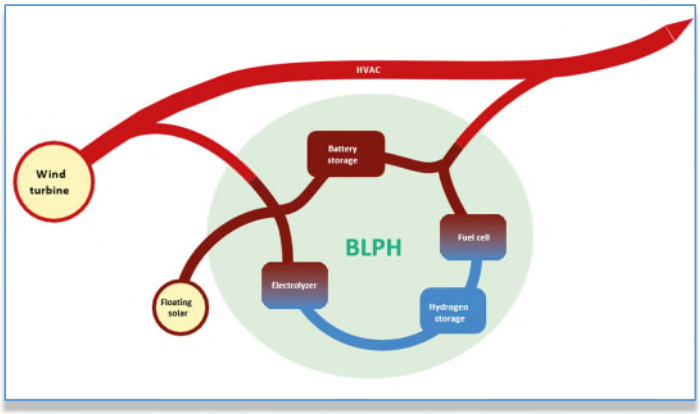


Figure 3 – BLPH Concept

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.

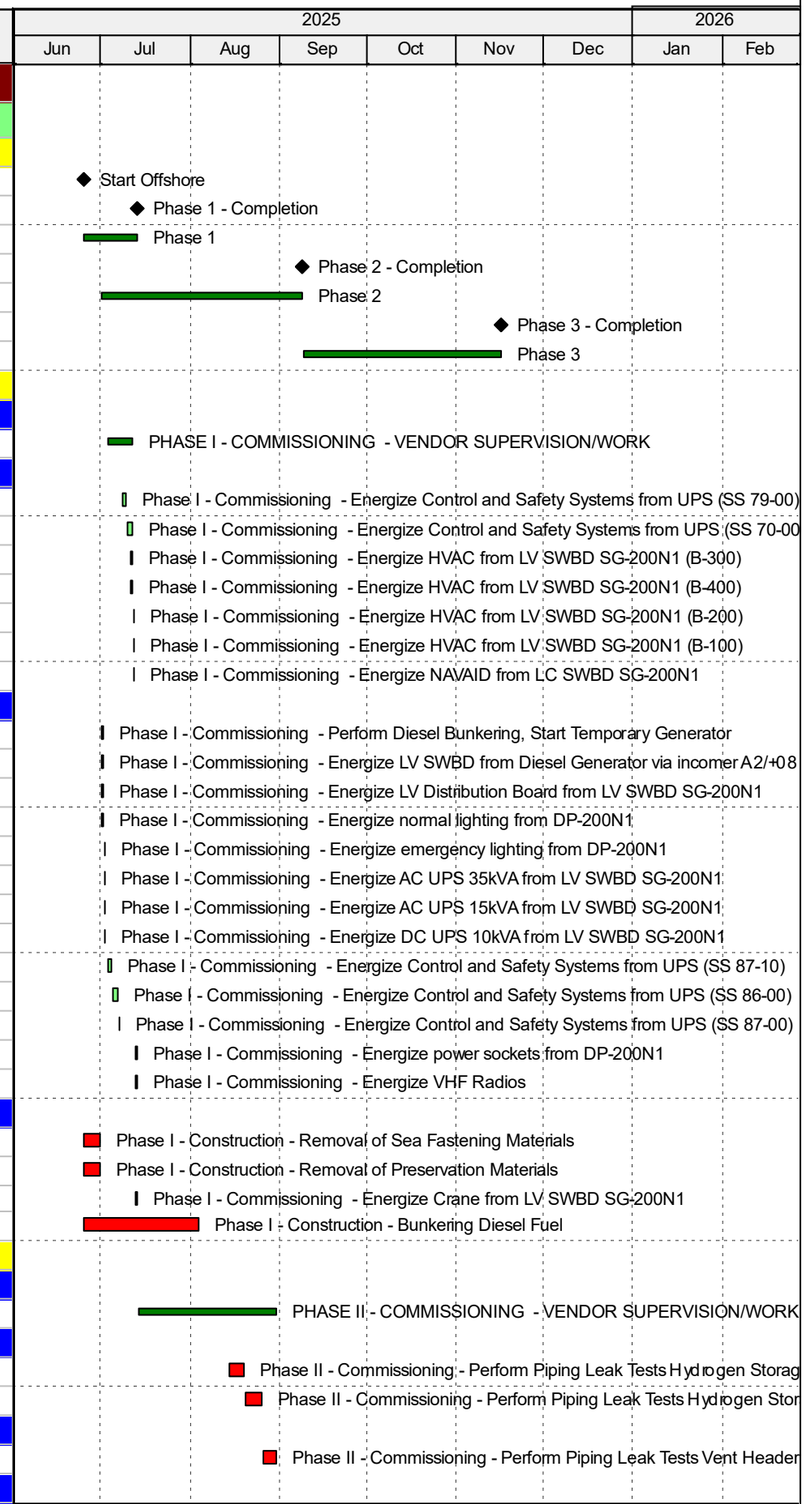
The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have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

