



**台塑新智能**  
FORMOSA SMART ENERGY

**SMART ENERGY**

節能 · 儲能 · 新能源 · 循環

# 儲能解決方案

## ENERGY STORAGE SYSTEM

## SERIES





從太陽能、風能，到潮汐能、地熱能，  
再到生物能、氫能等，  
新能源以其可再生和環保的特性，  
被認為是我們走向永續發展的重要途徑。

這些新能源不僅可以幫助我們降低對傳統能源的依賴，  
從而緩解環境暖化問題，  
同時也有可能開創出一種新的經濟發展模式，  
為未來的社會發展提供持久的動力。

From the renewable energy of solar, wind, tidal, geothermal, biomass, hydrogen, and so on, these renewable energies are considered an important meaning for us to move toward sustainable development due to its renewable and eco friendly.

These sustainable energies can not only help us reduce to rely on traditional energy and alleviate the problem of global warming but also create a new economic development model and provide lasting power for future society.

## 2008

台塑生醫成立  
『台塑鋰鐵材料科技』  
專注於氧化鋰鐵磷正極材料的  
研發、生產與銷售。

Formosa Biomedical Technology Corp. has established "Formosa Lithium Iron Material Technology" to focus on the research, development, production and sales of LFP material.

## 2010

南亞與友達光電陸續採用  
台塑生醫的鋰鐵模組來  
替換原有的鉛酸電池。

Nan Ya Plastics Corp. and AUO Corporation have successively adopted FBC's lithium iron modules to replace their original lead-acid batteries.

## 2012

開始外銷到美國、中國、越南、  
菲律賓等地。國內外廠商  
陸續採用鋰鐵電池來汰換  
舊有的鉛酸電池。

Started exporting to the United States, China, Vietnam, Philippines and other countries. Local and foreign manufacturers have successively adopted lithium-ion batteries to replace their old lead-acid batteries.

## 2018

成立台塑生醫電池專案組，推動  
鋰鐵電池模組100%自產。並取得  
UL、IEC、S-JET、UL JAPAN及  
UN38.3等指標性認證。

Set up Formosa Biomedical Battery Team to promote 100% self-production of lithium-iron battery modules. Our products had certified by third-party safety laboratories according to UL, IEC, S-JET, UL JAPAN and UN 38.3.



# 產品索引

## PRODUCT OVERVIEW

可靠技術  
Trustworthy

組織系統  
Systematic

簡單安全  
Safety

智慧平衡  
Intelligent

1

### 鋰鐵電池芯

LFP Battery Cell

page.4

◆ 3V / 30Ah

◆ 3V / 67Ah

◆ 3V / 50Ah

2

### 鋰鐵電池模組

LFP Battery Module

page.6

◆ 24V / 54Ah

◆ 48V / 27Ah

◆ 24V / 67Ah

◆ 24V / 50Ah

◆ 48V / 54Ah

◆ 48V / 67Ah **ESS** | BR-108-256AMF |

◆ 48V / 134Ah **ESS** | ES134-256CMF2 α | ES134-256CMF2 | ES134-320CMF2 | ES134-352CMF2 |

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### 商業/大型儲能

Utility and Commercial ESS

page.8

◆ FESS20-67/ 2 Air Cooling

◆ FESS20-134A/ 4 Air Cooling

◆ FESS20-134B/ 4 Air Cooling

◆ FESS20-134C/ 4 Air Cooling

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### 家用儲能

Home Storage System

page.10

◆ 輕巧型方案 Simple

◆ 標準型方案 Standard

## 2020

發展兆瓦級儲能系統(MW)並參與工研院主導之前瞻性計畫，於彰濱設置1.5MW/1.5MWh儲能系統。

Developing megawatt(MW)-level energy storage systems and setting a 1.5MW/1.5MWh energy storage system in Changhua Coastal Industrial Park participate in the Forward-looking Infrastructure Demonstration Program leads by ITRI.

## 2022

由台塑四寶及台塑生醫合資成立台塑新智能科技公司。於台塑生醫彰化廠建置1.2MW/1.3MWh的儲能系統，並於2022/10開始參與台電的日前輔助市場。

Formosa Smart Energy Tech Corp. was newly established as a joint venture between Formosa Plastics Corp., Nan Ya Plastics Corp., Formosa Chemicals and Fibre Corp., Formosa Petrochemical Corp. and Formosa Biomedical Technology Corp. A 1.2MW/1.3MWh energy storage system was built at FBC's Changhua plant and began participating in Taipower's Day-Ahead Ancillary Service Market in 2022/10.

