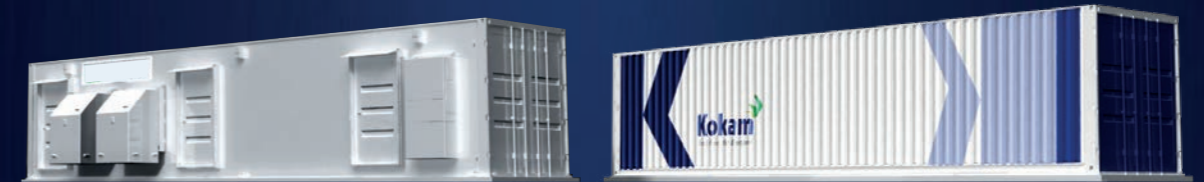
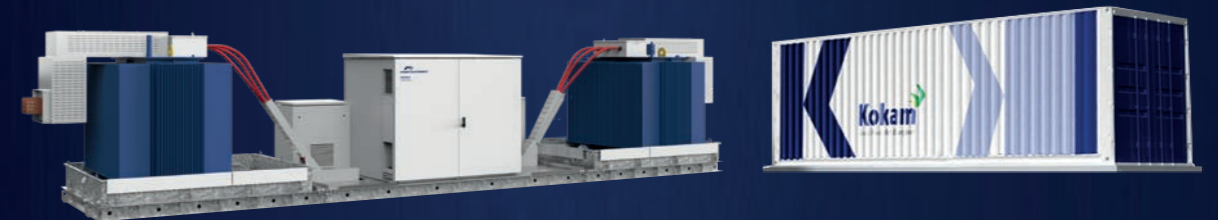


ESS Solution (Battery + PCS + Transformer + EMS)



6MW PCS (40ft) + Transformer + 4MWh Battery (40ft)



2MW PCS + Transformer + 2MWh Battery (20ft)



EMS (Energy Management System)

