

ADVANTECH

Enabling an Intelligent Planet

Edge-EMS Builder ——Advantech Energy Builder Platform

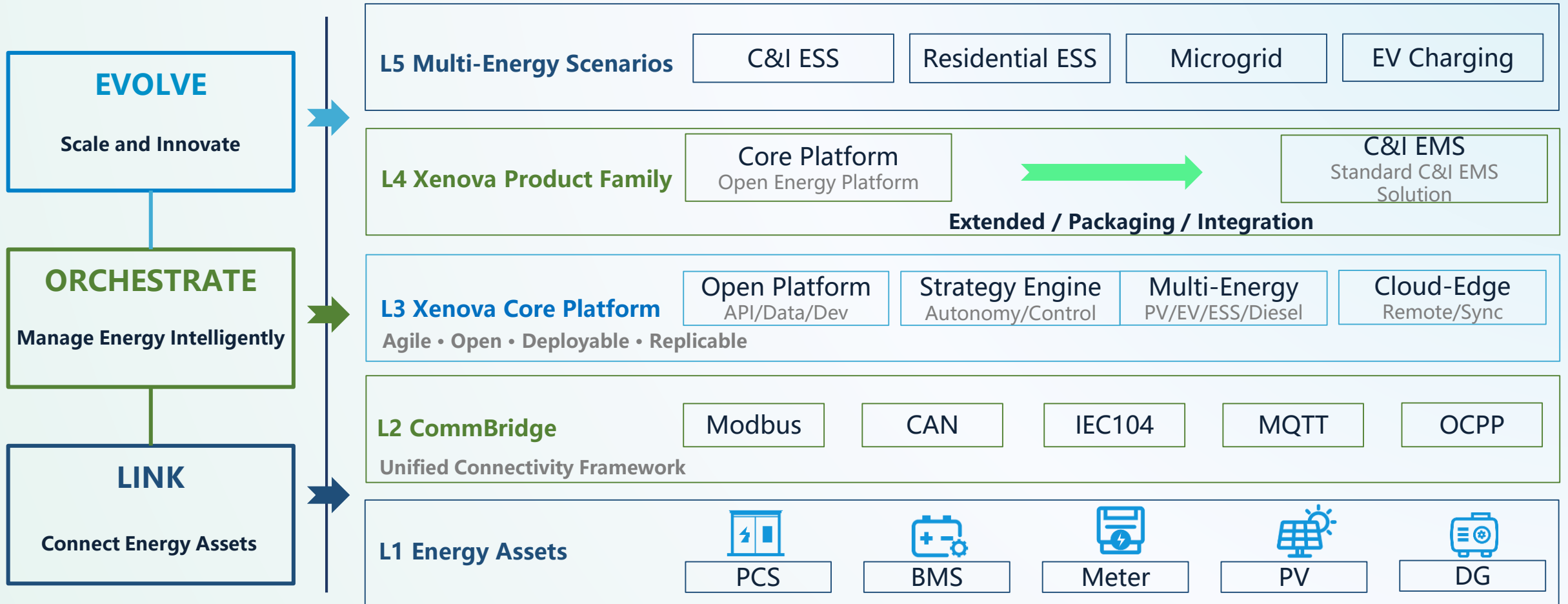
An Open Energy Orchestration Platform for Rapid Global EMS Deployment

Edge Computing &
AI-Powered WISE Solutions



Edge-EMS Builder Platform Matrix

One Platform • Multiple Products • Multiple Energy Scenarios



Build Once | Deploy Globally | Evolve Continuously

ADVANTECH

LINK:Device Connectivity & Unified Data Layer

Connect data reliably first, then scale with confidence.

LINK

ORCHESTRATE

EVOLVE

Connect Energy Assets and Build a Reusable Data Foundation

Connect field devices, protocols, and data points through CommBridge, enabling monitoring, strategy control, and development on unified data.

Multi-Device Connection

PCS / BMS / Meter / PV / Diesel
Generator / Charger



Multi-Protocol Compatibility

Modbus / CAN / IEC104 /
MQTT / OCPP / OPCUA...

