Pylon Technologies Co., Ltd.

PYLONTECH

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01

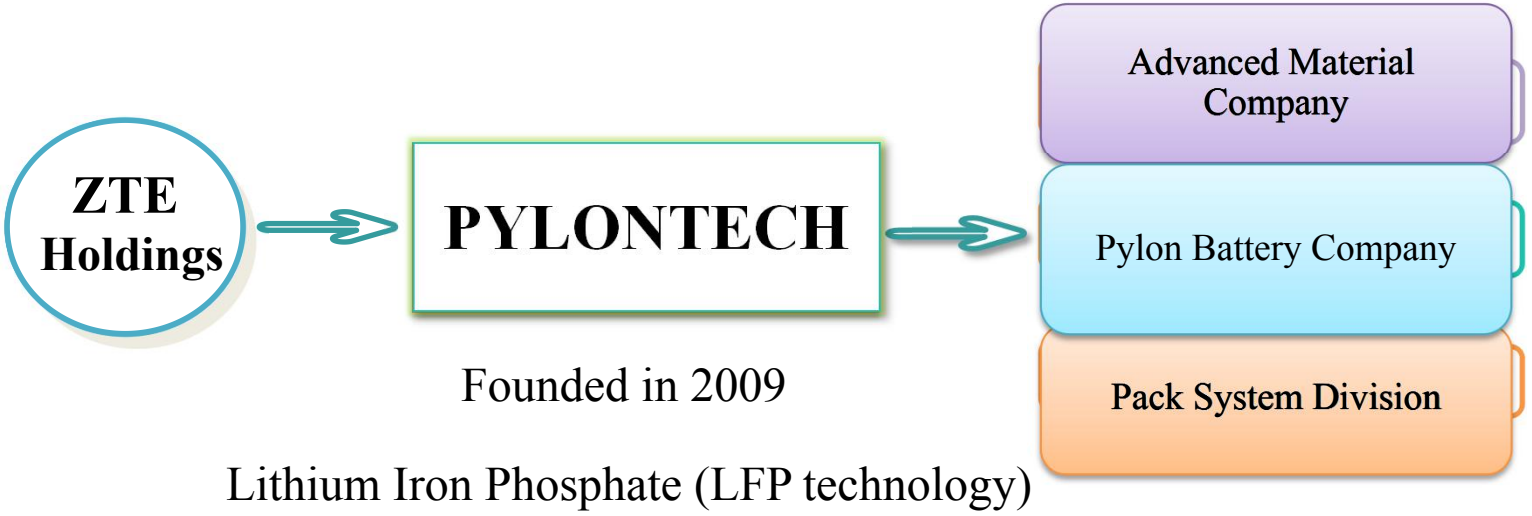
Introduction of Pylontech

1 **Introduction**-Company Profile

Pylon Technologies, Co. Ltd, founded in 2009, is pioneering the LIB (lithium ion battery) ESS (energy storage system) and EV (electrical vehicle) market both in China and overseas market.With self-developed core technologies in the cathode material, battery cell and BMS (battery management system), Pylontech is among the very few companies who had vertically integrated the whole lithium battery industrial chain.

Starting from 2010, Pylontech's solutions had been widely deployed with residential/commercial/grid tied storage systems, vehicle starting battery, emergency power for iCloud. We will continue serving our high end customers with stable qualities and non-stop innovation.

