

Intelligent Modular Power Systems

Configurable battery-powered systems combining energy storage, intelligent management, power conditioning, and application-specific power conversion.

ENERGY
STORAGE

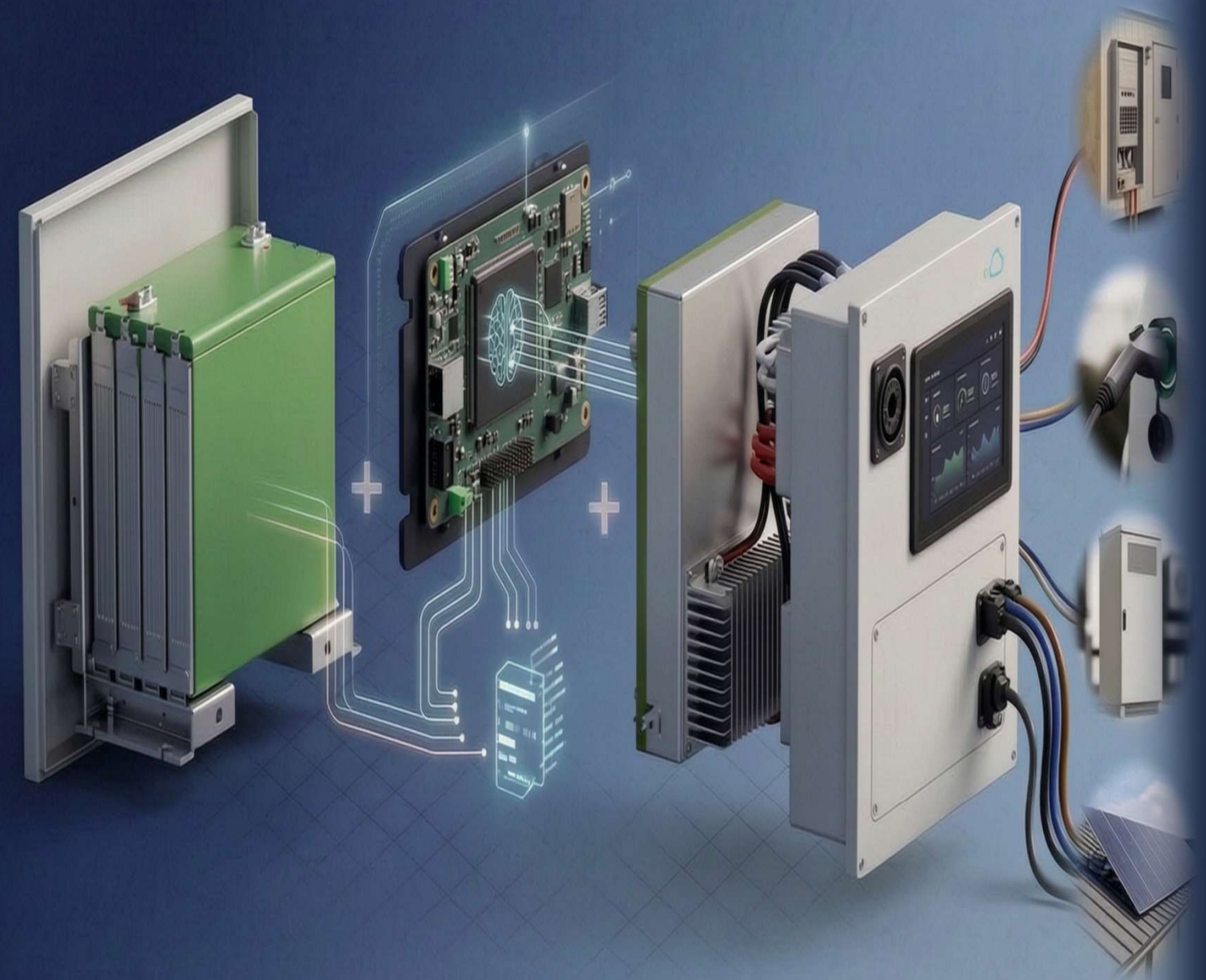
INTELLIGENT
MANAGEMENT

POWER
CONDITIONING

APPLICATION
INTERFACE

Energy, supervisor control, and conversion are engineered as one system — conversion remains replaceable hardware.

U.S.-BUILT PLATFORM • ENGINEERED AROUND THE APPLICATION



The Product Is More Than a Battery

We engineer and manufacture application-specific power systems using a modular battery platform.

