Next-gen energy storage

Weekly Intelligence Report

2026-06-13 | 18 articles | 9 countries

troy-technical.jp

This Week's Keyword

BESS & Supply Chain

Policy shifts, next-gen tech, and safety standards

18	9	28-40%	$5.5B
articles	countries	lower	USD
Total Articles Analyzed	Source Countries/Regions	China BESS Cost Advantage	US Battery Recycling Projects

All 18 Articles This Week — 5-Axis Evaluation Matrix

How to read columns — Tech Novelty: degree of breakthrough Market Proximity: closeness to commercialization Market Impact: industry-wide effect Data Reliability: quantitative data & peer review US/EU Relevance: direct impact on US/European companies & supply chains

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#01	GM Na-Ion BESS	Corporate Strategy	●●●○	●●●○	●●●●	●●●●	●●●●	GM partners with Peak Energy to develop sodium-ion batteries for stationary storage, targeting AI data centers by 2028.
#02	UK Li-S Solid-State	Research	●●●●	●●○○	●●●●	●●●○	●●●●	UK project by Nissan, Oxford, Gelion aims to develop high-performance, cost-effective Li-S solid-state batteries for EVs.
#03	KAIST Li-Metal Dendrite	Research	●●●●	○○○○	●●●●	●●●●	●●●○	Korean team develops "interfacial instability" control technology using thiophene to suppress dendrite growth in Li-metal batteries.
#04	Si-C Anode Industrial	Market Overview	●●●○	●●●●	●●●●	●●●○	●●●●	Silicon-carbon anode industrialization accelerates, projected 40-fold growth post-2026 for high-energy density applications.
#05	ABTC Li Refining Grant	Corporate Strategy	●●○○	●●●●	●●●○	●●●●	●●●●	U.S. DOE reinstates $57M grant to American Battery Technology for a lithium refining facility in Nevada, boosting domestic supply.
#06	China BESS Policy	Policy Analysis	○○○○	●●●●	●●●●	●●●○	●●●●	China's "Notice 114" policy introduces capacity charges for BESS, reducing costs by 28-40% compared to US/Japan.
#07	EU Battery Strategy	Policy Analysis	○○○○	●●●●	●●●●	●●●○	●●●●	EU unveils new strategy with shortened permitting and €1.5B loans to counter €27B battery dependence on China.
#08	US DOE Battery Grants	Policy Analysis	●●○○	●●●●	●●●●	●●●●	●●●●	U.S. DOE awards $3B in grants for domestic battery manufacturing and recycling, supporting next-gen EV batteries.
#09	Swiss VRFB Data Center	New Product	●●●○	●●●○	●●●●	●●●●	●●●●	Swiss FlexBase partners with Invinity to design world's largest 2.1GWh Vanadium Flow Battery for data center storage by 2029.
#10	Eos Zn-Br Battery Mfg	Corporate Strategy	●●●○	●●●●	●●●●	●●●●	●●●●	Eos Energy secures $305.3M DOE loan for zinc-bromine battery manufacturing lines, targeting 8 GWh annual production by 2026.
#11	BESS Safety Standards	Regulatory Update	○○○○	●●●●	●●●●	●●●●	●●●●	U.S. BESS safety standards (UL 9540A 6th Ed, NFPA 855) tightened, mandating installation-level fire testing and active explosion control.
#12	Tesla Megapack Texas	Corporate Strategy	●●○○	●●●●	●●●●	●●●●	●●●●	Tesla constructs 50 GWh Megapack factory in Texas, shipping next-gen Megapack 3 and new Megablock systems by H2 2026.