Introduction-Structure



Founded in 2009

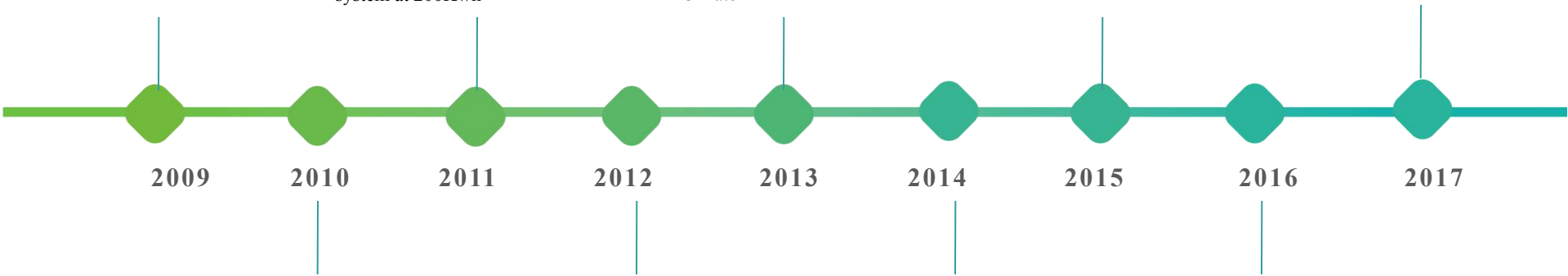
Lithium Iron Phosphate (LFP technology)

02

Milestone

3

Milestone



2009

Founded

2010

- Set up Subsidiary- cathode material production
- Become Key Enterprise of Shanghai E-Vehicle
- Officially Launched telecom Backup Battery at 12V, 24V and 48V,
- Started to cooperate with China Mobile, China Telecom and China Unicom

2011

- Key Enterprise of Shanghai Smart Grid Industry
- Cooperated with provincial companies of China Mobile on backup pilot program
- Finished the first PV energy storage system at 200Kwh

2012

- Set up Subsidiary –Battery cell production
- Participated in 863 State Programs

2013

- Identified as Hi-Tech Enterprise
- Obtained Access to Military Network
- Well Developed the abroad market and telecom market
- Launched the best performance battery in low temperature with high C-Rate

2014

- Sales revenue ＞**100 million RMB** (Approx 15.5million USD)
- Become the leading supplier of battery module for residential ESS

2015

- Rewarded “Gold Prize” of power battery
- Launched battery module for E-Vehicle

2016

- Invest battery production with capacity at **2Gwh** in Hubei Province.

2017

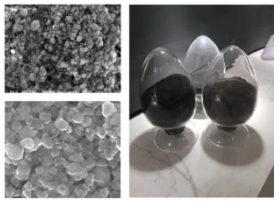
- Launched :PowerCube”
- Delivery Gwh project in China and oversea

