

SaaS : Sustainability as a Service

Huawei: Leading provider of ICT infrastructure and smart devices

Vision and mission

Bring digital to every person, home and organization for a fully connected, intelligent world



213,000

employees



53.7%

of employees work in R&D



63.8%

of employees outside China
hired locally



170+

countries and regions

Huawei South East Europe: Digital Power Business Unit



7 Countries
100+ employees
85% localization
rate

- **Greece**
- Romania
- Bulgaria
- Cyprus
- Moldavia
- Albania
- North Macedonia

- 35% Solution Experts
- 35% Services
- 15% Channel Sales
- 10% Business Development
- 5% Management +Administration support

Huawei Greece

Huawei Digital Power Contributes in Greece's Energy Transition

- **2005**: Huawei established its local office in Greece
- Headquarters: **Marousi**, Athens
- **200+** employees in Greece

- **2020**: Established Local Digital Power Team
- 2 Digital Power office locations (Athens & Thessaloniki)
- Largest **Local Team** (>50 ppl)
- Dedicated **Solution Team / Service Team**
- 4 Local Warehouses

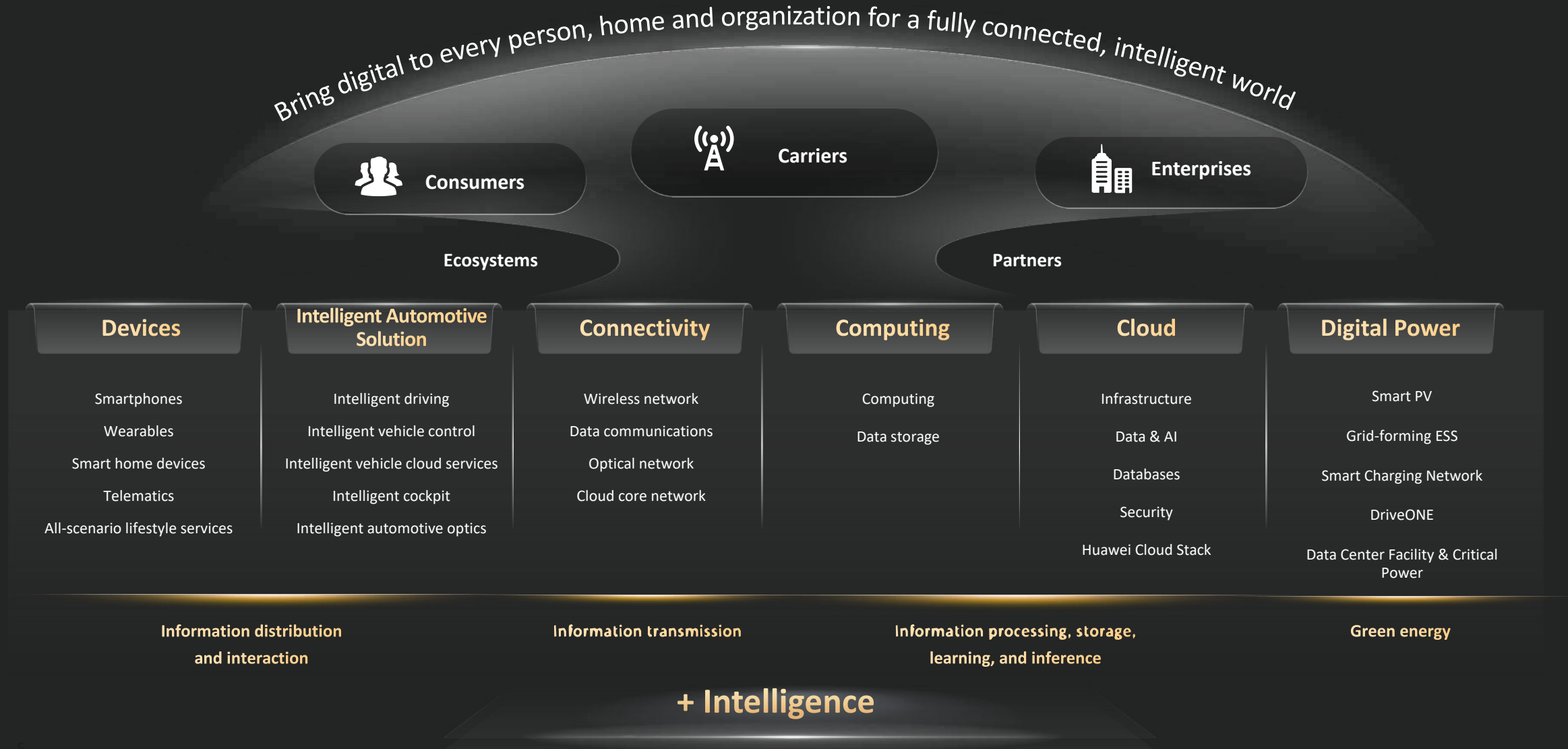


Intersolar, Munich

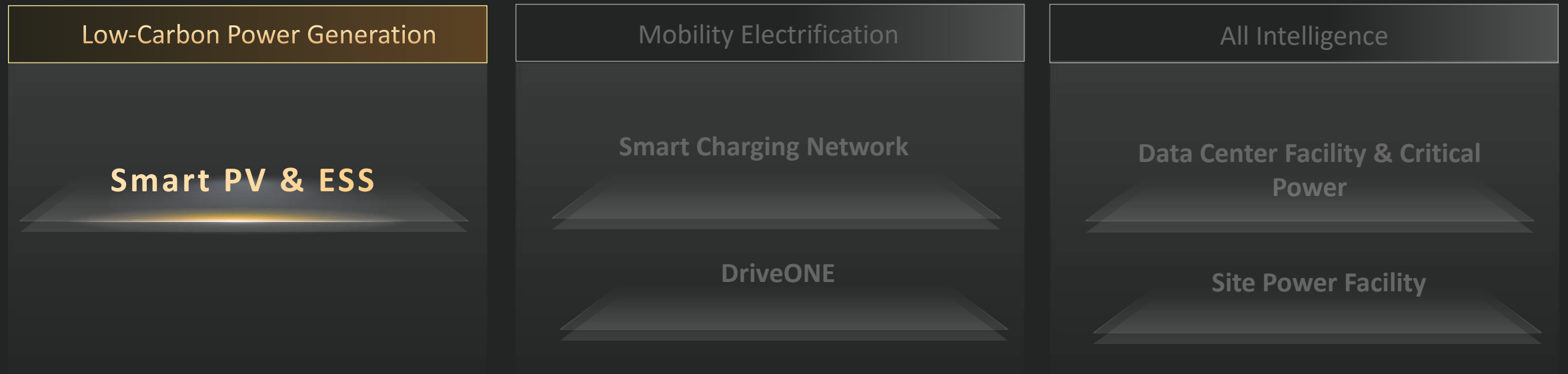


Collaboration with the local ecosystem

Focusing on ICT to provide products, solutions, and services to three customer groups alongside ecosystems and partners



Transforming from BESS to **VGESS**



Value **G**enerating **ESS**

Combine PV and energy storage, enabling green PV as a main energy source for every home and business

Tech innovation

Smart string inverters becoming mainstream

80%

Global string inverter market share

Smart Renewable Energy Generator as a global benchmark

Redefining three stabilities for grid integration of renewables

Advancing grid-forming tech from lab to market

Market breakthrough

11 years

Since 2015, Huawei inverter shipments have ranked No. 1 globally

