Base Load Power Hub (BLPH)

System Architecture

Document Number: 1724000594-IN-DD-00015

Supplier Document Number: E366772C00-SA

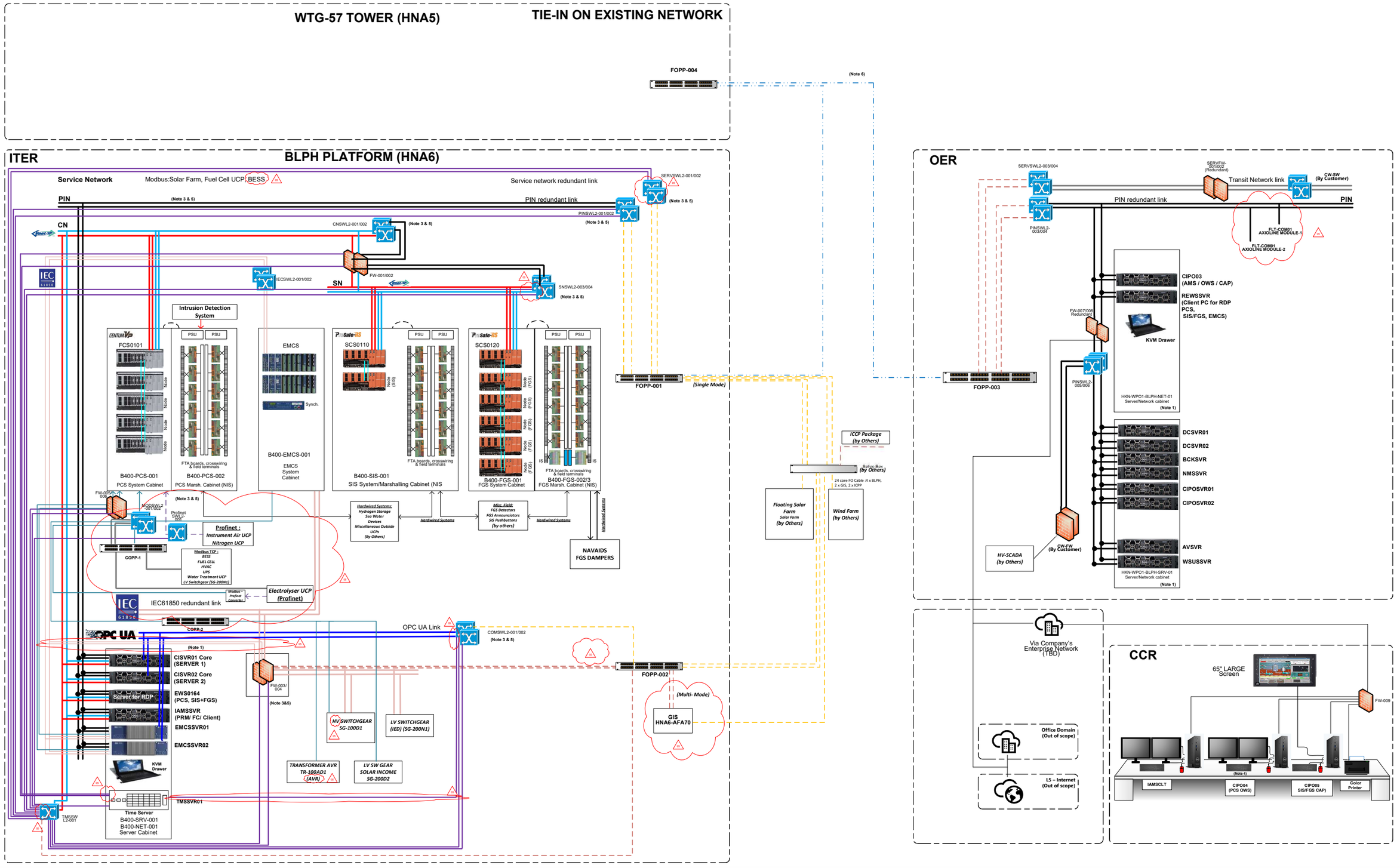
Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
05	16/05/2025	Accepted for Construction (AFC)	SKR	MP/AB	SC
04	14/02/2025	Issue for Review (IFR)	SKR	MP/AB	SC
03	26/08/2024	Issue for Review (IFR)	SKR	MP/AB	SC
02	28/06/2024	Issue for Review (IFR)	SKR	MP/AB	SC
01	24/05/2024	Issue for Review (IFR)	SKR	MP/AB	SC
00	23/04/2024	Issue for Review (IFR)	SKR	AB	SC