03

Products

Product-Production Chain

Cathode Material
C60
E60



BMS (Function)
- ✓ Monitoring
- ✓ Protection
- ✓ Balancing

- **Self-developed BMS Technologies**

Reliable pack technology and cutting edge BMS

Cell
Cylindrical Cell 18650 & 26650
Pouch Cell 25N & 37N

- **High Performance/Quality Cell**

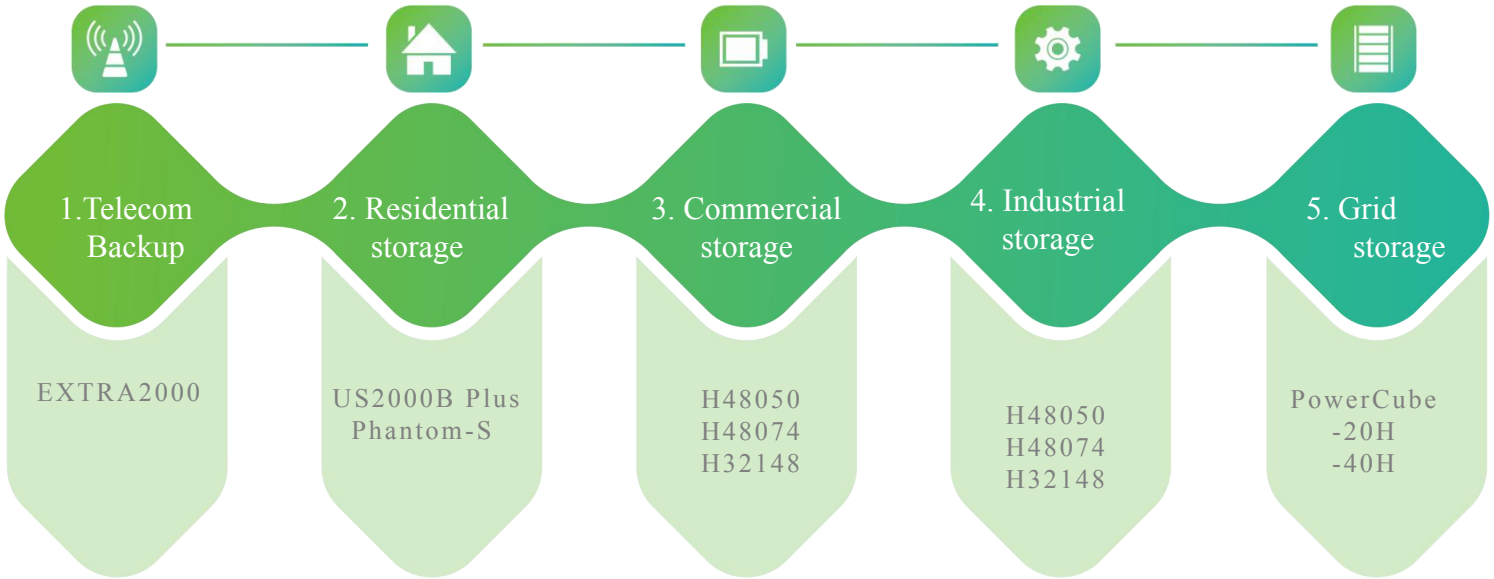
Capacity of **1Gwh** in Jiangsu and together with production in Hubei will be **3Gwh** by the end of 2017

Pack system
Residential Battery
Commercial Battery
Industrial Battery

Production-Flow for ESS

Products-Application

System Application



Products- Low Voltage Energy Storage System

Residential Battery Solution:

US2000B Plus and Phantom-s: same electrical parameter design but with different exterior.
Modularization design
Low voltage in 48V, 50Ah
DoD: 90%
Life cycle: 4500
Design life: ＞10years
Easy installation with brackets or cabinets
Compatible with most of hybrid inverters
Communication protocols: CAN, Rs485, Rs 232
Safety Certificate: CE, TUV, RoHs, UN38.3 TLC
Stock avaliable in EU and Australia.

Products- Low Voltage Energy Storage System

Products- Low Voltage Energy Storage System

Low Voltage Energy Storage System

PHANTOM-S

48V50Ah Battery Module

- Fashionable design
- Vertical Industry Integration ensures more than 4500 cycles with 90% DOD

