

AMO ESS

Amogreentech Energy Storage System

Energy Storage System



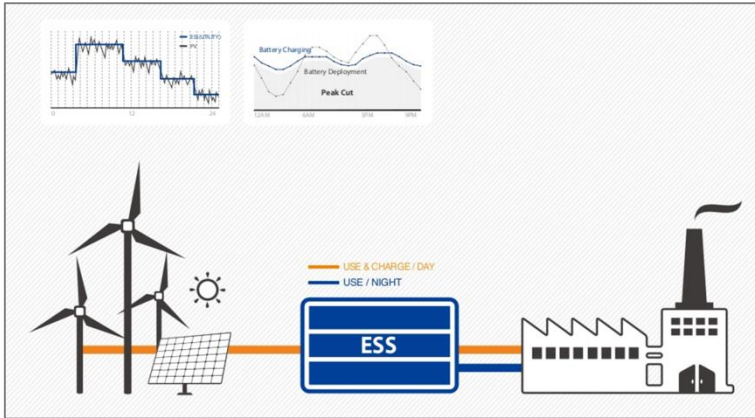


Green Earth with AMO
Energy saving & management
Eco-friendly environment

AMO Energy Storage System

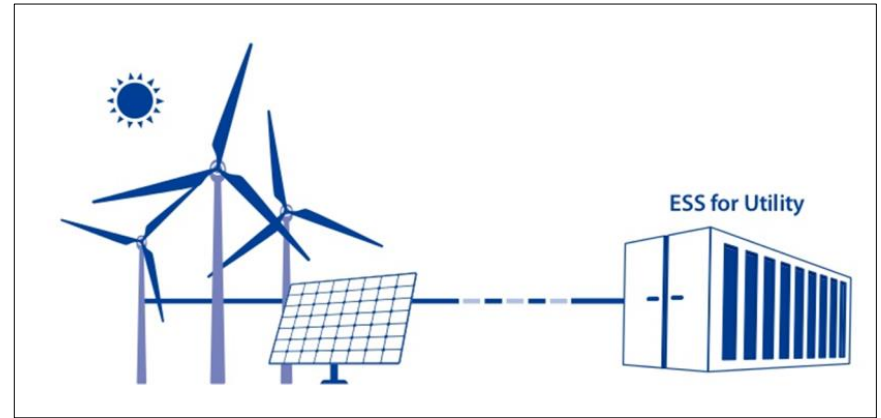
FESS

Factory Energy Storage System



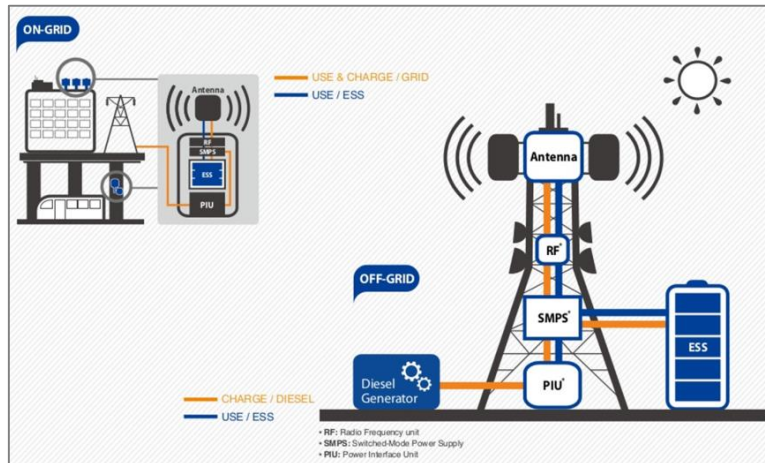
RESS

Renewable Farm Energy Storage System



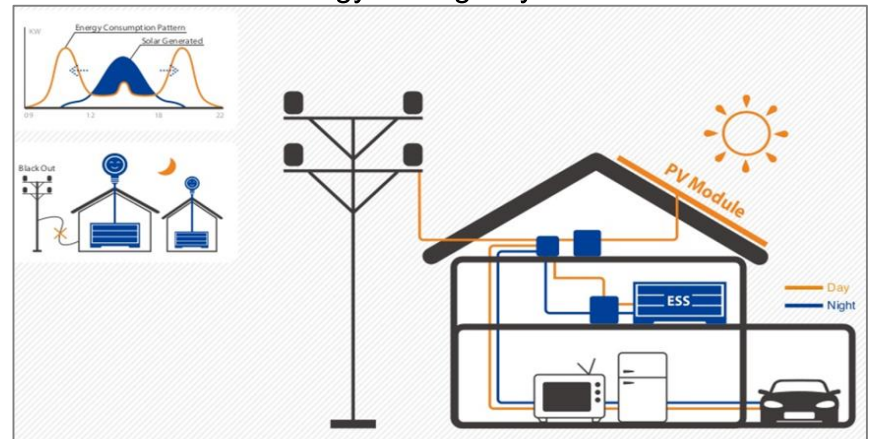
TESS

Telecommunication Energy Storage System



HESS

Residential ESS Energy Storage System



AMO Energy Storage System

AMO ESS HBS(Hybrid Battery System) - Overview



ENERGY:

Higher usable energy means greater battery utilization and lower cost



POWER:

Superior power by weight or volume in a cost effective solution

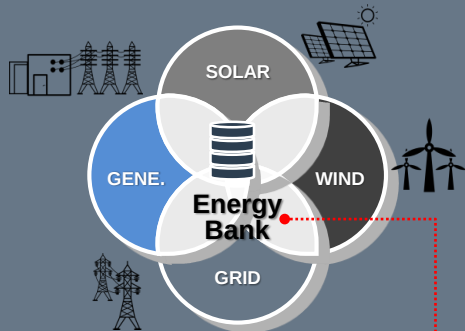


CYCLE:

Excellent calendar and cycle life with consistent performance over extended use

AMO Industrial battery system with LiFePO4 storage battery has advantages like;

- High efficiency discharge
- High energy density
- Long-life
- Free from harmful substances by using environment-friendly materials
- Effective utilization of space
- On-time external monitoring by LCD monitor and SNMP port
- Safe system by alarm for overcharge / overdischarge & cutoff for each cell & whole system

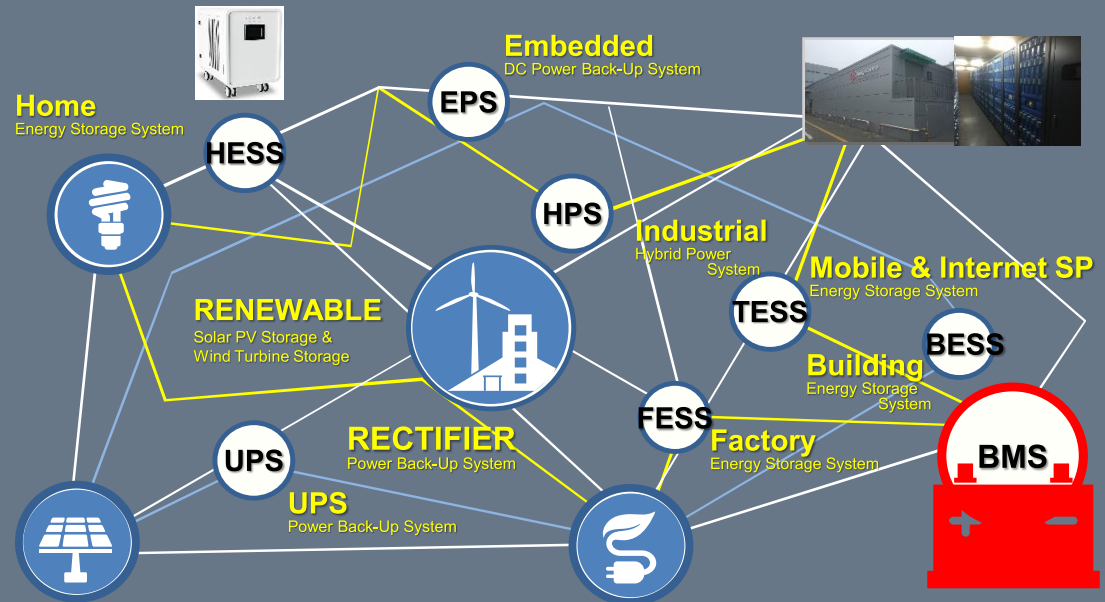


HBS Mission-Critical BMS

LFPB Cell & Tray & Rack & Bank

LIB Cell & Tray & Rack & Bank

LPOB Cell & Tray & Rack & Bank



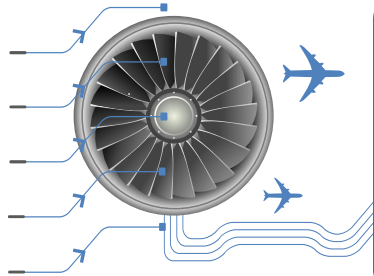
AMO Energy Storage System

Comparison – Battery cell

Item		Lead storage battery	Lithium-ion from “S”	Lithium-polymer	AMO LiFePO4
Anode(Material)		PbO2	Carbon	Carbon	Carbon
Cathode(Material)		Pb	3 elements material (LiCo1/3Ni1/3Mn1/3O2)		Lithium iron phosphate
Separator(Material)		Glass fiber(AGM)	PP/PE	PP/PE	PP/PE
Electrolyte		H2SO4	LiPF6	LiPF6	LiPF6
Nominal voltage		2	3.7	3.7	3.2
Energy density [Wh/kg]		50	250	200	150
Life cycle(DOD 80%)		500	3000	1500	5000
Temperature	Charge	-15 ~ 45℃	-10 ~ 45℃	-10 ~ 45℃	-20 ~ 45℃
	Discharge	-20 ~ 45℃	-20 ~ 60℃	-20 ~ 60℃	-20 ~ 60℃
Safety		Good	Low	Normal	Excellent
Eco-friendliness		Low	Normal	Low	Excellent
Economic feasibility (As per manufacturing cost)		High	Low	Normal	High
Internal impedance		Average	Good	Good	Good
Charging voltage(V)		2.23	4.2	4.2	3.7
Max. charging current		/	1.5C	1.5C	5C
Cut-off discharge voltage(V)		1.6	3.0	3.0	2.5
Max. discharging current		3C	5C	5C	10C
Safety device		Safety valve	Safety valve & protection circuit	Safety valve & protection circuit	Safety valve & protection circuit

AMO Energy Storage System

AMO ESS HBS - Core technology & competitiveness



Core Technology Competitiveness

Know-How

Safety & Performance Design

BMS(Battery Management System) Design

Know-Where

Strategic Outsourcing

Critical Firmware&Circuit Design

SFP : SaFeTy Protection Control

CCC : Critical Circuit Control

SOH : Status Of Health Control

SOC : Status Of Charge Control

DOD : Depth Of Discharge Control

BCB : Battery Cell Balancing Control

Critical Mechanical Design

Structure Analysis Design
(Quake resistant, durability, vibrant resistant...)