800 GW

By the end of 2025, total global inverter shipments

Standards contribution

30+

Joining global PV standards committees and working groups

PV plant
GB/T 43056
Technical requirements for photovoltaic power station in desert areas

60+

Formulation of global PV standards

ESS safety
GB/T 42288
Safety code of electrochemical energy storage station

400+

Review of global renewable standards

Rapid shutdown
Thailand EIT released module-level rapid shutdown standards

AFCI
IEC 63027
DC arc protection international standards

Thriving ecosystem

Sales partners (tier-1 + gold/silver)

500+

Service partners

170+

Installers (top/mid-tier)

5,000+

Utility

Grid-Forming ESS

Smart Microgrid

C&I

Residential

Yalong River, China
World's largest hydro-solar plant

Xizang, China
World's first grid-forming ESS plant in high-altitude, extremely cold, and weak-grid scenarios

The Red Sea destination, Saudi Arabia
World's first GW-level PV+ESS microgrid plant

Jiangsu, China
Optimizer+Inverter+ESS integrated project

Sweden
Gnesta, Sweden: a town of 1,000 households with PV installations

Utility: New changes and challenges in a new era



ROI

Deterministic benefits
Utility-scale PV project IRR $\geq 8\%$

ROI pressure
IRR $\downarrow$
2–3 pct



Grid stability and integration

Renewables penetration rate **< 30%**
Little impact on the power grid
Guaranteed integration

Renewables penetration rate **> 40%**
Impact on grid stability
Severe power curtailment



Safety protection

Most of issues related to **electrical Safety**
Controllable

Voltage/Power boosting
Multi-dimensional safety



O&M efficiency

Small-scale plants
Manual O&M still acceptable

GW-level plants
Numerous devices
Complex site environments

FusionSolar9.0: Redefining value for high-quality utility projects

FusionSolar9.0 Utility Smart PV Solution



Smart Array Controller (SACU)