Products- Low Voltage Energy Storage System

Mounted by 19' brackets

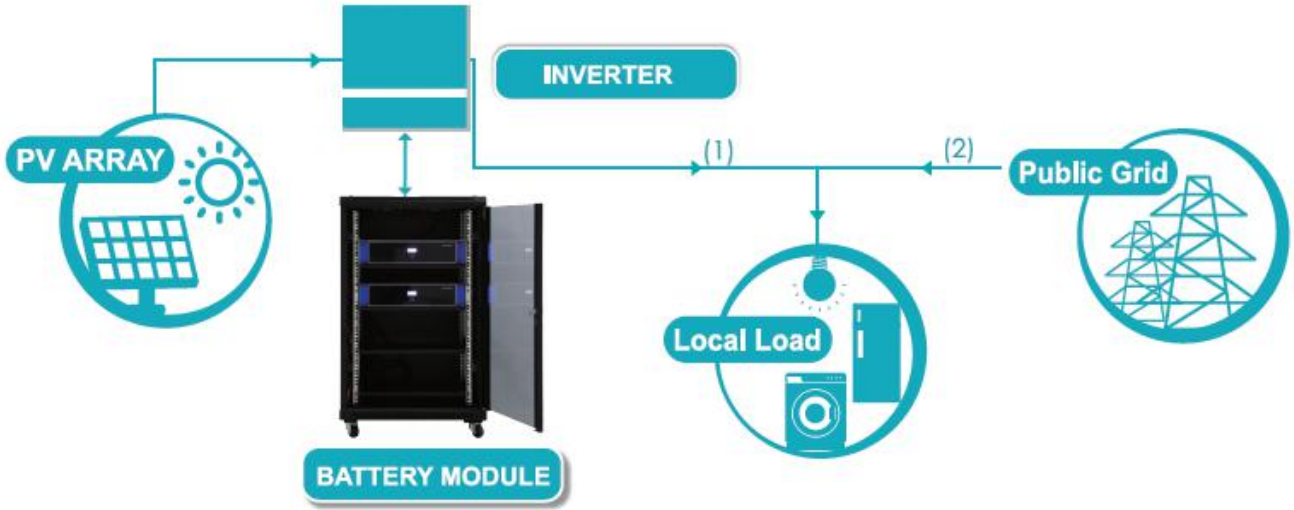
Backside

Products- Low Voltage Energy Storage System

HESS (Home Energy storage system)

Functions:
Independent Energy
Time-Shifting
Peak-Shaving
Emergency backup

Solution



Products- Low Voltage Energy Storage System

Specification

Specification	Basic Parameters	US2000B Plus	Phantom-S
Nominal	Nominal Voltae（V）	48	50
	Nominal Capacity（Wh）	2400	2400
	Usable Capacity（Wh）	2200	2200
Physical	Dimension（mm）	440*410*89	445*428*97.5
	Weight（Kg）	24	24
Electrical	Discharge Voltage（V）	45 ~ 54	45 ~ 54
	Charge Voltage（V）	52.5 ~ 54	52.5 ~ 54
	Charge / Discharge Current（A）	25（Recommended）	25（Recommended）
		50（Max）	50（Max）
		100（Peak@2s）	100（Peak@2s）
Others	Communication Port	RS232，RS485，CAN	RS232，RS485，CAN
	Working Temperature℃	0℃~50	0℃~50
	Storage Temperature℃	-20~60	-20~60
	Authentication Level	TÜV / CE / UN38.3	TÜV / CE / UN38.3
	Design Life	10+ Years（25℃/77℉）	10+ Years（25℃/77℉）
	Cycle Life	>4500 ,25℃	>4500 ,25℃

Products- High Voltage Energy Storage System

Main Controller

Models	SC0500A-100S	SC1000A-100S	SC1000A-200E
Related Product	X1	H1/H2	M1
Controler Working Voltage	100~435Vdc	200~1000Vdc	220Vac
System Operation Voltage (Vdc)	100~435	200~1000	0~1000
Charge Current (Max.)(A)	100	100	200
Discharge Voltage(Vdc)	100~435	200~1000	0~1000
Discharge Current (Max.) (A)	100	100	200
Self-consumption Power (W)	8	8	10
Dimension(W*D*H, mm)	442*390*132	442*390*132	330*150.5*628
Communication	RS485/CAN	RS485/CAN	RS485/CAN
Protection Class	IP20	IP20	IP20
Weight (kg)	8.2	8.2	14.5
Operation Life	15 years	15 years	15 years
Operation Temperature	-20~65℃	-20~65℃	-20~65℃
Storage Temperature	-40~80℃	-40~80℃	-40~80℃
Product Certificate	TÜV(IEC62619)	TÜV(IEC62619)	TÜV(IEC62619)

Products- High Voltage Energy Storage System

Battery Module

Models	H48050	H48074	H32148
Capacity(kWh)	2.40	3.55	4.74
Nominal Voltage(Vdc)	48	48	32
Nominal Capacity(AH)	50	74	148
Voltage Range(Vdc)	45~54	45~54	30~36
Depth of Discharge	80%(10~90%)	80%(10~90%)	80%(10~90%)
Dimension(W*D*H,mm)	442*390*100	442*390*132	330*628*151
Communication	RS485/CAN	RS485/CAN	CAN
Protection Class	IP20	IP20	IP20
Weight	24	32	48
Operation Life	10+Years	10+Years	10+Years
Operation Cycle Life	4000	4000	4000
Operation Temperature	0~50℃	0~50℃	0~50℃
Storage Temperature	-20~60℃	-20~60℃	-20~60℃
Product Certificate	TÜV(IEC62619)	TÜV(IEC62619)	TÜV(IEC62619)

