# M5

## Next-Gen Microgrid BESS

## Powered by Innovative SLD Architecture




- More Economic
- More Stable
- More Resilient
- More Convenient

### Applications

**Uninterrupted Power Supply**
Keep your business running through any grid outage

**Off-grid Power Supply**
Reliable power beyond the grid, at lower cost

**Generator Fuel Saving**
Cut oil consumption and operating costs

**Utility Grid Boost**
Enable heavy loads to run beyond grid capacity limits

**Renewable Energy Optimization**
Maximize renewable energy utilization

**Mobile Power Station**
Power anywhere, Mobile, Reusable, Reliable

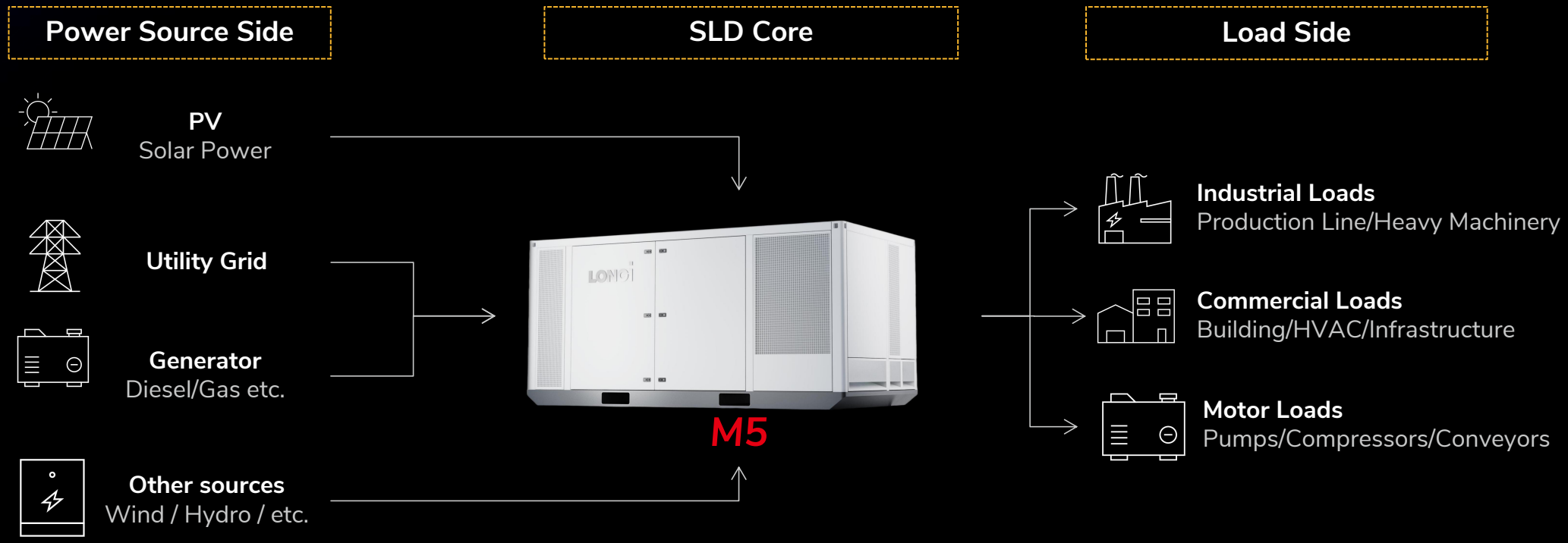
### Scenarios

Mining | Construction | Factory | Port | Oil Field | Irrigation | Farm | Island/Resort | Hotel/Dinning | Village | Villa / Estate | Temporary Site

