# MPack 261 One-Stop Solution (US)

## Prefabricated One-Stop Turnkey Energy Storage Solution

Covering system configuration, key components,
application scenarios, and grid-connected/off-grid topology diagrams.

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### Core Energy Storage Unit

- MPack 261A: 261 kWh/135 kW liquid-cooled C&I energy storage cabinet
- MPack 261D: 261 kWh liquid-cooled C&I energy storage cabinet

### Key Components (forming a complete system)

- STS Cabinet
- MPPT PV Input Cabinet
- Array Combiner Cabinet
- Matrix Combiner Cabinet
- Communication Cabinet
- Transformer (Choose One)
  - Standard Transformer
  - SST Cabinet
- DC Charging Station (Optional)
- Auxiliary Power Distribution Cabinet


**Renon Power USA LLC**



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RENON

# Product Overview

The Renon MPack series is a liquid-cooled energy storage system for commercial and industrial (C&I) applications. Using lithium iron phosphate (LFP) cells, it offers high safety, long life, and a highly integrated design. Built around the MPack 261A and MPack 261D, it supports four solutions: low-voltage AC grid-connected, low-voltage AC grid-tied/off-grid, 13.8 kV medium-voltage grid-connected, and DC grid-connected systems.

## Core Energy Storage Unit

MPack 261A
P06

MPack 261D
P07

## Key Components (forming a complete system)

Array Combiner
P08

Matrix Combiner
P08

STS Cabinet
P09

MPPT Combiner
P10

Communication Cabinet
P10

US Standard Transformer
P11

SST Cabinet
P11

DC Charging Station
P12

Auxiliary Power
Distribution Cabinet

# MPack 261 Series

## 261kWh Liquid-cooled Battery


**Core Energy Storage Unit**

High energy density: 1P52S 314Ah LFP cells, system capacity 261.2 kWh
Long service life: ≥8,000 cycles @ 90% DOD, 10-year design life
High-efficiency conversion (261A): THDi ≤ 3%, millisecond-level response, rated power 135 kW
Safe and reliable: IP54 protection, aerosol fire suppression, UL9540A/UL1973/UL9540/UL1741/IEEE1547 certified
Liquid-cooled temperature control: Wide operating temperature range -30°C to +55°C

### Product Function

**Advanced Energy Storage**
Provides 261 kWh of energy storage capacity and supports multiple power inputs, including solar PV, diesel generators, and the utility grid, enabling flexible deployment across a wide range of applications.

**Reliable Backup Power**
Delivers seamless grid-to-off-grid switching within ≤ 20 ms (Optional STS), ensuring uninterrupted protection for critical loads and maintaining power continuity when it matters most.

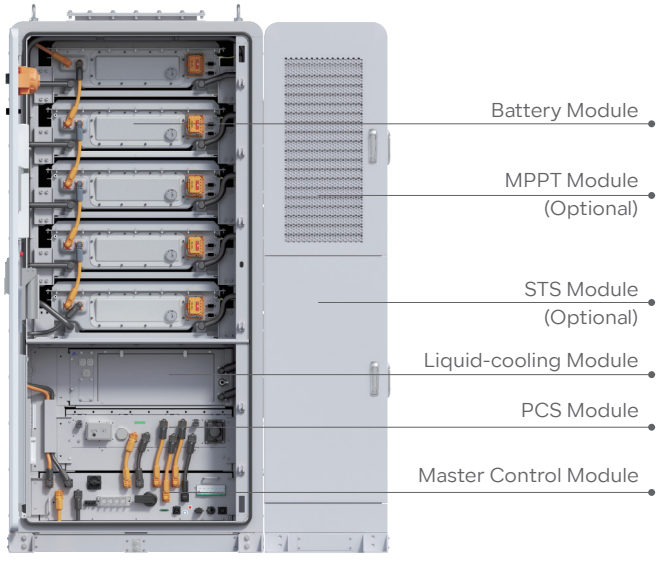
**Smart Load Management**
Enables peak shaving, time-of-use arbitrage, and demand response, helping users optimize energy consumption and reduce electricity costs.

**Independent Off-Grid Power**
Supports standalone off-grid operation and is well suited for microgrid applications, providing stable and reliable power in remote or grid-constrained environments.