Attachment 1 – Offshore schedule

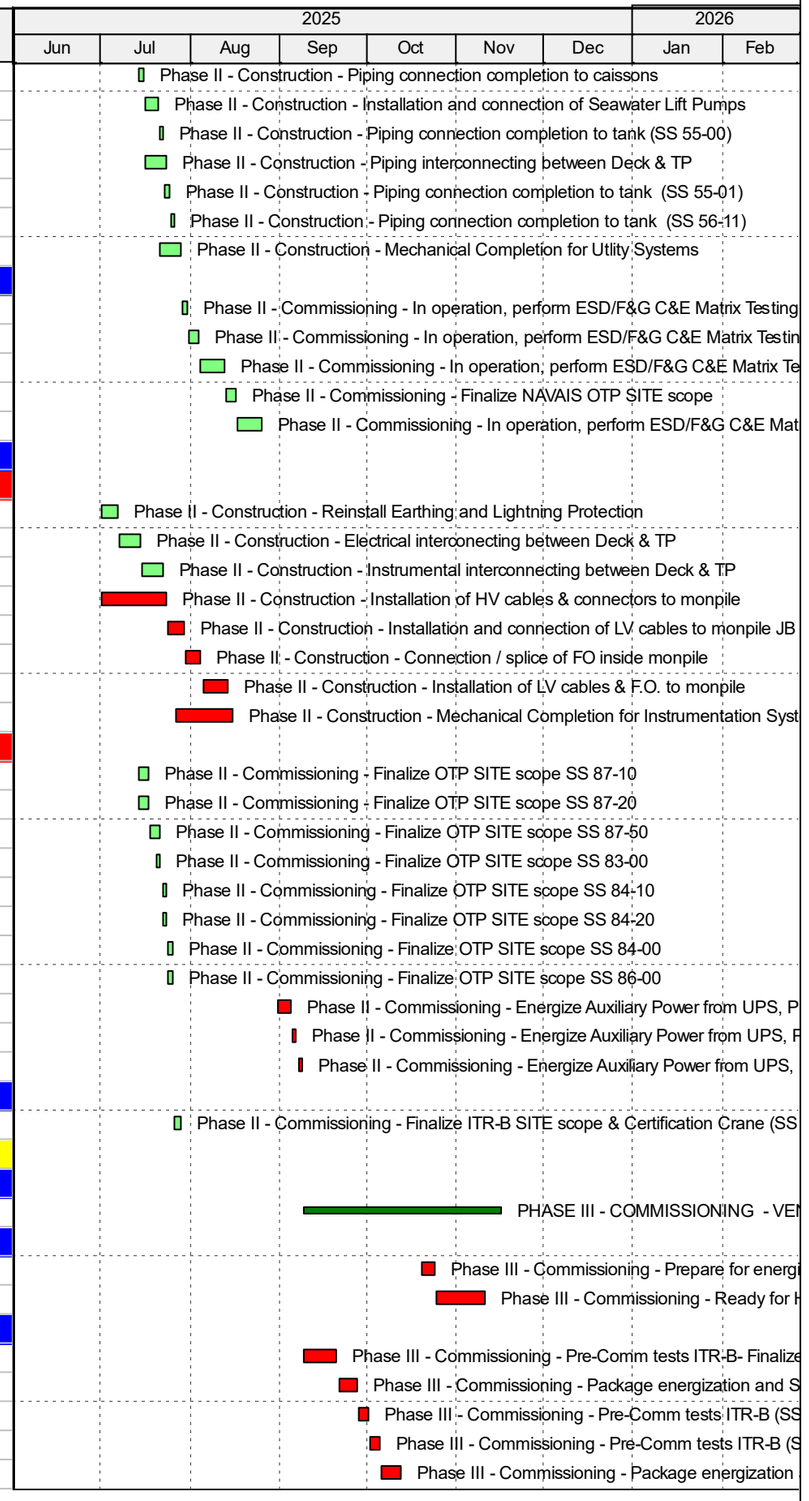
This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Activity ID	Activity Name	Budgeted Labor Units	People required from	Original Duration	Start	Finish
123A90 - Cross Wind BLPH - baseline issued 25.10.2024 - OFFSHORE		15308.00		145d	25/Jun/25	16/Nov/25
Offshore Campaign DRAFT 18.11.2024		15308.00		145d	25/Jun/25	16/Nov/25
Milestones		0.00		145d	25/Jun/25	16/Nov/25
A1590	Start Offshore	0.00		0d	25/Jun/25	
A1600	Phase 1 - Completion	0.00		0d		13/Jul/25
A1880	Phase 1	0.00		19d	25/Jun/25	13/Jul/25
A1610	Phase 2 - Completion	0.00		0d		08/Sep/25
A1900	Phase 2	0.00		70d	01/Jul/25	08/Sep/25
A1870	Phase 3 - Completion	0.00		0d		16/Nov/25
A1890	Phase 3	0.00		69d	09/Sep/25	16/Nov/25
PHASE 1: BLPH INSTALLATION & FIRST BLPH SITE ENERGIZATION		1640.00		40d	25/Jun/25	03/Aug/25
PHASE 1 - Supervision		60.00		9d	03/Jul/25	11/Jul/25
A1240	PHASE I - COMMISSIONING - VENDOR SUPERVISION/WORK	60.00		9d	03/Jul/25	11/Jul/25
SAFETY & FACILITY SYSTEMS		324.00		5d	08/Jul/25	12/Jul/25
A1000	Phase I - Commissioning - Energize Control and Safety Systems from UPS (SS 79-00)	72.00	3	2d	08/Jul/25	09/Jul/25
A1010	Phase I - Commissioning - Energize Control and Safety Systems from UPS (SS 70-00)	72.00	3	2d	10/Jul/25	11/Jul/25
A1020	Phase I - Commissioning - Energize HVAC from LV SWBD SG-200N1 (B-300)	36.00	3	1d	11/Jul/25	11/Jul/25
A1030	Phase I - Commissioning - Energize HVAC from LV SWBD SG-200N1 (B-400)	36.00	3	1d	11/Jul/25	11/Jul/25