## 2023~

台塑新智能科技公司將在彰濱工業區分別設置電池模組廠及鋰鐵電芯廠(台塑尖端能源)，預計於2024年上半年完工量產(2.1GWh)；2025年再投入第二期擴建(2.9GWh)。

FSE Tech Corp. will set up the battery module factory and the LFP battery cell factory (Formosa AdvEnergy Technology Corp.) in Changbin. Mass production of phase 1 (2.1 GWh) is expected to be completed in H1 of 2024 and phase 2 of 2.9 GWh capacity will be put into operation in 2025. The total capacity of battery cells and modules will increase to 5GWh respectively.



## 可平抑電網波動的

區域型電力緩衝及儲存系統逐漸成為主流趨勢，  
除此之外，亦可增加傳統電廠發電效率與再生能源滲透率

## 台塑新智能儲能系統是建立於

主、從架構與模組化設計下逐步延伸擴充，  
並使用台灣唯一經過廣泛驗證的電池管理系統，  
可使儲能系統在各種應用中達到最佳化，  
使客戶獲得更多，付出更少。

Local power buffering and storage to stabilize the grid frequency is becoming a mainstream trend.

In addition,

it can also increase the power generation efficiency of traditional power plants and the penetration rate of renewable energy.

The energy storage system of FSE (Formosa Smart Energy Tech Corp.) that is based on master-slave model and modularized design extended gradually and also integrates our own battery management system (BMS) that had been verified extensively in Taiwan. It will enable energy storage systems to be optimized in variety of applications.

彰化  
崙尾電芯廠

Formosa AdvEnergy Technology Corporation



## 項目 ITEM

額定容量 [Ah] Nominal Capacity	30 IFP20100140A-30Ah	67 IFP42100140A-67Ah	50 IFP40100140A-50Ah
額定電壓 [V] Nominal Voltage	3.2	3.2	3.2
標準充電電壓上限 [V] Standard Upper Limit of Charging Voltage	3.65	3.65	3.65
放電電壓下限 [V] Standard Lower Limit of Discharging Voltage	2.5	2.5	2.5
最大充電電流 [A] Maximum Charging Current	60(2C)	134(2C)	150(3C)
最大放電電流 [A] Maximum Discharging Current	60(2C)	134(2C)	450(9C)
能量 [Wh] Energy	96.0	214.4	160
重量 [g] Weight	615	1235	1192
尺寸 D x W x H [mm] Dimension D x W x H	21.2*100.3*141.6	43.2*100.2*144.9	43.2*100.2*144.9
能量密度 [Wh/Kg] Energy Density	158.7	173.6	134.2
充電溫度範圍 [°C] Charge Temperature Range	0~55	0~55	0~55
放電溫度範圍 [°C] Charge Temperature Range	-30~ 60	-30~ 60	-30~ 60