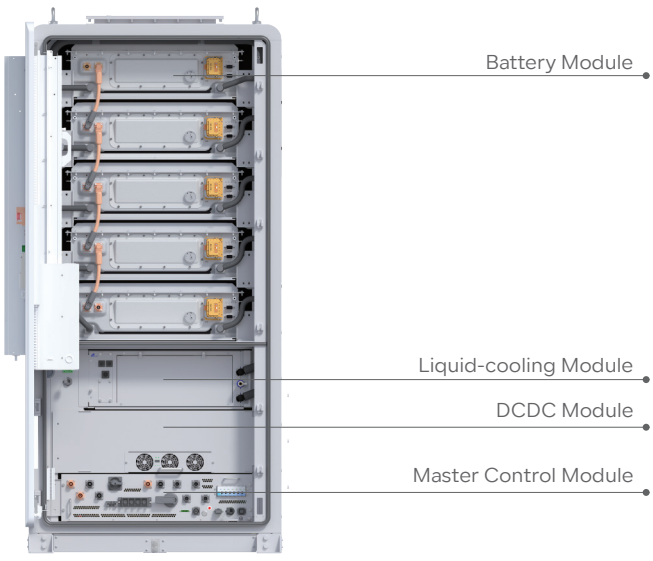
**Intelligent Energy Management**
Integrated EMS and STS Control Box, the system supports remote monitoring, dispatch, and operational management for smarter energy control.

**Scalable & Flexible Design**
Features a modular parallel architecture that allows flexible system expansion, supporting 2, 5, or up to 10 units in parallel to meet different capacity requirements.

### AC System Overview

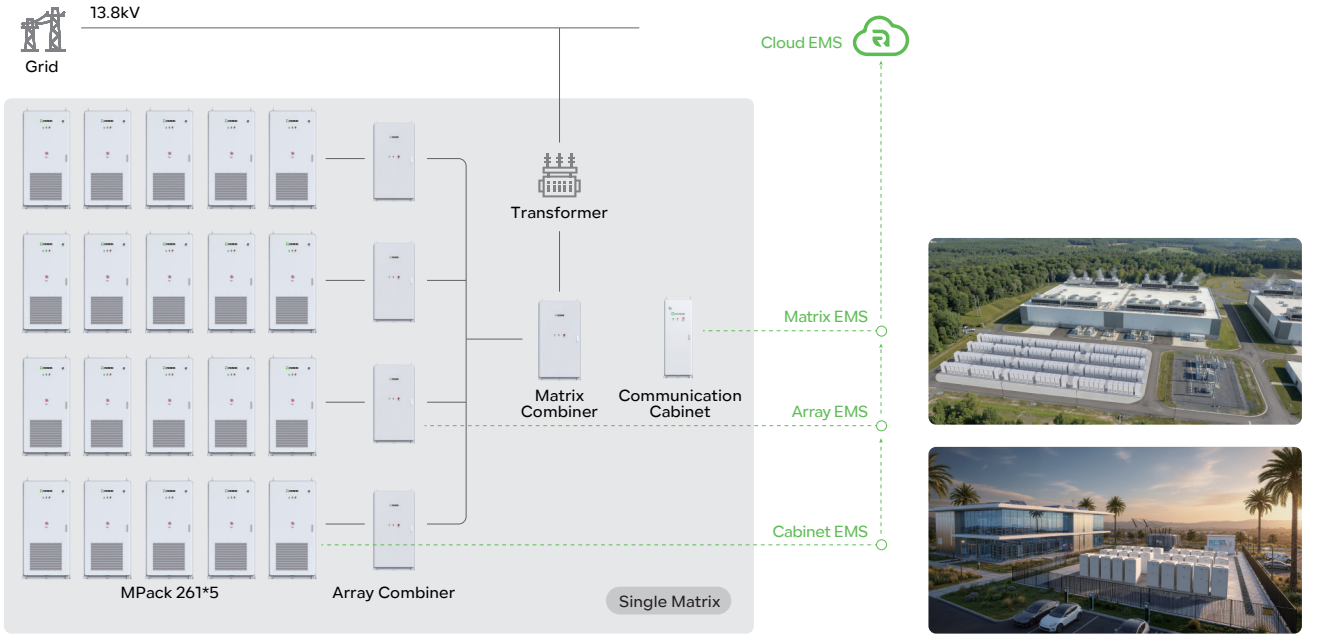



### DC System Overview

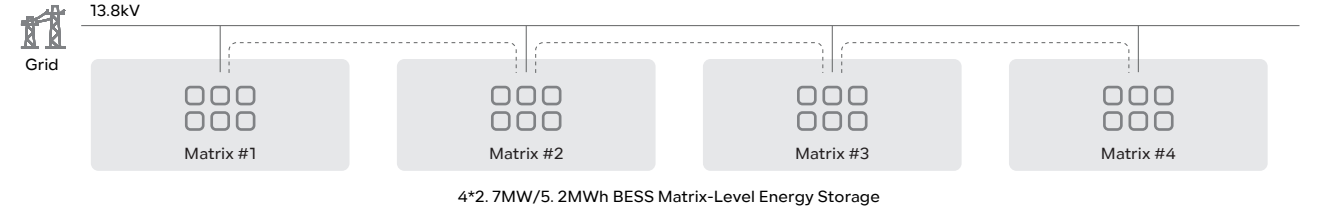


## On-Grid Applications

The MPack 261A (including PCS) is designed for On-Grid applications such as peak shaving and load shifting, VPP, demand management, and export limitation. It provides 480 VAC output, with the outputs combined through a distribution cabinet and connected directly to the grid. The distribution cabinet is configured according to the parallel system scale. In this configuration, an STS cabinet is not included, and grid-tied/off-grid switching is not supported.