# The Innovation Behind M5

## Source-Load Decouple Architecture (SLD)

**Decouple the Source. Stabilize the Load. Unlock the Microgrid**




## Benefits

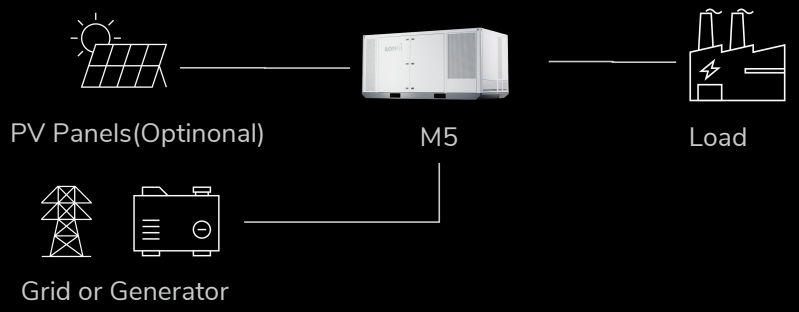
- Load always receives stable and higher quality power
- Source and load operate independently
- Renewable, grid and generator are optimally coordinated
- One architecture supports multiple applications

# Application 1 Uninterrupted Power Supply

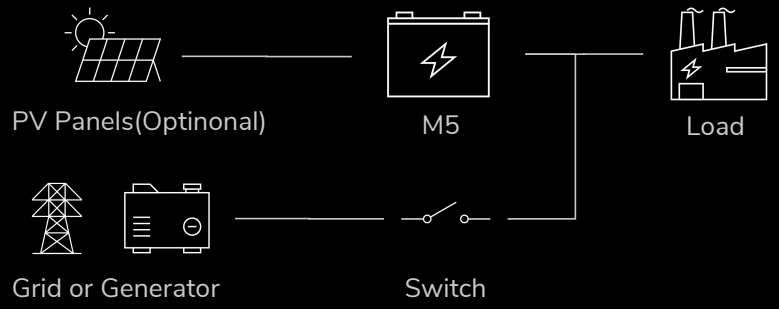
Delivering seamless power transfer and uninterrupted operation for load, ensuring your business stays always on, even during grid or generator disturbances or outages.

## SLD Architecture

**0ms transfer with 100% success rate**

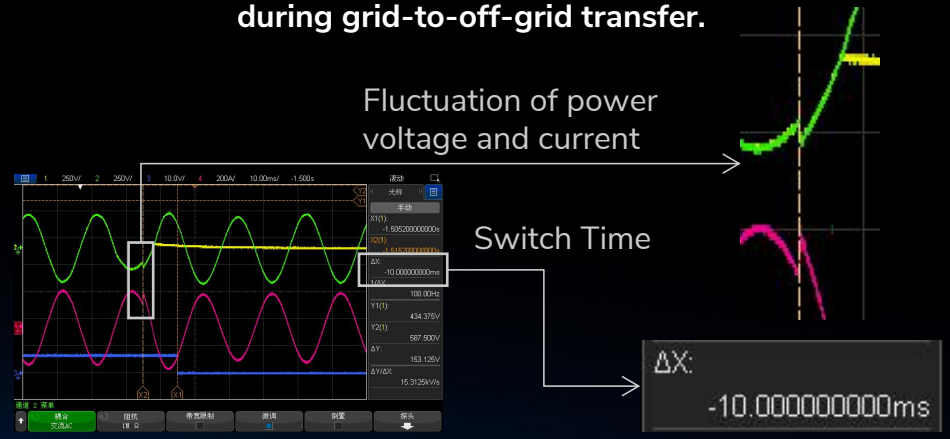



## Traditional Architecture




| Item | SLD Arch | Traditional Arch |
|---|---|---|
| **Load Experience** | **invisible to outage** | Sensitive load will be impacted by transfer fluctuation |
| **Transfer Time** | **0ms** | 10 ~ 20ms |
| **Transfer Success Rate** | **100%** | <100% |
| **Transfer Fluctuation** | **No** | Yes |
| **On-site Work** | **Less** | More |

**Traditional architecture's transient response during grid-to-off-grid transfer.**



# Application 2 Off-grid Power Supply

Delivering reliable and independent power in off-grid environments. With solar PV as the primary power source, M5 as the core regulation unit, and generators as emergency backup power.