Smart PV Controller

SUN2000-506KTL-H0



Management system

Optimal investment

- Higher DC withstand voltage and 1000 V AC solution, reducing BOS costs CNY3.6 cents/Wp*
- Early startup and late shutdown, increasing power generation revenue by about 1%

Grid forming

- Innovative grid-forming string inverter, improving renewables integration
- Stable operation in all grid scenarios (SCR ≥ 1.0)

Smart O&M

- First release of FusionSolar Agent, improving O&M and operation efficiency by 50%
- About 5% higher accuracy of PV power prediction

Safety and reliability

- Smart three-level safety upgrade, ensuring system safety
- Pioneering all-weather adaptive system, withstanding harsh environments

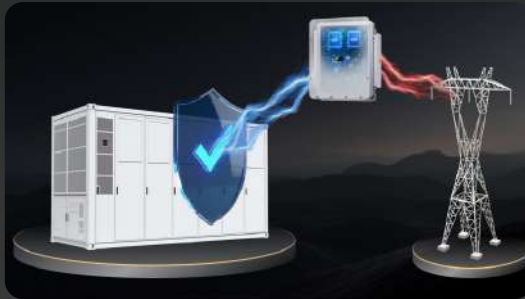
* Compared with the 3xx kW inverter in the 3.2 MW array solution.

Smart String Grid Forming ESS: Challenges in grid, safety, and operations



Grid stability

Multiple devices connected in parallel result in wider-band frequency oscillations, transient overload, and grid surge current.



Safety

Safety issues exist in the transport, storage, commissioning, and operation processes.



Operations

ESS capabilities are invisible and uncontrollable throughout the lifecycle.



All-scenario grid forming, full-lifecycle cost-effectiveness, full-link digitalization, and high safety and reliability



Smart Plant Management System (SPMS)



Smart String ESS



Smart PCS



Smart Power Plant Controller (SPPC)

All-scenario grid forming

All scenarios/All time domains/All working conditions

Plant-level grid forming

- Applicable scenarios: wind-solar sending end/power grid receiving end/small synchronous power grid/microgrid
- Stable grid forming in all steady/transient-state scenarios: full SOC range and full SCR range
- One-matches-all, flexible evolution of the string architecture, and multiple business models supported

Full-lifecycle cost-effectiveness

Higher value per kWh
10%+ higher lifecycle benefits

- Higher RTE 91.5% @ 0.25C low-voltage AC side
- Enhanced management, with about 9.7% higher discharge throughput
- Higher availability 99.9%, constant power discharge

Full-link digitalization

30% higher plant O&M efficiency
Annual cost saving: CNY3,000/MWh

- Huawei-developed SPPC+SEMS digital foundation: GW-level plants can be planned, managed, controlled, and optimized.
- Smart Health Guard: Fault warning in advance, ensuring safety from cells to grids

High safety and reliability

Active safety from cell to grid
ESS with a higher safety level

- Cell level: review of 155+ technical baselines, jointly defining cells
- Pack level: unique positive-pressure oxygen blocking + directional smoke exhaust
- Container level: directional explosion vent, no injury in case of thermal runaway
- System level: five-level AC/DC safety protection
- Grid level: no active power derating during HVRT, and no current backfeed

Smart microgrid: Professional services, stability and reliability, and optimal LCOE



Low stability

Low grid availability and high inrush current caused by frequent startup/shutdown of high-power induction motors



Harsh environment

Reliability challenges due to high altitude and large diurnal temperature variation



Difficult O&M

Remote uninhabited areas and significant losses when power outages interrupt production

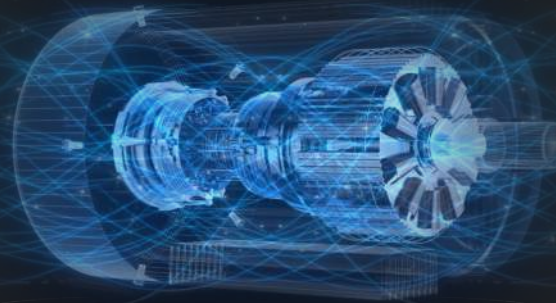


High cost

Diesel cost: up to US\$0.5/kWh and 2–3 years of payback period



Smart PV Controller



Smart Plant Management System (SPMS)



Smart String Grid Forming ESS

Professional services

- Professional design: matches the product scheduling logic and optimizes configurations by 20%+
- Professional simulation: provides electromagnetic simulation models to ensure grid-level reliability
- Professional commissioning: integrated solution, 50% less commissioning time

Strong reliability

- GWh-level large-scale off-grid power supply capability, 99.9% reliability
- Off-grid continuous fault ride-through, avoiding power outage losses of CNY3.66 million/10 MW
- Black start of the entire microgrid, minute-level power recovery