## 構造圖 STRUCTURE

### ▶ 外觀 Product Outlook

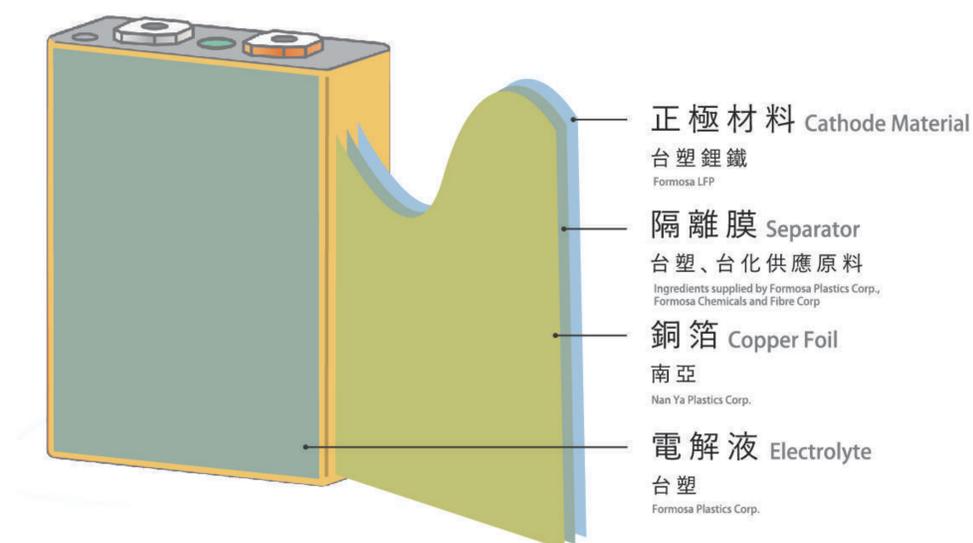


30 Ah

50 Ah

67 Ah

### ▶ 材料 Material

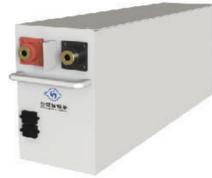


正極材料 Cathode Material  
台塑鋰鐵  
Formosa LFP

隔離膜 Separator  
台塑、台化供應原料  
Ingredients supplied by Formosa Plastics Corp.,  
Formosa Chemicals and Fibre Corp.

銅箔 Copper Foil  
南亞  
Nan Ya Plastics Corp.

電解液 Electrolyte  
台塑  
Formosa Plastics Corp.



**Battery Series**

24V / 54Ah  
48V / 27Ah

24V / 67Ah  
24V / 50Ah

48V / 67Ah [ESS]  
48V / 54Ah

48V / 134Ah [ESS]

D x W x H(mm) 351 x 221 x 184

130 x 575 x 208

635 x 221 x 184

974 x 235 x 181



**Control Box**

IM900 **UL認證**

D x W x H 483x 350 x 143

UL Verified



IM400 **高速版**

483x 350 x 133.5±1mm

High-speed Version



**Utility and Commercial ESS**

機櫃

Rack



戶外式機櫃 ES134-256CMF2α

Outdoor Use

項目 ITEM	模組 MODULE						
額定容量 [Ah] Nominal Capacity	54	67	50	27	54	[ESS] 67	[ESS] 134
額定電壓 [V] Nominal Voltage	25.6	25.6	25.6	51.2	51.2	51.2	51.2
最大電壓 [V] Maximum Voltage	28.4	28.4	28.4	56.8	56.8	56.8	56.8
放電電流 [A] Discharging Current	108	134	450	54	108	110	150
能量 [kWh] Energy	1.38	1.72	1.28	1.38	2.76	3.43	6.86
重量 [kg] Weight	12	16.5	16.5	12	24	30	60

項目 ITEM	機櫃 RACK	
型號 Model	BR108-256AMF	ES134-256CMF2α
額定容量 [Ah] Nominal Capacity	67	134
額定電壓 [V] Nominal Voltage	819.2	819.2
能量 [kWh] Energy	54.89	109.78
重量 [kg] Weight	654	1325
尺寸 [D x W x H, mm] Dimension	667 x 545 x 2001	1000 x 1250 x 2550

項目 ITEM	機櫃 RACK		
型號 Model	ES134-256CMF2	ES134-320CMF2	ES134-352CMF2
額定容量 [Ah] Nominal Capacity	134	134	134
額定電壓 [V] Nominal Voltage	819.2	1024	1126
能量 [kWh] Energy	109.78	137.2	150.9
重量 [kg] Weight	1150	1500	1680
尺寸 [D x W x H, mm] Dimension	1002 x 560 x 2001	1002 x 560 x 2401	1002 x 560 x 2601

● 詳細規格請參閱規格書  
Please refer to the Product Specification for more details.



Flatbed container  
平板式貨櫃

20呎(20')



Simple Monitoring User Interface  
簡單的監控操作畫面



Side-Opening Door Design  
側面開門設計



使用磷酸鋰鐵電池

LFP Battery combined



防水等級：IP54

Waterproof Rating IP54



抗腐蝕防鏽等級：ISO 2944 C3以上

Anti-Corrosion Rating over ISO2944 C3

符合 ISO 1496、C.S.C、TIR 認證

Complies with ISO1496, C.S.C, TIR certification.

符合國際集裝箱安全公約及集裝箱標準

Complies with the International Convention for Safe Containers (CSC) 1972 and container standards.





加計地震因素，機櫃結構強度提升33%，兼顧熱與限制延燒距離。  
Additional considering earthquake factors, the frame strength is increased by 33%.