## Benefits:

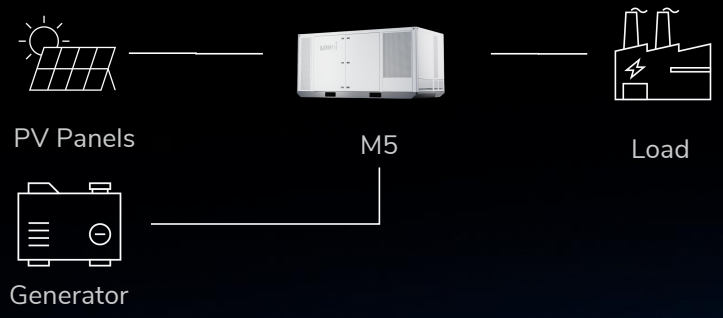
1. Lower Energy Cost
2. Reduced Generator Sizing
3. Reliable 24/7 Power Supply
4. Improved Power Quality
5. Lower Carbon Emissions
6. Energy Independence

**Energy cost calculation example: 250kW PV + one M5**

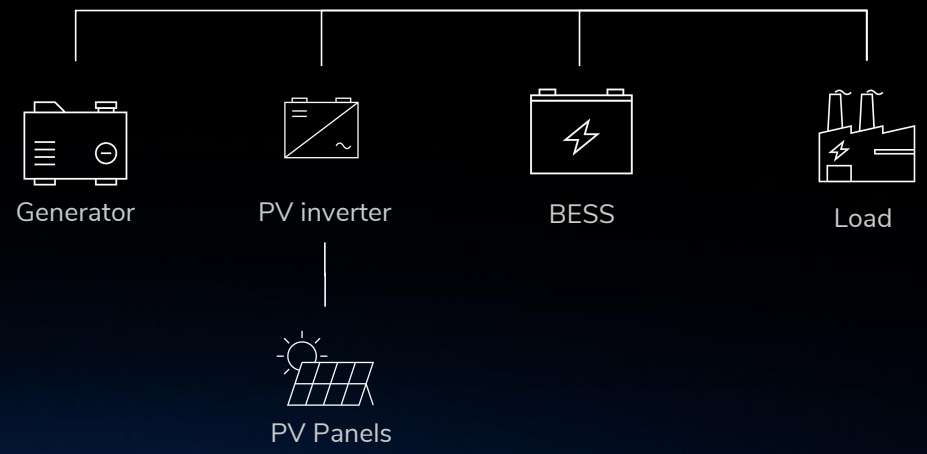
| Item | Value |
|---|---|
| Power generation over 30 years | 13,437,275 kWh |
| Energy cost by diesel generator | 5.76 Million USD |
| LCOE by diesel generator | 0.43 USD/kWh |
| Energy cost by PV+BESS | 0.36 Million USD |
| LCOE by PV+BESS | **0.027 USD/kWh** |

✓ More PV & BESS
✓ More Economic
✓ More Resilient
✓ Less work

**SLD Architecture**




**Traditional Architecture**



| Item | SLD Arch | Traditional Arch |
|---|---|---|
| **Installable PV Capacity** | **More**<br>• PV capacity is decoupled from generator stability.<br>• Example with 1000kVA Generator, PV capacity can be sized based on energy demand and battery capacity, **such as 1MW, 2MW, or even higher** | Less<br>• PV capacity is constrained by generator stability.<br>• Example with 1000kVA Generator, typically **240–400kW PV**. |
| **Installable BESS Capacity** | **More**<br>• BESS sizing driven by energy demand<br>• Example with 1000kVA Generator, **1-5MW**. | Less<br>• BESS capacity is constrained by generator stability.<br>• Example with 1000kVA Generator, typically **400–800kW**. |
| **Generator Efficiency** | **High**<br>• Generator only starts when it is nedded.<br>• Allows smaller generator sizing.<br>• Enables operation near optimal loading points.<br>• **No need for minimum stable load**(about 30% of its capacity) | Low<br>• Generator runs all the time and at low efficiency.<br>• Higher fuel consumption and maintenance costs.<br>• Shorter generator lifetime<br>• **Need minimum stable load**, Otherwise, the generator may be forced into low-load operation, reverse power conditions, and frequency fluctuations. |
| **PV Energy Penetration** | **High**<br>• PV output is decoupled from load stability requirements.<br>• Greater utilization of pv energy without compromising system reliability.<br>• Reduced generator runtime. | Low<br>• Renewable penetration is often limited by grid stability concerns. |
| **Power Quality** | **High**<br>• M5 directly forms and regulates the load-side microgrid.<br>• Voltage and frequency remain stable regardless of PV fluctuations or generator dynamics.<br>• Sensitive equipment experiences fewer disturbances and shutdowns. | Low<br>• Power quality depends on the interaction between PV inverter, BESS, and generator.<br>• Greater risk of voltage/frequency fluctuations and power quality issues. |
| **System Stability** | **Better**<br>• Source-side disturbances are isolated from the load side.<br>• Generator startup, PV intermittency, and source switching have no impact on loads.<br>• More resilient operation under harsh off-grid conditions. | Worse<br>• All power sources are coupled on the same AC bus.<br>• Disturbances can propagate throughout the system. |
| **System Integration** | **Simple**<br>• PV, generator, and future energy sources connect through standardized interfaces.<br>• Less engineering customization. | Complex<br>Requires extensive integration and compatibility validation among multiple vendors. |
| **On-site Work** | **Less,** Faster deployment and commissioning. | More |