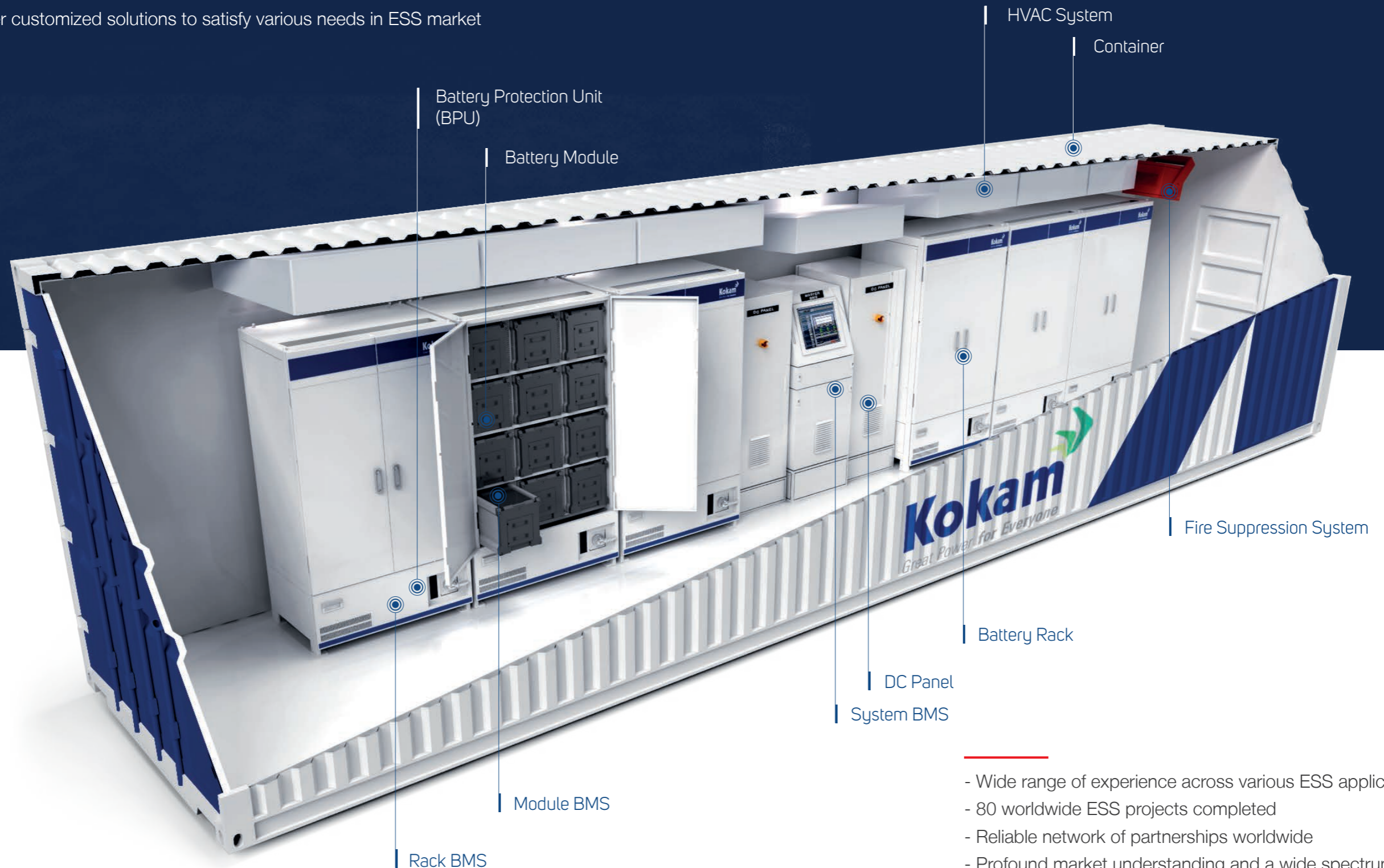


HVAC System

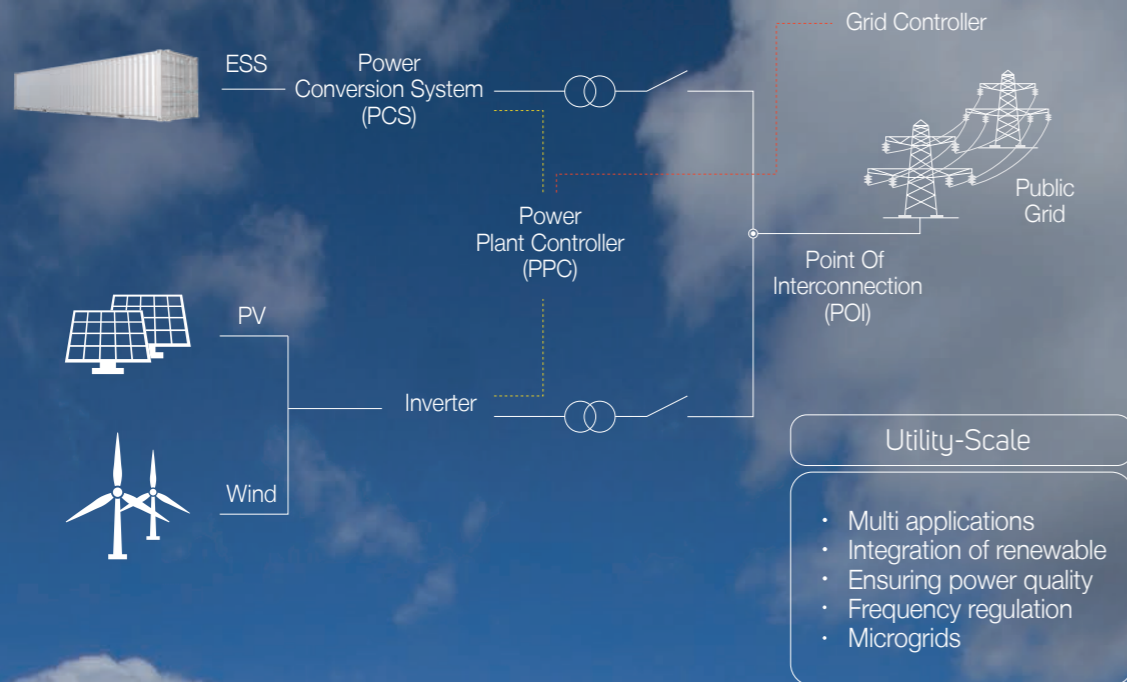
- Racks are directly cooled by the HVAC system (1/6 of entire container volume) so cool air reaches the heat source directly.
 - Cooling is fast and very efficient.
 - Ambient conditions do not affect operation.
- Compared to general system, Kokam system saves 70% of power consumption