2. 7MW/5. 2MWh BESS Matrix-Level Energy Storage




4*2. 7MW/5. 2MWh BESS Matrix-Level Energy Storage

## Configuration List (Single Matrix)

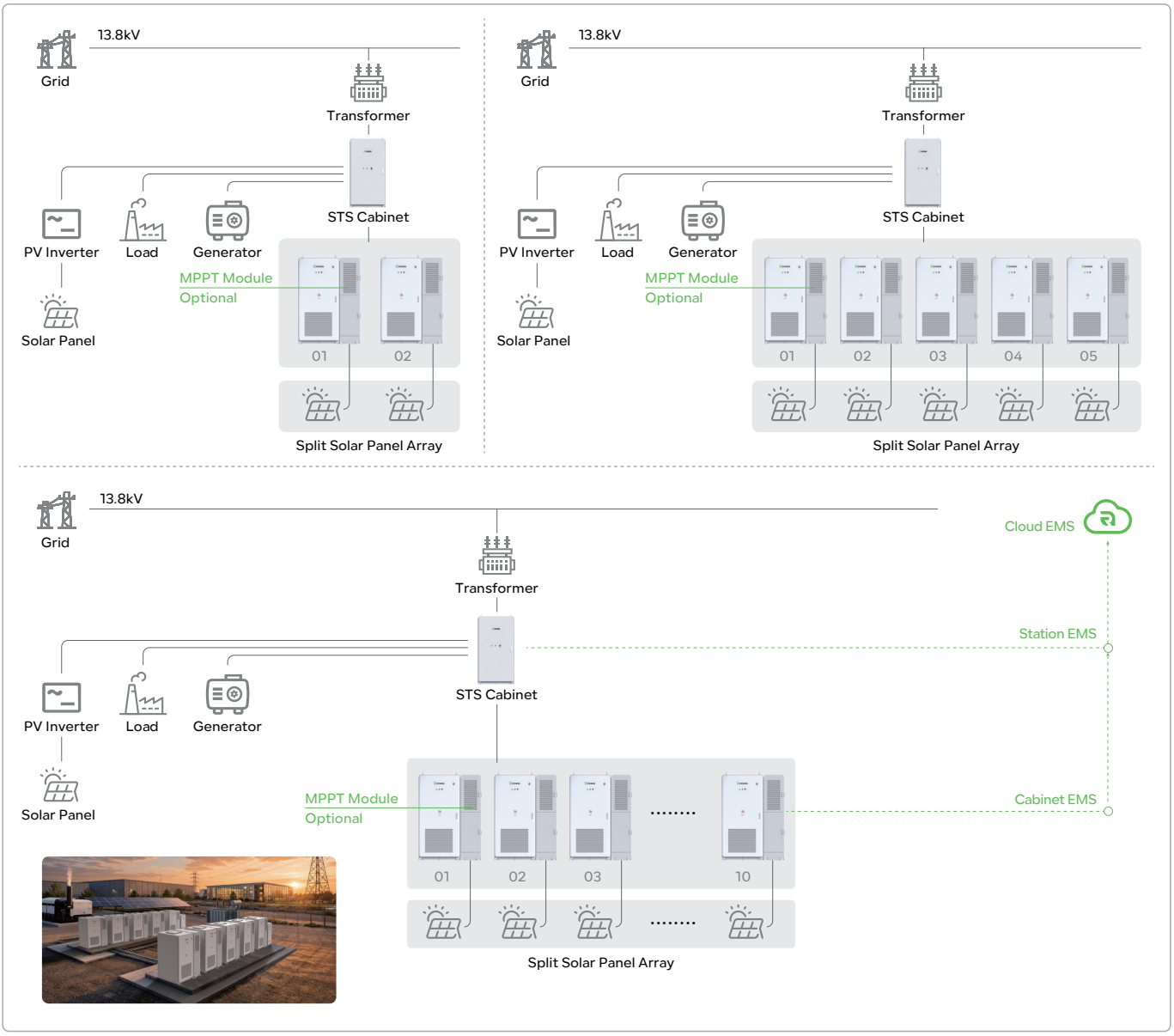
| Components | Quantity | Remarks |
|---|---|---|
| MPack 261A | 20 units | 261 kWh/135 kW per unit, 480V output |
| Array Combiner | 4 units | / |
| Matrix Combiner | 1 unit | Optional if PV integration is required |
| Communication Cabinet | 1 unit | / |
| Transformer | 1 unit | / |
| Auxiliary Power Distribution Cabinet | 1 unit | / |