A1040	Phase I - Commissioning - Energize HVAC from LV SWBD SG-200N1 (B-200)	36.00	3	1d	12/Jul/25	12/Jul/25
A1050	Phase I - Commissioning - Energize HVAC from LV SWBD SG-200N1 (B-100)	36.00	3	1d	12/Jul/25	12/Jul/25
A1060	Phase I - Commissioning - Energize NAVAID from LC SWBD SG-200N1	36.00	3	1d	12/Jul/25	12/Jul/25
ELECTRICAL - TELECOMMUNICATION - INSTRUMENTATION SYSTEMS		356.00		13d	01/Jul/25	13/Jul/25
A1070	Phase I - Commissioning - Perform Diesel Bunkering, Start Temporary Generator	13.00	5	1d	01/Jul/25	01/Jul/25
A1080	Phase I - Commissioning - Energize LV SWBD from Diesel Generator via incomer A2/+08	13.00	5	1d	01/Jul/25	01/Jul/25
A1090	Phase I - Commissioning - Energize LV Distribution Board from LV SWBD SG-200N1	13.00	5	1d	01/Jul/25	01/Jul/25
A1100	Phase I - Commissioning - Energize normal lighting from DP-200N1	13.00	5	1d	01/Jul/25	01/Jul/25
A1110	Phase I - Commissioning - Energize emergency lighting from DP-200N1	13.00	5	1d	02/Jul/25	02/Jul/25
A1120	Phase I - Commissioning - Energize AC UPS 35kVA from LV SWBD SG-200N1	13.00	5	1d	02/Jul/25	02/Jul/25
A1130	Phase I - Commissioning - Energize AC UPS 15kVA from LV SWBD SG-200N1	13.00	5	1d	02/Jul/25	02/Jul/25
A1140	Phase I - Commissioning - Energize DC UPS 10kVA from LV SWBD SG-200N1	13.00	5	1d	02/Jul/25	02/Jul/25
A1150	Phase I - Commissioning - Energize Control and Safety Systems from UPS (SS 87-10)	72.00	3	2d	03/Jul/25	04/Jul/25
A1160	Phase I - Commissioning - Energize Control and Safety Systems from UPS (SS 86-00)	72.00	3	2d	05/Jul/25	06/Jul/25
