coulomb TECHNOLOGY

SERIES C

279kWh Smart Battery Cabinet

279kWh	125kW	821V	6K+	−40/+55°C	IP54	20yr	Smart
ENERGY CAPACITY	GUARANTEED MIN POWER	NOMINAL VOLTAGE	CYCLE LIFE @ 80% DOD	OPERATING TEMP	ENCLOSURE RATING	DESIGN LIFE	ENERGIOS™ ENABLED

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PRODUCT OVERVIEW

Series C 279kWh Smart Battery

- Sodium-Ion NFPP
- Air-Cooled Cabinet
- EnergiOS™ Smart EMS
- IP54 Outdoor-Rated

Built for critical infrastructure resiliency and demanding commercial & industrial use cases, the Series C 279kWh Smart Battery Cabinet prioritizes compliance, field-validated performance, and bankable warranties — delivering a **20-year design life** and **6,000+ cycles at 80% DoD** with zero maintenance and no HVAC required.

INCLUDES AN OUTDOOR, IP54-RATED ENCLOSURE CONTAINING:

- Sodium-Ion NFPP battery modules
- Battery Management System (BMS)
- Air-cooled thermal management
- EnergiOS™ Smart EMS platform
- Auxiliary safety systems
- Fire suppression & gas detection

KEY BENEFITS

Safety-First Design

Sodium-Ion NFPP chemistry eliminates thermal runaway risk — enabling safer siting, simpler AHJ approvals, and no fire suppression complexity.

- ✓ Zero thermal runaway incidents
- ✓ No toxic gas emissions
- ✓ Air-shippable — faster deployment
- ✓ Cleaner AHJ approvals

Extreme Performance

Operates from −40°C to +55°C without derating or HVAC infrastructure — ideal for outdoor installations, cold storage, and industrial environments.

- ✓ −40°C to +55°C operation
- ✓ No HVAC required
- ✓ Minimal capacity derating
- ✓ Fast charging capability

Intelligent & Bankable

Built-in EnergiOS™ Smart EMS transforms the cabinet into an active energy asset — optimizing dispatch, enabling VPP participation, and maximizing ROI.

- ✓ 6,000+ cycles @ 80% DoD
- ✓ 20-year design life
- ✓ ITC eligible with solar PV
- ✓ Demand response & VPP ready

WHERE THE SERIES C PERFORMS

MANUFACTURING / COLD STORAGE / DISTRIBUTION

Peak Demand Management

Reduce demand charges 30–50% at manufacturing facilities, cold storage, and distribution centers while maintaining full capacity in extreme temperatures.

DATA CENTERS / HEALTHCARE / TELECOM

Critical Infrastructure

Guaranteed uptime for data centers, hospitals, and telecom — with air-cooled simplicity, intelligent monitoring, and no fire suppression complexity.

WAREHOUSE / PORT / AIRPORT

Material Handling & Fleet

Fast charging and extreme temp tolerance for 24/7 operations — warehouse automation, port equipment, and airport ground support.

SOLAR / WIND / CAMPUS / COMMUNITY

Renewable Integration

Long-duration storage with 20-year design life for bankable solar + storage projects, campus microgrids, wind smoothing, and community solar.

INTELLIGENT ENERGY MANAGEMENT & ECONOMICS

Smart EMS Platform & Value

- EnergiOS™
- Coulomb AI™
- GridIQ™
- BMS Protections

THREE TECHNOLOGIES. ONE INTELLIGENT PLATFORM.

Not Just a Cabinet — An Intelligent Energy Platform

The Series C integrates with Coulomb Technology's Smart EMS platform — a suite of three proprietary software technologies that transform your battery cabinet into an active, revenue-generating energy asset. Monitor, optimize, and control your energy in real time from any device.

OPERATING SYSTEM

EnergiOS™

The intelligent operating system for your energy storage. Provides real-time monitoring, automated charge/discharge scheduling, and seamless solar integration.