## Configuration List (Max. Matrix Configuration)

| Components | Quantity | Remarks |
|---|---|---|
| MPack 261A | 20*4 units | 261 kWh/135 kW per unit, 480V output |
| Array Combiner | 4*4 units | / |
| Matrix Combiner | 1*4 units | Optional if PV integration is required |
| Communication Cabinet | 1*4 units | / |
| Transformer | 1*4 units | / |
| Auxiliary Power Distribution Cabinet | 1*4 units | / |

## On/off-Grid Applications

The MPack 261A is designed for On-Grid and Off-Grid applications, with 480 VAC output. The AC outputs of multiple units are combined and connected to the low-voltage distribution system. The system supports On-Grid/Off-Grid switching for 2-unit, 5-unit, and 10-unit parallel configurations, with a transfer time of ≤20 ms. It is suitable for applications requiring continuous power supply, such as hospitals and island power systems. During grid disturbances or outages, the system switches to Off-Grid mode to support critical loads, and reconnects to the grid when conditions recover. It can also connect to PV and diesel generators. If an isolation transformer is required, it can be supplied by either the customer or RENON, depending on the project. No separate communication cabinet is required.



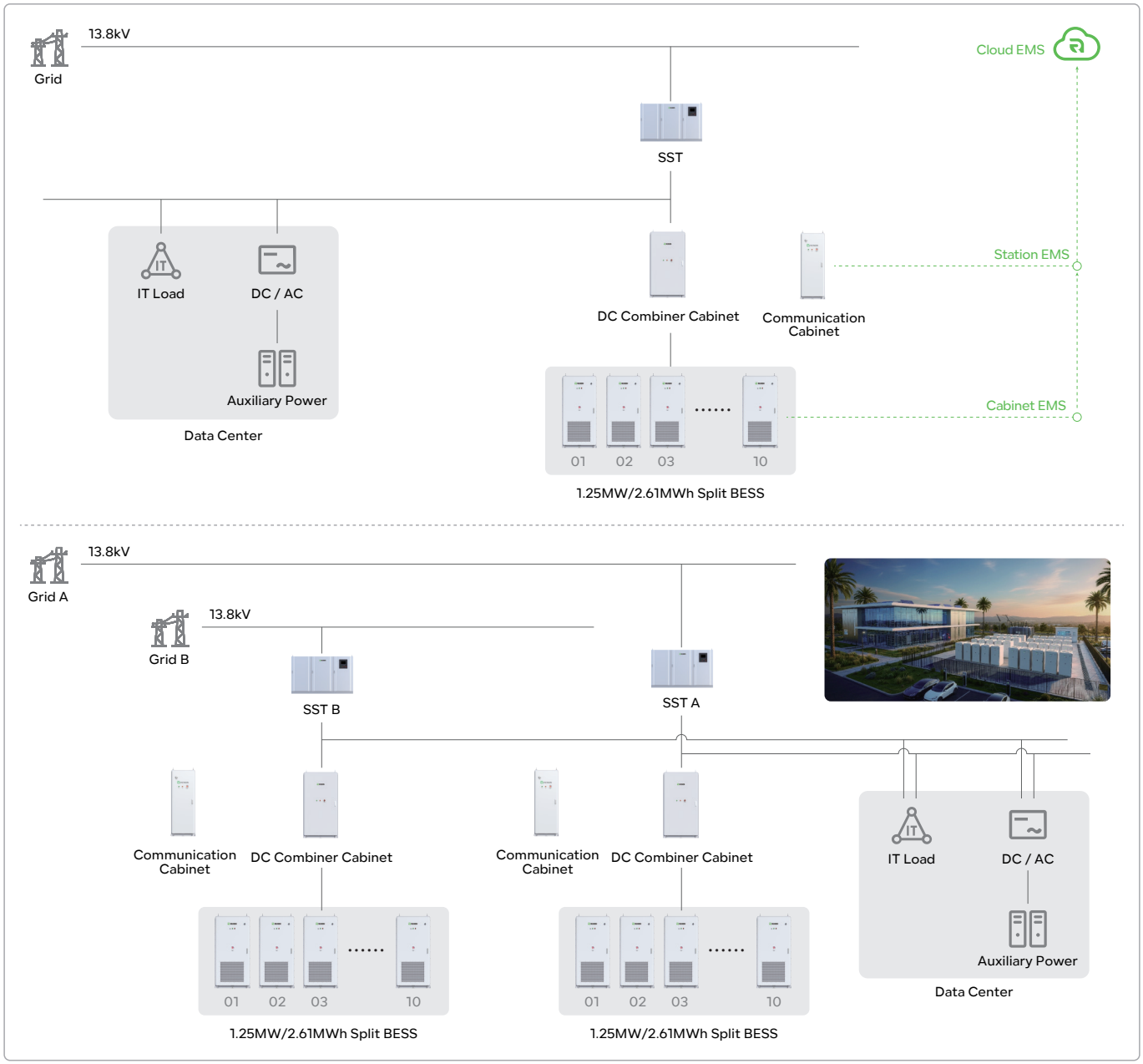



## Configuration List

| Components | Quantity | Remarks |
|---|---|---|