Products- High Voltage Energy Storage System

POWERCUBE-X1

High Voltage Energy Storage System-POWERCUBE-X1

Commercial Battery Solution:
Phantom-X1
Modularization design in 48VDC in series
Battery system voltage: 162V~432V
DoD: 80%
Life cycle: 3500
Design life: ＞10years
Battery system charge Current 1C (Max.)
Communication protocols: CAN, Rs485, Rs 232
Safety Certificate: CE, TUV, ROHS, UN38.3 TLC

Products- High Voltage Energy Storage System

POWERCUBE-H1

Commercial Battery Solution:
Modularization design in 48VDC in series
Battery voltage: 127V~672V
DoD: 80%
Life cycle: 3500
Design life: ＞10years
Battery system charge Current 1C (Max.)
Communication protocols: CAN, Rs485, Rs 232
Safety Certificate: CE, TUV, ROHS, UN38.3 TLC

Products- High Voltage Energy Storage System

POWERCUBE-H2

Commercial Battery Solution:

H2

Modularization design in 48VDC in series

Battery voltage: 216V~576V

DoD: 80%

Life cycle: 3500

Design life: ＞10years

Battery system charge Current 1C (Max.)

Communication protocols: CAN, Rs485, Rs 232

Safety Certificate: CE, TUV, ROHS, UN38.3 TLC

Products- High Voltage Energy Storage System

POWERCUBE-M1

Commercial Battery Solution:

M1

Modularization design in 48VDC in series

Battery voltage: 32V~828V

DoD: 80%

Life cycle: 3500

Design life: ＞10years

Battery system charge Current 1C (Max.)

Communication protocols: CAN, Rs485, Rs 232

Safety Certificate: CE, TUV, ROHS, UN38.3 TLC

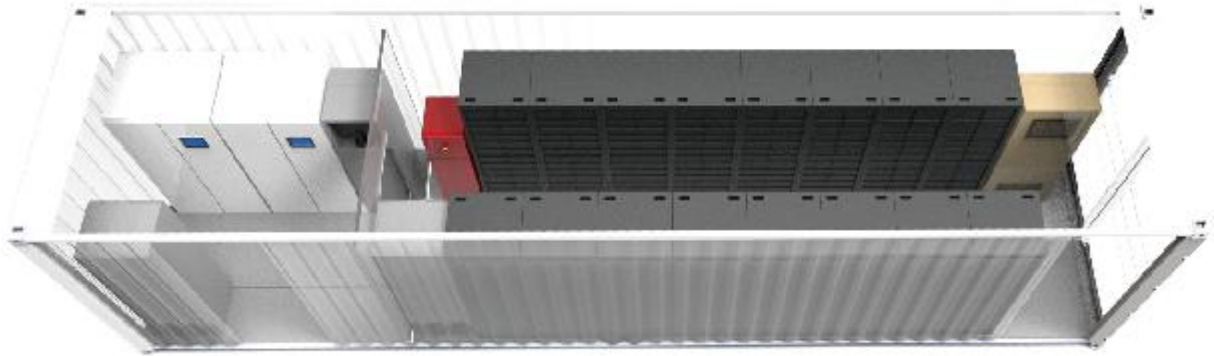
Products- High Voltage Energy Storage System