項目 ITEM	20' 貨櫃 TEU			
型號 Model	MAX 23 櫃/雙氣冷 FESS20-67	• • MAX 18櫃/4氣冷 FESS20-134A FESS20-134B	• • MAX 20櫃/4氣冷 FESS20-134C	
額定容量 [Ah] Nominal Capacity	1541	2412	2412	2680
額定電壓 [V] Nominal Voltage	819.2	819.2	1126.4	1126.4
能量 [MWh] Energy	1.26	1.97	2.71	3.0
重量 [T] Weight	23	25	36	36
尺寸 [D x W x H, mm] Dimension	6058 x 2438 x 2896	• • 6058 x 2938 x 2896	• • 6858 x 2938 x 2896	

● 詳細規格請參閱規格書  
Please refer to the Product Specification for more details.

#### 其他配件 Others

NITTAN消防主機  
NITTAN Firefighting equipment

漏電偵測器  
Ground Fault Detector

氣體品質偵測器  
Gas Quality Detector

溫濕度+CO+CO2 四合一感測器  
Four-in-One Sensor

FM200滅火氣體  
FM200

大電流直流隔開關  
High Current DC Disconnect Switch

雷擊突波吸收器  
Lightning Surge Arrester

積水感測器  
Water Accumulation Sensor

高壓保險器  
High-Voltage Fuse

5KW 冷暖氣機  
5KW Cooling and Heating Unit

可燃氣體偵測器  
Combustible Gas Detector

不斷電系統  
UPS

#### 主要功能 Main Feature

Peak shaving

Demand Response

Ancillary Services

用電轉移控制

需量控制

輔助服務

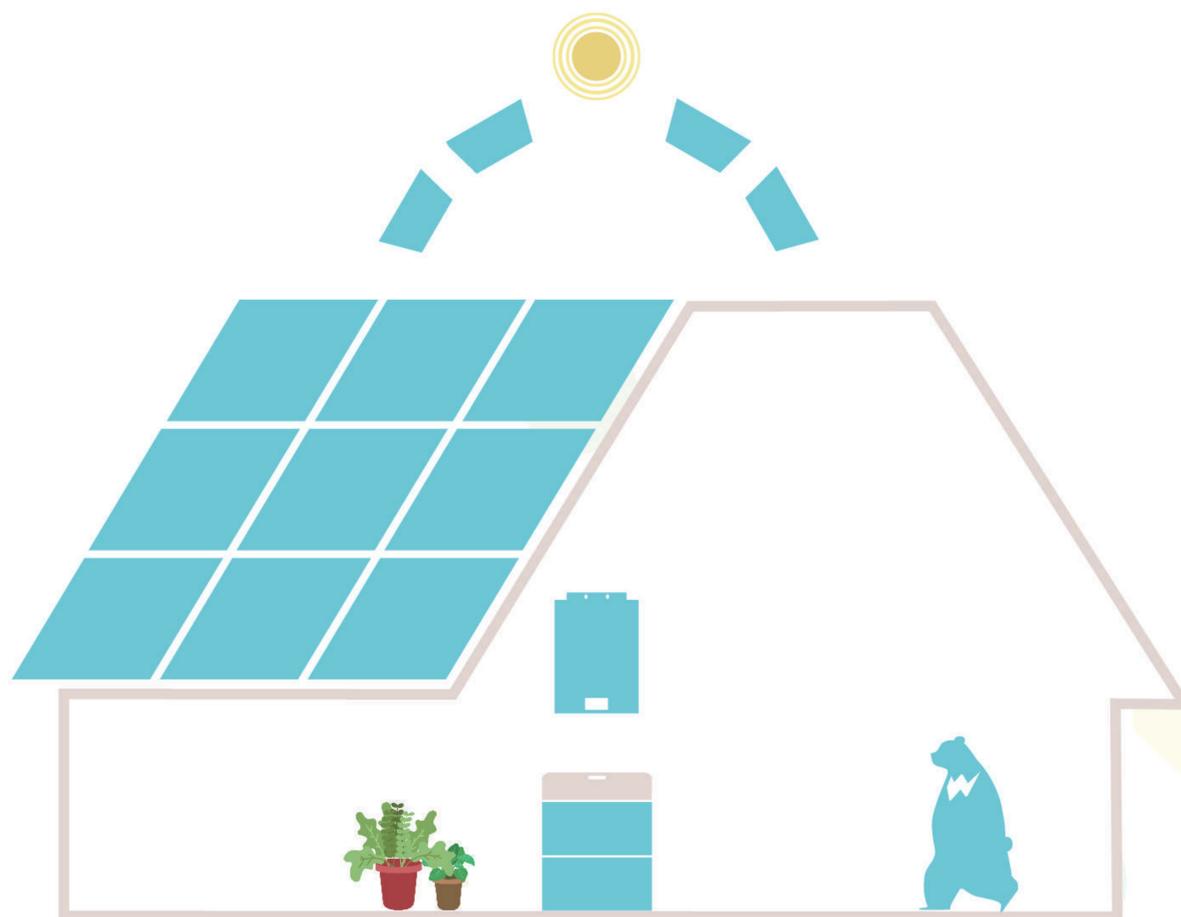
#### 併網運轉時 ▶

可透過系統排程於特定時間進行充放電控制以達成削峰填谷，或配合電力總表進行負載需量平衡。

For the application of peak shaving and load leveling with power meter, the ESS on-grid can be scheduled to charge or discharge at specific time.

電池容量並無考慮轉換所消耗的能量。產品規格如有變更，恕不另行通知。保修僅涵蓋基本充電/放電功能，不包括電池容量損耗。在停電的情況下，它會自動切換到蓄電池供電，在這種情況下，某些設備可能會被重置並且可能無法正常操作。請勿將其用於預期目的以外的任何用途。如果使用超過規定容量的負載，則無法保證正常運行。請務必在指定的使用容量下運行。