| MPack 261A | 2/5/10 units | 261 kWh/135 kW per unit, 480V output |
| STS Cabinet | 1 unit | Designed for 2/5/10-units parallel operation, includes diesel generator and PV interfaces |
| MPPT Combiner | Optional | Optional PV connection available |
| Generator | Optional | To be provided by the buyer |
| Transformer | 1 unit | / |
| Auxiliary Power Distribution Cabinet | 1 unit | / |

## Data Center Applications

In data center applications, a step-up transformer is added to raise the voltage to 13.8kV for connection to the campus medium-voltage distribution system or the medium-voltage grid. The transformer may be implemented as either a conventional low-frequency transformer or a solid-state transformer (SST). In this configuration, the SST is used only for DC bus power coupling and distribution. It does not support power flow from the DC side to the 13.8kV AC grid.



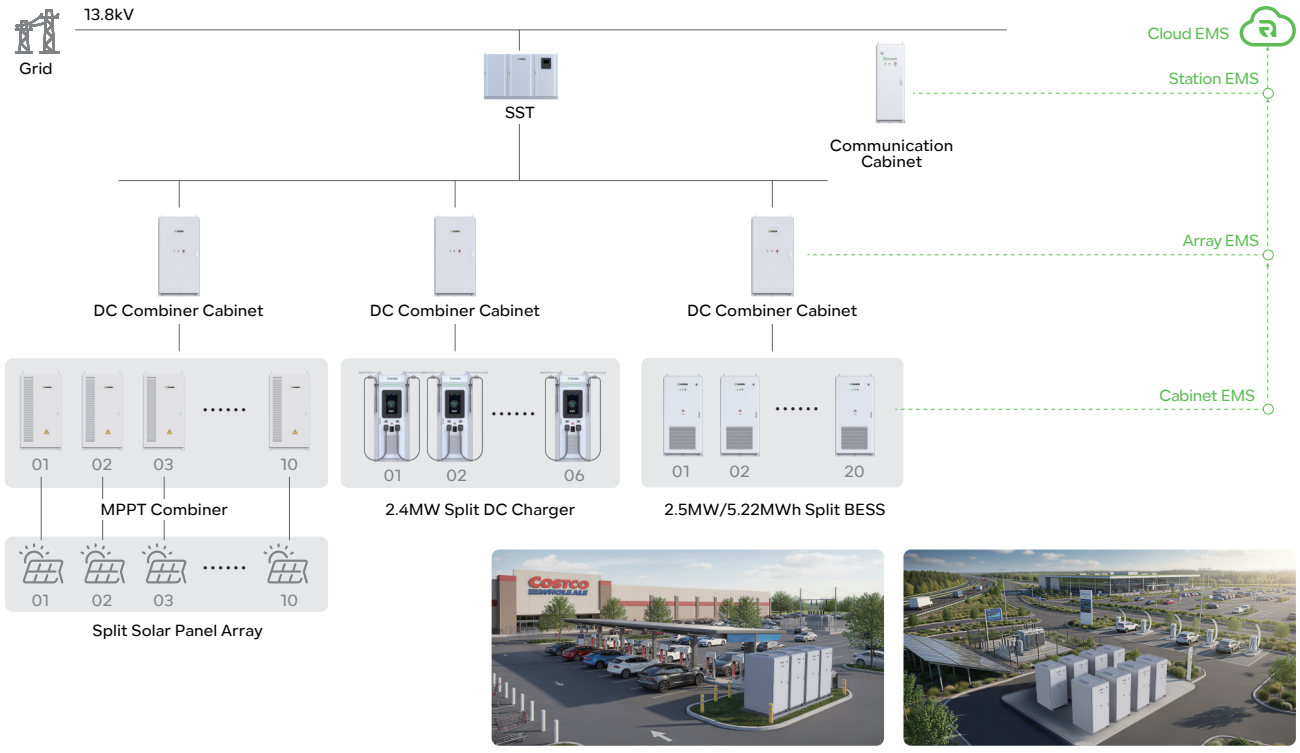

## Configuration List (Single Array)

| Components | Quantity | Remarks |
|---|---|---|
| MPack 261D | 10 units | The DC output is converted into usable power for the IT load. |
| DC Combiner Cabinet | Configure as needed | Determined by the number of DC output ports on the SST cabinet |
| SST Cabinet | 1 unit | 800 VDC / 13.8kV AC, 2,520 kW |
| Communication Cabinet | 1 unit | / |
| Auxiliary Power Distribution Cabinet | 1 unit | / |