Thermal Analysis Design
(Cooling, System requirement...)

System Design
(Concept, Part Location...)

System Mold Design

Critical Mounting Design

System Assembly, Terminal Block,
Cabling... Design

System Power & Communication
BUS Design

Mass Production Verification

Inspection & Verification

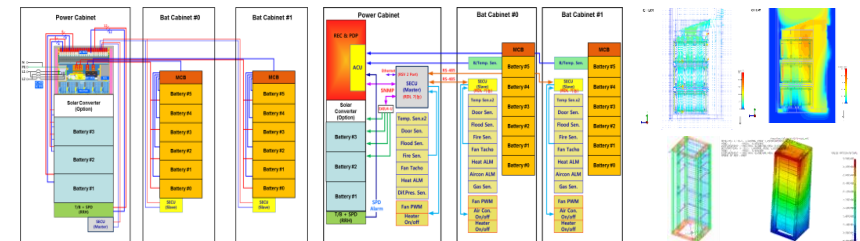
Part Inspection & Verification

Application Unit Inspection &
Verification

Strategic Outsourcing & Management

Specialized Business Networking

**Core
Technology
Units**



[Core BMS Design & Packaging]

[Analysis for structure /
heat / quake-proof]

AMO Energy Storage System

Comparison – System & Economical feasibility

Item		Lead storage battery	Lithium-ion from “S” (380V 100AH)	AMO LiFePO4 (380V 100Ah)
Specification		2.0V 200AH	NCM 3.6V 2AH	LFP 3.2V 50AH
System configuration		192S1P	102S26P X 2	120S1P X 2
Energy(kWh)		76	38.19	38.4
Nominal capacity(Ah)		200	104	100
Nominal voltage(V)		384	367.2	384
Cut-off discharging voltage(V)		307.2	280.5	240
Nominal charging voltage(V)		428.16	428.4	444
Rated charging current(A)		20A(0.1C)	52A(0.5C)	50A(0.5C)
Max. charging current(A)		/	104A(1.0C)	100A(1.0C)
Max. discharging current(A)		200A(1C)	312A(3C)	300A(3C)
Cycle Life		300 (DOD80%)	1500 (DOD80%)	3000 (DOD80%)
Temperature	Charging	-15 ~ 45℃	0 ~ 45℃	0 ~ 45℃
	Discharging	-20 ~ 45℃	-20 ~ 60℃	-20 ~ 60℃
Size(W X D X H)		2,350 X 1,300 X 1,500	1,400 X 750 X 2,000	1,360 X 700 X 2000
Weight(kg)		3,000	≤ 840	≤ 900
Upside energy density (kWh/m ²)		25.1	34.9	40.3
Energy density(Wh/kg)		25.3	45.5	42.6
No. of pack (EA)		-	34	40
No. of cell (EA)		192	5304	240
Protection circuit and monitoring device		Not included	Included	Included
Independent operation (System operation by minimum unit)		Poor	Average	Excellent
Installation & maintenance		Poor	Poor	Excellent
Total cost (380V 300Ah)		1	1.82	1.66

AMO Energy Storage System

Key features of AMO system



Safety

Low risk of fire or explosion

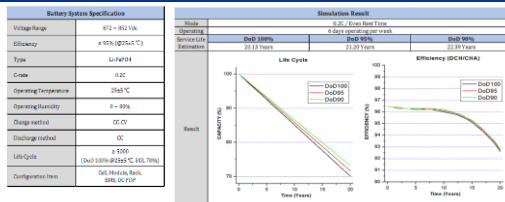


UL9540A clause 6 (cell level) thermal runaway test passed
(Report no. 4355403.50)



Long life

Cycle life of
5,000
times or more



The capacity remains at 70% or more even after 5,000 times of charging/discharging.



Rapid charging

Rapid charge to 80% capacity
in **10 minutes**

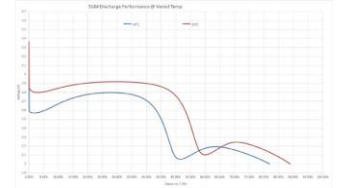


The favorable anode charging characteristics provide rapid charging to 80% of the capacity in 10 minutes.



Performance at low temperature

Usable even at -30°C

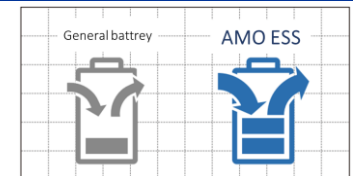


No lithium metal deposition even at low temperature
Repeated charging and discharging at -30°C available



High input/output

Large current
for both input and output

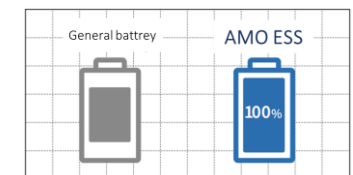


AMO ESS can store large regenerative energy generated during deceleration of railways and automobiles and can supply large current for starting the motor.



Wide effective SOC range

SOC range
0 to 100%
Available

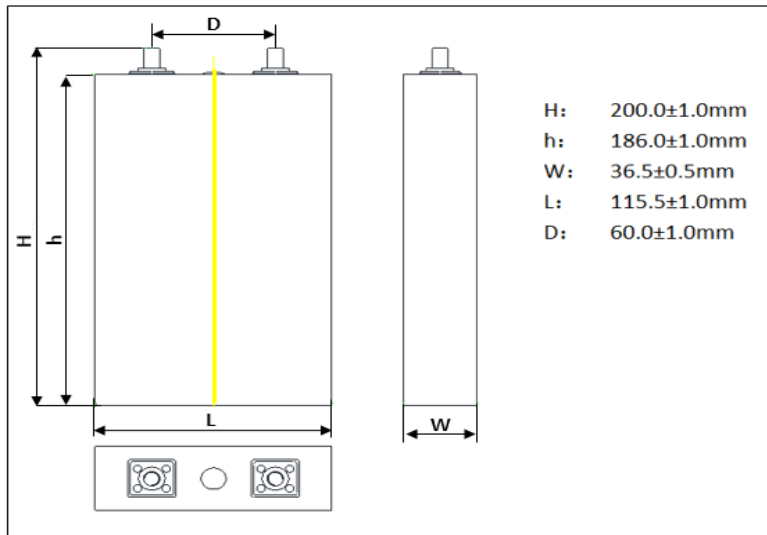


AMO ESS wide SOC range makes it possible to reduce the nominal battery capacity or amount of batteries necessary for a system.

AMO Energy Storage System

AMO ESS HBS - End cell design

- Terminal : M6 L14mm bolt
- Pressure relief : Through vent



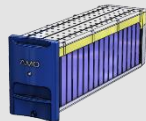
AMO Energy Storage System

AMO ESS HBS – Product line-up

AMO ESS HBS Product Line-Up

FESS

 **Cell**
LFP3.2V25, 50Ah

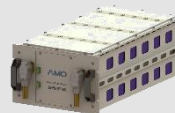
 **Tray**
25.6V 102Ah

 **Unit Rack**
768V102Ah

ESS for industrial complex & factories UPS back-up, peak-cut, DR, FR with solar/wind power or grid

RESS

 **Cell**
LFP3.2V 70,100, 150Ah

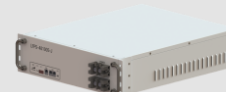
 **Tray**
57.6V 150Ah

 **Unit Rack**
747, 819, 979V
150Ah

ESS for large scale power plant, SmartGrid, energy independent island with solar/wind power

TESS

 **Cell**
LFP 3.2V 20~100Ah

 **Shelf**
48V 20~100Ah

 **Unit Rack**
48V 1000Ah

ESS / UPS back-up system for network IT system & telecom sites – IDC, Base station, Relay station, etc.

HESS

 **Cell**
LFP 3.2V 25~50Ah

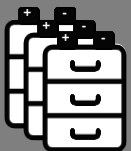
 **Residential BESS**
5KW~10KW



Energy saving HESS for home and small offices

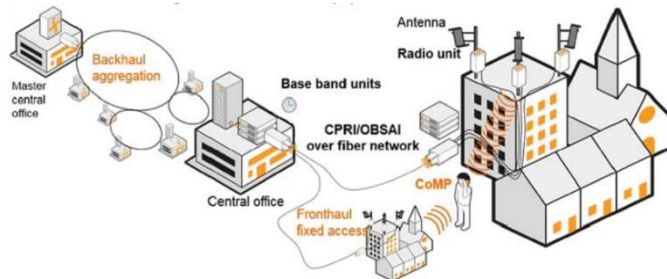
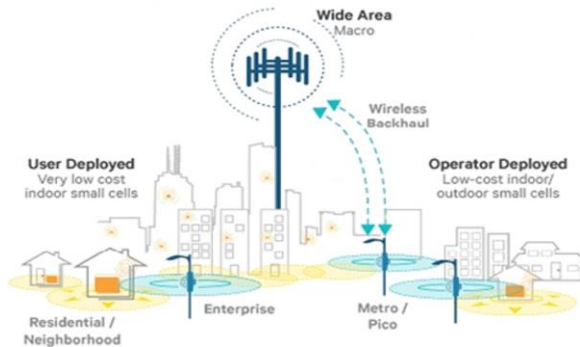
AMO ESS HBS

- Is convenient for maintenance by providing the in shelf & rack type which allows easy internal circuit monitor.
- Provides reliability by RACK frame made of cold rolled steel sheet to meet mechanical and electrical standard.
- Provides durability by earth-quake resistant design.
- Provides thermal stability during charging / discharging by thorough thermal analysis
- Shuts off momentary over-current through end cell connection(in a cell pack), cell pack connection(in battery system) and connection point.
- Is convenient for installation with its shelf and rack structure.