# Application 3 Generator Fuel Saving

By integrating M5 between the generator and the loads, large generators can be replaced with smaller ones. Generator runtime is significantly reduced, while the generator can operate at its optimal efficiency point.

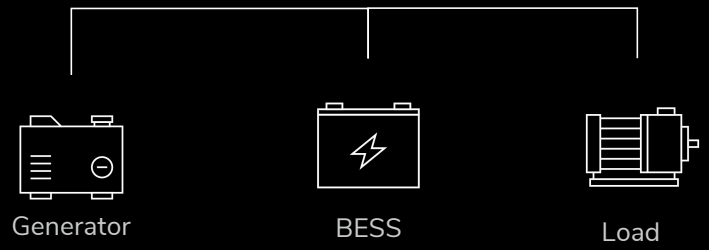
**SLD Architecture**

**40% ~ 80%**
Fuel Saving rate




**5% ~ 15%**
Fuel Saving rate

**Traditional Architecture**







Fuel saving statistics of static pile machine in Singapore

| No. | Data Item | Value | Unit | Remark |
|---|---|---|---|---|
| 1 | Fuel price | 1.5 | USD/litre | |
| 2 | Work hours | 8 | hours/day | 9am-12am 1pm-6pm |
| 3 | Consumed electricity by pile machine | 284 | kWh/day | |
| 4 | Old gen set consumed fuel | 144 | litre/day | No battery, Only 300KVA gen set |
| 5 | New gen set power | 100 | KVA | |
| 6 | New gen set fuel consumption | 0.258 | litre/kWh | run @75% Load |
| 7 | New gen set consumed fuel | 86 | litre/day | |
| 8 | Battery Charge time | 5.5 | hours/day | |
| 9 | M5 Charger efficiency | 97 | % | |
| 10 | M5 PCS efficiency | 97 | % | |
| 11 | M5 Battery round-trip efficiency | 94 | % | |
| 12 | M5 Standby Power | 0.1284 | %/h | SOC, when no load |
| 13 | M5 Standby Power Consumption | 11 | kWh/day | when no load |
| 14 | **Fuel consumption down** | **-58** | litre | |
| 15 | **Fuel consumption down percent** | **-40** | **%** | |
| 16 | **Fuel fee down** | **-87** | USD/day | |

# Application 4 Utility Grid Boost

Leveraging the power amplification capability of the M5, all electrical loads are directly powered by the M5 to meet instantaneous high-power demand. The utility grid only provides low-power charging to the M5.