A1170	Phase I - Commissioning - Energize Control and Safety Systems from UPS (SS 87-00)	36.00	3	1d	07/Jul/25	07/Jul/25
A1180	Phase I - Commissioning - Energize power sockets from DP-200N1	36.00	3	1d	13/Jul/25	13/Jul/25
A1190	Phase I - Commissioning - Energize VHF Radios	36.00	3	1d	13/Jul/25	13/Jul/25
STRUCTURAL, CIVIL SYSTEMS		900.00		40d	25/Jun/25	03/Aug/25
A1210	Phase I - Construction - Removal of Sea Fastening Materials	288.00	4	6d	25/Jun/25	30/Jun/25
A1220	Phase I - Construction - Removal of Preservation Materials	288.00	4	6d	25/Jun/25	30/Jun/25
A1230	Phase I - Commissioning - Energize Crane from LV SWBD SG-200N1	36.00	3	1d	13/Jul/25	13/Jul/25
A1200	Phase I - Construction - Bunkering Diesel Fuel	288.00	4	40d	25/Jun/25	03/Aug/25
PHASE 2: COMPLETION OF CONSTRUCTION AND PRE-COMMISSIONING ACTIVITIES		8820.00		70d	01/Jul/25	08/Sep/25
PHASE 2 - Supervision		600.00		48d	14/Jul/25	30/Aug/25
A1580	PHASE II - COMMISSIONING - VENDOR SUPERVISION/WORK	600.00		48d	14/Jul/25	30/Aug/25
PROCESS SYSTEMS		720.00		12d	14/Aug/25	25/Aug/25
A1250	Phase II - Commissioning - Perform Piping Leak Tests Hydrogen Storage Inlet	360.00	5	6d	14/Aug/25	19/Aug/25
A1260	Phase II - Commissioning - Perform Piping Leak Tests Hydrogen Storage Outlet	360.00	5	6d	20/Aug/25	25/Aug/25
PROCESS SUPPORT SYSTEMS		300.00		5d	26/Aug/25	30/Aug/25
A1270	Phase II - Commissioning - Perform Piping Leak Tests Vent Header & Drum System	300.00	5	5d	26/Aug/25	30/Aug/25
UTILITY SYSTEMS		1452.00		15d	14/Jul/25	28/Jul/25