*Dual-route input, above configuration ×2

## Solar Storage & Charging Applications

A transformer is added for integration with the 13.8kV medium-voltage AC grid. The transformer may be implemented as a solid-state transformer (SST). In this scenario, the SST is used only for DC bus power coupling and distribution, and does not support power flow from the DC side to the 13.8 kV AC grid.




## Configuration List

| Components | Quantity | Remarks |
|---|---|---|
| MPack 261D | 20 units | For the energy consumption of electric vehicles connected to charging stations |
| DC Combiner Cabinet | Configure as needed | Determined by the number of DC output ports on the SST cabinet |
| DC Charging Station | 6 units | Two guns per unit |
| MPPT Cabinet | 10 units | One unit per energy storage cabinet; total PV capacity: 2.4 MW |
| SST Cabinet | 1 unit | 800 VDC / 13.8kV AC, 2520 kW |
| Communication Cabinet | 1 unit | / |
| Auxiliary Power Distribution Cabinet | 1 unit | / |

## MPack 261A Parameters

| Battery Energy Storage | |
|---|---|
| Cell Type | LFP 3.2V/314Ah |
| Module configuration | 1P52S |
| System Combination (Modules) | 5 in series |
| Capacity (kWh) | 261.2 |
| Nominal Voltage (V) | 832 |
| Operation Voltage Range (Vdc) | 702~936 |
| Discharge Depth | 90% DoD |
| Thermal Management Mode | Liquid-Cooled |
| Thermal Control Management | Aerosol Extinguishing |

| AC Output | |
|---|---|
| Rated AC Output Power (kW) | 135 |
| Max.AC Output Power (kVA) | 148.5 |
| Rated Output Voltage (Vac) | 480 |
| Output Voltage Range (Vac) | 408~528 |
| Rated Grid Frequency (Hz) | 60(-5~5)Hz |
| Adjustable Power Factor | 0.99/-1~1 |
| THDi | ≤3% |

| Battery DC Port Input/Output | |
|---|---|
| Max. Power (kW) | 270 |
| Voltage Range (V) | 702~936 |
| Max. Current(A) | 314 |

| System Characteristic | |
|---|---|
| Grid-connected & Off-grid Switching Time (With STS) | ≤20mS |
| Communication Interface | CAN, RS485, Ethernet |
| Warranty | 5 years free, paid from the 6th to the 15th year |
| Certifications | UL9540A:2025, NFPA 855, NFPA 68<br>ANSI/CAN/UL1973:2022, ANSI/CAN/UL9540:2023<br>UL1741:2012 Ed.3+R:19May2023, UL1741:2021 Ed.3(Supplement SB)<br>CSA C22.2#1071:2016 Ed.4+U1<br>IEEE 1547:2018,EEE 15471:2020 |

| General Parameters | |
|---|---|
| Battery Model | R-MP261135A1-US |
| Dimensions - W*D*H (in) | ~43.3*57.5*93.5 (±0.5) |
| Total Weight (lb) | ~6393 (±5%) |
| Operation Altitude | ≤4000m/13122ft (2000m/6561ft derating) |
| Noise Level @1m | <75 dB(A) |
| IP Rating | IP54 |
| Operating Temperature (°C/°F) | -30~55/-22~131 |
| Operating Humidity (RH) | 0 to 95%, non-condensation |
| Storage Conditions | –20~30°C/–4~86°F<br>Up to 95% RH, non-condensation<br>State of Energy (SoE): 50% initial |