Optimal LCOE

- Optimal LCOE: 50%+ lower than genset LCOE
- 2:1 PV-to-storage ratio in off-grid scenarios, reducing LCOE by 30%+
- Off-grid stable grid forming, improving DOD by 13%+

C&I: Proactive safety, higher profitability, premium quality, and one-fits-all



System safety

Ensure asset and personal safety



Quality challenges

High failure rate and stable operation challenges in the industry



Revenue difference

The ESS capacity degradation or shortfall causes investment loss

Small-scale C&I



MB0-25K
50/100/150K



S1 (21 kWh)

Medium-scale C&I



30-150K



215/241 kWh
series



Liquid-cooled
power units

Large-scale C&I



330K



4.5/5 MWh

Proactive safety

- Inverter: DC-to-ground protection, **disconnecting ground faults within 15 ms**
- ESS: L-shaped directional duct for exhausting combustible gases, preventing explosions in cabinets

Higher profitability

- More installation and production: improving rooftop utilization by **50%** and energy yield by **30%**
- More charge and discharge: round trip efficiency up to **91.3%**

Premium quality

- Huawei's four processes including IPD and LTC ensure product quality throughout lifecycle.
- High-quality products from design, testing, and production; annual failure rate **< 0.5%**, and availability up to **99.999%**

One-fits-all

- Pre-installation, simpler deployment; on/off-grid applications, no isolation transformer required
- Higher power quality, adaptable to all scenarios
- Easy design, purchase, installation, commissioning, and maintenance

Residential solution: Unparalleled safety and quality, ease of use, intelligence and profitability