© Oracle Corporation

Activity ID	Activity Name	Budgeted Labor Units	People required from	Original Duration	Start	Finish
A1290	Phase II - Construction - Piping connection completion to caissons	153.00	5	2d	14/Jul/25	15/Jul/25
A1280	Phase II - Construction - Installation and connection of Seawater Lift Pumps	216.00	5	5d	16/Jul/25	20/Jul/25
A1300	Phase II - Construction - Piping connection completion to tank (SS 55-00)	153.00	5	2d	21/Jul/25	22/Jul/25
A1540	Phase II - Construction - Piping interconnecting between Deck & TP	432.00	5	8d	16/Jul/25	23/Jul/25
A1310	Phase II - Construction - Piping connection completion to tank (SS 55-01)	153.00	5	2d	23/Jul/25	24/Jul/25
A1320	Phase II - Construction - Piping connection completion to tank (SS 56-11)	153.00	5	2d	25/Jul/25	26/Jul/25
A1550	Phase II - Construction - Mechanical Completion for Utlity Systems	192.00	5	8d	21/Jul/25	28/Jul/25
SAFETY & FACILITY SYSTEMS		672.00		28d	29/Jul/25	25/Aug/25
A1560	Phase II - Commissioning - In operation, perform ESD/F&G C&E Matrix Testing (SS 79-10)	48.00	2	2d	29/Jul/25	30/Jul/25
A1330	Phase II - Commissioning - In operation, perform ESD/F&G C&E Matrix Testing (SS 70-00)	96.00	2	4d	31/Jul/25	03/Aug/25
A1340	Phase II - Commissioning - In operation, perform ESD/F&G C&E Matrix Testing (SS 70-10)	216.00	2	9d	04/Aug/25	12/Aug/25
A1350	Phase II - Commissioning - Finalize NAVAIS OTP SITE scope	96.00	2	4d	13/Aug/25	16/Aug/25
A1360	Phase II - Commissioning - In operation, perform ESD/F&G C&E Matrix Testing (SS 79-00)	216.00	2	9d	17/Aug/25	25/Aug/25
ELECTRICAL - TELECOMMUNICATION - INSTRUMENTATION SYSTEMS		4836.00		70d	01/Jul/25	08/Sep/25
Construction		3864.00		46d	01/Jul/25	15/Aug/25
A1410	Phase II - Construction - Reinstall Earthing and Lightning Protection	252.00	5	6d	01/Jul/25	06/Jul/25
A1910	Phase II - Construction - Electrical interconecting between Deck & TP	432.00	5	8d	07/Jul/25	14/Jul/25
A1920	Phase II - Construction - Instrumental interconnecting between Deck & TP	432.00	5	8d	15/Jul/25	22/Jul/25
A1370	Phase II - Construction - Installation of HV cables & connectors to monpile	1332.00	5	23d	01/Jul/25	23/Jul/25
A1390	Phase II - Construction - Installation and connection of LV cables to monpile JB	252.00	5	6d	24/Jul/25	29/Jul/25
A1400	Phase II - Construction - Connection / splice of FO inside monpile	252.00	5	6d	30/Jul/25	04/Aug/25
A1380	Phase II - Construction - Installation of LV cables & F.O. to monpile	432.00	5	9d	05/Aug/25	13/Aug/25
A1570	Phase II - Construction - Mechanical Completion for Instrumentation Systems	480.00	5	20d	27/Jul/25	15/Aug/25