Data Standardization & Reuse

Convert data points, status,
alarms, power, and energy data
into standard models for EMS,
strategy control, and API calls.

Customer Value

Keep Existing Devices

Reduce Repeated
Adaptation Work

Unify Standard
Data Sources

ADVANTECH

ORCHESTRATE:Strategy Configuration & Open Orchestratio

Turn connected data into a configurable, controllable, and extensible EMS.



Configure Energy Strategies and Open System Orchestration

Based on data connected through Link, users can configure control strategies in Core Platform, integrate third-party EMS, and extend applications through APIs.



EVOLVE:Service Reuse & Rapid Expansion

Build on existing services instead of rebuilding the system.

LINK

ORCHESTRATE

EVOLVE

Reuse Existing Services for Fast Expansion and Deployment

Build new capabilities on existing Xenova services and quickly deploy EMS services to new hardware platforms.

Service Capability Reuse

Reuse existing services for device access, strategies, alarms, data, and O&M.

Secondary Development

Extend new pages, strategies, reports, and scenarios on top of existing services.

One-Click Deployment

Quickly deploy EMS services to new edge hardware or project platforms.

Customer Value

Lower New Function
Development Cost

Shorten Hardware
Adaptation Cycle

Support Continuous
Expansion

Edge-EMS Builder in Action

Real software products behind the Edge-EMS Builder

Core Platform Open Platform Foundation

Xenova Core

数据名称: 请输入数据名称 Data Key: 请输入Data Key 分组Code: 请输入分组Code 搜索

采集方案: 请输入采集方案 采集分组: 请输入采集分组 批量删除

原始数据ID	数据名称	数据别名	单位	Data Key	是否在CommBridge配置中	采集ID	采集方案	采集分组	最新值	操作
100241	电网侧瞬时C相有功功率	电网侧瞬时C相有功功率	瓦	电网侧瞬时C相有功功率	true	A1a15EgE49812	电网侧电表	电网侧电表...	0	Edit Delete
100240	电网侧瞬时B相有功功率	电网侧瞬时B相有功功率	瓦	电网侧瞬时B相有功功率	true	Dn6SueDYw10601	电网侧电表	电网侧电表...	0	Edit Delete
100239	电网侧瞬时A相有功功率	电网侧瞬时A相有功功率	瓦	电网侧瞬时A相有功功率	true	VhKHwDomQ19...	电网侧电表	电网侧电表...	0	Edit Delete
100238	电网侧瞬时总有功功率	电网侧瞬时总有功功率	瓦	电网侧瞬时总有功功率	true	wUfKZVJpD30766	电网侧电表	电网侧电表...	0	Edit Delete
100237	用户侧瞬时C相有功功率	用户侧瞬时C相有功功率	瓦	用户侧瞬时C相有功功率	true	qnK2VV7Z18404	用户侧电表	用户侧电表...	0	Edit Delete
100236	用户侧瞬时B相有功功率	用户侧瞬时B相有功功率	瓦	用户侧瞬时B相有功功率	true	QYd9ueG010969	用户侧电表	用户侧电表...	0	Edit Delete
100235	用户侧瞬时A相有功功率	用户侧瞬时A相有功功率	瓦	用户侧瞬时A相有功功率	true	FuKRATVYX21211	用户侧电表	用户侧电表...	0	Edit Delete
100234	用户侧瞬时总有功功率	用户侧瞬时总有功功率	瓦	用户侧瞬时总有功功率	true	kOU8qaOhj13523	用户侧电表	用户侧电表...	0	Edit Delete
100233	用户侧电表1	用户侧电表分组1	瓦	用户侧电表1	false	0fc29671-708f-43...	用户侧电表	用户侧电表1	starte	Edit Delete
100232	田户侧电表	田户侧电表	瓦	田户侧电表	false	91f16c44-b42b-4...	田户侧电表	None	starte	Edit Delete

Platform tool for secondary development and capability accumulation

CommBridge Device Connectivity & Data Acquisition

WISE-DeviceOn aws 腾讯云 Azure 阿里云 华为云

设备列表: 采集设备, 处理设备, 上传设备, 通用设备

设备连接图: 展示了设备连接和数据采集流程。包括设备连接、数据处理、数据上传等环节。图中显示了设备连接到云平台（AWS、腾讯云、Azure、阿里云、华为云）的过程。

Connectivity entry point for field devices into Xenova

C&I EMS Standard C&I EMS

XENOVA管理系统

电站概况: 电池电量 SOC 86%, 电池状态 SOH 100%, 预计充/放电完成时间 24%, 可用容量/总储能容量 0 kWh, 累计放电功率 0 kWh, 累计充电功率 0 kWh.