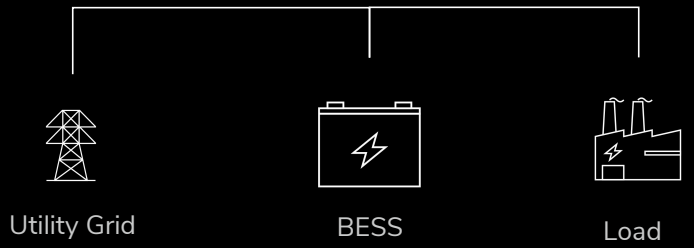
## SLD Architecture

Capacity 100kW → Peak Load 250kW

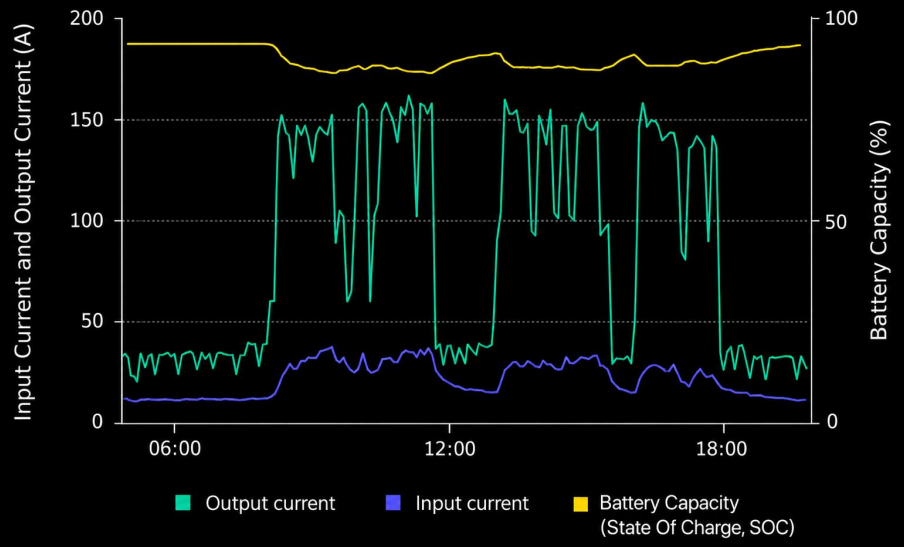



## Traditional Architecture

Capacity 100kW → Peak Load 130kW




Basic Principle

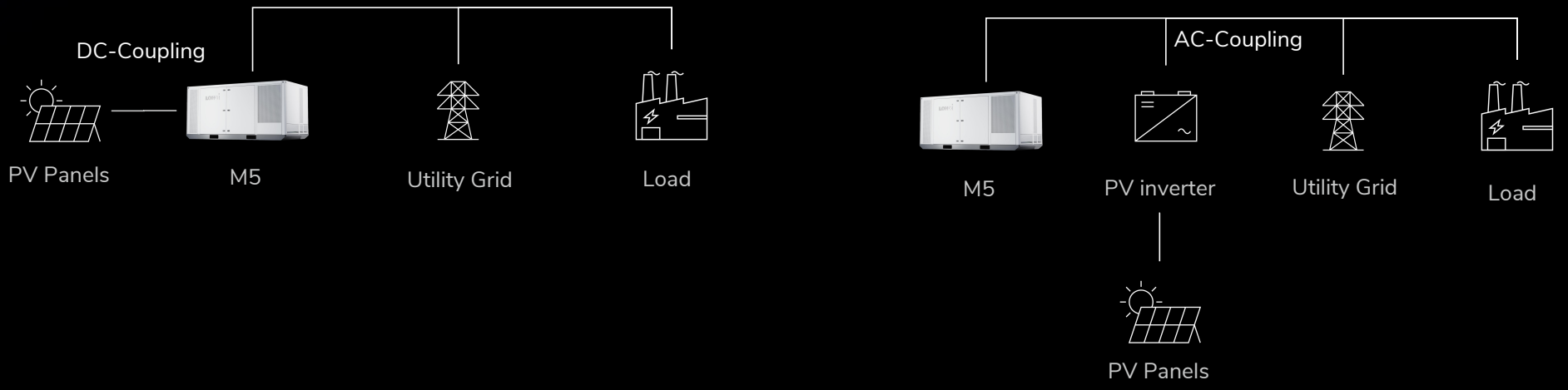



| Item | SLD Arch | Traditional Arch |
|---|---|---|
| Boost Ratio | 2.5×<br>decouples load dynamics from grid constraints, allowing higher expansion ratios without overloading the grid | 1.0~1.5×<br>If the BESS cannot respond quickly enough, the grid sees the instantaneous peak, which can overload the grid or trigger protective devices. |
| Risk of Grid Overload | Rare | High |
| Impact on Weak Grids | Minimal | Significant |
| Grid Protection Nuisance Trips | Rare | More Likely |
| Power Quality | High<br>Grid is invisibe to load changes | Low<br>Grid voltage/frequency may fluctuate under sudden load changes |
| Grid Capacity Utilization | Optimized | Inefficient |

# Application 5 Renewable Energy Optimization

Maximize renewable energy usage through intelligent coordination of solar, battery storage, and loads, reducing energy costs and improving system efficiency.