- → Real-time SOC, power flow & health monitoring
- → Automated TOU & solar charge scheduling
- → Remote access via web & mobile app
- → Alerts, diagnostics & OTA firmware updates

ARTIFICIAL INTELLIGENCE

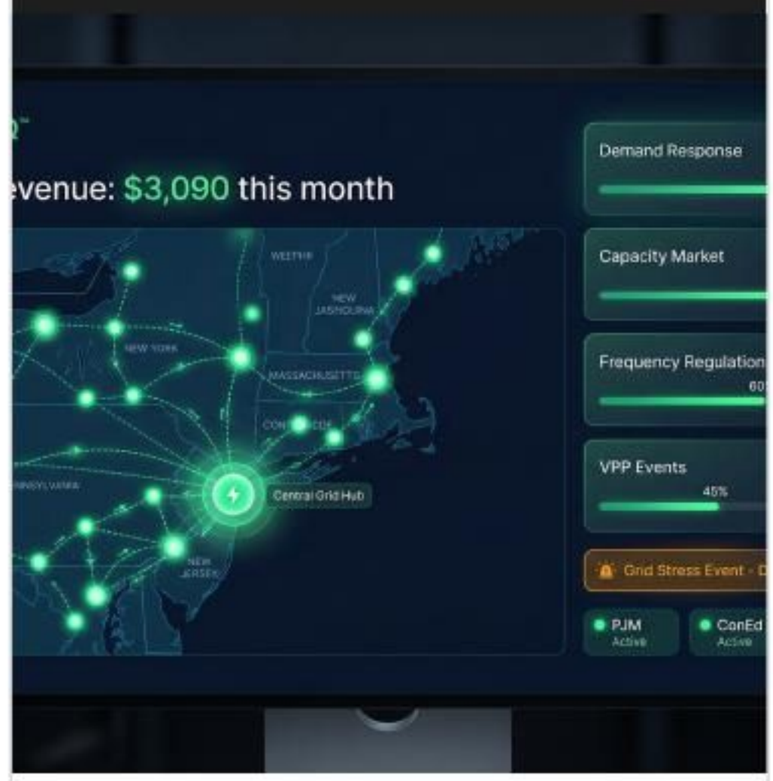
Coulomb AI™

Machine learning algorithms that learn energy usage patterns, weather forecasts, and utility rates to autonomously optimize dispatch and maximize savings.

- → Predictive load forecasting & solar yield modeling
- → Autonomous dispatch optimization
- → Dynamic rate arbitrage (TOU, demand charges)
- → Continuous learning — improves over time

GRID INTELLIGENCE

GridIQ™



Advanced grid interaction capabilities enabling virtual power plant participation, demand response programs, and utility incentive monetization.

- → Virtual power plant (VPP) participation
- → Demand response & utility incentive programs
- → Grid frequency regulation support
- → Export control & islanding management

INTELLIGENT BMS PROTECTIONS

- **Overcharge Protection**
- **Overcurrent Protection**
- **Overdischarge Protection**
- **Overheat Protection**
- **Temperature Management**
- **Short Circuit Protection**
- **Balanced Power**
- **Reverse Connection**