AMO Energy Storage System

AMO Telecommunication Energy Storage System (TESS)



Internet Data Center

CELL 25/100/150Ah

Module 25.6V100Ah
/ 57.6V150Ah

Rack 768/819/979V



Central equipment shelter

CELL 50/100Ah

Shelf 48V50Ah
48V100Ah

Rack 48V50~1,000Ah



Base Station (Man less equipment shelter)

CELL 30/50/70/100Ah

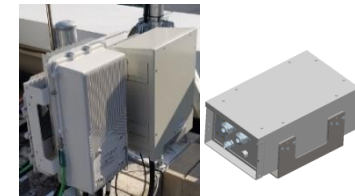
Shelf 48V30Ah
|
48V100Ah



Relay Station

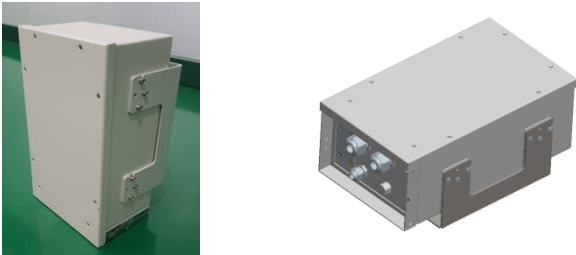
CELL 5/10/20/30Ah

Case 48V5Ah
48V10Ah
48V20Ah
48V30Ah



AMO Energy Storage System

AMO ESS HBS – 48V system for TESS

Model Name	LFPS-4805	LFPS-4810	LFPS-4820
Energy [KWh]	0.24	0.48	0.96
Rated Capacity	5Ah (15S1P) (@0.2C, Discharge 5hr)	10Ah (15S1P) (@0.2C, Discharge 5hr)	20Ah (15S1P) (@0.2C, Discharge 5hr)
Rated Voltage	48V(Cell Voltage 3.2V)	48V(Cell Voltage 3.2V)	48V(Cell Voltage 3.2V)
End of Discharge Voltage	42V(Cell Voltage 2.8V)	42V(Cell Voltage 2.8V)	42V(Cell Voltage 2.8V)
Floating Charge Voltage	53.5V(Cell Voltage 3.56V)	53.5V(Cell Voltage 3.56V)	53.5V(Cell Voltage 3.56V)
End of Charge Current	0.01C (0.05A)	0.01C (0.1A)	0.01C (0.2A)
Standard Charge Current	0.2C (1.0A)	0.2C (2.0A)	0.2C (4.0A)
Max Discharge Current	3.0C (15A)	3.0C (30A)	3.0C (60A)
Operating Temperature	Charge: -5 ~ 90℃ Discharge: -30 ~ 90℃		
Shape			
Structure	Outdoor pole mount type, IP54		
Communication	CAN, RS-485		
Function	Heater		
Protection	OVP, UVP, OC, HT, LT		
Dimension(mm)	W:220 x D:145 x H:380	W:220 x D:145 x H:380	W:290 x D:145 x H:455
Weight	≤ 8.9Kg	≤ 11.2Kg	≤ 15.7Kg
Energy Density(Wh/L)	19.8	39.6	50.18

AMO Energy Storage System

AMO ESS HBS – 48V system for TESS

Model Name	LFPS-4850	LFPS-4870	LFPS-48100	LFPR-48300,600,900
Energy [KWh]	2.4	3.36	4.8	14.4 / 28.8 / 43.2
Rated Capacity	50Ah (15S1P) (@0.2C, Discharge 5hr)	70Ah (15S1P) (@0.2C, Discharge 5hr)	100Ah (15S1P) (@0.2C, Discharge 5hr)	300Ah (15S1P/2P/3P) (@0.2C, Discharge 5hr)
Rated Voltage	48V(Cell Voltage 3.2V)	48V(Cell Voltage 3.2V)	48V(Cell Voltage 3.2V)	48V(Cell Voltage 3.2V)
End of Discharge Voltage	42V(Cell Voltage 2.8V)	42V(Cell Voltage 2.8V)	42V(Cell Voltage 2.8V)	42V(Cell Voltage 2.8V)
Floating Charge Voltage	53.5V(Cell Voltage 3.56V)	53.5V(Cell Voltage 3.56V)	53.5V(Cell Voltage 3.56V)	53.5V(Cell Voltage 3.56V)
End of Charge Current	0.01C (0.5A)	0.01C (0.7A)	0.01C (1A)	0.01C (3 / 6 / 9A)
Standard Charge Current	0.2C (10.0A)	0.2C (14.0A)	0.2C (20.0A)	0.2C (60 / 120 / 180A)
Max Discharge Current	2.0C (100A)	2.0C (140A)	2.0C (200A)	2.0C (600 / 1200 / 1800A)
Operating Temperature	Charge: 0 ~ 55°C Discharge: -20 ~ 65°C			
Shape				
Structure	19" 4U Shelf Type	19" 5U Shelf Type	19" 6U Shelf Type	Shelf & Rack Type
Communication	Ethernet, RS-485			
Function	4.3" TFTLCD, Buzzer			7" TFTLCD, Buzzer
Protection	OVP, UVP, OC, HT, LT			
Dimension(mm)	W:482.6 x D:620 x H:176	W:482.6 x D:620 x H:176	W:482.6 x D:620 x H:176	W:900 x D:1000 x H:1900
Weight	≤ 42Kg	≤ 55Kg	≤ 78.7Kg	≤ 765.8Kg
Energy Density(Wh/L)	45.57	63.8	91.15	84.21 / 168.42 / 252.63

AMO Energy Storage System

AMO ESS HBS – UPS LFP system for TESS

Model Name	LFPS-4810	LFPS-9610	LFPS-19210	KEB-1215
Energy [KWh]	0.48	1.024	2.048	0.144
Rated Capacity	10Ah (15S1P) (@0.2C, Discharge 5hr)	10Ah (32S1P) (@0.2C, Discharge 5hr)	10Ah (64S1P) (@0.2C, Discharge 5hr)	12Ah (60S1P) (@0.2C, Discharge 5hr)
Rated Voltage	48V(Cell Voltage 3.2V)	102.4V(Cell Voltage 3.2V)	204.8V(Cell Voltage 3.2V)	12.8V(Cell Voltage 3.2V)
End of Discharge Voltage	42V(Cell Voltage 2.8V)	89.6V(Cell Voltage 2.8V)	179.2V(Cell Voltage 2.8V)	11.2V(Cell Voltage 2.8V)
Floating Charge Voltage	53.5V(Cell Voltage 3.56V)	113.92V(Cell Voltage 3.56V)	227.84V(Cell Voltage 3.56V)	14.24V(Cell Voltage 3.56V)
End of Charge Current	0.01C (0.1A)	0.01C (0.1A)	0.01C (0.1A)	0.01C (0.12A)
Standard Charge Current	0.2C (2.0A)	0.2C (2.0A)	0.2C (2.0A)	0.33C (4A)
Max Discharge Current	2.0C (20A)	2.0C (20A)	2.0C (20A)	1.0C (12A)
Operating Temperature	Charge: 0 ~ 45°C Discharge: -20 ~ 60°C	Charge: 0 ~ 45°C Discharge: -20 ~ 60°C	Charge: 0 ~ 45°C Discharge: -20 ~ 60°C	Charge: 0 ~ 40°C Discharge: -20 ~ 60°C
Shape				
Structure	19" Shelf & Desk Top Type	19" Shelf & Desk Top Type	19" Shelf & Desk Top Type	19" Shelf & Desk Top Type
Communication	RS-485	RS-485	RS-485	-
Function	4.3" TFTLCD	4.3" TFTLCD	4.3" TFTLCD	LED
Protection	OVP,UVP,COC,DOC,CHT,DHT	OVP,UVP,COC,DOC,CHT,DHT	OVP,UVP,COC,DOC,CHT,DHT	OVP,UVP,COC,DOC,CHT,DHT
Dimension(mm)	W:438 x D:370 x H:100	W:438 x D:370 x H:100	W:438 x D:548 x H:200	W:480 x D:44 x H:250
Weight	≤ 11.6Kg	≤ 18.2Kg	≤ 41.8Kg	≤ 5Kg
Energy Density(Wh/L)	29.6	63.18	42.66	27.3

AMO Energy Storage System

AMO ESS HBS – 310V 100Ah & 768V 102Ah

Model Name	LFPR-310100	LFPR-768102
Energy [KWh]	30.72	78.336
Rated Capacity	100Ah (96S2P) (@0.2C, Discharge 5hr)	102Ah (240S4P) (@0.2C, Discharge 5hr)
Rated Voltage	307.2V(Cell Voltage 3.2V)	768V(Cell Voltage 3.2V)
End of Discharge Voltage	268.8V(Cell Voltage 2.8V)	672V(Cell Voltage 2.8V)
Floating Charge Voltage	341.76V(Cell Voltage 3.56V)	854.4V(Cell Voltage 3.56V)
End of Charge Current	0.01C (1A)	0.01C (1.02A)
Standard Charge Current	0.2C (20A)	0.2C (20.4A)
Max Discharge Current	2.0C (200A)	2.0C (204A)
Operating Temperature	Charge: 0 ~ 45°C Discharge: -20 ~ 60°C	Charge: 0 ~ 45°C Discharge: -20 ~ 60°C
Shape		
Structure	Module & Rack Type	Module & Rack Type
Communication	Ethernet, RS-485	Ethernet, RS-485
Function	7" TFTLCD, Buzzer	4.3" TFTLCD, Buzzer
Protection	OVP,UVP,COC,DOC,CHT,DHT	OVP,UVP,COC,DOC,CHT,DHT
Dimension(mm)	W:600 x D:800 x H:2000	W:760 x D:800 x H:2300
Weight	≤ 800Kg	≤ 800Kg
Energy Density(Wh/L)	32	56