**Support both DC-Coupling and AC-Coupling**




## DC-Coupled Benifits

1. **Higher Efficiency(+3~4%)** – PV power charges batteries directly via DC/DC conversion, avoiding multiple AC/DC conversions and reducing energy losses. A 1 MW PV system generating 1,800 MWh annually can utilize approximately **72 MWh more** solar energy each year through DC coupling, compared to a conventional AC-coupled architecture.
2. **Lower Renewable Curtailment** – More PV energy can be stored in the battery, minimizing clipping and wasted energy.
3. **Larger PV Oversizing Capability** – PV array can be oversized relative to the PCS rating without overloading the AC bus.
4. **Increased Renewable Energy Utilization** – More of the generated renewable energy reaches the load, reducing reliance on diesel or grid energy.
5. **Reduced Levelized Cost of Energy (LCOE)** – By maximizing renewable use, fuel consumption is reduced, lowering overall energy cost.
6. **Improved System Flexibility** – DC Coupling enables better coordination between PV, battery, and load, especially during peak solar hours.

# Application 6 Mobile Power Station

Truck-mounted M5 is industrial microgrid designed for rapid deployment in off-grid and weak-grid environments.
By integrating mobile container PV, energy storage, microgrid control, and intelligent energy management into a single mobile platform, the M5 delivers green,reliable, and flexible power wherever it is needed.

**Truck-mounted M5**




**Mobile PV + M5**



# Case Study



① 

**Mongolia, Factory**
Utility grid boost，UPS

② 

**Mongolia, Coal Mine**
Off-grid pwer supply,
generator replacement

③ 

**China, Construction site**
Utilitygrid Boost

④ 

**China, Factory**
Utility grid boost

⑤ 

**Singapore, Construction site**
Generator fuel saving

⑥ 

**Cambodia, Factory**
Utility grid boost，UPS

⑦ 

**Madagascar, Villa Hotel**
Off-grid pwer supply,
generator replacement

⑧ 

**Kenya, Farm**
Off-grid pwer supply,
generator replacement

# LONGi Microgrid Product Portfolio

## Cover microgrid applications with standard products

Power System Autonomy / System Capability



**H2 Series**

Small-Scale Microgrid

50~750kW Power Range



**M5 Series**

Medium-Scale Microgrid

250~1250kW Power Range



**M20 Series**

Large-Scale Microgrid

1.25~20MW Power Range

Application Complexity / Project Scale

# ESS Product Line History

## Investing in technology



2013

One of the earliest integrators to introduce BMS solutions in Canada



2015

One of the earliest integrators to introduce battery pack solution and advanced TMS



2016

The first ESS integration to introduce iCCS solution



2017

One of the earliest integrators to release EMS solution



2018

Introduced string PCS for C&I and all-in-one solution for C&I



2020

Introduced string PCS for utility scale

One of the earliest integrators released all-in-one solution for utility scale

Canada RD Center expansion



2021

To build the joint LAB for industry's highest-quality solar-storage solutions



2022

BC Solar Technology and BESS high efficiency coupling

2013 2015 2016 2017 2018 2020 2021 2022 2023 2024 2025 2026 2027

**Early Tech Accumulation**

**Tech Revolution on Self-developed 5S**

**Upgrade on Full-scenario Solutions**

**Solar-storage Integration**

## Investing in capabilities

2015

PotisEdge founded, started BMS mass production



2017

65% of battery system market for GSE in airport



2018

Established first intelligent factory in China



2022

Over 1GWh/yr ESS products shipped



2023

Over 5GWh/yr ESS products shipped,

Top3 distributed BESS provider by shipment



2024

Recognized as a BNEF Global Tier 1 ESS Manufacturer

TOP 3 Global ESS Integrator (DC Side) by InfoLink

31GWh factory in Zhangjiagang, China



2025

Acquiring PotisEdge

30GWh factory to be SOP in Suzhou, China,

5GWh factory in Atlanta, US



2026

All-in-One CoE Network

A global full service platform, trusted partner for full-lifecycle project success



# End-to-End Turnkey BESS Solutions Provider

LONGi is a globally recognized leader in energy storage system (ESS) integration, specializing in making solar energy dispatchable and grid-friendly. With over 10 years expertise in the BESS industry, LONGi combines patented 5S technologies (BMS, ICCS, EMS, TMS, PCS) and automotive-grade manufacturing standards to deliver high-performance, sustainable energy solutions worldwide.