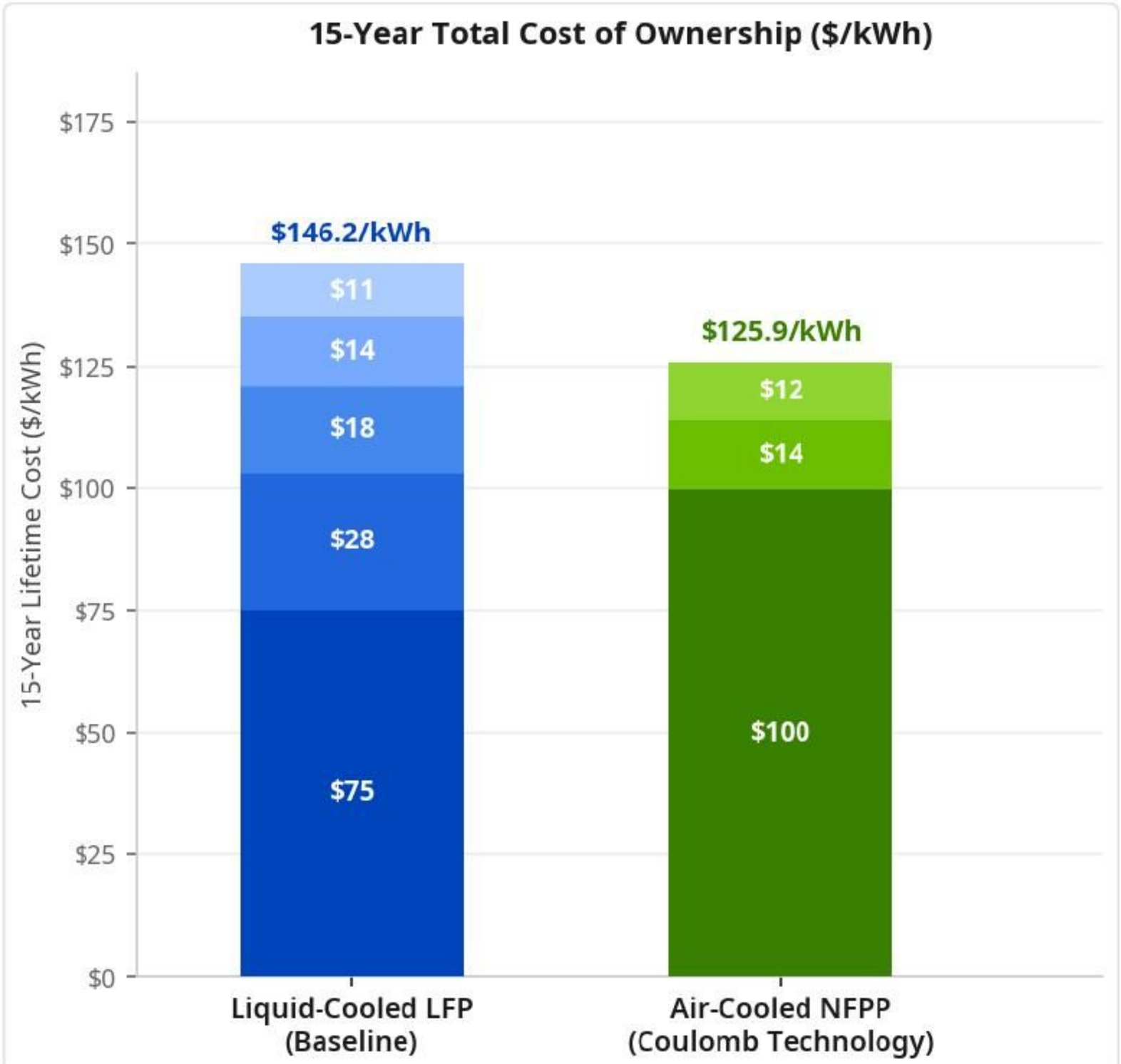
TOTAL COST OF OWNERSHIP

Bankable Economics

SYSTEM ADVANTAGE OVER LFP-BASED SYSTEMS

14% Lower Total Cost of Ownership Over the Project Lifetime

Our sodium-ion technology delivers measurable savings through eliminated HVAC requirements, reduced degradation, and lower maintenance, insurance, and permitting costs — validated by real-world deployments, not laboratory projections.



MODEL ASSUMPTIONS

NFPP installed price delta	**$16/kWh**
Cycles per year	**365**
HVAC load delta	**90%**
Insurance cost delta	**20%**
Augmentation delta	**20%**
O&M cost delta	**30%**
Cell derating / cold temps	**75%**
Discount rate / NPV calc	**8%**

COST COMPONENTS

- LFP — CapEx
- LFP — HVAC Load
- LFP — O&M
- LFP — Insurance
- NFPP — CapEx
- NFPP — O&M
- NFPP — Insurance
- LFP — Augmentation

14% TCoO Savings — Air-cooled NFPP ($125.9/kWh) vs. Liquid-cooled LFP ($146.2/kWh) over a 15-year project lifetime.