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#13	Hungary BESS Plant	New Product	●●○○○	●●●●●	●●●○○	●●●●○	●●●●○	MET Group activates Hungary's largest BESS plant (40 MW / 80 MWh) using Huawei and Tesla technology, advancing energy transition.
#14	US VPP Expansion	Market Overview	●●○○○	●●●●●	●●●●○	●●●○○	●●●●●	U.S. states like Massachusetts accelerate Virtual Power Plant (VPP) adoption, with a 3.5 GW target by 2035.
#15	EV Battery Recycling	Market Overview	●●○○○	●●●●○	●●●●○	●●●○○	●●●●●	EV battery recycling market projected to reach $6.9B in 2026, with >95% metal recovery rates and new US facilities.
#16	Energy Dome CO2 BESS	New Product	●●●●○	●●●○○	●●●●○	●●●●○	●●●●○	Energy Dome unveils CO2 Battery Plus, a CO2-based LDES for AI data centers, offering 30-year lifespan, with US pilot by 2026.
#17	US Li-Ion Recycling	Market Overview	●●○○○	●●●●○	●●●●○	●●●○○	●●●●●	U.S. lithium-ion battery recycling projects surge to $5.5B, aiming to recover materials for 500,000+ EVs annually by 2026.
#18	Li-Sulfur Market	Market Overview	○○○○○	○○○○○	●●●○○	●●●○○	●●●○○	Lithium-Sulfur battery market projected to exceed $1.2B by 2035, driven by 35.08% CAGR for high-energy density applications.

●●●●○ High ●●●○○ Med-High ●●○○○ Med ●○○○○ Low | Yellow highlight = featured article

Three Questions That Demand Your Decision This Week

❶ Is your BESS strategy competitive against China's cost advantage?

China's new policy (Notice 114) reduces BESS costs by 28-40% compared to US/Japan, creating a significant competitive gap. US/EU companies must assess if their current BESS offerings and deployment strategies can compete on price and scale.

❷ Are you investing enough in next-gen battery chemistries to avoid obsolescence?

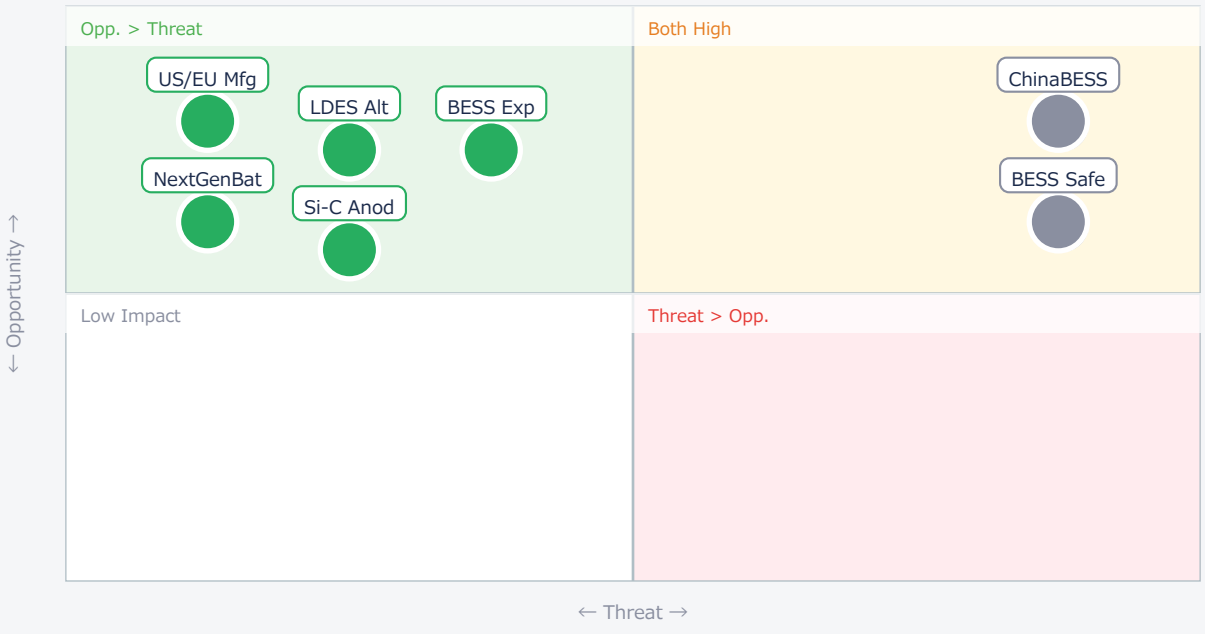
Breakthroughs in Li-metal dendrite control (KAIST) and Li-sulfur solid-state (Nissan/Oxford) promise 500+ Wh/kg, potentially making current Li-ion platforms obsolete for high-energy applications like EVs and UAM. Evaluate your R&D; roadmap.