自管设备: 三强自管 5 (23.81%), 统计 21, 产量 12 (57.14%).

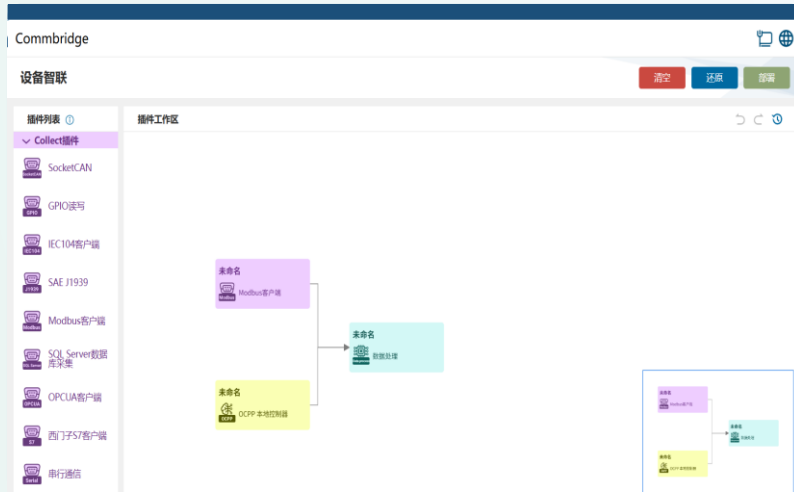
收益状况: 当前日收益 234 CNY, 累计日收益 1000 CNY.

主接线图: 展示了电站的主接线图，包括PV、DCDC、PCS、Transformer、Grid、Air Conditioner、Battery、Light等组件。

统计放电功率: 展示了统计放电功率的柱状图，时间范围从2025/07到2026/05。

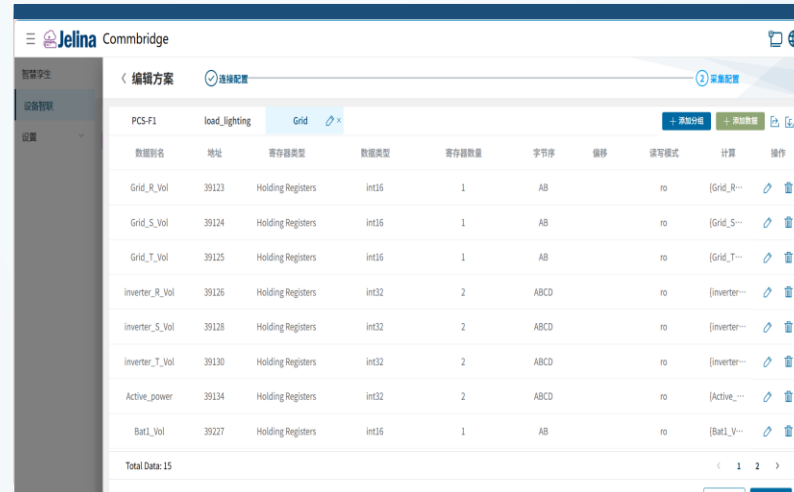
Standard EMS application interface visible to end users