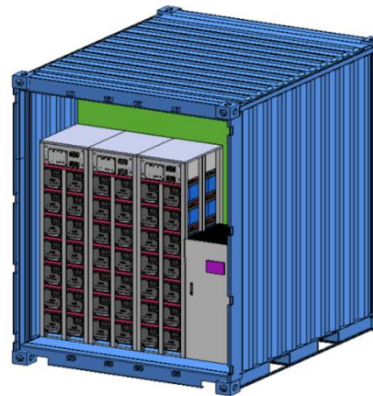
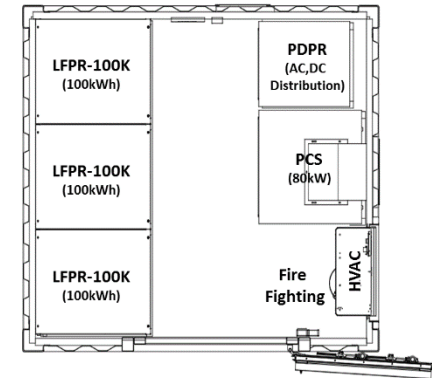
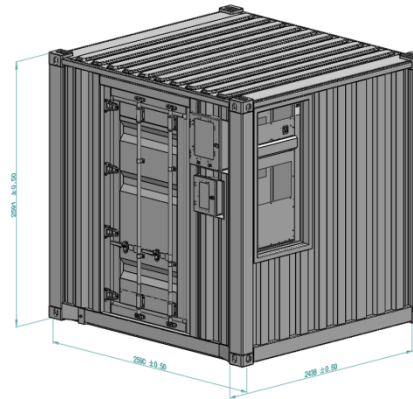
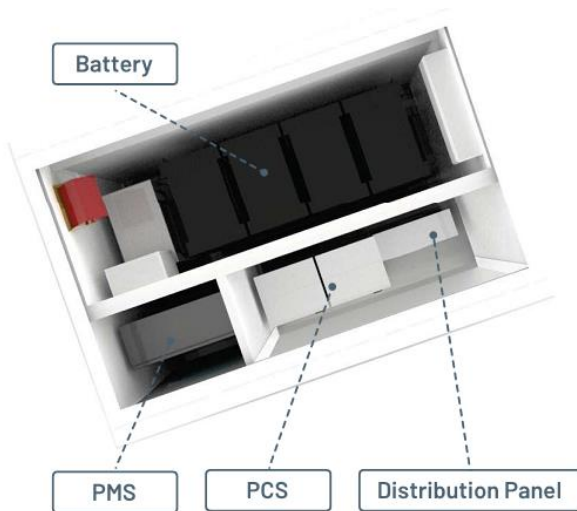
AMO Energy Storage System

AMO ESS HBS – 806, 921V 150Ah for Renewable ESS

Item		Specification		Reference
Model		LFPR-806150	LFPR-921150	
Energy(KWh)		120.9	138.2	
Typical Capacity(Ah)		150		
Rated Voltage(V)		806.4	921.6	
Standard Charge Voltage(V)		894.6	1022.4	
Standard End Voltage(V)		705.6	806.4	
Standard Charge Current(A)		75		
Standard Discharge Current(A)		75		
Maximum Charge Current(A)		150		
Maximum Discharge Current(A)		150		
Communications		CAN		
Temperature of Charge(°C)		0 ~ 55		
Temperature of Discharge(°C)		-20 ~ 60		
Energy Density	(Wh/L)	122.63	125.05	
	(kWh/m2)	230.66	263.62	
Dimensions (WxDxH) (mm)		760 x 690 x 1881	760 x 690 x 2108	
Weight (kg)		≤ 1150	≤ 1300	

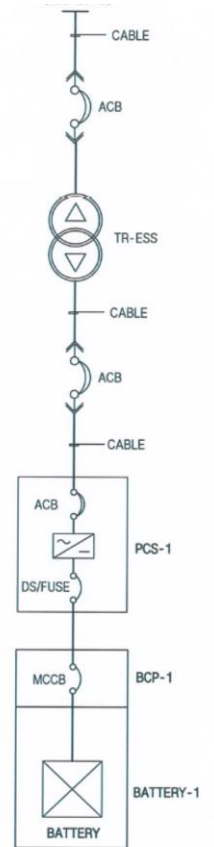
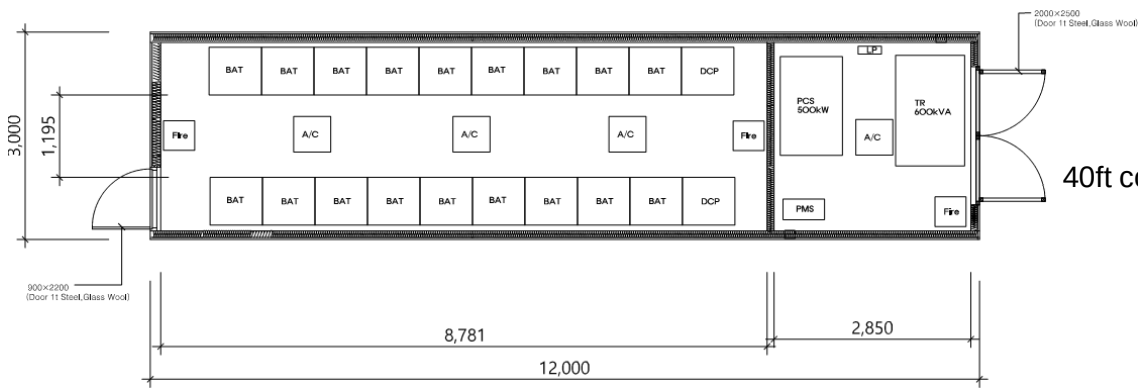
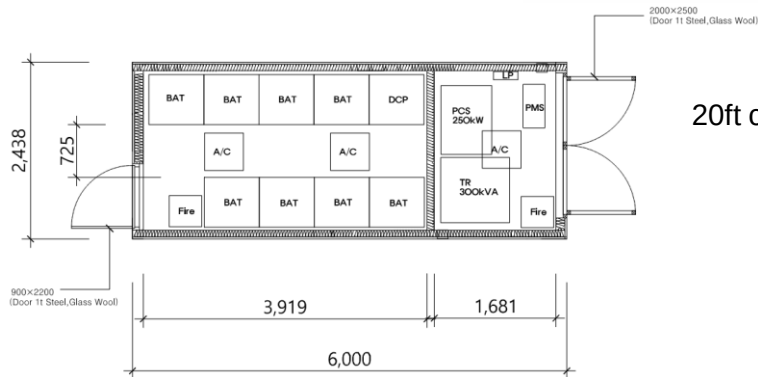
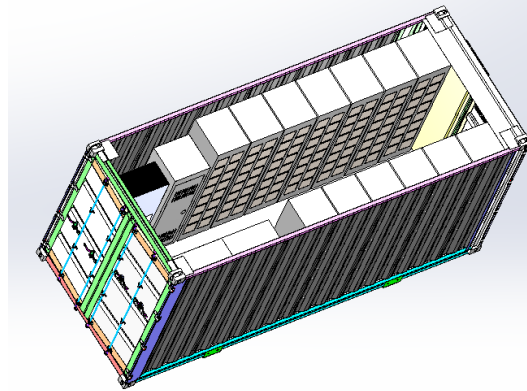
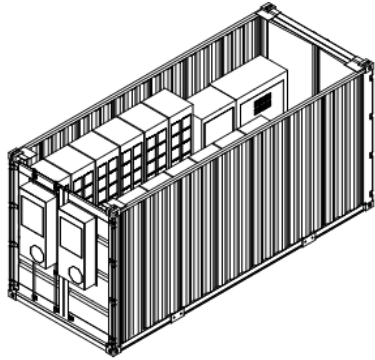
AMO Energy Storage System

AMO ESS HBS – Outdoor flexible capacity enclosure



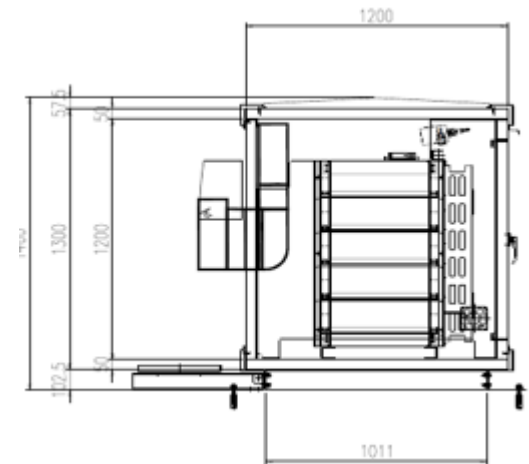
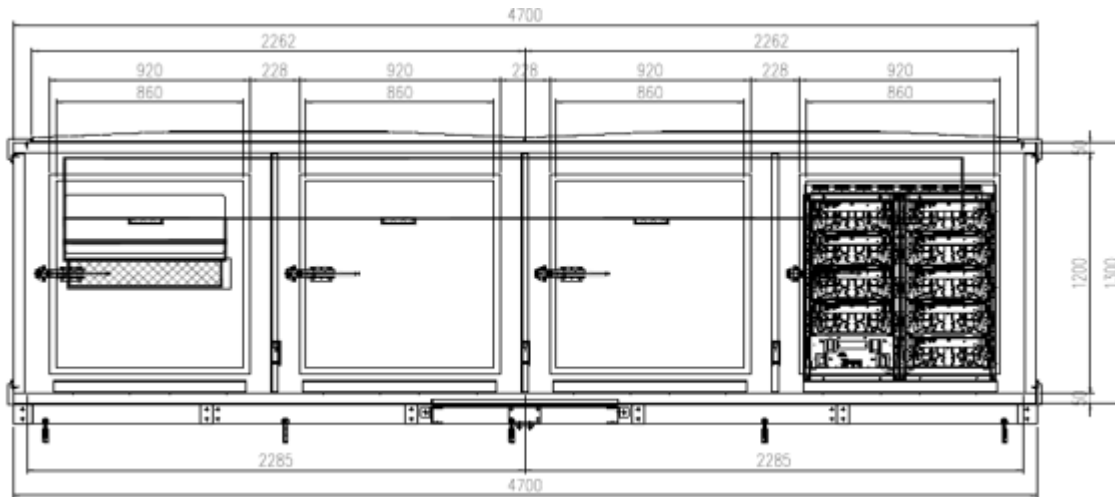
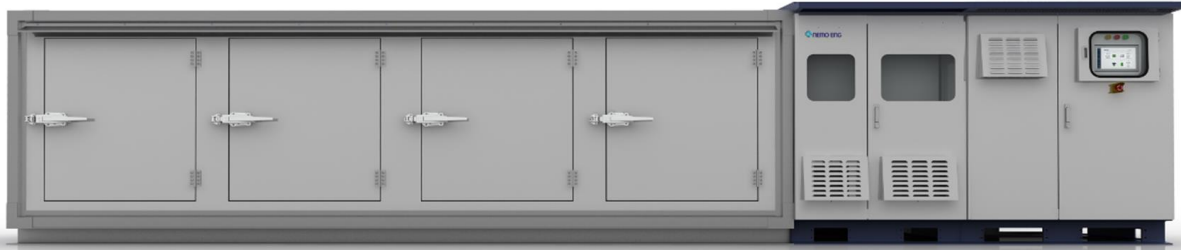
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AMO ESS HBS – Outdoor flexible capacity enclosure