❸ Is your supply chain resilient to tightening safety standards and geopolitical shifts?

New US BESS safety standards (UL 9540A 6th Ed, NFPA 855) mandate rigorous testing and active explosion control, increasing compliance costs. Simultaneously, US/EU are investing billions to reduce dependence on China for battery materials and manufacturing. Assess your supply chain's exposure.

Opportunities vs. Threats for US/European Companies

Opportunity vs. Threat Matrix for US/European Companies



Item	Quadrant	↑ Opportunity	↓ Threat
ChinaBESS	Critical	China gains market	US/EU BESS uncomp.
US/EU Mfg	Opp.	Domestic supply	High initial cost
BESS Safe	Critical	Safer deployments	Higher compliance
NextGenBat	Opp.	Performance leap	R&D; cost/risk
LDES Alt	Opp.	LDES diversif.	Market frag.
BESS Exp	Opp.	New market growth	Intense competition
Si-C Anod	Opp.	Higher energy dens.	China dominance

Deep Dive ① — Li-Metal Breakthrough: Dendrite Control

#03 | 2026/06/08 | Tech Briefs | Tech Novelty●●●●● Proximity●○○○○ Market Impact●●●●● Data Reliability●●●●● US/EU Relevance●●●○○

A Korean research team from KAIST and Korea University has developed a breakthrough technology to resolve "interfacial instability" in lithium-metal batteries, the root cause of dendrite growth. By introducing an "intelligent protective layer" with thiophene into the electrolyte, they achieved stable lithium-ion movement, effectively suppressing dendrite growth even under fast-charging conditions exceeding 8 mA/cm². This innovation enables significantly extended lifespan and safety.

Lithium-metal batteries promise theoretical energy densities exceeding 500 Wh/kg, far surpassing current Li-ion limits. This could vastly extend EV ranges and enable new applications in Urban Air Mobility (UAM) and high-energy-density sectors. The research addresses the biggest barrier to commercialization: safety and lifespan issues due to dendrite formation.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The published numbers (8 mA/cm², 500 Wh/kg potential) are realistic for lab conditions, but scaling this to commercial battery cells remains a significant technical barrier. The challenge lies in uniform layer formation over large electrode areas and long-term stability under real-world cycling. [Opportunity] for US/European materials and battery developers to license or collaborate on this fundamental breakthrough, potentially leapfrogging competitors in next-gen battery performance. [Threat] is that Asian research continues to dominate fundamental material science, creating an IP gap. Next actions: [R&D;] Initiate a technical review of this specific thiophene-based approach and its scalability by Q3 2026. [Legal/IP] Monitor patent filings related to this technology.

Deep Dive ② — China's BESS Policy: Cost Advantage

#06 | 2026/06/10 | S&P; Global | Tech Novelty●○○○○ Proximity●●●●● Market Impact●●●●● Data Reliability●●●○○ US/EU Relevance●●●●●

China's "Notice 114" policy, implemented in January 2026, introduces capacity charges for new energy storage systems (BESS), fundamentally improving pricing mechanisms. This policy results in a levelized cost of storage (LCOS) for standard 4-hour lithium-ion battery systems in China that is 28% to 40% lower than in the U.S. or Japan, creating a globally competitive environment for energy storage deployment.

The policy strengthens investment incentives for power storage projects, allowing BESS to provide grid services like peak shaving and frequency regulation with compensation. This enhances economic viability and shortens payback periods. China also mandates new data centers use at least 80% renewable energy, further accelerating BESS integration.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The reported 28-40% LCOS reduction is highly realistic, reflecting China's aggressive policy support and existing manufacturing scale. The technical barrier is not in the battery itself, but in the regulatory and market design in US/EU to enable similar economic incentives. [Opportunity] for US/European BESS developers to advocate for similar capacity market reforms and explore partnerships with Chinese suppliers for cost-effective components, if geopolitical risks are manageable. [Threat] is a rapid loss of market share in the global BESS sector to Chinese competitors, impacting domestic manufacturing and energy independence goals. Next actions: [Strategy] Conduct an urgent competitive analysis of BESS LCOS in key markets by end of Q2 2026. [Government Affairs] Lobby for policy reforms that incentivize domestic BESS deployment and grid services.