CommBridge: Device Connectivity & Data Collection



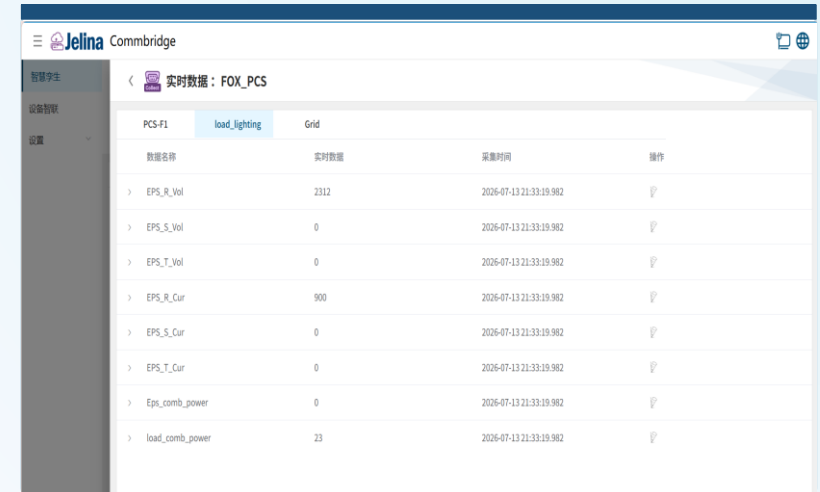
1. Protocol Plugin Matching

Select the right protocol plugin based on field device communication requirements.



2. Data Point Table Configuration

Configure device points, data types, and collection fields.



3. Data Collection and Upload

Collect real-time device data and upload it to Core Platform.

Connect devices, collect data, and take the first step toward energy digitalization.

AEMS

数据管理

数据管理

告警管理

云边协同

协作管理

权限管理

系统配置

yongjin

数据名称

请输入数据名称

Data Key

请输入Data Key

分组Code

请输入分组Code

搜索

🔄

📄

采集方案

Fox

采集分组

请输入采集分组

批量删除

数据名称	单位	采集ID	采集方案	采集分组	最新数据	关联聚合数据	所属分组	上次采集时间	备注	操作
Grid_R_Vol		FLxLx53213	FOX_PCS	Grid	229.100000	0	0	2026-07-13T22:50:59.321+...		编辑 Delete
load_comb_power		XCX8V3071153	FOX_PCS	load_lighting	0.02300	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
EPS_comb_power		v3MkRt8Z11881	FOX_PCS	load_lighting	0	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
Eps_T_Cur		oJMLuRtP1593	FOX_PCS	load_lighting	0	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
EPS_S_Cur		BtUxJp19532	FOX_PCS	load_lighting	0	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
EPS_R_Cur		d8dKacm133490	FOX_PCS	load_lighting	0.900000	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
EPS_T_Vol		gL18BtFm15800	FOX_PCS	load_lighting	0	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
EPS_S_Vol		ESPMjVLf21578	FOX_PCS	load_lighting	0	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
EPS_R_Vol		84C6abm182826	FOX_PCS	load_lighting	230.200000	0	0	2026-07-13T22:50:59.701+...		编辑 Delete
PV_total_power_today		LwqJ5rC326053	FOX_PCS	PCS-F1	0	0	0	2026-07-13T22:50:59.565+...		编辑 Delete
PV_total_power		0hU8M60C13810	FOX_PCS	PCS-F1	0	0	0	2026-07-13T22:50:59.565+...		编辑 Delete
PV2_cur		ewj37Zb174714	FOX_PCS	PCS-F1	0	0	0	2026-07-13T22:50:59.565+...		编辑 Delete

数据管理 / 数据管理

Total Data: 38

1

2

3

4

...

前往

2

3

Manage collected data, aggregated data, time-based data, and historical data.

SIMATIC

故障管理 数据管理 ...