Battery capacity does not take into account the energy consumed in conversion. Product specifications are subject to change without prior notice. The warranty only covers basic charge/discharge functions and does not cover battery capacity loss. In the event of a power outage, some ESS and UPS may be powered by the battery system instead and partial equipment may be reset or not operate properly. Do not use it for any purpose other than its intended purpose. If a load exceeding the specified capacity is used, normal operation cannot be guaranteed. Please be sure to operate it within the specified usage capacity.



我的選擇，  
讓我的家與眾不同。

Better Choice, Better Home.





項目 ITEM	規格 SPECIFICATION	
型號 Model	ES134-16EMF1	ES268-16EMF1
額定容量 [Ah] Nominal Capacity	134	268
額定電壓 [V] Nominal Voltage	51.2	51.2
能量 [kWh] Energy	6.86	13.72
重量 [kg] Weight	80	147
尺寸 [D x W x H, mm] Dimension	300 x 580 x 608	300x 580 x 1058

● 詳細規格請參閱規格書  
Please refer to the Product Specification for more details.

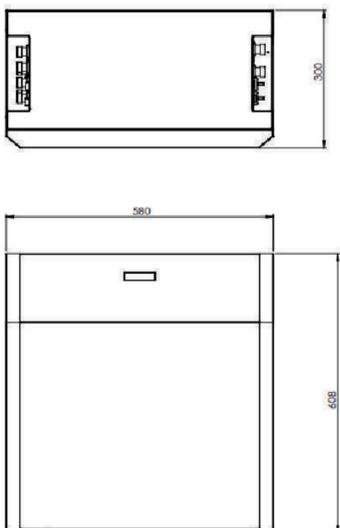


項目 ITEM	規格 SPECIFICATION	
功率 [kW] power	6	
標稱輸出電流 [A] Nominal Discharge Current	27.3 [110Vac]	
標稱輸出電壓 [Vac] Nominal Discharge Voltage	110-120 [L-N]	220-240 [L1-L2]
重量 [kg] Weight	26	
尺寸 [D x W x H, mm] Dimension	138.4 x 365 x 593.6	