Deep Dive ③ — UK Li-Sulfur Solid-State for EVs

#02 | 2026/06/05 | Vertex AI Search (grounding-api-redirect) | Tech Novelty●●●●○ Proximity●●○○○ Market Impact●●●●○ Data Reliability●●●○○ US/EU Relevance●●●●●

Nissan, the University of Oxford, and Gelion Technologies have launched the UK government-funded "CoRe-SoLiS" project to develop high-energy, long-lasting lithium-sulfur (Li-S) solid-state batteries for automotive applications. The initiative aims to integrate Gelion's Nano Encapsulated Sulfur (NES) cathode into Nissan's future solid-state EVs, addressing key challenges like polysulfide formation to improve durability and cost while reducing reliance on critical minerals.

Li-S batteries offer a theoretical specific energy of up to 2,600 Wh/kg (practical 500-600 Wh/kg), significantly outperforming current Li-ion. The project aims to mitigate polysulfide dissolution and interfacial instability, achieving energy density comparable to high-performance NMC chemistries with competitive power, charging speed, cycle life, and low-temperature performance.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The target of 500-600 Wh/kg for Li-S is ambitious but realistic for this chemistry, though achieving it with competitive cycle life and cost for automotive is the challenge. Technical barriers include further improving cycle stability, managing volume changes, and scaling solid-state electrolyte manufacturing. [Opportunity] for US/European materials suppliers and OEMs to invest in Li-S research and development, particularly in cathode and solid electrolyte materials, to secure a leadership position in next-generation EV batteries that reduce reliance on nickel and cobalt. [Threat] is that if this UK-led project succeeds, it could give Nissan and its partners a significant competitive edge in high-performance EVs. Next actions: [R&D;] Evaluate the technical progress of Li-S solid-state battery projects globally, focusing on cycle life and power density, by Q4 2026. [Business Dev] Explore potential collaboration or investment opportunities with Li-S startups.

Other Notable Articles

GM Partners with Peak Energy to Develop Sodium-Ion Batteries (Car and Driver)
Tech Novelty●●●○○ Proximity●●●○○ Market Impact●●●●○

GM's move into Na-ion for BESS and second-life EV batteries signals a major shift towards diversified energy solutions.

Eos Energy Secures $305.3 Million DOE Loan Guarantee for Zinc-Bromine Battery Manufacturing (U.S. Department of Energy (DOE))
Tech Novelty●●●○○ Proximity●●●●○ Market Impact●●●●○

DOE's support for Eos Energy's 8 GWh zinc-bromine production by 2026 highlights US commitment to non-lithium LDES alternatives.

Tesla Constructs 50 GWh Megapack Factory in Texas (basenor)
Tech Novelty●●○○○ Proximity●●●●○ Market Impact●●●●○

Tesla's massive 50 GWh Megapack factory and Megablock system will dramatically scale grid storage, intensifying competition.

Virtual Power Plants (VPPs) Tackle U.S. Energy Demand (Inside Climate News)
Tech Novelty●●○○○ Proximity●●●●● Market Impact●●●●○

US states' aggressive VPP targets (e.g., MA 3.5 GW by 2035) signal a major shift in grid management and distributed energy.

Recommended Actions This Week

Action recommendations based on article evaluation matrix and opportunity/threat analysis.

Immediate (this week)

- [Strategy] Review China's BESS policy (Notice 114) and its immediate impact on global BESS competitiveness and pricing models.
- [Procurement] Assess current BESS suppliers' compliance with new UL 9540A 6th Ed and NFPA 855 safety standards for ongoing and future projects.
- [Executive] Brief leadership on the geopolitical implications of US/EU battery supply chain initiatives and China's cost advantage.