ENERGY STORAGE	INTELLIGENT CONTROL	POWER DELIVERY
• Modular LFP energy storage • 12.8–48 V module configurations • Up to 15 kWh per standard module • Series/parallel scalability • Liquid thermal management	• Adaptive battery management • Cell-level monitoring and protection • Cloud monitoring and data collection • Predictive alerts • OTA software capability	• Integrated power conversion • Power conditioning • Application-specific interfaces • PCS, charging and traction options • AC/DC power architectures

Supervisor / VMU owns limits, isolation, and permissions →

Bidirectional PCS is a commanded hardware →

Same critical stack for traction, charge, V2V, and site power

The value is a stable critical path around the load - not a catalog battery the customer must wrap.

THE PROBLEM



Why Conventional Energy Storage Falls Short

Standard products optimize the battery product—not necessarily the customer’s power requirement.

 Wrong Form Factor

A standard enclosure may not fit the available space, vehicle, trailer, or equipment.

 Wrong Power Architecture

Battery voltage alone does not define the usable power required by the application.

 Integration Burden

Separate battery, inverter, charger, controls, and monitoring add interfaces and engineering work.

 Locked-In Configuration

Fixed capacity and interfaces can force overbuilding today or replacement tomorrow.

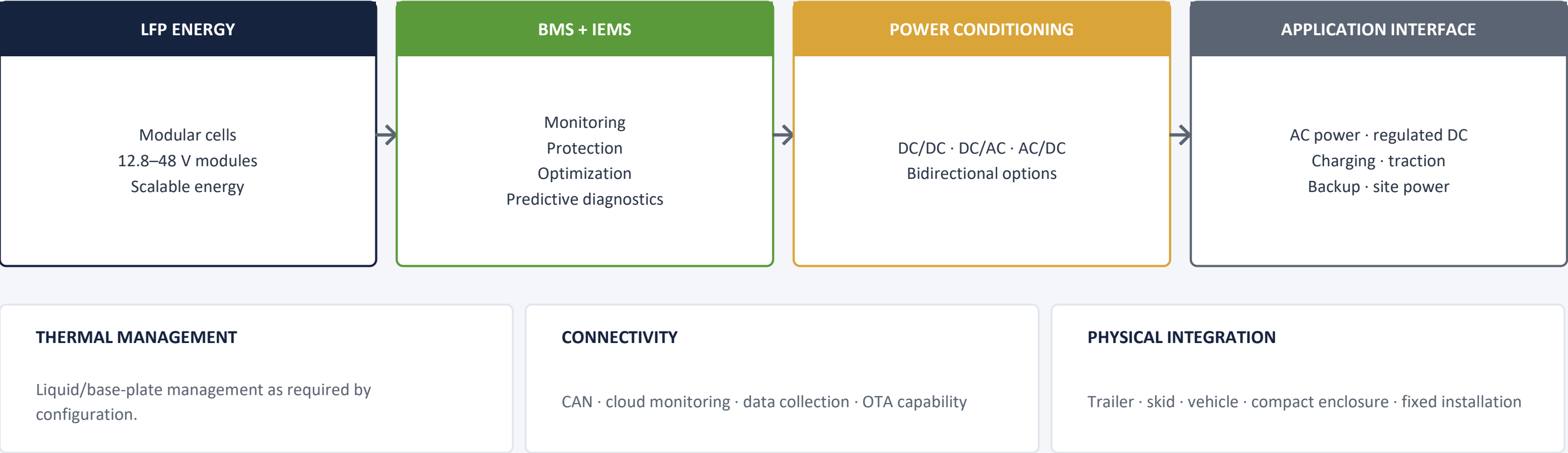
 Fused Controls

The pack, charger, and inverter are redesigned together every time the job changes. Charge maps, isolation, and conversion are recertified as a single lump.

Vitrom starts with the requirement—not the box.

Virtu Volt System Architecture

Energy, intelligence, power conditioning, and the application interface are engineered as one system.



One physical platform: cell → intelligence → power conditioning → application interface.

Intelligent Battery Management

Move from protection-only BMS thinking toward managed battery performance.