Revenue

Complex residential roof structure with shading



Safety

Rooftop PV systems deployed in homes



Backup power

High backup power demands from various home appliances

Green electricity

Optimizer

One-fits-all model vs. Six models

New New



Optimizer
MERC
Europe only

SUN5000
Optimizers
configured for all
PV modules
Europe only

Inverter

All scenarios, single- and three-phase

New



High-power
single-phase
LC0

Three-phase
four-wire
MAP0

ESS

Global benchmark, one generation ahead

New



Residential
ESS S0

Residential
ESS S1



Smart consumption

Charger

PV+ESS+charge
r+load synergy



SCharger
7/22 kW

Load

Home energy
management
system



SmartAssistant

Grid

Seamless
on/off-grid
switching

New



Single-phase
Whole-home backup

Three-phase

Cloud

Cloud-native architecture
for 10+ million plants



FusionSolar
Management
system & app

Shine on active safety

Ensuring safety on and under the roof

Shine on full journey convenience

Providing easy onsite installation
and remote O&M

Shine on intelligent yield

Balancing energy costs and user experience

Continuous Innovation, Creating Value for Customers

Low-Carbon Power Generation

Smart PV & ESS

Mobility Electrification

Smart Charging Network

DriveONE

All Intelligence

Data Center Facility & Critical
Power

Site Power Facility

Jointly building a high-quality and sustainable smart charging network

Poor user experience

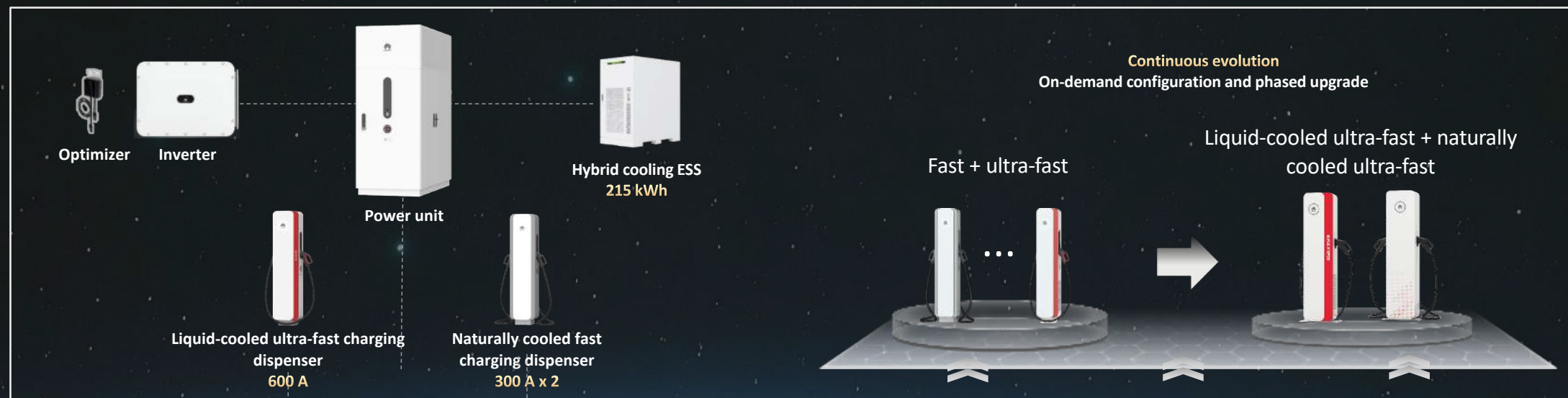
Low OPEX

Poor vehicle compatibility

Poor grid friendliness

High safety risks

Resource waste



Ultimate experience

First-attempt charging success rate of 99%



Superior quality

10 years of service life



Optimal ROI

More than doubled turnover rate



Megawatt charging technology breaks through the industry bottlenecks, ushering in a new era of electrified logistics

Joint design and definition
Overcoming technical challenges for
ultra-fast charging

Megawatt charging standard

2,400 A continuous output

Charging power: 360 kW → 1.44 MW

Battery life

4,000 cycles

Battery C-rate: 1C → 3.5C+

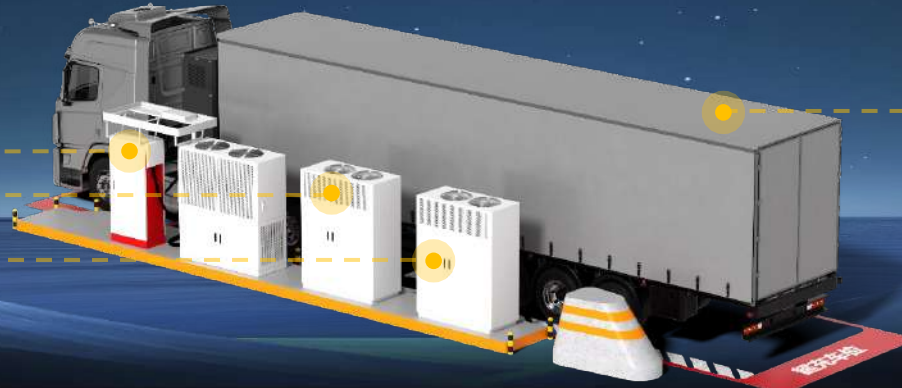
Off-board cooling

6x improvement

System cooling capability: 10 kW → 60 kW

One-stop FusionCharge Solution

Fully modular architecture, delivering high quality
throughout the lifecycle



Covering all vehicle models in all scenarios

50+ megawatt-charging vehicle models launched in 2025
Applicable to all vehicle types, including tractors, mixer trucks, cargo trucks,
and mining trucks



Fast charging: "15-minute" charging,
charging as fast as fueling

15-min level

from 10% to 80%
SOC



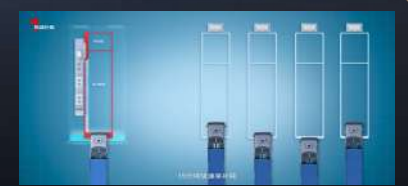
Superior quality: liquid cooling design for
extreme logistics environments

8x improved reliability



Optimal ROI: improved logistics
efficiency, recouping cost of one vehicle
in three years

15% improved logistics
efficiency



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Pioneering all-scenario intelligent powertrain solutions to revolutionize travel



Battery electric vehicle (BEV)



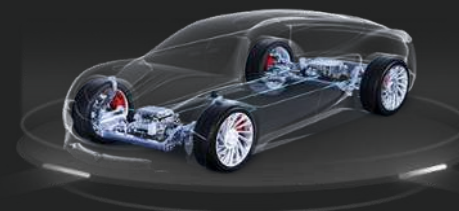
Powertrain for BEV



X-in-1 ePowertrain



Powertrain for REEV



Range-extended electric vehicle (REEV)



DriveONE-Cloud



Safe



Range-extended



Responsive



Comfortable

Delivered more than 250,000 vehicles in 21 months after launch, setting a new record* for deliveries of vehicles priced at CNY500,000+