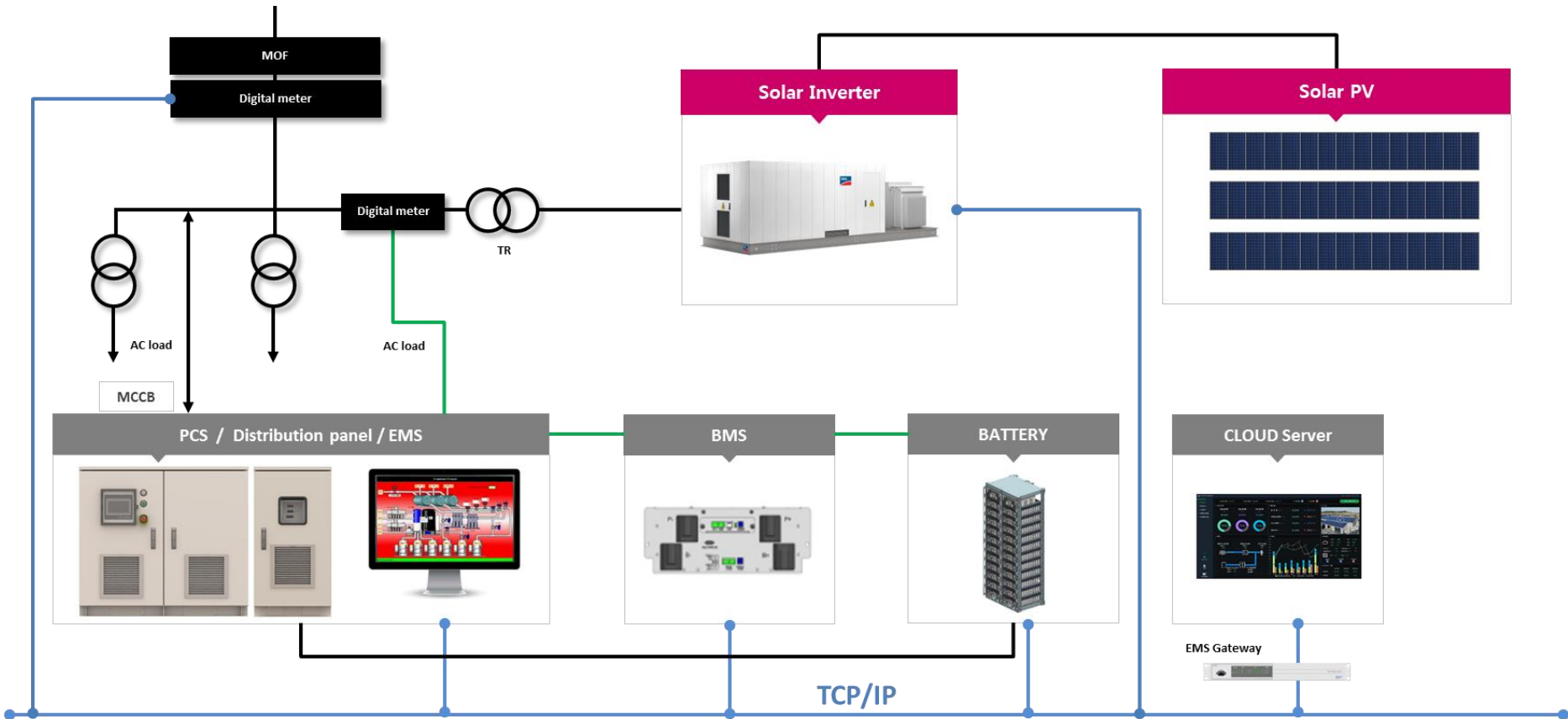
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AMO ESS HBS – Outdoor flexible capacity enclosure



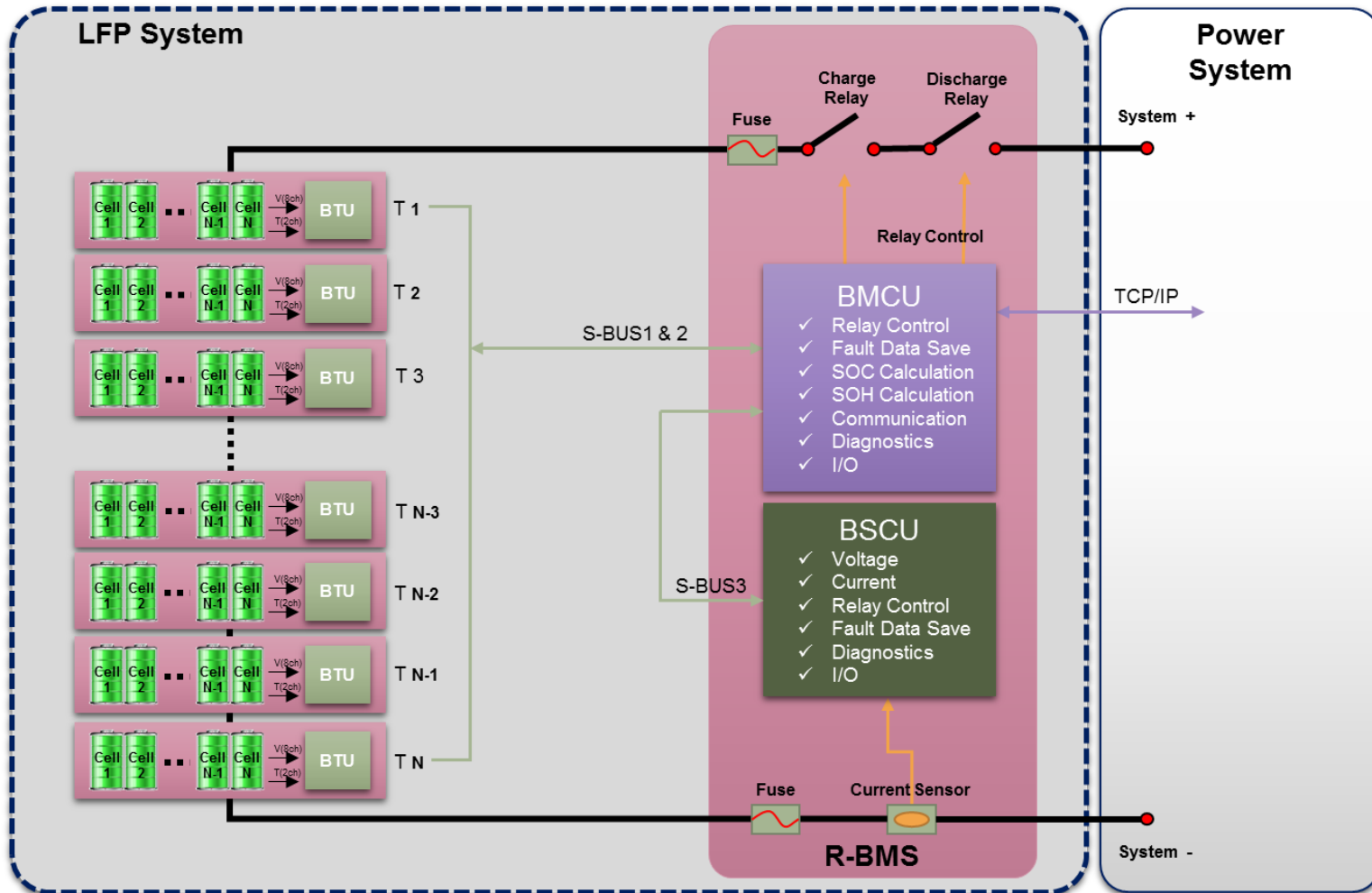
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AMO ESS HBS – Renewable ESS system configuration