Commissioning		972.00		57d	14/Jul/25	08/Sep/25
A1420	Phase II - Commissioning - Finalize OTP SITE scope SS 87-10	96.00	2	4d	14/Jul/25	17/Jul/25
A1430	Phase II - Commissioning - Finalize OTP SITE scope SS 87-20	96.00	2	4d	14/Jul/25	17/Jul/25
A1440	Phase II - Commissioning - Finalize OTP SITE scope SS 87-50	96.00	2	4d	18/Jul/25	21/Jul/25
A1450	Phase II - Commissioning - Finalize OTP SITE scope SS 83-00	48.00	2	2d	20/Jul/25	21/Jul/25
A1460	Phase II - Commissioning - Finalize OTP SITE scope SS 84-10	48.00	2	2d	22/Jul/25	23/Jul/25
A1470	Phase II - Commissioning - Finalize OTP SITE scope SS 84-20	48.00	2	2d	22/Jul/25	23/Jul/25
A1480	Phase II - Commissioning - Finalize OTP SITE scope SS 84-00	48.00	2	2d	24/Jul/25	25/Jul/25
A1490	Phase II - Commissioning - Finalize OTP SITE scope SS 86-00	96.00	4	2d	24/Jul/25	25/Jul/25
A1500	Phase II - Commissioning - Energize Auxiliary Power from UPS, Pre-Comm package test checks (SS 82-00)	300.00	5	5d	31/Aug/25	04/Sep/25
A1510	Phase II - Commissioning - Energize Auxiliary Power from UPS, Pre-Comm package test checks (SS 81-20)	48.00	2	2d	05/Sep/25	06/Sep/25
A1520	Phase II - Commissioning - Energize Auxiliary Power from UPS, Pre-Comm GIS package & UCP test check (SS 81-10)	48.00	2	2d	07/Sep/25	08/Sep/25
STRUCTURAL, CIVIL SYSTEMS		240.00		3d	26/Jul/25	28/Jul/25
A1530	Phase II - Commissioning - Finalize ITR-B SITE scope & Certification Crane (SS 99-00)	240.00	2	3d	26/Jul/25	28/Jul/25
PHASE 3: 66kV GRID CONNECTION AND PREPARATION FOR BLPH START-UP ACTIVITIES		4848.00		69d	09/Sep/25	16/Nov/25
PHASE 3 - Supervision		576.00		69d	09/Sep/25	16/Nov/25
A1620	PHASE III - COMMISSIONING - VENDOR SUPERVISION/WORK	576.00		69d	09/Sep/25	16/Nov/25
PROCESS SYSTEMS		792.00		22d	20/Oct/25	10/Nov/25
A1630	Phase III - Commissioning - Prepare for energization & operation Electrolyser (SS 20)	144.00	2	5d	20/Oct/25	24/Oct/25
A1640	Phase III - Commissioning - Ready for Hydrogen (SS 25-01/08)	648.00	3	17d	25/Oct/25	10/Nov/25
UTILITY SYSTEMS		1776.00		41d	09/Sep/25	19/Oct/25
A1650	Phase III - Commissioning - Pre-Comm tests ITR-B- Finalize OTP SITE scope (SS 50-00)	576.00	4	12d	09/Sep/25	20/Sep/25
A1660	Phase III - Commissioning - Package energization and Start-Up - Finalize OTP SITE scope (SS 50-10)	336.00	4	7d	21/Sep/25	27/Sep/25
A1670	Phase III - Commissioning - Pre-Comm tests ITR-B (SS 55-00)	96.00	2	4d	28/Sep/25	01/Oct/25
A1680	Phase III - Commissioning - Pre-Comm tests ITR-B (SS 55-01)	96.00	2	4d	02/Oct/25	05/Oct/25
A1690	Phase III - Commissioning - Package energization and Start-Up- Finalize OTP SITE scope (SS 63-00)	336.00	4	7d	06/Oct/25	12/Oct/25