AITO M9

800 V high-voltage fast charging

150 km
by 5-minute charge

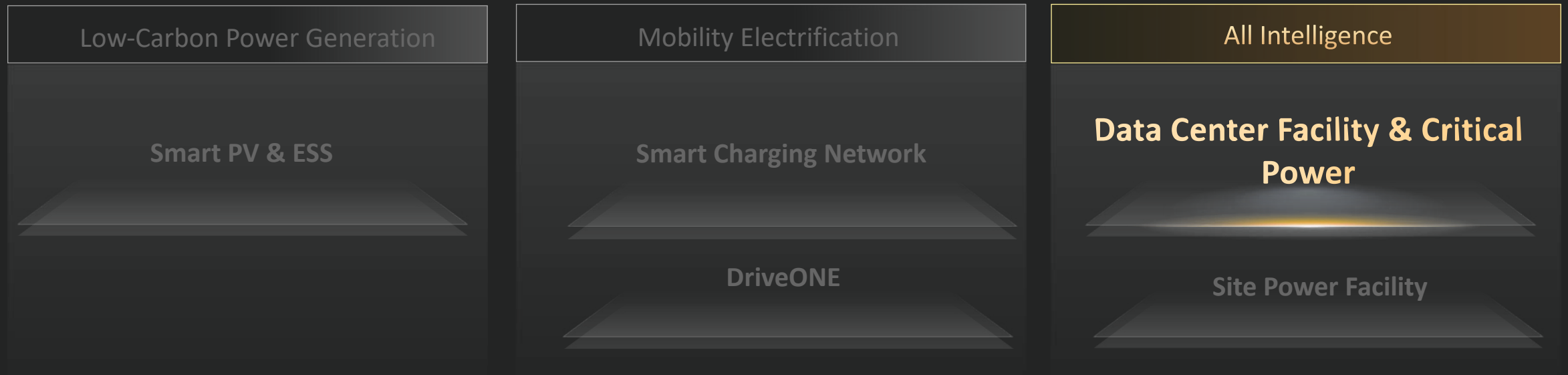
4.9 s
0–100 km/h acceleration
(REEV version)

1,402 km
Range (CLTC)

4.3 s
0–100 km/h acceleration
(BEV version)

* Data as of October 28, 2025.

Continuous Innovation, Creating Value for Customers



Focusing on "Reliable, Agile, and Sustainable" and developing scenario-specific solutions for building intelligent computing facilities to power the digital era forward



Large AIDC

Large-scale training and inference platforms (AIDCs), large cloud DCs, colo/OTT/carrier IDCs, and large DCs built by financial institutions, governments, and enterprises etc.

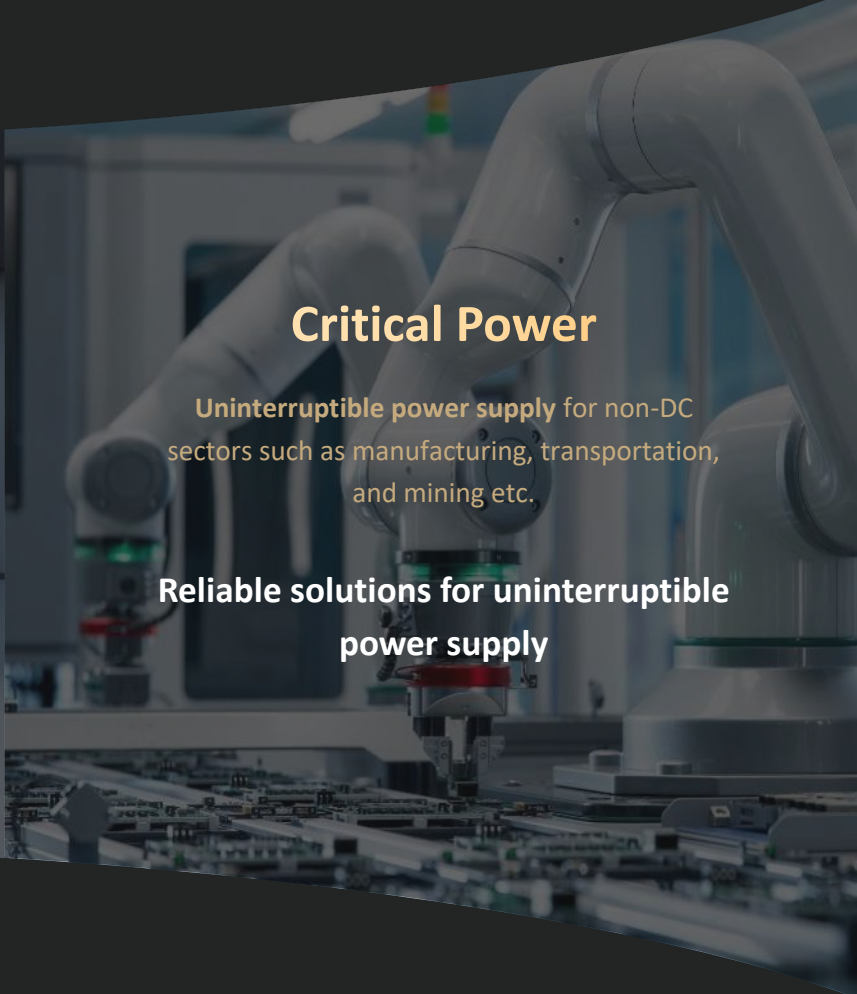
Overall solutions for large DCs



Small/Medium DC

Small/Medium-sized training and inference platforms, self-used facilities for education, healthcare, financial branches, and small- and medium-sized enterprises etc.