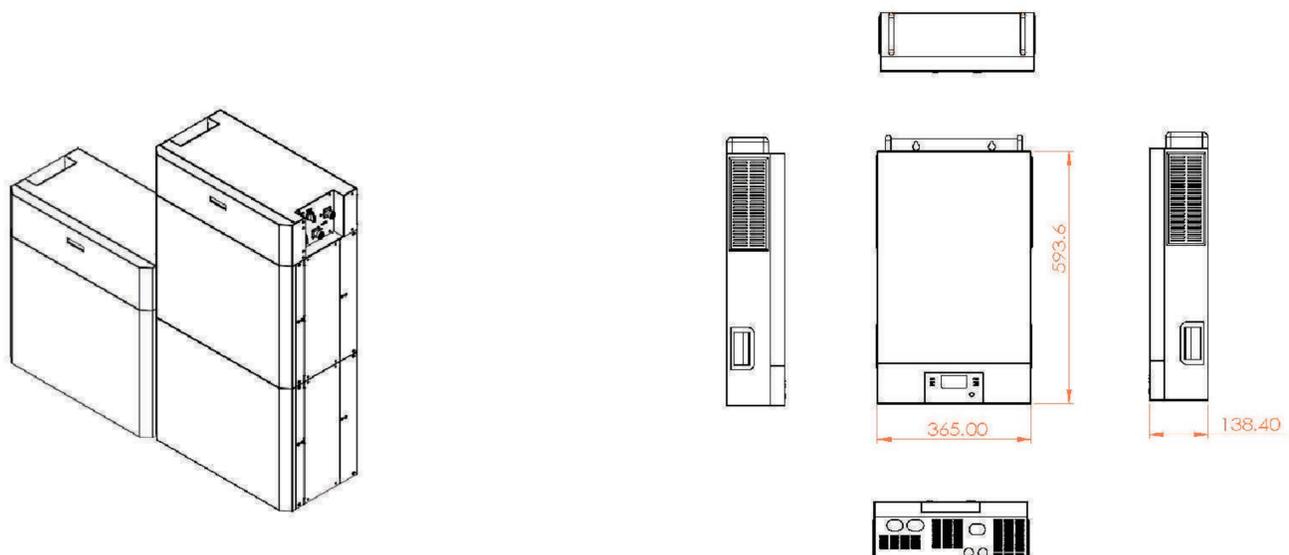
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## 尺寸圖 DIMENSIONS

▶ 家用儲能 (單位: mm)  
Home Storage System (Unit: mm)



▶ PCS (單位: mm)  
(Unit: mm)



## 電芯一致性

### CELL CONSISTENCY

#### 全系統動態智慧平衡 AIOT CONCEPT

可以修正電芯製作過程中的細微電氣差異，並補償充電直流阻抗的時間衰變，除了延長電池系統安全使用壽命，並可合理擴大電池可操作範圍，提升電池系統穩定性。

Not only compensates the age-effect of charge-resistance variation, but also enlarges the safe range of cell-voltage and temperature. Therefore, those characteristics are able to improve the reliability and usage life of battery system.



分層架構管理  
HIERARCHICAL BMS



智慧平衡系統  
SMART BALANCE SYSTEM



子系統互相備援  
AUTO RECOVERY REDUNDANCY



雙重保護  
DOUBLE PROTECTION

## BMS功能

### BMS FEATURE

#### 保護板架構符合IEC/UL60730-1認證 PASSED IEC/UL60730-1 CERTIFICATION

擁有智慧平衡演算、二階隔離控制系統、子系統可相互備援，自動復歸、多重隔離高安全電源與遠端控制系統、可進行高精準非接觸的安時量測計算。

Accomplish Smart-Balance Algorithm, Multi-Levels Isolation System, Auto Recovery Redundancy, Functional Safety, Remote Control System.



#### 中國 CHINA

昆山 Kunshan  
廈門 Xiamen  
寧波 Ningbo  
惠州 Huizhou  
廣州 Guangzhou

#### 台灣 TAIWAN

工研院 六甲分院  
ITRI Southern Region Campus  
工研院 沙崙分院  
ITRI Green Energy Technology Demonstration Site  
工研院 彰濱太陽能光電廠域  
ITRI CHCIP Solar Plant Site  
美光科技  
Micron Technology  
日月光半導體  
ASE Technology Holding Co., Ltd.

中華電信  
CHT  
歷史博物館  
National Museum of History  
中油  
CPC

#### 日本 JAPAN

東京 社區儲能系統  
Tokyo Community Energy Storage System

#### 越南 VIETNAM

河靜廠 HA TINH FACTORY  
仁澤廠 Renze Plant

#### 美國 USA

德克薩斯州廠  
NPC-T Texas

#### 印尼 INDONESIA

小型儲能 Small-scale Energy Storage System

#### 菲律賓 PHILIPPINES

APEC電廠 APEC Power Plant



台塑新智能科技股份有限公司  
FORMOSA SMART ENERGY TECH CORP.

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02-2712-2211

02-2717-8381

#### 五股工廠 FACTORY

新北市五股區  
五權三路24號2F  
2F., No. 24, Wuquan 3rd Rd., Wugu Dist.  
New Taipei City, Taiwan

02-2299-3318

02-2299-3567

#### 彰化工廠 FACTORY

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Changhua County, Taiwan

04-723-6101

04-726-6561

#### 台塑尖端能源彰化彰濱電芯廠 FACTORY

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崙海段27-8號  
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