YOKOGAWA Co-innovating tomorrow™

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

CROSSWIND BLPH PROJECT - SYSTEM ARCHITECTURE



AMS	: Alarm Management System	FCS	: Field Control Station
AV	: Anti-virus	FGS	: Fire & Gas System
BCK	: Backup Server	FO	: Fiber Optic
BESS	: Battery Energy Storage System	FOPP	: Fiber Optic Patch Panel (by others)
BLPH	: Base Load Power Hub	FTA	: Field Termination Assembly
CAP	: Critical Alarm Panel	HIST	: Historian
CCR	: Central Control Room	HKN	: Hollandse Kust Noord
CI	: Collaborative Information	IAMS	: Instrument Asset Management System
CN	: Control Network	ITER	: Instrument & Telecom Equipment Room
DC	: Domain Controller	LHVS	: Land High Voltage Station
DMZ	: De-militarized Zone	MCC	: Motor Control Center
ESB	: IO communication bus	MODB	: Modbus
EWS	: Engineering Work Station	MQTT	: Network Queuing Telemetry Transport
FC	: Field Communication (Vnet/IP)	NMS	: Network Management System

OER	: Onshore Equipment Room		
OHVS	: Offshore High Voltage Station		
OWS	: Operator Work Station		
PIN	: Plant Information Network		
PKG	: Package		
RDP	: Remote Desktop Protocol		
SCS	: Safety Control Station		
SIS	: Safety Instrumented System		
SN	: Safety Network		
SW	: Switch		
UCP	: Unit Control Panel (3rd party systems)		
VM	: Virtual Machine		
Vnet/IP	: Yokogawa's Control network		
WSUS	: Windows Security Update Services		

LEGEND:

- PIN (Plant Information Network)
- Vnet/IP BUS 1 PCS
- Vnet/IP BUS 2 PCS
- Vnet/IP BUS 1 SIS/FGS
- Vnet/IP BUS 2 SIS/FGS
- ESB bus connection
- IEC61850 connection
- OPC UA connection
- Service Network connection
- Modbus TCP connection
- Profinet (non redundant)
- Fiber Optic Single Mode
- Fiber Optic Multi Mode
- Fiber Optic backbone (by Crosswind)
- System Cable connection
- NTP Connection

Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer Scope.
Note 5 : All Network Switches and Firewall is configured in VLAN.
Note 6 : Intermediate FO Connection between HNA5 and OER Intentionally not shown.