Integrated solutions for air-cooled smart modular DCs



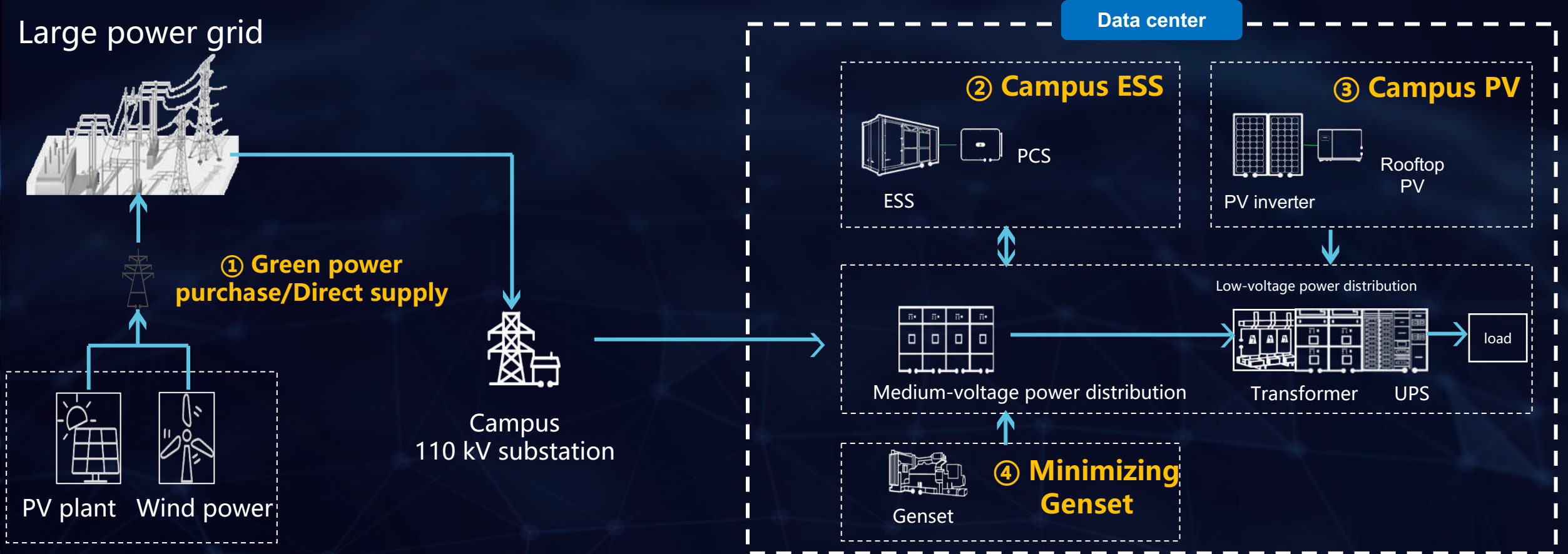
Critical Power

Uninterruptible power supply for non-DC sectors such as manufacturing, transportation, and mining etc.

Reliable solutions for uninterruptible power supply

Reliable · Agile · Sustainable

Clean Power Supply: Increasing the Percentage of Clean Energy in DC



① Green power purchase/Direct supply

People made great efforts to develop clean sources such as photovoltaic and wind energy

② Campus ESS

Flatten the peak and valley electricity prices of the grid.