故障检测

触发器ID	触发器名称	条件逻辑	备注
100000	故障检测	AND	

编辑触发器动作

操作内容

```

4 | -- 本体故障列表
5 | local body_fault_map = {
6 |   ["蓄电池过压故障"] = $[蓄电池过压故障],
7 |   ["蓄电池过压故障"] = $[蓄电池过压故障],
8 |   ["蓄电池放电故障"] = $[蓄电池放电故障],
9 |   ["模块过热故障"] = $[模块过热故障],
10 |  ["柜内过热故障"] = $[柜内过热故障],
11 |  ["输出过流故障"] = $[输出过流故障],
12 |  ["并网侧电容器合故障"] = $[并网侧电容器合故障],
13 |  ["并网侧电容器分故障"] = $[并网侧电容器分故障],
14 |  ["逆变器内部故障"] = $[逆变器内部故障],
15 |  ["柜内风机故障"] = $[柜内风机故障],
16 |  ["柜外风机故障"] = $[柜外风机故障],
17 |  ["新波模块过流故障"] = $[新波模块过流故障],
18 |  ["交流滤波电容过流故障"] = $[交流滤波电容过流故障]
19 | }
20 |
21 | -- 外部故障列表
22 | local external_fault_map = {
23 |   ["短路后向充电故障"] = $[短路后向充电故障],
24 |   ["短路前反向充电故障"] = $[短路前反向充电故障],
25 |   ["柜内温度过高故障"] = $[柜内温度过高故障],
26 |   ["电网过压故障"] = $[电网过压故障],
27 |   ["电网欠压故障"] = $[电网欠压故障],
28 |   ["电网过频故障"] = $[电网过频故障],
29 |   ["电网欠频故障"] = $[电网欠频故障],
30 |   ["交流防雷故障"] = $[交流防雷故障],
31 |   ["直流防雷故障"] = $[直流防雷故障]
    
```

Configure energy operation strategies for charging/discharging, peak shaving, and plan curves.

The screenshot displays the AEMS web interface. On the left, there is a sidebar with a menu icon and the text '订阅下发' (Subscription Distribution). The main content area is titled '订阅配置列表' (Subscription Configuration List) and contains a table with the following data:

订阅配置ID	订阅配置名称	状态	Topic	QOS	动作
100000	Subscription...	Valid	return "Sub..."	0	local
100002	订阅测试	Valid	return "Sub..."	0	local

Below the table, there is a section titled '发布消息' (Publish Message) with a '发布消息' (Publish Message) button. The code editor shows the following code:

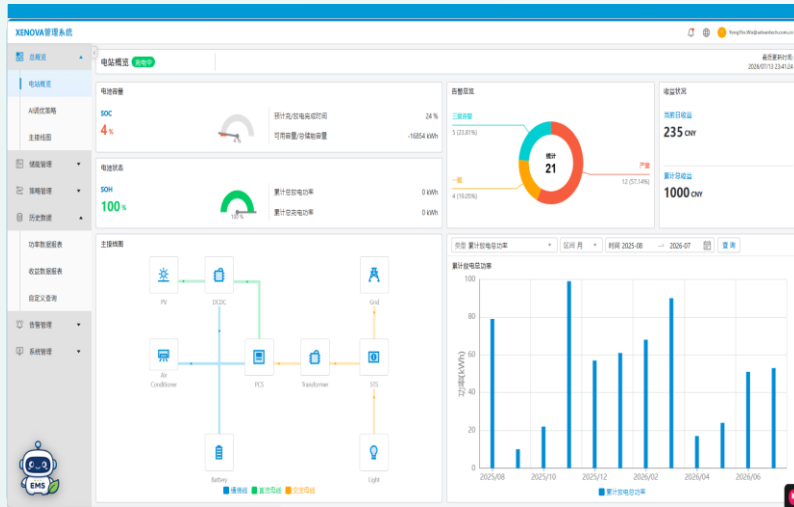
```

1 local OffsetTime = require("offsetTime")
2
3 local function n(y)
4     if y == "_Null_" then return nil end
5     return v
6 end
7
8 return {
9     status      = n{(CS是运行状态)},
10    activePower = n{(pcDailyPower)},
11    reactivePower = n{(pcReactivePower)},
12    dVoltage     = n{(msTotalVoltage)},
13    dCurrent     = n{(msTotalCurrent)},
14    todayCharge  = n{(pcDailyCumulativeCharge)},
15    todayDischarge = n{(pcDailyCumulativeDischarge)},
16    timeStamp    = OffsetTime.now():toDateTimeString()
17 }
  
```

Connect with third-party cloud platforms and EMS through open interfaces or MQTT.