$20.3/kWh — Lifetime savings per kWh over project lifetime

20yr — Projected battery life, sodium-ion NFPP chemistry

RESEARCH & DEVELOPMENT PARTNERS

TECHNICAL DATA SHEET

Specifications

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SERIES C — 279KWH CABINET

ENERGY CAPACITY
279kWh
229 kWh usable at 85% DOD

MAX RATED POWER
140kW
125 kW guaranteed constant

DC VOLTAGE RANGE
634–994V
Flexible inverter compatibility

DURATION RANGE
2.2–10hr
Peak shaving to long backup

OPERATING TEMPERATURE
−40/+55°C
No HVAC — any climate

ENCLOSURE RATING
IP54
Outdoor-rated direct install

PARAMETER	VALUE / DESCRIPTION	UNIT
ENERGY CAPACITY	279	kWh
USABLE ENERGY (85% DOD)	229	kWh
MAX RATED POWER	140	kW
GUARANTEED CONSTANT POWER	125	kW
DC VOLTAGE RANGE	634 – 994	VDC
DURATION	2.2 – 10	Hours
CYCLE LIFE	6,000+ at 80% DoD, 25°C	—
CELL TYPE	Sodium-Ion NFPP (Non-Flammable Polymer Pouch)	—
OPERATING TEMP (DISCHARGE)	−40°C to +55°C	—
CHARGING TEMP RANGE	−10°C to +45°C	—
DESIGN LIFE	20 years	—
ENCLOSURE (IP RATING)	Outdoor Cabinet — IP54	—
THERMAL MANAGEMENT	Air-Cooled (No HVAC Required)	—
BMS COMMUNICATION	Integrated BMS, Modbus TCP / CAN Bus	—

CERTIFICATIONS

UL 1973 | UL 9540 | UN 38.3 | IEC 62619

Cell & Module Level

UL 9540A TESTING

Cell: Tested & Passed
Module/System: In Progress

WARRANTY

Cell: 3 Years
System: 5 Years
Extended warranty available

FACTORY ACCEPTANCE TEST (FAT) SCOPE

- ✓ Visual, Mechanical & Torque Inspection
- ✓ 3 × 0.125C Capacity/Energy Verification (85% DOD)
- ✓ Protections & Isolation Tests
- ✓ Baseline OCV Measurement
- ✓ Functional & Conditioning Test
- ✓ 10 × 0.5C Stability Cycles with Power Checks

TECHNOLOGY COMPARISON

Sodium-Ion NFPP vs. Lead-Acid

- Performance
- Safety
- Total Cost of Ownership

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WHY SODIUM-ION NFPP OUTPERFORMS LEGACY LEAD-ACID TECHNOLOGY

A Clear Advantage Across Every Performance Dimension

Coulomb Technology's Sodium-Ion NFPP chemistry delivers superior cycle life, wider operating temperature range, zero maintenance, and a fundamentally safer chemistry — making it the ideal replacement for lead-acid in critical commercial and industrial applications.

FEATURE	SODIUM-ION NFPP	LEAD-ACID
Cycle Life	3,000+ cycles @ 80% DoD	300–500 cycles @ 50% DoD
Weight (100Ah)	13 kg (28.7 lb)	~22 kg (48.5 lb)
Usable Capacity	80–100% DoD	50% DoD (to preserve life)
Discharge Temp Range	−40°C to +60°C	−20°C to +50°C
Charge Temp Range	−10°C to +45°C	0°C to +40°C
Maintenance	Zero maintenance	Regular watering & equalization
Self-Discharge	<3% per month	5–15% per month
Charging Efficiency	~95%	~75%
Thermal Runaway Risk	Zero risk	Low risk
Toxic Gas Emissions	None	Hydrogen gas during charging
Memory Effect	None	Sulfation if undercharged
Lifespan	10+ years	3–5 years
Environmental Impact	Non-toxic, recyclable	Lead & acid hazardous

30%
Safer chemistry vs. LFP lithium-ion

50%
More extreme temp tolerant vs. LFP

20%
Less degradation vs. LFP lithium-ion

Zero
Thermal runaway risk