CONVENTIONAL APPROACH

MEASURE → PROTECT

Voltage · current · temperature
Limits · balancing · shutdown

Cell and module monitoring with protection and balancing

VIRTU VOLT DIRECTION

MEASURE → ANALYZE → ACT

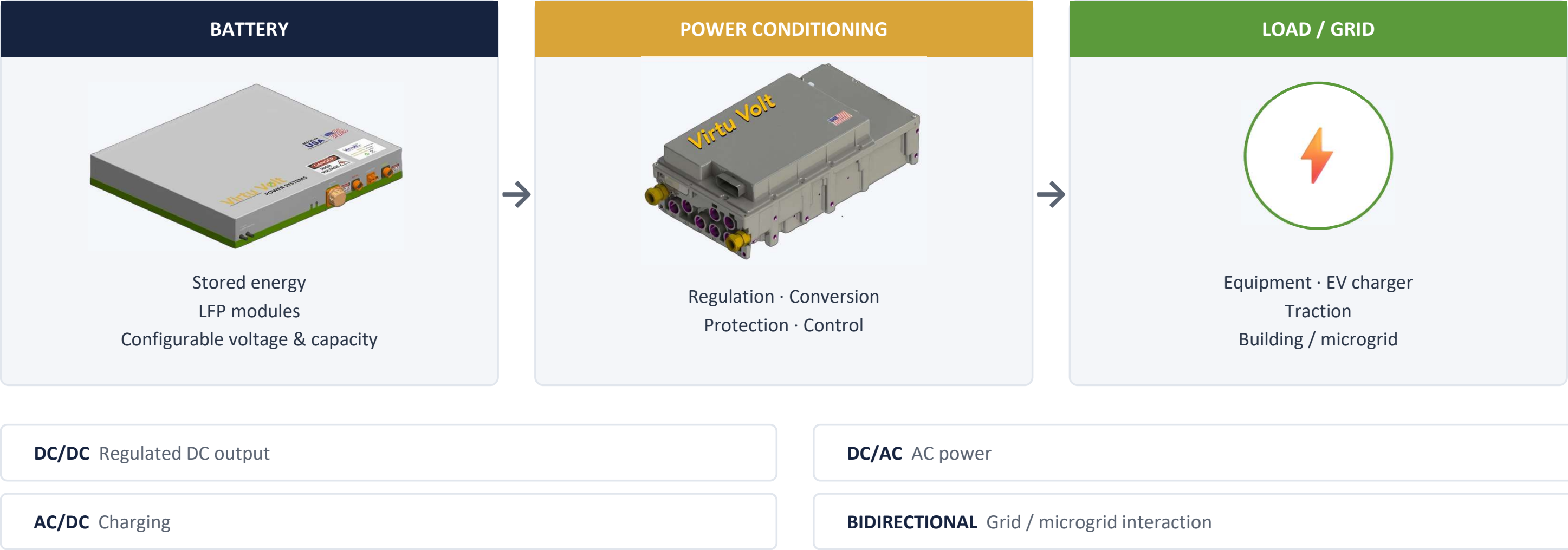
Real-time data · operating state · predictive alerts
Adaptive control · remote diagnostics

- State-of-charge and operating-condition awareness
- Predictive alerts and remote system visibility
- Control strategies coordinating battery + power conversion

Goal: use intelligence to execute charge and discharge safely, keep the asset available, and protect the cells — not to decorate the pack with dashboards.

Power Conditioning: Turning Stored Energy into Usable Power

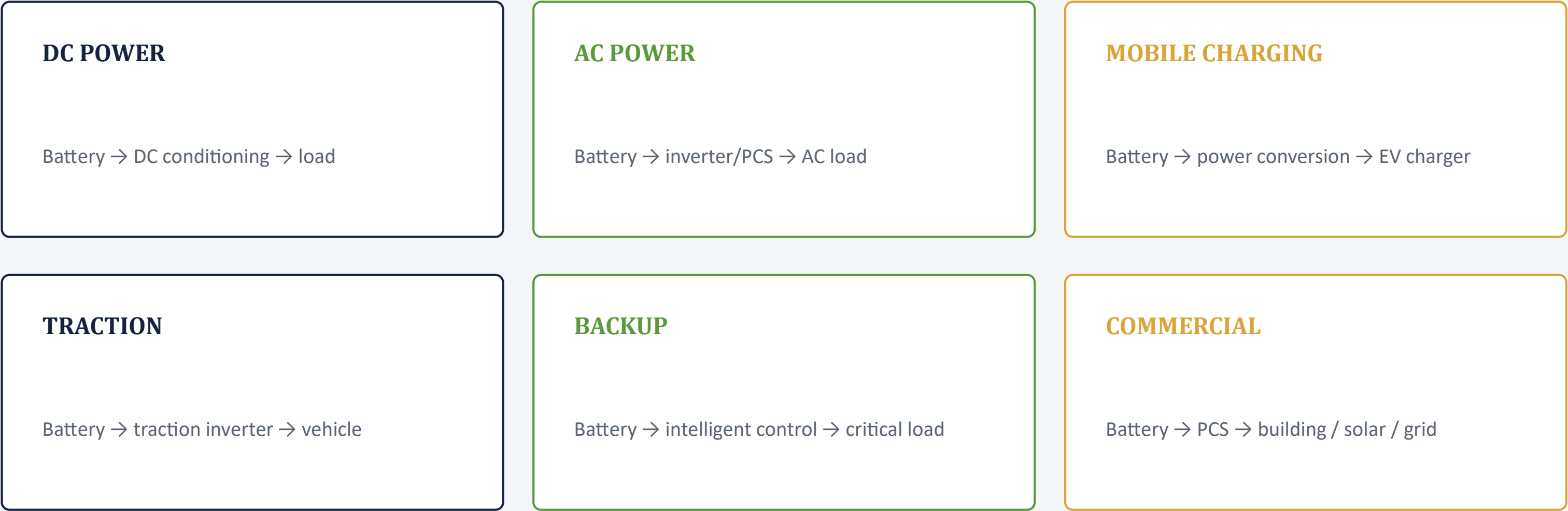
The battery supplies energy; the power-conditioning layer makes that energy useful to the application.