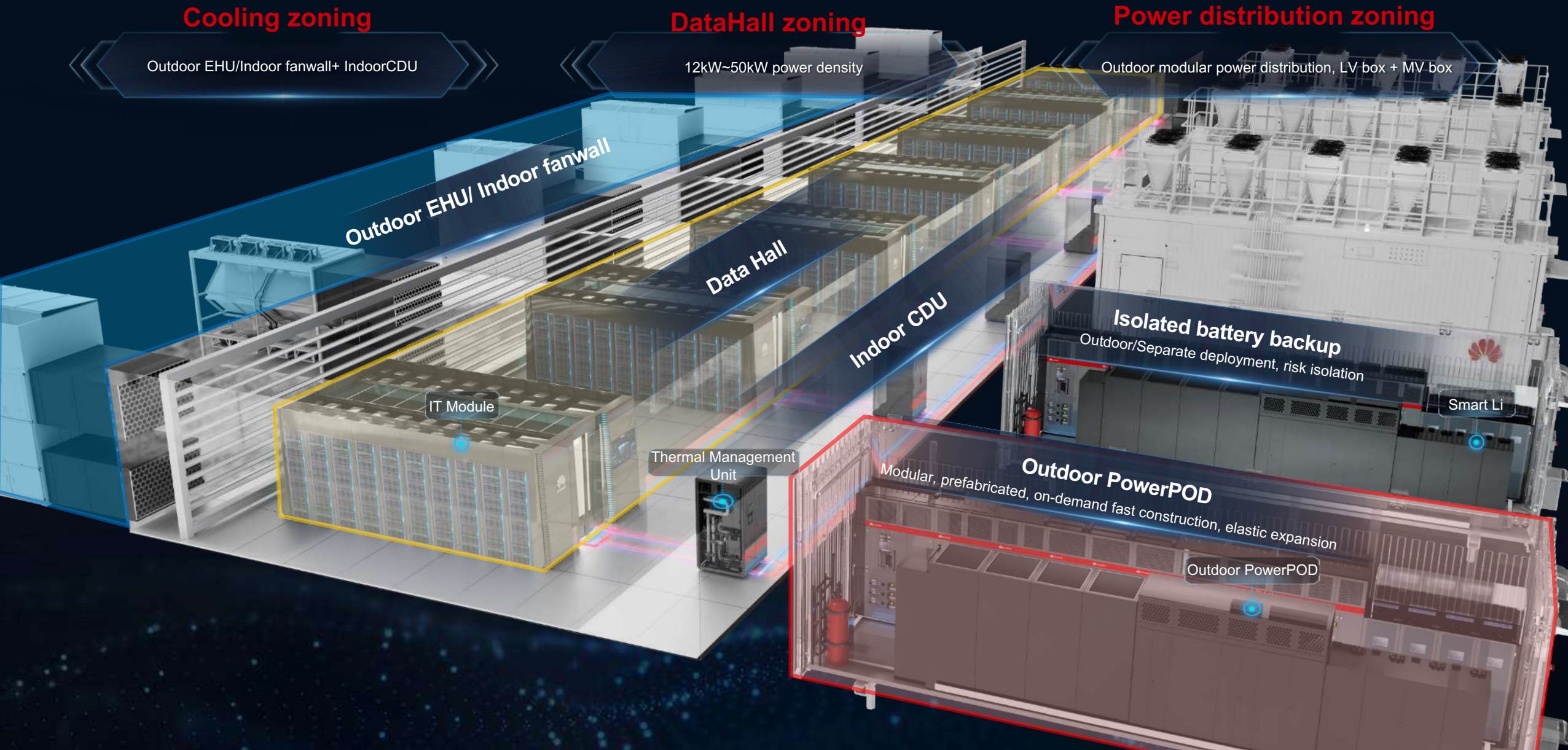
③ Campus PV

making full use of resources such as the roof of the data center campus

④ Minimizing Genset

Eco friendly / Hydrogen

Product modularization + System decoupling, Keys to Rapid Data Center Deployment



Continuous Innovation, Creating Value for Customers

Low-Carbon Power Generation

Smart PV & ESS

Mobility Electrification

Smart Charging Network

DriveONE

All Intelligence

Data Center Facility & Critical
Power

Site Power Facility

Site structure change: Simplified 4G/5G site deployment, smooth evolution, and minimal TCO

Room

Footprint: 12 m²

SEE: 60%



Traditional Room Site

Challenges

- Low efficiency: traditional air conditioner, SEE: about 60%
- No intelligent features, invisible

Cabinet

Footprint: 1 m²

SEE: 90%



One Site, One Cabinet

Features

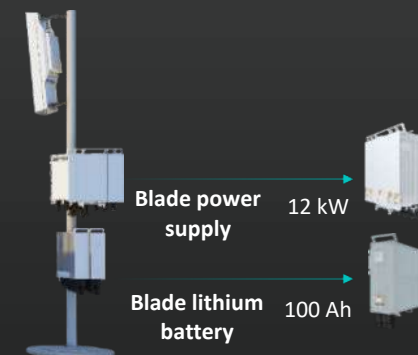
- High power density: One set of power supply outperforms multiple sets, saving electricity fees and rent.
- Intelligent voltage boosting eliminates the need to change cables. Peak shaving spares the worry of grid reconstruction.
- Intelligent power consumption management makes each branch visible, controllable, and manageable.

Pole

Footprint: 0 m², SEE: 97%

Lower electricity
fee/rent/maintenance cost

Capability alignment with cabinet sites



One Site, One Blade

Features

- 12 kW DPS with the highest power in the industry
- N+1 redundancy
- Intelligent peak shaving/voltage boosting

Thank you.

Bring digital to every person, home and organization for a fully connected, intelligent world

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