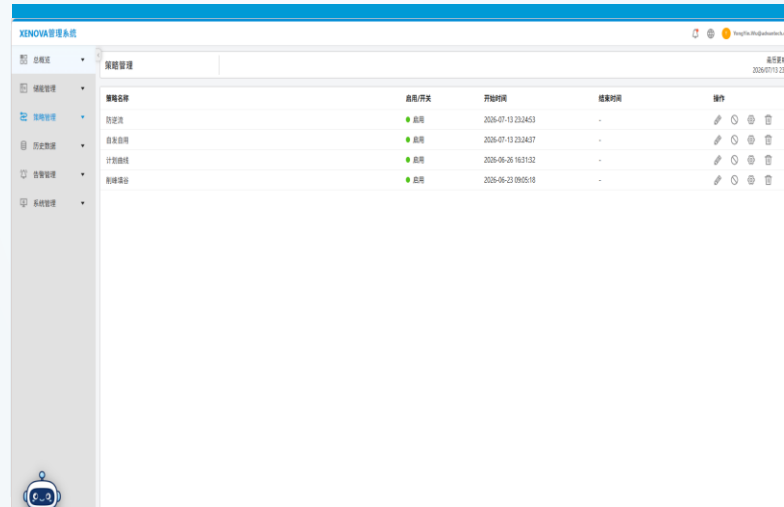
ADVANTECH

C&I EMS: Standard Commercial & Industrial EMS



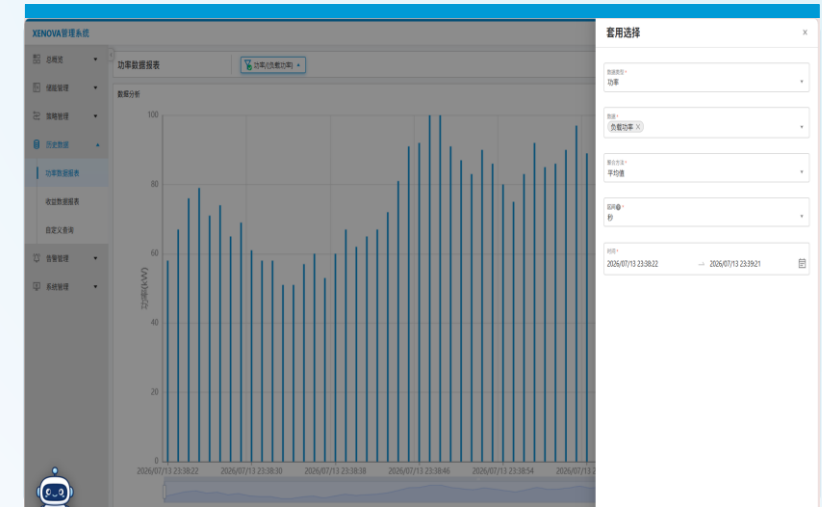
1. Business Data Monitoring

Monitor site operation status, key business data, and energy system performance.



2. Basic Strategy Applications

Support plan curves, peak shaving, and reverse power prevention.



3. Historical Data Analysis

Query and analyze historical data for revenue review, issue tracking, and O&M decisions.

Make energy storage systems visible, manageable, and effective.

Choose Your Way to Success



Build your own → Core | Launch fast → C&I | Complex projects → Co-create

Choose the right Service

Match service models by customer capability and project requests

Platform

Build

Core Developer Package

Target Customers

Customers with software capability, system integrators, device manufacturers, and in-house EMS teams

Positioning

An open energy platform foundation for partners to build their own EMS capabilities

Service Scope

- Platform configuration & open interfaces
- Protocol integration & data services
- Strategy configuration & secondary development
- Developer docs & remote technical support

Customer Value

Reduce EMS development barriers and help partners build platform-based energy management capabilities.

Solution

Deploy

C&I Standard Package

Target Customers

C&I ESS projects, EPCs, system integrators, and standardized project customers

Positioning

A standard EMS solution package for commercial and industrial energy storage scenarios

Service Scope

- Standard EMS functions & project configuration
- Device monitoring, alarms & data acquisition
- Basic operation strategy templates
- Remote commissioning & delivery support

Customer Value

Shorten C&I ESS project delivery cycles and reduce engineering costs.