Completely Integrated Battery Solution

We offer customized solutions to satisfy various needs in ESS market



- Wide range of experience across various ESS applications
- 80 worldwide ESS projects completed
- Reliable network of partnerships worldwide
- Profound market understanding and a wide spectrum of expertise from policy to engineering



Specification

High-Performance Containerized Storage Solution

Model	High Power Type			High Energy Type	
	KCE-5061	KCE-3996	KCE-1864	KCE-5299	KCE-2472
Installed Energy (MWh)	5.06	3.99	1.86	5.29	2.47
Max Power (Continuous)	Discharge(MW)	15.98	7.45	10.59	4.94
	Charge(MW)	20.24	15.98	7.45	10.59
DC Efficiency	>97% [C/2 rate]				
DC Voltage	660 ~ 998V				
Approx. Dimensions (ft)	53'	40'	20'	40'	20'
Ambient Operating Temperature Range	-20 ~ 50 °C				
Enclosure details	IP54, IEC 60529				

Kokam Systems make no warranty explicit or implied with these specifications. Contents are subjected to change without notice.



Rack

- Extremely compact design (Max. 176kWh per Rack)
- Parallel connection up to 1MWh ~ 10MWh
- Accommodates user-specific energy and voltage requirements
- Equipped with multiple layers of safety mechanisms
- Increased system availability via redundancy function
- Convenient structural design for maintenance

DC Distribution Panel

- Equipped with main switch, main DC terminal block, HVDC (Optional) etc.
- Ensures the safe operation of the battery system

LED Lamp

- Informs the ready status of the system to the user



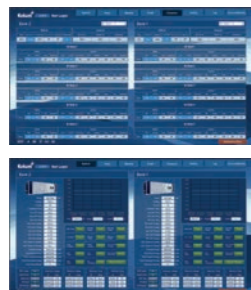
Module

- Optimized thermal management capability achieved by air vent holes and heat sink plates
- Achieves modularity through standardized structures
- Enables easy and quick customization via various serial and parallel connections
- Accommodates both high energy density or high power cells to meet applications requirements

Protection Door

- Acts as a barricade during emergency situations
- Comes with a user convenient door handle

KCE - 1MWh



System BMS

- Processes and displays real-time status of the battery system from the rack level down to the cell level
- Provides data on energy, voltage, current, SOH/SOC status and more
- Easy access to data through user friendly GUI
- Anomalies identifiable at the cell and module level for quick diagnosis
- Activates various protection mechanisms during emergency situations
- Monitoring data and event log saved up to 3 years
- Remote Management feature available over Ethernet

Rack Switch

- Over Current Protection
- Rack Isolation



On/Off Control Switch

- Enables convenient maintenance
- Allows a safe activation of the battery system via the precharge function



Master BMS

- High / Low Voltage Protection & Alarm
- Over Current Protection & Alarm
- Charge / Discharge Current measurement
- High Temperature Alarm & Protection
- Automatic Shutdown & Wakeup
- Magnetic Contactor ON/OFF Control

Slave BMS

- Senses the temperature and data of each cell within a module
- Maintains SOC balancing among the cells between the cells via equalization function
- CAN communication to Master BMS