## MPack 261D Parameters

| Battery Energy Storage | |
|---|---|
| Cell Type | LFP 3.2V/314Ah |
| Module configuration | 1P52S |
| System Combination (Modules) | 5 in series |
| Capacity (kWh) | 261.2 |
| Nominal Voltage (V) | 832 |
| Operation Voltage Range (Vdc) | 702~936 |
| Discharge Depth | 90% DoD |
| Thermal Management Mode | Liquid-Cooled |
| Thermal Control Management | Aerosol Extinguishing |

| DCDC | |
|---|---|
| Max. Output Power (kW) | 240 |
| Rate Output Power (kW) | 125 |
| Peak Efficiency | ≥ 99% |
| DC Bus-side Output Voltage Range (Vdc) | 500~1000 |
| DC Bat.-side Output Voltage Range (Vdc) | 150~1000 |

| System Characteristic | |
|---|---|
| Communication Interface | CAN, RS485, Ethernet |
| Warranty | 5 years free, paid from the 6th to the 15th year |
| Certifications | UL9540A:2025, NFPA 855, NFPA 68<br>ANSI/CAN/UL1973:2022, ANSI/CAN/UL9540:2023<br>UL1741:2012 Ed.3+R:19May2023, UL1741:2021 Ed.3(Supplement SB)<br>CSA C22.2#1071:2016 Ed.4+U1<br>IEEE 1547:2018,EEE 15471:2020 |

| General Parameters | |
|---|---|
| Battery Model | R-MP261240D1-US |
| Dimensions - W*D*H (in) | ~43.3*57.5*93.5 (±0.5) |
| Total Weight (lb) | ~6393 (±5%) |
| Operation Altitude | ≤4000m/13122ft (2000m/6561ft derating) |
| Noise Level @1m | <75 dB(A) |
| IP Rating | IP54 |
| Operating Temperature (°C/°F) | -30~55/-22~131 |
| Operating Humidity (RH) | 0 to 95%, non-condensation |
| Storage Conditions | –20~30°C/–4~86°F<br>Up to 95% RH, non-condensation<br>State of Energy (SoE): 50% initial |

## Array Combiner Cabinet Parameters

| General Parameters | |
|---|---|
| Product Model | R-MC625ACC01-US |
| Rated Power (kW) | 625 |
| Functions | Array-level low-voltage AC power distribution and combiner |
| Cable Entry/Exit Method | 5 incoming(from Battery), 1 outgoing(to Grid) |
| Grid-Side (A) | 1000 |
| Operating Temperature | -20°C to 55°C |
| Ingress Protection Rating (IP Rating) | IP54 |
| Corrosion Protection Rating | C5 |
| Certifications | US standard |

## Matrix Combiner Cabinet Parameters

| General Parameters | |
|---|---|
| Product Model | R-MC2500ACC01-US |
| Rated Power (kW) | 2500 |
| Functions | Matrix-level low-voltage AC power distribution and combiner |
| Cable Entry/Exit Method | 4 incoming(from Battery), 1 outgoing(to Grid) |
| Grid-Side | Built-in |
| Operating Temperature | -20°C to +55°C |
| Ingress Protection Rating (IP Rating) | IP54 |
| Corrosion Protection Rating | C5 |
| Certifications | US standard |

## STS Cabinet Parameters (2 units in parallel)

| General Parameters | |
|---|---|
| Product Model | R-ST02S63003-US |
| Core Switch | Fast Transfer Switch, 630 A ×2 in parallel, 4-pole, 1071 A |
| Control Box | STS Control Box |
| External Switch | 630 A ×2 |
| Diesel Generator Interface | MCCB, supports remote open/close control |
| PV Interface | MCCB, supports remote open/close control |
| Electric Meter | AC Meter |
| Ingress Protection Rating | IP54 |
| Certifications | US standard |
| Installation Method | Floor-mounted or wall-mountedt |

## STS Cabinet Parameters (5 units in parallel)

| General Parameters | |
|---|---|
| Product Model | R-SS05G200003-US |
| Core Switch | 2000A*4 (A/B/C/N each) |
| Input-Side ACB (Air Circuit Breaker) (A) | 2500 |
| Output Load Switch (A) | 1200 |
| Manual Maintenance Bypass | 1200A switch |
| Diesel Generator Switch | 1200A, supports remote open/close control |
| PV Switch | 1200A, supports remote open/close control |
| Control Box | STS Control Box |
| Auxiliary Configuration | Built-in UPS, air-cooled air conditioner |
| Ingress Protection Rating | IP54 |
| Certifications | US standard |
| Installation Method | Outdoor floor-mounted |

## STS Cabinet Parameters (10 units in parallel)

| General Parameters | |
|---|---|
| Product Model | R-SS10G400003-US |
| Core Switch | 2000A*2*4 (2 in parallel for each A/B/C/N phase) |
| Input-Side ACB (A) | 4000 |
| Output ACB (A) | 2500 |
| Maintenance Bypass ACB (A) | 2500 |
| Diesel Generator ACB | 4000A, supports remote open/close control |
| PV ACB | 4000A, supports remote open/close control |
| Control Box | STS Control Box |
| Auxiliary Configuration | Built-in UPS, air-cooled air conditioner |
| Ingress Protection Rating | IP54 |
| Certifications | US standard |
| Installation Method | Outdoor floor-mounted |