Short-term (1 month)

- [Procurement] Initiate a review of domestic sourcing strategies for critical battery materials and components, leveraging US DOE and EU funding opportunities.
- [R&D;] Conduct a preliminary assessment of next-gen battery chemistries (Li-metal, Li-sulfur, Na-ion, CO2-based LDES) for potential partnership or internal R&D; investment.
- [Business Dev] Engage with policy makers to understand and influence incentives for domestic battery manufacturing and energy storage deployment.

Medium-long term (quarter+)

- [R&D;] Establish dedicated research programs or partnerships for Li-metal and Li-sulfur battery technologies, focusing on dendrite suppression and cycle life improvements.
- [Strategy] Develop a comprehensive LDES strategy that includes non-lithium alternatives (VRFB, Zinc-Bromine, CO2 batteries) to diversify grid storage solutions.
- [Business Dev] Formulate a Virtual Power Plant (VPP) integration strategy to capitalize on distributed energy resources and new grid services markets in the US and EU.

NextGenEnergyStorage — Selected Articles

Date: 2026-06-13

Articles: 18

Table of Contents

#16 Energy Dome Unveils CO2 Battery Plus for AI Data Centers, Delivering 30-Year Lifespan and Enhanced Efficiency to Strengthen Power Grids

#17 U.S. Lithium-Ion Battery Recycling Projects Surge to $5.5 Billion, Aiming to Recover Materials for 500,000+ EVs Annually by 2026

#18 Lithium-Sulfur Battery Market Projected to Exceed $1.2 Billion by 2035, Driven by 35.08% CAGR

GM Partners with Peak Energy to Develop Sodium-Ion Batteries for Stationary Storage, Bolstering Energy Business with AI Data Center Focus and Second-Life EV Batteries

Published June 09, 2026 Car and Driver USA

OVERVIEW

General Motors (GM) has announced a partnership with Peak Energy to develop and manufacture sodium-ion battery cells primarily for stationary Battery Energy Storage Systems (BESS), aiming to meet increasing energy demands from AI data centers and enhance grid stability. Sodium-ion batteries offer superior low-temperature performance and heat tolerance, requiring no active cooling, which significantly reduces system complexity and lifetime costs. Additionally, GM plans to deploy a 1.5MW/7.2MWh second-life BESS at a Michigan factory, utilizing approximately 100 repurposed EV battery packs to save over $3 million annually in electricity costs.

IN DEPTH

Key Findings

General Motors (GM) is significantly expanding its energy business, announcing a partnership with startup Peak Energy to develop and manufacture sodium-ion battery cells specifically for stationary Battery Energy Storage Systems (BESS). This strategic move aims to provide a cheaper, more robust energy storage solution to meet the escalating power demands of data centers and facilitate greater integration of renewable energy. Simultaneously, GM has announced an expanded partnership with Redwood Materials to deploy a 1.5MW/7.2MWh second-life BESS at one of its Michigan factories, integrating approximately 100 repurposed EV battery packs, which is projected to save over $3 million annually in electricity costs.

Technical Details

The sodium-ion battery cells being developed by GM offer superior low-temperature performance and heat tolerance compared to traditional lithium-ion chemistries. Crucially, they require only minimal heating and no active cooling, significantly reducing the overall complexity and lifetime costs for utilities and data centers. Sodium-ion batteries boast a long operational life exceeding 20 years and high cycle life of 10,000 to 20,000 cycles, and can be manufactured at an even lower cost than Lithium Iron Phosphate (LFP) batteries. This translates to an expected 20-30% cost savings for grid-scale energy storage. The second-life BESS project demonstrates a dual benefit of resource utilization and economic advantage by reusing retired EV battery packs, maximizing their value across their entire lifecycle.

Background and Industry Context

GM's foray into energy storage reflects a broader trend among automotive manufacturers to evolve beyond just EV production and become comprehensive energy companies. This move mirrors Tesla's successful playbook in the energy storage market, with GM accelerating its entry into this segment. In Q1 2026, the U.S. installed 9.7 GWh of new BESS capacity, highlighting the accelerating demand, largely driven by the rapid expansion of AI data centers. The abundance and lower sourcing risks of sodium compared to lithium also position sodium-ion batteries as a critical option for mitigating geopolitical supply chain vulnerabilities.