Hardware, not a new product. One critical stack. Conversion is pointed at the job.

A Modular Platform for Different Power Architectures

The same underlying platform can be configured for different voltage, energy, power, and physical requirements.



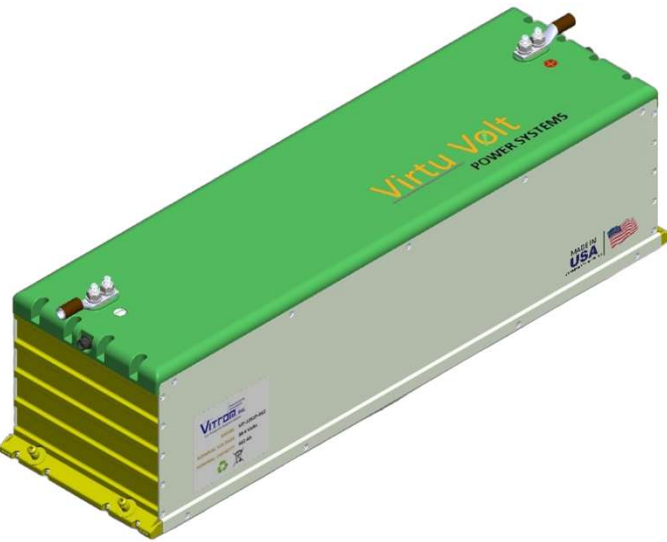
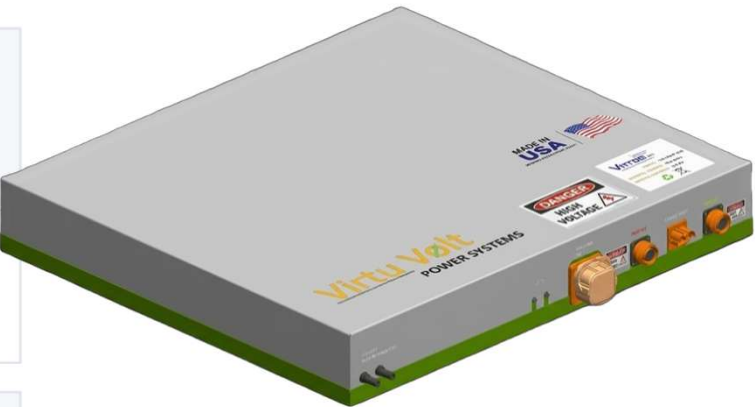
One platform. Multiple implementations. Application-specific integration.

REPRESENTATIVE PLATFORM CONFIGURATION

The Energy Storage Building Block

Current engineering reference for the standard 48 V module; configurations are application-dependent.

NOMINAL VOLTAGE 48 V standard · 12.8–48 V configurable	NOMINAL CAPACITY 312 Ah · 15 kWh at 48 V
CONTINUOUS DISCHARGE 312 A nominal · system-limited by configuration	PULSE DISCHARGE 1,200 A / 30 s
CHEMISTRY LFP	THERMAL MANAGEMENT Liquid / base plate
INGRESS PROTECTION IP66	COMMUNICATIONS CAN



Additional platform configurations include series systems up to 736 VDC nominal, application-specific enclosures, integrated PCS options of 5, 12, 50 and 250 kW, and application-specific charging / traction solutions.

Standard 48 V · 312 Ah · 15 kWh LFP module

Specifications are preliminary and subject to final production, testing, and certification.