Specification

Models	POWERCUBE-X1 (384V50AH)	POWERCUBE-H1 (672V50AH)	POWERCUBE-H2 (576V74AH)	POWERCUBE-M1 (736V148AH)
Battery System Capacity (kWh)	19.20	33.60	42.62	108.93
Battery System Voltage (Vdc)	384	672	576	736
Battery System Capacity (AH)	50	50	74	148
Battery Module	H48050	H48050	H48074	H32148
Battery Module Capacity (kWh)	2.40	2.40	3.55	4.74
Battery Module Quantity (pcs)	8	14	12	23
Battery System Charge Voltage (Vdc)	432	756	648	828
Battery System Charge Current (Standard)	10	10	15	30
Battery System Charge Current (Normal)	25	25	37	74
Battery System Charge Current (Max.)	50	50	74	148
Battery System Discharge lower-Voltage (Vdc)	360	630	540	690
Efficiency	96%	96%	96%	96%
Depth of Discharge	80% (10~90%)	80% (10~96%)	80%(10~90%)	80%(10~90%)
Dimension(W*D*H, mm)	600*600*1600	600*600*2150	600*600*2150	815*659*2130
Weight（kg）	250	400	540	1,250
Operation Life	10+Years	10+Years	10+Years	10+Years
Operation Cycle Life	3,500	3,500	3,500	3,500
Operation Temperature	0~50℃	0~50℃	0~50℃	10~40℃
Storage Temperature	-20~60℃	-20~60℃	-20~60℃	-20~60℃
Battery Modules Qty. (Optional)	3~8 pcs	5~14 pcs	5~12 pcs	1~23 pcs
Product Certificate	TÜV(IEC62619)	TÜV(IEC62619)	TÜV(IEC62619)	TÜV(IEC62619)

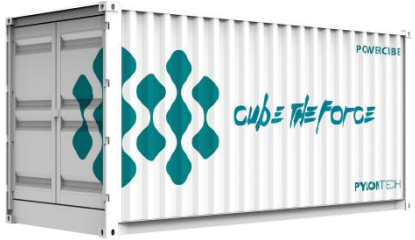
Products- Container Solution (MWH)

POWERCUBE-Layout of the Container



Products-Container Solution (MWH)

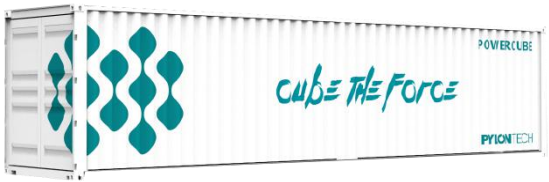
POWERCUBE



Specification

Models	20 ft High Voltage System Container
	POWERCUBE20H
System Capacity (MWh)	1
System Voltage Range(Vdc)	736(690-828)
Dimension(W*D*H, mm)	6.058×2.438×2.896
Weight(Ton)	18
Ambient	-20~50℃
Conmmunication	CAN/RS485