## MPPT Combiner Cabinet Parameters

| General Parameters | |
|---|---|
| Product Model | R-MP03DM24000-US |
| Rated Power (kW) | 240 |
| Number of Inputs | 36 PV inputs (6 strings per MPPT) |
| MPPT Modules | 40kW*6 |
| Meter | DC meter |
| Compatible Systems | Renon 261 kWh energy storage system (DC side) |
| Installation Method | Outdoor wall-mounted |
| Ingress Protection Rating | IP54 |
| Certifications | US standard |
| Operating Temperature | -30°C to 55°C |

## Communication Cabinet Parameters

| General Parameters | |
|---|---|
| Product Model | R-CC01C00800 |
| Applicable Area | EU/US |
| Built-in Equipment | Internal/external switches, routers, EMS industrial PC, small UPS module, 600 W air-cooled air conditioner |
| Functions | Supports integration with Station EMS and third-party EMS<br>equipped with multiple RS485 and Ethernet ports for data acquisition, communication, and control |
| Installation Method | Outdoor floor-mounted |
| Operating Temperature | -30°C to 55°C |
| Ingress Protection Rating | IP55 |
| Corrosion Protection Rating | C5 |

## US Standard Transformer

| General Parameters | |
|---|---|
| Product Model | R-MT3000PT01-US |
| Rated Capacity (kVA) | 3000 |
| Number of Phases | 3-phase |
| Frequency (Hz) | 60 |
| Primary Voltage (kV) | 13.8 |
| Secondary Voltage (V) | 480 |
| Impedance | 5.75%–7.5% |
| Cooling Method | KNAN |
| Insulating Liquid | High fire point liquid (FR3) |
| Ingress Protection Rating | IP54 |
| Dimensions - W*D*H (mm) | 1850*3260*2500 |
| Weight (kg) | ~7500 |
| Certifications | ANSI/IEEE C57.12, DOE 2016 |

## SST Parameters

| General Parameters | |
|---|---|
| Product Model | R-ST01T252003-US |
| Input Voltage (kV) | 13.8 |
| Frequency (Hz) | 60 |
| Output Voltage (Vdc) | 800 |
| Rated Capacity (kW) | 2520 |
| Configuration | AC input cabinet, power cabinet, DC output cabinet |
| Ingress Protection Rating | IP54 |
| Certifications | US standard |

## DC Charging Station

| General Parameters | |
|---|---|
| Rated Power (kW) | 400 |
| Peak Efficiency | ≥97% (800Vdc input, 800Vdc output @ full load) |
| Input Voltage (Vdc) | 650~962 |
| Output Voltage (Vdc) | 200~ 1000 |
| Maximum Current per Connector (A) | 400 |
| Number of Charging Connectors | 2 connectors (dual gun, CCS1 / NACS) |
| Cable Length | 5 m |
| Cooling Method | Forced air cooling |
| Communication Protocol | OCPP 1.6J, supports Ethernet/LTE |
| User Authentication | RFID (ISO/IEC 14443A), POS terminal |
| Safety Protection | Input over/under voltage protection, output overcurrent protection, overtemperature protection short-circuit protection, surge protection, access control protection |
| Ingress Protection Rating | IP55 (system), IK08 (screen), IK10 (enclosure impact protection) |
| Operating Temperature | -30°C to 50°C (derating above 50°C) |
| Storage Temperature | -40°C to 75°C |
| Relative Humidity | 5% – 95% (non-condensing) |
| Altitude | ≤2000m |
| Noise | <80 dB (at 1 m) |
| Dimensions - W*D*H (mm) | 950*1150*2400 (including cable management system) |
| Additional Features | Cable management system, fan PWM dynamic control, door-open safety button |

## Auxiliary Power Distribution Cabinet

| General Parameters | |
|---|---|
| Function | Provides low-voltage auxiliary power for control, lighting, HVAC, and heating of the energy storage system |
| Input Voltage (Vac) | 480 (sourced from the point of interconnection or the low-voltage side of the transformer) |
| Output Voltage (Vac) | 400 (typical, customizable as required) |
| Capacity | Determined by system configuration (typically 30 kVA–120 kVA) |
| Supply Method | Can be supplied by the customer or optionally provided by Renon |
| Installation Method | Floor-mounted |
| Ingress Protection Rating | IP54 or higher recommended |

## Renon Power USA LLC

580 McIntyre Rd. McKinney, TX 75071

## Renon Power Technology B.V.

Rietbaan 10, 2908 LP Capelle aan den IJssel

## Renon Power 株式会社

東京都中央区日本橋箱崎町 20-5 VORT 箱崎 5F


Linkedin

Website