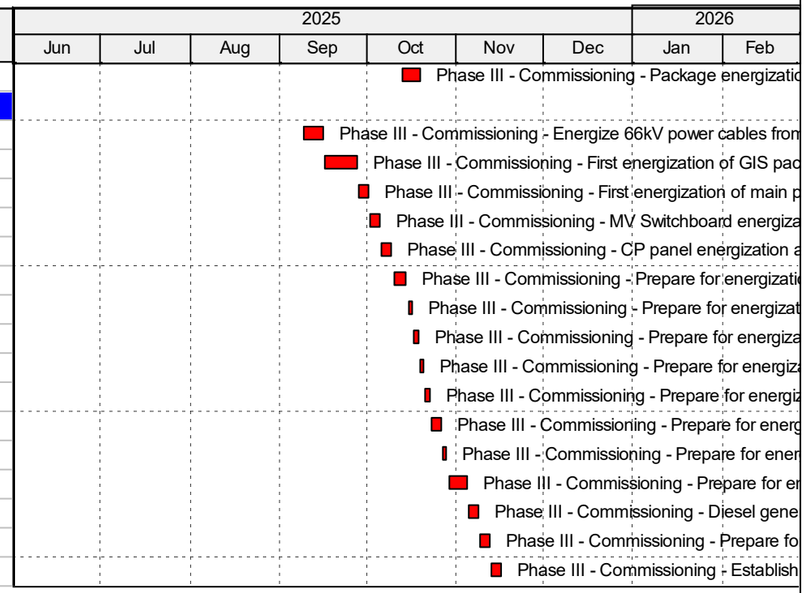


Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work

TASK filter: FF-4.

© Oracle Corporation

Activity ID	Activity Name	Budgeted Labor Units	People required from	Original Duration	Start	Finish
A1700	Phase III - Commissioning - Package energization and Start-Up- Finalize OTP SITE scope (SS 64-00/10)	336.00	4	7d	13/Oct/25	19/Oct/25
ELECTRICAL - TELECOMMUNICATION - INSTRUMENTATION SYSTEMS		1704.00		69d	09/Sep/25	16/Nov/25
A1710	Phase III - Commissioning - Energize 66kV power cables from Wind Farm WTG-57	168.00	2	7d	09/Sep/25	15/Sep/25
A1720	Phase III - Commissioning - First energization of GIS package, Finalize OTP SITE scope	288.00	2	12d	16/Sep/25	27/Sep/25
A1730	Phase III - Commissioning - First energization of main power transformer	96.00	2	4d	28/Sep/25	01/Oct/25
A1740	Phase III - Commissioning - MV Switchboard energization and Start-Up, Finalize OTP SITE scope.	96.00	2	4d	02/Oct/25	05/Oct/25
A1750	Phase III - Commissioning - CP panel energization and Start-Up.	96.00	2	4d	06/Oct/25	09/Oct/25
A1760	Phase III - Commissioning - Prepare for energization & operation (SS 80-00)	144.00	2	5d	10/Oct/25	14/Oct/25
A1770	Phase III - Commissioning - Prepare for energization & operation (SS 82-10)	48.00	2	2d	15/Oct/25	16/Oct/25
A1780	Phase III - Commissioning - Prepare for energization & operation (SS 82-20)	48.00	2	2d	17/Oct/25	18/Oct/25
A1790	Phase III - Commissioning - Prepare for energization & operation (SS 82-30)	48.00	2	2d	19/Oct/25	20/Oct/25
A1800	Phase III - Commissioning - Prepare for energization & operation (SS 82-40)	48.00	2	2d	21/Oct/25	22/Oct/25
A1810	Phase III - Commissioning - Prepare for energization & operation (SS 82-50)	96.00	2	4d	23/Oct/25	26/Oct/25
A1820	Phase III - Commissioning - Prepare for energization & operation (SS 83-10)	48.00	2	2d	27/Oct/25	28/Oct/25
A1830	Phase III - Commissioning - Prepare for energization & operation (SS 83-30)	168.00	2	7d	29/Oct/25	04/Nov/25
A1840	Phase III - Commissioning - Diesel generator shut-down and isolation when 66kV grid connection complete	96.00	2	4d	05/Nov/25	08/Nov/25
A1850	Phase III - Commissioning - Prepare for energization & operation (SS 85-00)	144.00	2	4d	09/Nov/25	12/Nov/25
A1860	Phase III - Commissioning - Establish data network connection with CW ONSHORE facilities	72.00	1	4d	13/Nov/25	16/Nov/25



Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

TASK filter: FF-4.

© Oracle Corporation