Co-create

Scale

Co-Creation Package

Target Customers

Special scenarios, platform customers, strategic accounts, and complex energy system projects

Positioning

A joint customization and co-development model for complex energy scenarios

Service Scope

- Special protocol & device adaptation
- Customized strategy & business logic development
- End-to-end third-party system integration
- End-to-end testing, validation & delivery support

Customer Value

Support differentiated needs and convert customization experience into reusable platform capabilities.

Edge-EMS Builder Strategy Menu

Strategy add-on packages for standard operation, revenue optimization and advanced orchestration

Strategy Value Ladder

From standard configuration, to revenue tuning, to multi-device orchestration

Standard Operation Pack

For standard C&I ESS operation, mainly based on parameter configuration and reusable rule templates.

Self-consumption

Backup power

Schedule Curve

Revenue Optimization Pack

For economic operation, requiring project-specific tuning based on load, tariff, SOC and operation limits.

Peak shaving

Demand control

PV consumption

Advanced Orchestration Pack

For multi-energy, multi-device and multi-mode coordination, usually requiring scenario validation.

PV-ESS-Diesel coordination

PV-ESS-EV coordination

Microgrid master-slave control

1 package = 1 deliverable configuration package for 1 clear strategy objective

Where Edge-EMS Builder Creates Value

From platform capability to repeatable customer value

FEATURED CASE

ESS System Integrator

From Device Integration to Energy Orchestration

Platform delivery proof in a complex C&I energy storage project



Problem

Limited self-extension capability

New devices or energy strategies often required vendor-side redevelopment, slowing replication and increasing engineering cost.

Xenova Capability

Platform Configuration + Replicable Delivery

Configurable data, strategy and operation capabilities turn one-off delivery into reusable platform assets.

Value Delivered

Extend, evolve and replicate

Customers can expand strategies, add devices without rebuilding the system, and improve delivery efficiency across follow-on projects.

Additional Proven Scenarios



Plug-and-deploy for emergency charging, temporary backup and flexible mobile deployment



Improve multi-energy coordination and support unified campus energy dispatch.

Appendix | Pricing & Service Scope

Pricing, volume tiers, service scope and boundaries for business follow-up reference

Platform | Core Developer

Base price: \$180 / unit

10	20	50	100+
\$180	\$153	\$125	\$97

Service Scope

- Xenova Core account and configuration access
- Configuration tools for protocol, device and strategy
- Standard API and data interface access
- Support customer self-development based on APIs
- Developer documentation and basic remote support
- 3-year basic software maintenance

Boundary

- Full EMS product delivery is not included
- On-site commissioning is not included
- Deep customized strategy development is not included
- Customer should have software and integration capability

Solution | C&I Standard

Base price: \$278 / unit
commissioning from \$2778

10	20	50	100+
\$278	\$250	\$222	\$194

Service Scope

- Standard EMS solution package
- Data acquisition and monitoring for PCS, BMS and meters
- Basic alarm and operation status management
- Peak shaving, schedule curve, anti-backflow and self-consumption
- Basic project configuration and remote commissioning
- 3-year basic software maintenance

Boundary

- Designed for standard C&I ESS scenarios
- Special protocols and complex strategies require evaluation
- Deep third-party cloud integration requires evaluation
- On-site or complex integration can move to Co-create

Co-create | Co-Creation

NRE starts from \$4167

10	20	50	100+
Batch Quotation Based on Xenova Core			

Service Scope

- Special device protocol adaptation
- Special business process development
- Customized strategy logic development
- Cloud or third-party system integration
- Multi-device/system testing and acceptance support
- 3-year basic software maintenance

Boundary

- Co-development does not equal unlimited deployment authorization
- Each deployed project still requires software license or package fee
- Scope, timeline and cost require project evaluation
- Outcomes may become reusable modules

Detailed pricing, NRE, deployment quantity and commercial terms should follow formal quotation documents.

This page is for business reference and solution discussion, not as an external quotation sheet.

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Edge Computing & AI-Powered WISE Solutions



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研华嵌入式视频号