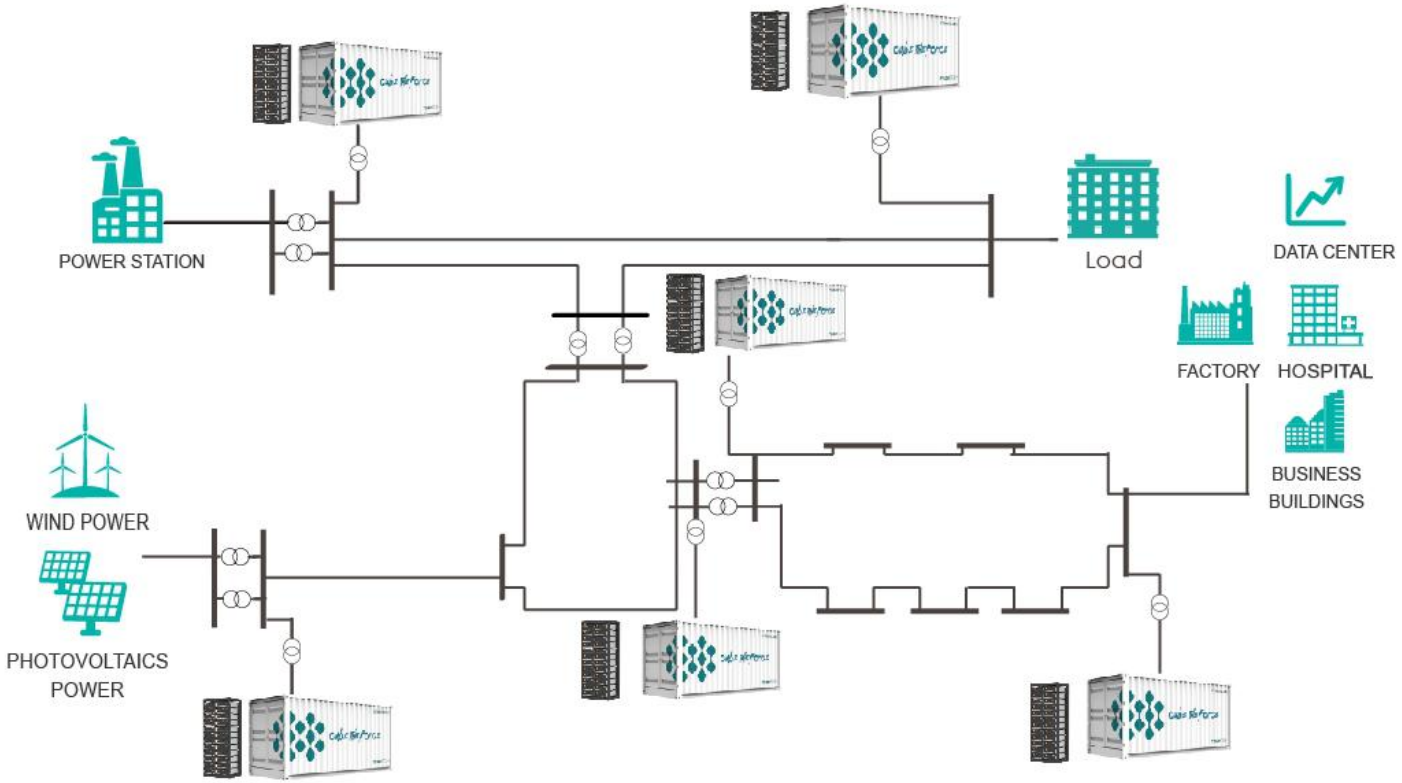
System design can be customized according to requirement



Models	40 ft High Voltage System Container
	POWERCUBE40H
System Capacity (MWh)	2
System Voltage Range(Vdc)	736(690-828)
Dimension(W*D*H, mm)	12.192×2.438×2.896
Weight(Ton)	35
Ambient	-20~50℃
Conmmunication	CAN/RS485
System design can be customized according to requirement	

Products- Container Solution (MWH)

POWERCUBE-Application



04

Project Reference

Project Reference - part of high voltage solution

2017
Photovoltaic Plant - 1.5MW/3MWh
Shanxi Province
Photovoltaic grid connected energy storage system
Objective: Solution of abandon light problem
Characteristic: PV+HVESS
Multi-high voltage energy storage system container in parallel connection

2017
Island Off Grid ESS - 120kW/624kWh
An island of Southeast Asia
Off-grid (micro-grid)
Objective: Island micro-grid ESS
Characteristic: micro-grid system include hybrid energy system (PV and diesel genset)

Project Reference - part of high voltage solution




2017
Micro-grid ESS in industry park - 500kW/500kWh
A grid connected energy storage system in a industry park in China
Objective: peak load shifting, the load smoothing, and the emergency power supply in the factory yard.
Characteristic: grid connected, high power rate charge/discharge




2016
Photovoltaic ESS Charging Pile integrated site - 150KW/150KWh
Shanghai, China
Objective: Solution of off grid, PV and charging pile for EV car
Characteristic: mixture application of LFP battery system and Three Element battery system.

Project Reference - part of high voltage solution

2015

Business micro grid ESS - 25kW/25kWh

Hangzhou, China

Objective: micro grid ESS for laboratory building in campus

Characteristic: business or industry application. Small floor area and easy to maintenance.

2012

Photovoltaic off grid ESS - 50kW/400kWh

Far away mountain telecom site, Xinjiang province, China

Objective: unattended operation telecom site, PV power supply.

Characteristic: high altitude, harsh climatic conditions, unattended operation.

05

Our Vision

Our vision

We aim to kindle the world by:
Smartening the power
Intelligentizing the pipeline
Harmonizing the spirit
Let's awake the force

Pylontech, The Force Awakens

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