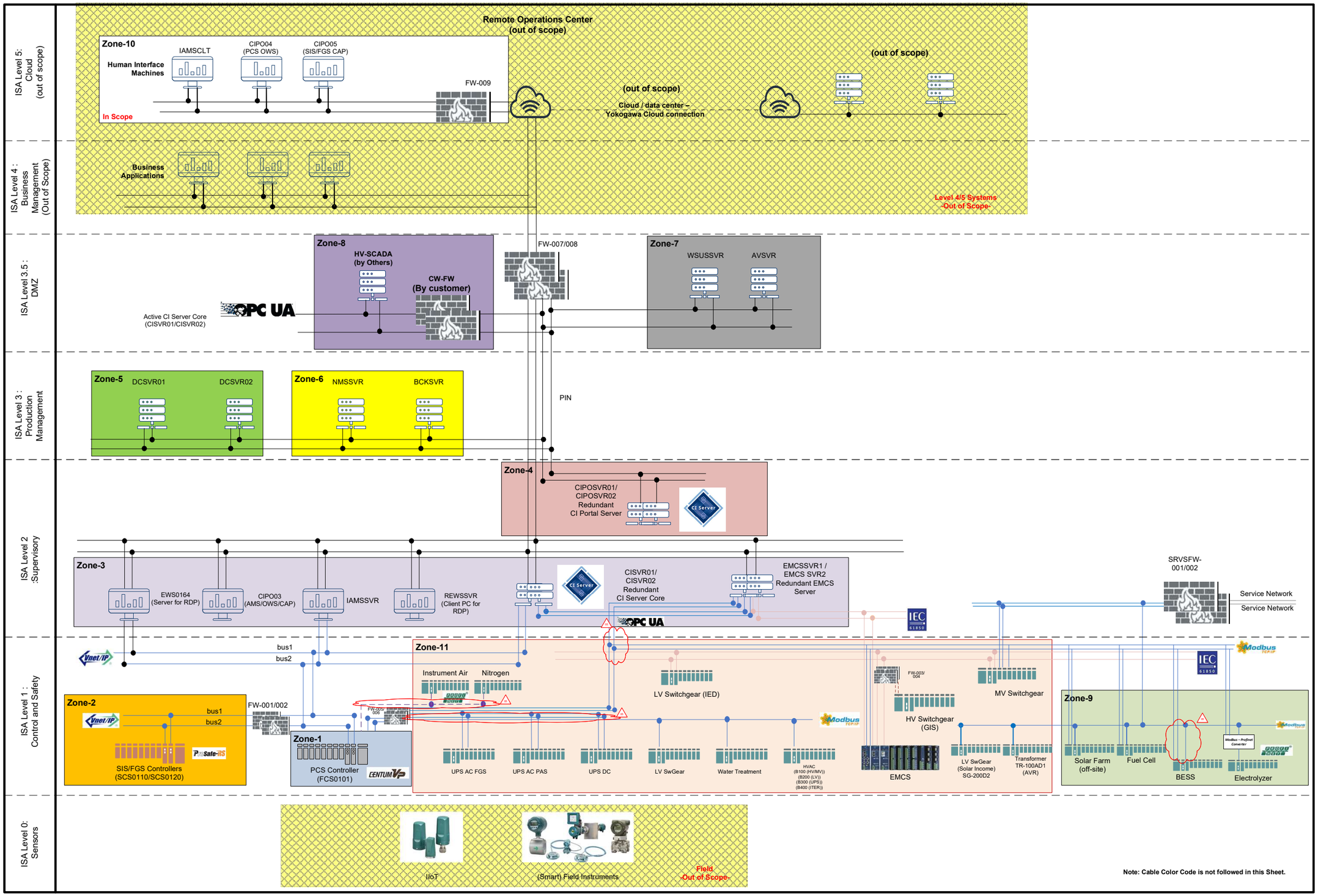
Zone-1 : PCS Control Zone
Zone-2 : Safety Control Zone
Zone-3 : PCS Zone
Zone-4 : Application Server Facility Zone
Zone-5 : Security Management Zone-1
Zone-6 : Security Management Zone-2
Zone-7 : Demilitirized Zone
Zone-8 : Croswind Zone
Zone-9 : Service Network Zone
Zone-10: Application Server Facility Zone-OD
Zone-11: Third Party System Zone
: Out of Scope

REV	DWG BY	CHK BY	APP BY	DATE
05	SKR	AB	SC	16-May-25
04	SKR	MP/AB	SC	17-Dec-24
03	SKR	MP/AB	SC	26-Aug-24
02	SKR	MP/AB	SC	28-Jun-24
01	SKR	MP/AB	SC	24-May-24
00	SKR	AB	SC	23-Apr-24

Doc No : 1724000594-IN-DD-00015
Doc Name : System Architecture

ROSETTI MARINO
HOLLANDSE KUST NOORD WIND PART Project
CROSSWIND
YOKOGAWA

CROSSWIND BLPH PROJECT - CYBER ARCHITECTURE



Note: Cable Color Code is not followed in this Sheet.

AMS	: Alarm Management System	FCS	: Field Control Station
AV	: Anti-virus	FGS	: Fire & Gas System
BCK	: Backup Server	FO	: Fiber Optic
BESS	: Battery Energy Storage System	FOPP	: Fiber Optic Patch Panel (by others)
BLPH	: Base Load Power Hub	FTA	: Field Termination Assembly
CAP	: Critical Alarm Panel	HIST	: Historian
CCR	: Central Control Room	HKN	: Hollandse Kust Noord
CI	: Collaborative Information	IAMS	: Instrument Asset Management System
CN	: Control Network	ITER	: Instrument & Telecom Equipment Room
DC	: Domain Controller	LHVS	: Land High Voltage Station
DMZ	: De-militarized Zone	MCC	: Motor Control Center
ESB	: IO communication bus	MODB	: Modbus
EWS	: Engineering Work Station	MQTT	: Message Queuing Telemetry Transport
FC	: Field Communication (Vnet/IP)	NMS	: Network Management System
OER	: Onshore Equipment Room		
OHVS	: Offshore High Voltage Station		
OWS	: Operator Work Station		
PIN	: Plant Information Network		
PKG	: Package		
RDP	: Remote Desktop Protocol		
SCS	: Safety Control Station		
SIS	: Safety Instrumented System		
SN	: Safety Network		
SW	: Switch		
UCP	: Unit Control Panel (3rd party systems)		
VM	: Virtual Machine		
Vnet/IP	: Yokogawa's Control network		
WSUS	: Windows Security Update Services		