APPLICATIONS

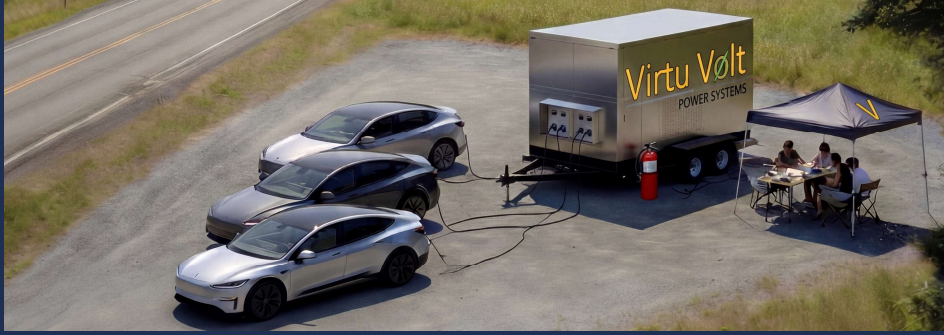
One Platform. Different Jobs.

The architecture changes with the application; the underlying system philosophy remains the same.



CONSTRUCTION

Mobile, zero-emission site power. Tools · HVAC · lighting · charging.



MOBILE EV CHARGING

Rapid-deploy charging where grid capacity is limited. Trailer / vehicle integrated.



COMMERCIAL

Backup · peak shaving · solar integration. Compact ground or roof configurations.



TELECOM

Silent, long-duration backup. Remote monitoring and predictive alerts.



DEFENSE / RUGGED

Ruggedized configurations. MIL-STD 3071 / MIL-PRF-32565 functionality · tactical interfaces.

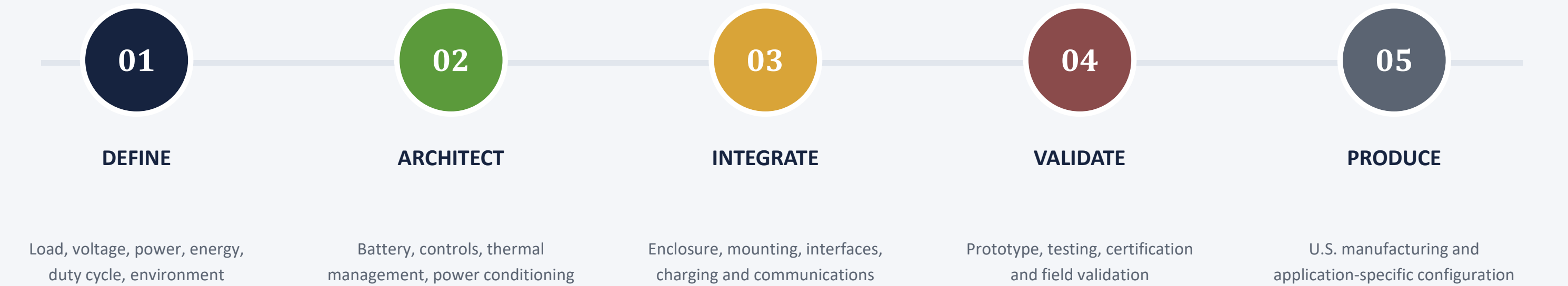


SPECIALTY SYSTEMS

Customer-defined voltage, power, energy, interfaces and form factor.

From Power Requirement to Production

A collaborative engineering process turns the application into a defined system.



Requirements → PRD → configuration → validation → production

Existing customer process: preliminary needs → NDA/alignment → joint PRD → LOI → validated samples → commercial production.

DIFFERENTIATION

Why Vitrom

The differentiation is system-level integration.



APPLICATION-FIRST

Start with the load and operating environment—not a standard battery box.



SYSTEM INTEGRATION

Battery, intelligent controls, power conditioning and physical architecture are considered together.



MODULARITY

Voltage, capacity, mounting and system architecture can be configured around the requirement.



INTELLIGENCE

Monitoring, diagnostics, predictive alerts and OTA capability create visibility beyond the battery.



MOBILITY + RUGGEDIZATION

Trailer, skid, vehicle and fixed configurations support demanding field environments.



U.S. PRODUCTION

Designed around a U.S.-built platform and application-specific production path.

***We do not sell a battery and ask the customer to build the system around it.
We also do not fuse the inverter into the VMU and force a new critical stack for every job.***



Intelligent power, engineered around the application.

Share the application requirements. Vitrom will define the energy, control, power-conditioning, and physical architecture needed to turn those requirements into a manufacturable system.

APPLICATION

PRD

SYSTEM

VALIDATION

PRODUCTION

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U.S.-built modular energy systems

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