**13+ GWh**

Global Products Delivered

**100+ GWh**

Planned Capacity by 2028

**31 GWh**

Existing Production Capacity




**Utility-scale Solutions**

**C&I Solutions**

**Microgrid Solutions**

**Power Battery Solutions**

# Global Recognition by Authorized Institutions

Tier 1 BLOOMBERGNEF

**Recognized by BloombergNEF as a Tier 1 ESS Supplier for 2024Q3 - 2026Q1**

InfoLink CONSULTING | TOPS




## 1H25 Global shipment ranking by BESS integrators (DC side)

| Rank | BESS integrator |
|---|---|
| 1 | CATL |
| 2 | BYD |
| 3 | Hithium |
| 4 | RelyEZ |
| 5 | LONGi PotisEdge |

*Source: InfoLink's Global Energy Storage Supply Chain Database
*InfoLink strives for information comprehensiveness, but manufacturers' official data shall prevail in case of any discrepancies. InfoLink reserves the right of final interpretation and explanation of the data sources and research results.

# LONGi ONE - a Full-stack Independent R&D Native Integration

LONGi ONE

## One System

Full-stack in-house R&D PV & BESS Products redefine the core logic of PV-ESS systems.

## One Platform

The Intelligent Collaborative Software Platform revolutionizes the value growth path of green energy assets.

## One Responsibility

The turnkey solution and integrated O&M services reframe the trust boundary for energy cooperation.

# Global Footprint



- 2 Paris, France
- 5 Frankfurt, Germany
- 6 Madrid, Spain
- 10 Dubai, UAE
- 14 Jönköping, Sweden
- 15 Warsaw, Poland
- 16 Brescia, Italy
- 18 Johannesburg, South Africa

- (1) London, Uk
- (2) Paris, France
- (3) Rotterdam, Netherlands
- (4) Mouscron, Belgium
- (5) Frankfurt, Germany
- (6) Madrid, Spain
- (7) Brescia, Italy
- (8) Jönköping, Sweden
- (9) Warsaw, Poland
- (10) Shalanky, Ukraine
- (11) Kaposvár, Hungary
- (12) Bucureşti, Romania
- (13) Athens, Greece
- (14) Mogilev, Belarus
- (15) Istanbul, Turkey

- 1 Xi'an, China
- 2 Shanghai, China
- 3 Tokyo, Japan
- 4 NC Delhi, India
- 7 Sydney, Australia
- 11 Suzhou, China
- 17 Melbourne, Australia

- (16) Sydney, Australia
- (17) Melbourne, Australia

- 1 Xi'an / Xianyang · Shaanxi
- 2 Ordos, Inner Mongolia
- 3 Yinchuan and Zhongning, Ningxia
- 4 Datong, Shanxi
- 5 Hainan Prefecture , Qinghai
- 6 Taizhou and Wuxi, Jiangsu
- 13 Suzhou, China(ESS)
- 7 Chuzhou and Wuhu , Anhui
- 8 Quzhou and Jiaxing , Zhejiang
- 9 Baoshan, Lijiang, Chuxiong, Tengchong, and Qujing , Yunnan
- 10 Bắc Giang, Vietnam
- 11 Kuching and Selangor, Malaysia

- 1 Xi'an, China
- 2 Suzhou, China

- 8 San Ramon, USA
- 9 São Paulo, Brazil
- 12 Vancouver, Canada
- 13 L.A., USA

- (18) Atlanta, USA
- (19) L.A., USA
- (20) Houston, USA

- 12 Ohio, the United States
- 14 Atlanta, the United States(ESS)

- 3 Vancouver, Canada

Sales & marketing centers

CoE service hubs
- X In operation
- (X) Planned

Production bases

R&D Center