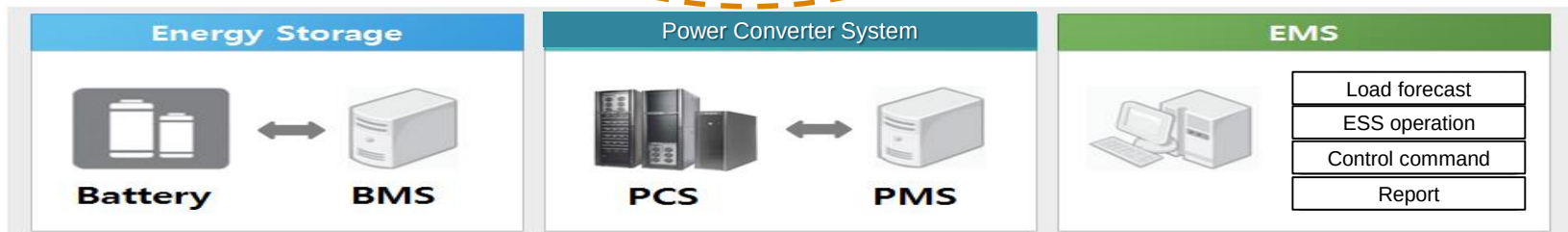
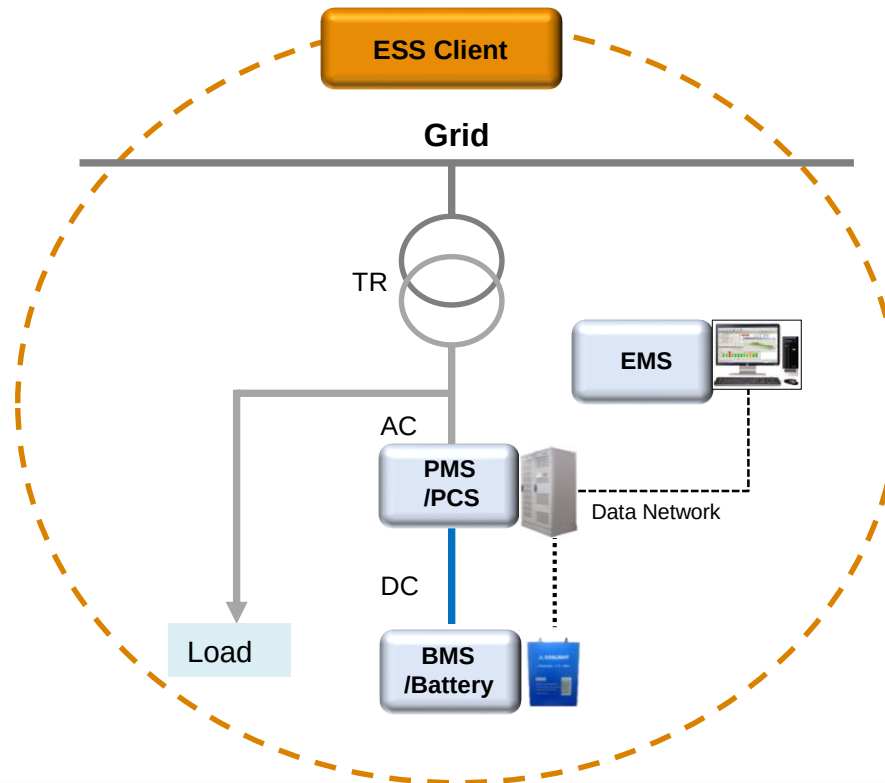
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AMO ESS HBS - Battery system block diagram



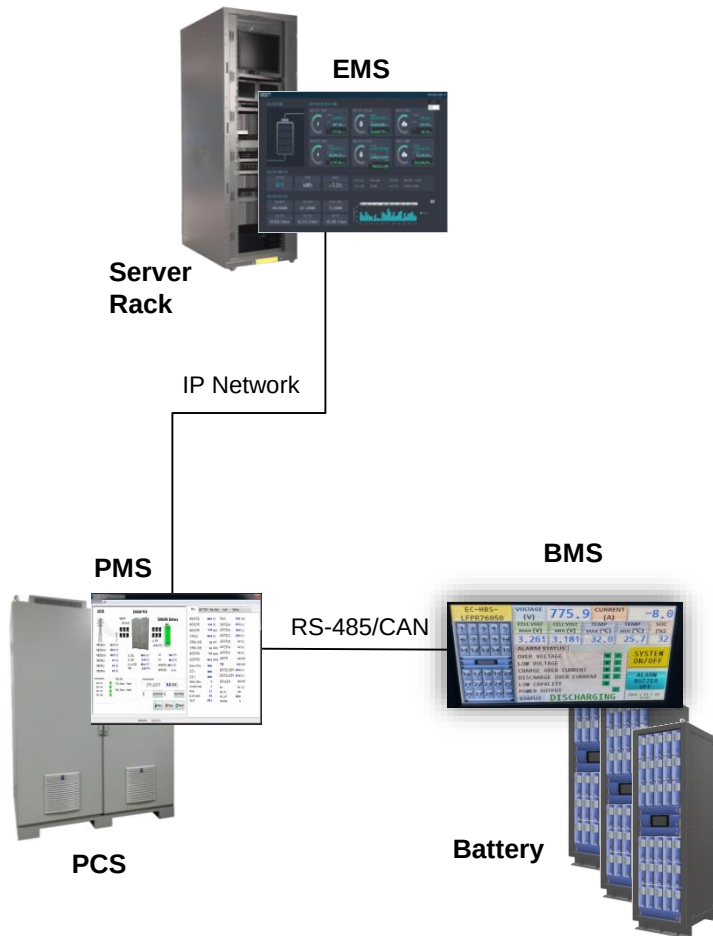
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AMO ESS HBS - Battery system block diagram



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AMO ESS HBS – ESS configuration

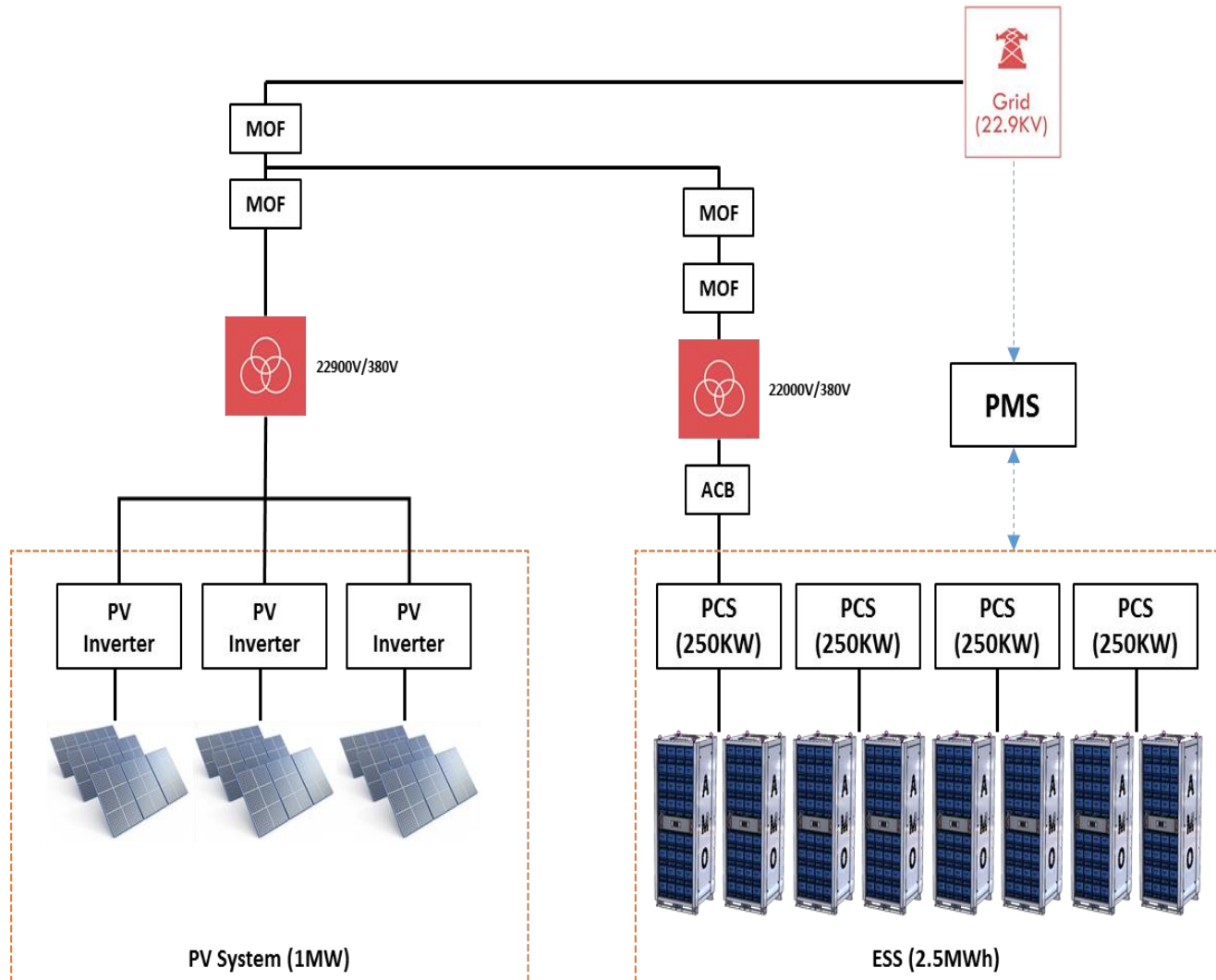


Item		Features
EMS	UI S/W	- ESS control - Batch processing for main information : Dash Board - Editing available for Consumer's equipment system
	Rack Server	- Duplex configuration of server - UPS installation & configuration - KVM installation & configuration
PMS	PMS	- PCS control by EMS control order (charge, discharge, stand-by) - PCS operating condition and protection level set-up - Automatic cutoff function in case of malfunction during charge/discharge
	PCS	SGSF-04-2012-07 Test report for technical standard of PCS
BMS	BMS	- Battery condition display(voltage, temperature) - Separate operation of each rack - Forced shut-off if emergency shutdown is necessary
	Battery	- Suitable for low & high temperature condition (Operating temp. : 25°C~65°C) - Safe & big unit capacity for huge ESS - KBIA-10104-01 / KBIA-10104-02 technical standard