LEGEND:
- PIN (Plant Information Network)
- Vnet/IP BUS 1 PCS
- Vnet/IP BUS 2 PCS
- Vnet/IP BUS 1 SIS/FGS
- Vnet/IP BUS 2 SIS/FGS
- ESB bus connection
- IEC61850 connection
- OPC UA connection
- Service Network connection
- Modbus TCP connection
- Profinet (non redundant)
- Fiber Optic Single Mode
- Fiber Optic Multi Mode
- Fiber Optic backbone (by Crosswind)
- System Cable connection
- NTP Connection

Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer Scope.
Note 5 : All Network Switches and Firewall is configured in VLAN.
Note 6 : Intermediate FO Connection between HNA5 and OER Intentionally not shown.

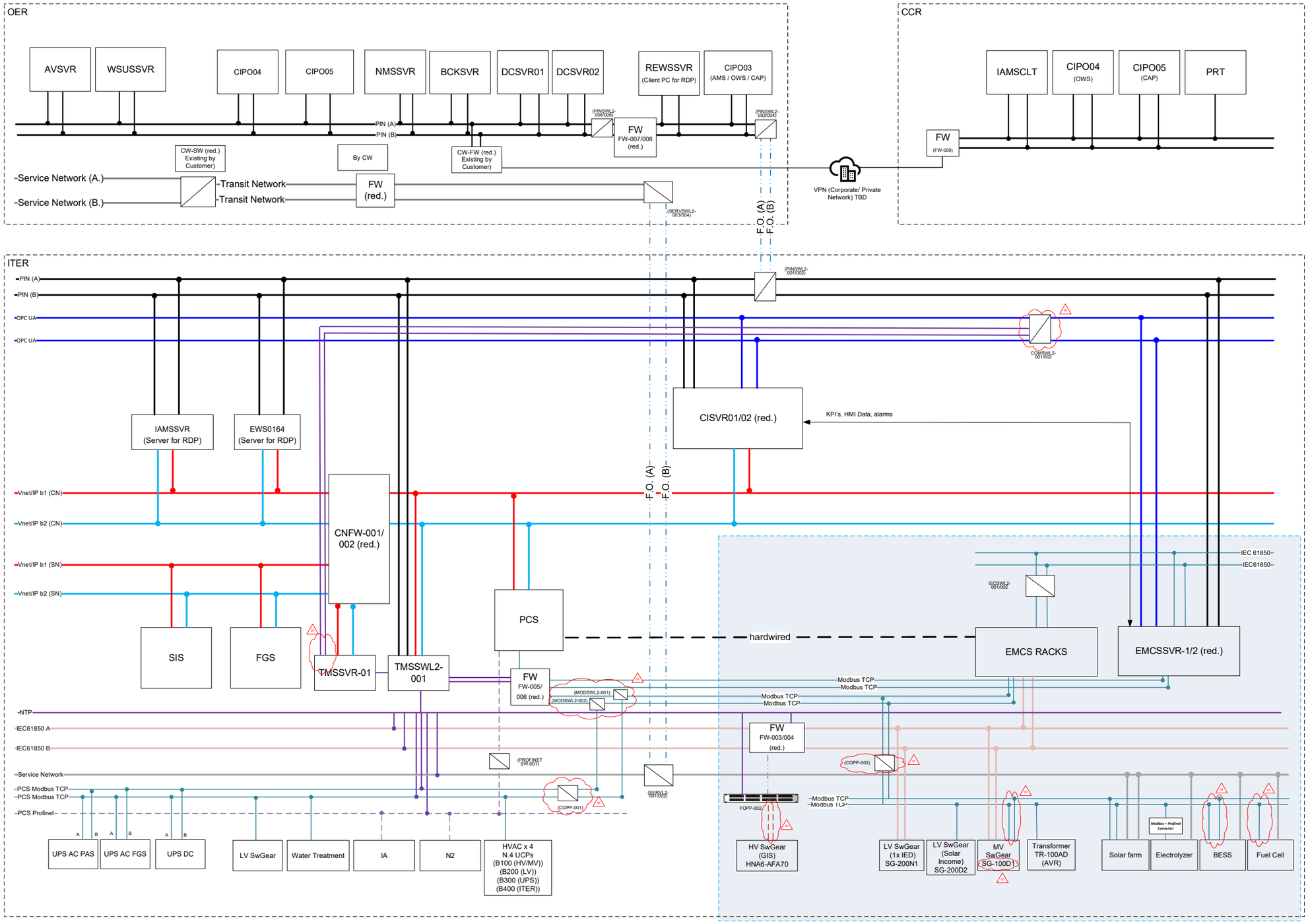
Zone-1 : PCS Control Zone
Zone-2 : Safety Control Zone
Zone-3 : PCS Zone
Zone-4 : Application Server Facility Zone
Zone-5 : Security Management Zone-1
Zone-6 : Security Management Zone-2
Zone-7 : Demilitirized Zone
Zone-8 : Croswind Zone
Zone-9 : Service Network Zone
Zone-10: Application Server Facility Zone-OD
Zone-11: Third Party System Zone
: Out of Scope