< ESS Configuration >

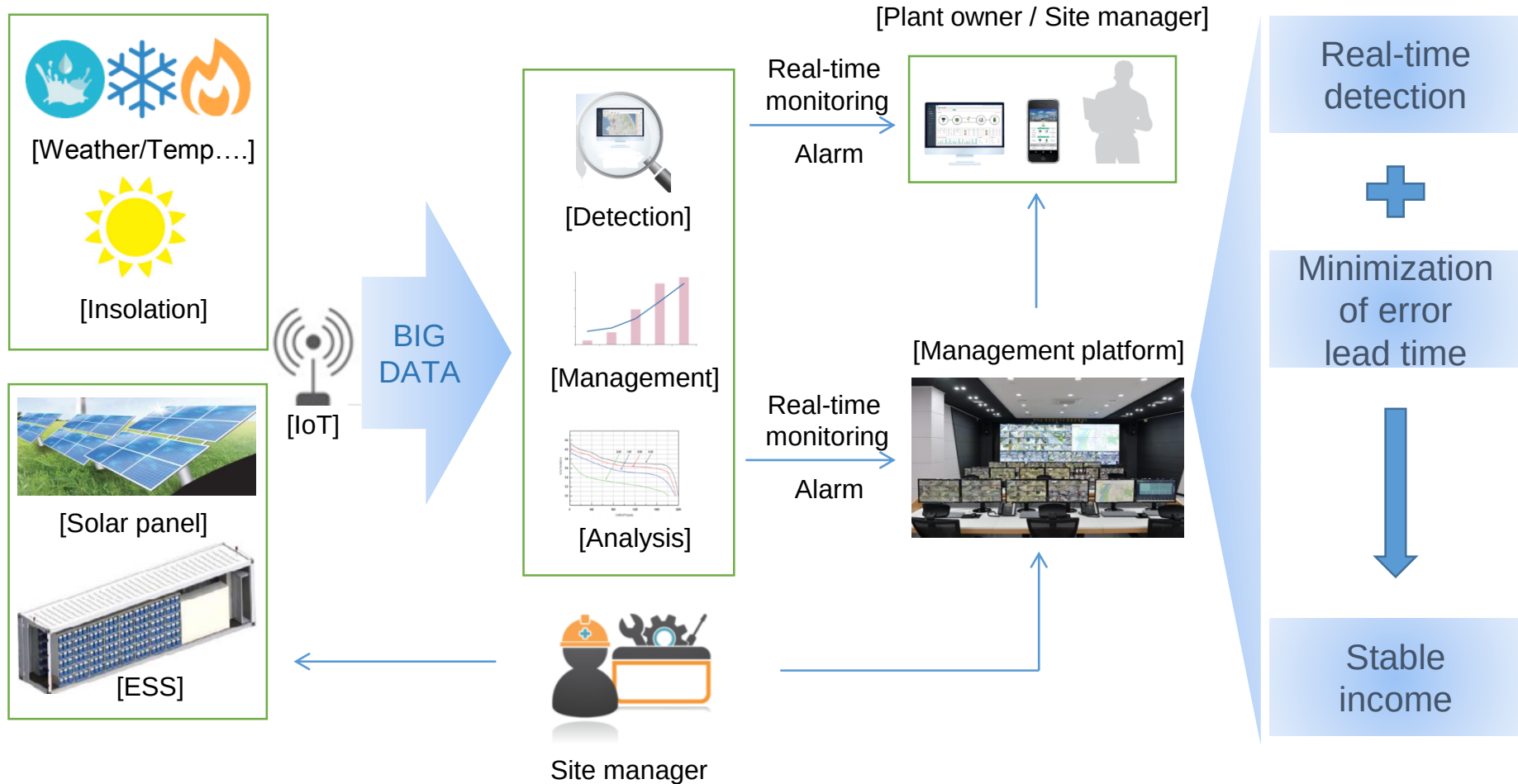
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AMO ESS HBS - Battery system block diagram for solar photovoltaic power generation(Smartgrid)



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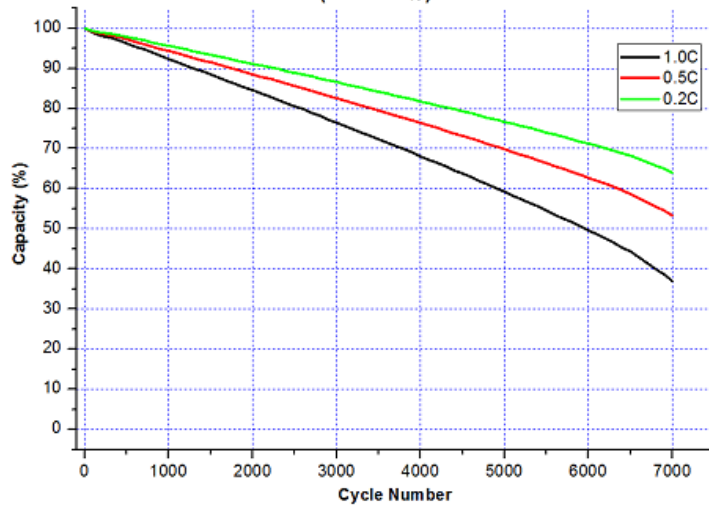
AMO ESS HBS – IoT based ESS platform for Solar Plant O&M



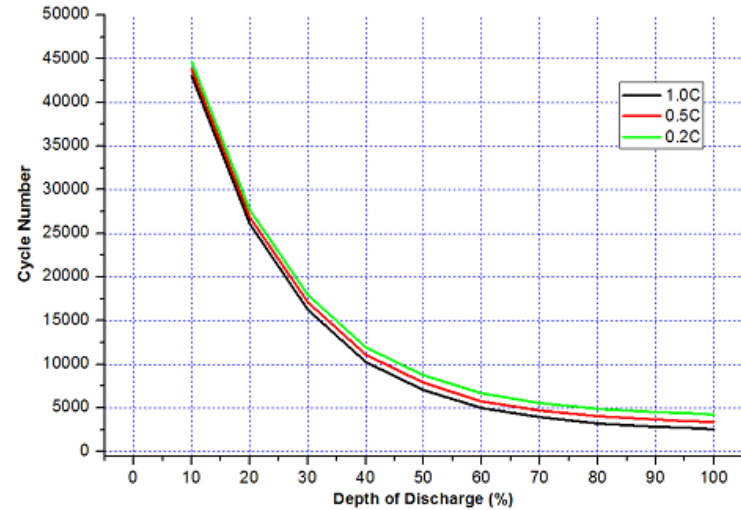
AMO Energy Storage System

AMO ESS HBS – Life-time simulation (11.43MWh)

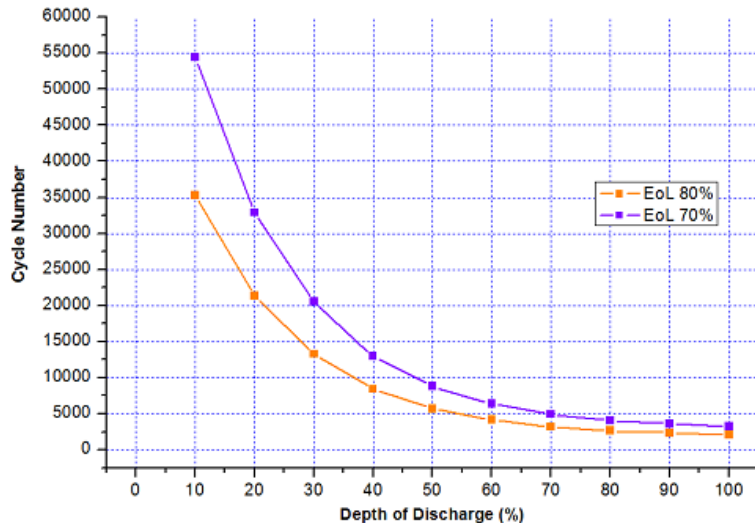
Capacity vs Cycle number based on C-Rate ($25 \pm 5^\circ\text{C}$)
(DoD 100%)



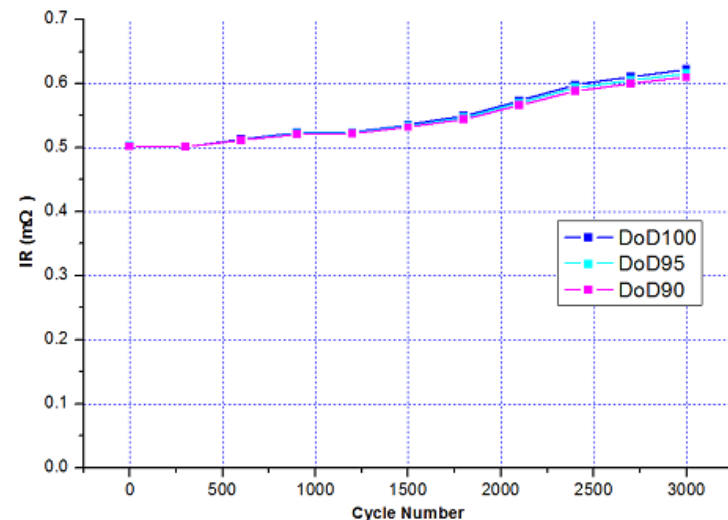
Cycle number vs DoD based on C-Rate ($25 \pm 5^\circ\text{C}$)



Cycle number vs DoD based on EoL



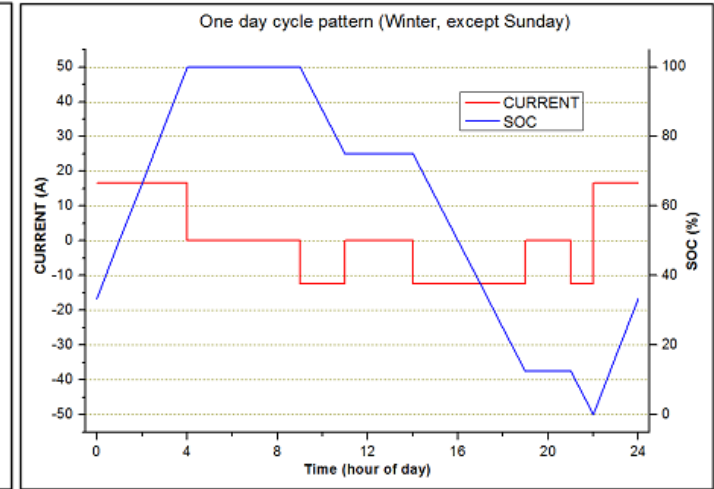
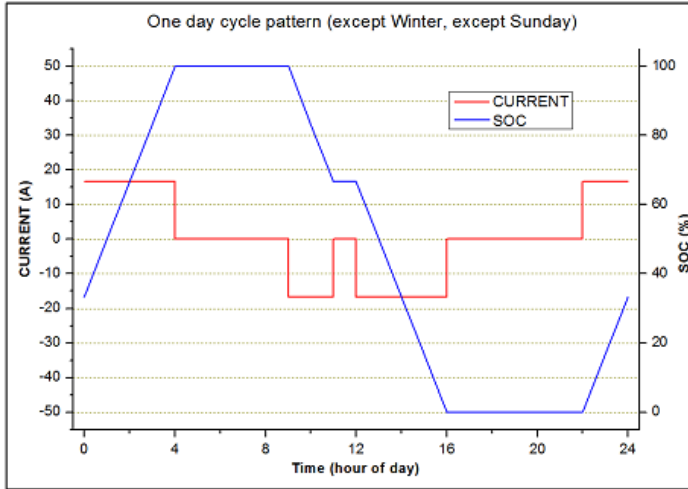
IR vs Cycle life based on DoD