REV	DWG BY	CHK BY	APP BY	DATE
05	SKR	AB	SC	16-May-25
04	SKR	MP/AB	SC	17-Dec-24
03	SKR	MP/AB	SC	26-Aug-24
02	SKR	MP/AB	SC	28-Jun-24
01	SKR	MP/AB	SC	24-May-24
00	SKR	AB	SC	23-Apr-24

Doc No : 1724000594-IN-DD-00015
Doc Name : System Architecture

ROSETTI MARINO | HOLLANDSE KUST NOORD WIND PART Project | CROSSWIND | YOKOGAWA

CROSSWIND BLPH PROJECT - SYSTEM BLOCK DIAGRAM



AMS	: Alarm Management System	FCS	: Field Control Station
AV	: Anti-virus	FGS	: Fire & Gas System
BCK	: Backup Server	FO	: Fiber Optic
BESS	: Battery Energy Storage System	FOPP	: Fiber Optic Patch Panel (by others)
BLPH	: Base Load Power Hub	FTA	: Field Termination Assembly
CAP	: Critical Alarm Panel	HIST	: Historian
CCR	: Central Control Room	HKN	: Hollandse Kust Noord
CI	: Collaborative Information	IAMS	: Instrument Asset Management System
CN	: Control Network	ITER	: Instrument & Telecom Equipment Room
DC	: Domain Controller	LHVS	: Land High Voltage Station
DMZ	: De-militarized Zone	MCC	: Motor Control Center
ESB	: IO communication bus	MODB	: Modbus
EWS	: Engineering Work Station	MQTT	: Message Queuing Telemetry Transport
FC	: Field Communication (Vnet/IP)	NMS	: Network Management System
OER	: Onshore Equipment Room		
OHVS	: Offshore High Voltage Station		
OWS	: Operator Work Station		
PIN	: Plant Information Network		
PKG	: Package		
RDP	: Remote Desktop Protocol		
SCS	: Safety Control Station		
SIS	: Safety Instrumented System		
SN	: Safety Network		
SW	: Switch		
UCP	: Unit Control Panel (3rd party systems)		
VM	: Virtual Machine		
Vnet/IP	: Yokogawa's Control network		
WSUS	: Windows Security Update Services		

LEGEND:

- PIN (Plant Information Network)
- Vnet/IP BUS 1 PCS
- Vnet/IP BUS 2 PCS
- Vnet/IP BUS 1 SIS/FGS
- Vnet/IP BUS 2 SIS/FGS
- ESB bus connection
- IEC61850 connection
- OPC UA connection
- Service Network connection
- Modbus TCP connection
- Profinet (non redundant)
- Fiber Optic Single Mode
- Fiber Optic Multi Mode
- Fiber Optic backbone (by Crosswind)
- System Cable connection
- NTP Connection

Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer Scope.
Note 5 : All Network Switches and Firewall is configured in VLAN.
Note 6 : Intermediate FO Connection between HNA5 and OER intentionally not shown.

Zone-1 : PCS Control Zone
Zone-2 : Safety Control Zone
Zone-3 : PCS Zone
Zone-4 : Application Server Facility Zone
Zone-5 : Security Management Zone-1
Zone-6 : Security Management Zone-2
Zone-7 : Demilitirized Zone
Zone-8 : Croswind Zone
Zone-9 : Service Network Zone
Zone-10: Application Server Facility Zone-OD
Zone-11: Third Party System Zone
: Out of Scope

REV	DWG BY	CHK BY	APP BY	DATE
05	SKR	AB	SC	16-May-25
04	SKR	MP/AB	SC	17-Dec-24
03	SKR	MP/AB	SC	26-Aug-24
02	SKR	MP/AB	SC	28-Jun-24
01	SKR	MP/AB	SC	24-May-24
00	SKR	AB	SC	23-Apr-24

Doc No : 1724000594-IN-DD-00015
Doc Name : System Architecture

ROSETTI MARINO
HOLLANDSE KUST NOORD WIND PART Project
CROSSWIND
YOKOGAWA