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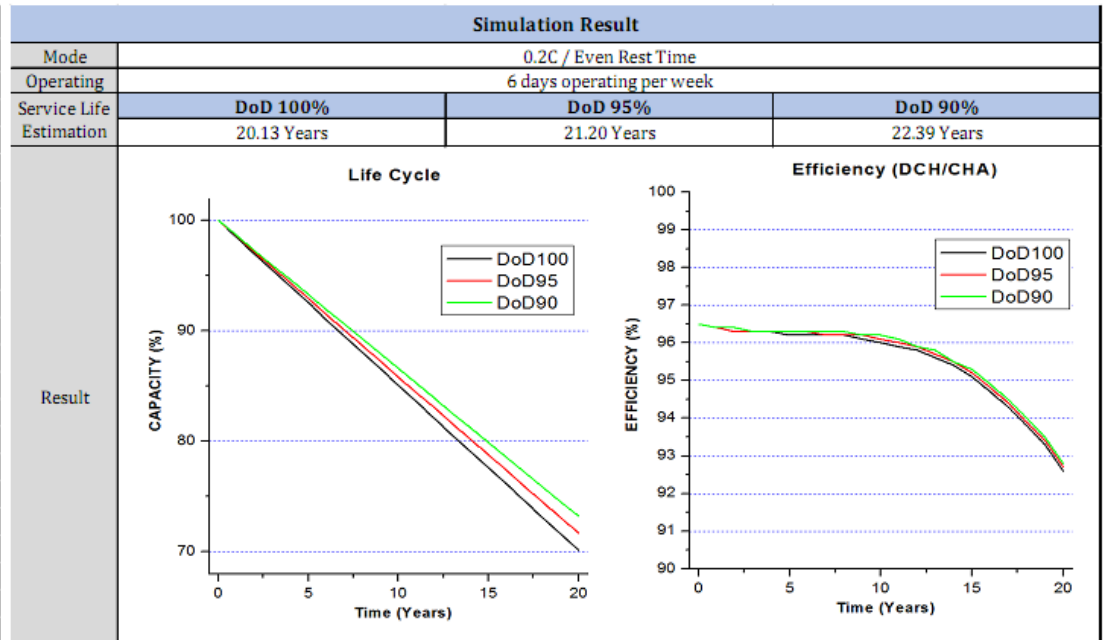
AMO ESS HBS – Life-time simulation (11.43MWh)

Battery System Specification	
Voltage Range	672 ~ 852 Vdc
Efficiency	≥ 95% (@25±5 °C)
Type	Li-FePO4
C-rate	0.2C
Operating Temperature	25±5 °C
Operating Humidity	0 ~ 80%
Charge method	CC-CV
Discharge method	CC
Life Cycle	≥ 5000 (DoD 100% @25±5 °C, EOL 70%)
Configuration Item	Cell, Module, Rack, BMS, DC PDP



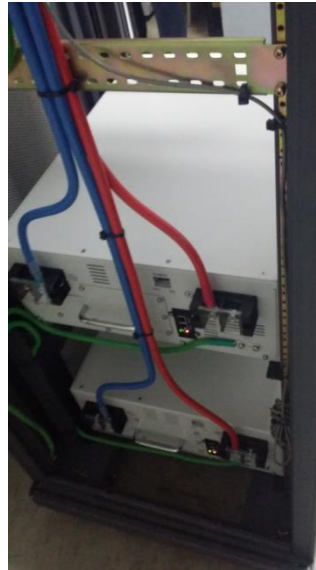
Year	Degradation rate					
	Capacity (%)			Capacity(MWh)		
	DoD100	DoD95	DoD90	DoD100	DoD95	DoD90
0	100.0%	100.0%	100.0%	11.43	11.43	11.43
1	98.5%	98.6%	98.7%	11.26	11.27	11.28
2	97.0%	97.2%	97.3%	11.09	11.11	11.12
3	95.5%	95.8%	96.0%	10.92	10.94	10.97
4	94.0%	94.3%	94.6%	10.75	10.78	10.82
5	92.5%	92.9%	93.3%	10.58	10.62	10.66
6	91.0%	91.5%	92.0%	10.41	10.46	10.51
7	89.6%	90.1%	90.6%	10.24	10.30	10.36
8	88.1%	88.7%	89.3%	10.06	10.14	10.21
9	86.6%	87.3%	87.9%	9.89	9.97	10.05
10	85.1%	85.9%	86.6%	9.72	9.81	9.90
11	83.6%	84.4%	85.3%	9.55	9.65	9.75
12	82.1%	83.0%	83.9%	9.38	9.49	9.59
13	80.6%	81.6%	82.6%	9.21	9.33	9.44
14	79.1%	80.2%	81.2%	9.04	9.17	9.29
15	77.6%	78.8%	79.9%	8.87	9.00	9.13
16	76.1%	77.4%	78.6%	8.70	8.84	8.98
17	74.6%	75.9%	77.2%	8.53	8.68	8.83
18	73.1%	74.5%	75.9%	8.36	8.52	8.67
19	71.6%	73.1%	74.5%	8.19	8.36	8.52
20	70.1%	71.7%	73.2%	8.02	8.20	8.37

Year	Efficiency		
	DoD100	DoD95	DoD90
0	96.5%	96.5%	96.5%
1	96.4%	96.4%	96.4%
2	96.3%	96.3%	96.4%
3	96.3%	96.3%	96.3%
4	96.3%	96.3%	96.3%
5	96.2%	96.3%	96.3%
6	96.2%	96.3%	96.3%
7	96.2%	96.2%	96.3%
8	96.2%	96.2%	96.3%
9	96.1%	96.2%	96.2%
10	96.0%	96.1%	96.2%
11	95.9%	96.0%	96.1%
12	95.8%	95.9%	95.9%
13	95.6%	95.7%	95.8%
14	95.4%	95.5%	95.5%
15	95.1%	95.2%	95.3%
16	94.7%	94.8%	94.9%
17	94.3%	94.4%	94.5%
18	93.8%	93.9%	94.0%
19	93.3%	93.4%	93.5%
20	92.6%	92.7%	92.8%



AMO Energy Storage System

AMO ESS HBS – Use Cases (Base stations of KT)



VOLTAGE		CURRENT	
53.4V		0.0A	
SOC	100.0%	TEMP	28.7C
STATUS		ALARM	
FLOATING		NORMAL	
CELL	TEMP	STATUS	HISTORY

ALARM			
Alarm List		Warning	Protect
System Over Voltage			
Cell Over Voltage			
System Under Voltage			
Cell Under Voltage			
Charge Over Current			
Discharge Over Current			
Chg High Temperature			
Dch High Temperature			
Low Capacity			
MUTE		SETTING	HOME

NETWORK CONFIG				
Network Item	Class A	Class B	Class C	Class D
IP Address	192	168	0	200
Subnet Mask	255	255	255	0
Gateway Address	192	168	0	1
Trap #1 Address	0	0	0	0
Trap #2 Address	0	0	0	0
Trap #3 Address	0	0	0	0
Trap #4 Address	0	0	0	0
SET		MENU		

CELL VOLTAGE			
Number	Voltage	Number	Voltage
Cell #1	3.566	Cell #9	3.565
Cell #2	3.566	Cell #10	3.564
Cell #3	3.566	Cell #11	3.564
Cell #4	3.565	Cell #12	3.565
Cell #5	3.568	Cell #13	3.563
Cell #6	3.567	Cell #14	3.564
Cell #7	3.556	Cell #15	3.566
Cell #8	3.566	Average	3.564
			HOME

LFPS 4850, 48100

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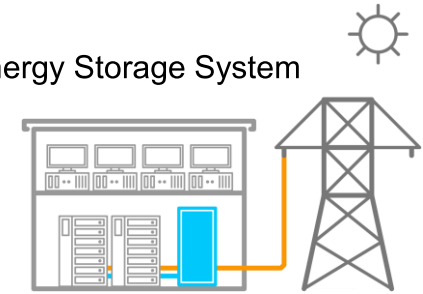
AMO ESS HBS – Use Cases

(Base stations & Communication stations rectifier back-up system of KT)



UES

UPS(REC) + Energy Storage System



[Busan base station]



[East Jinju base station]



[Chungcheong base station]

AMO-IBS-VLFP-310100

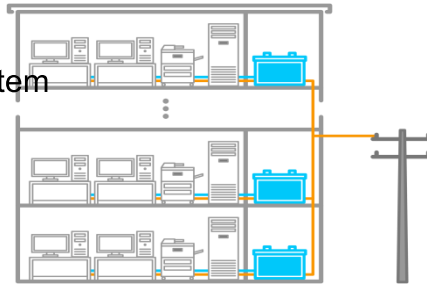
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AMO ESS HBS – Use Cases

(‘H’ building back-up power supply, ‘C’ company PV storage system)

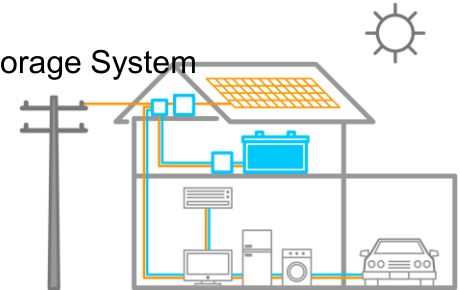
BESS

Building Energy Storage System



HESS

Home Energy Storage System



AMO Energy Storage System

AMO ESS HBS – Use Cases

FESS

Factory Energy Storage System



Battery + PCS
(1MWh, 14 Rack)



Battery + PCS
(1.5MWh, 21 Rack)

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AMO ESS HBS – Use Cases

RESS

Renewable Energy Storage System