Outlook

The partnership between GM and Peak Energy aims for commercialization of sodium-ion batteries by 2028. If successful, this will introduce significant new competition into the grid-scale energy storage market and enable more stable integration of renewable energy sources. The no-cooling requirement is a distinct advantage for facilities like data centers that demand continuous operation. Furthermore, the utilization of second-life batteries enhances the sustainability of EV batteries and contributes to a circular economy, while also potentially reducing overall battery costs. GM's multi-faceted energy strategy signals its proactive engagement not only in the future of the automotive industry but also in building sustainable energy infrastructure.

Source: https://www.caranddriver.com/news/a71538744/gm-sodium-ion-battery-cells-plans/

Collected: June 12, 2026 | Automated Research System (Gemini API)

Nissan, Oxford University, and Gelion Launch UK-Funded CoRe-SoLiS Project to Develop High-Performance, Cost-Effective Lithium-Sulfur Solid-State Batteries for Automotive Applications

Published June 05, 2026 Vertex AI Search (grounding-api-redirect) UK

OVERVIEW

Nissan, the University of Oxford, and Gelion Technologies are collaborating on the UK government-funded "CoRe-SoLiS" project to develop high-energy, long-lasting lithium-sulfur solid-state batteries for automotive applications. The initiative aims to integrate Gelion's cost-effective Nano Encapsulated Sulfur (NES) cathode into Nissan's future solid-state EVs, addressing key challenges like polysulfide formation to improve durability and cost while reducing reliance on critical minerals. This project seeks to deliver energy density comparable to high-performance NMC chemistries with competitive power, charging speed, cycle life, and low-temperature performance.

IN DEPTH

Key Findings

Nissan Technical Centre Europe, the University of Oxford, and Australian battery innovator Gelion have commenced a three-year collaborative project, "CoRe-SoLiS," backed by £2.4 million in UK government funding from Innovate UK. This initiative aims to develop high-performance, long-lasting lithium-sulfur (Li-S) solid-state batteries for automotive applications. At the core of the project is the integration of Gelion's patented Nano Encapsulated Sulfur (NES™) cathode into Nissan's future solid-state EVs. The primary objective is to overcome the limitations in performance and cycle life associated with polysulfide shuttling in conventional Li-S batteries, fostering the creation of safer, more durable, and affordable batteries that reduce dependence on critical minerals like nickel and cobalt.

Technical Details

Li-S batteries possess a theoretical specific energy of up to 2,600 Wh/kg (with practical implementations targeting 500-600 Wh/kg), significantly outperforming current lithium-ion batteries (typically 250 Wh/kg). However, polysulfide dissolution and shuttle effects, alongside interfacial instability with the lithium metal anode, have historically hindered their commercialization. The CoRe-SoLiS project's NES™ cathode is engineered to mitigate these issues, aiming to achieve energy density comparable to high-performance NMC chemistries, while offering competitive power delivery, charging speed, cycle life, and low-temperature performance. The University of Oxford contributes expertise in solid-state anodes and cell fabrication, while Nissan focuses on technical integration and validation to meet automotive performance, safety, and manufacturability targets. This collaboration seeks to physically suppress polysulfide migration and enhance battery stability and longevity by utilizing a solid-state electrolyte as an alternative to traditional liquid electrolytes.

Background and Industry Context

The ability of Li-S batteries to utilize abundant and inexpensive sulfur as a cathode material presents a significant opportunity for substantial material cost reductions. This is a strategic response to the rising prices and supply chain risks of critical minerals such as lithium, nickel, and cobalt, driven by the surging demand for EV batteries. Innovate UK's funding underscores the UK's commitment to maintaining global competitiveness in next-generation battery research and development. In sectors like aerospace, electric vertical take-off and landing (eVTOL) aircraft, and high-performance lightweight consumer gadgets, the adoption of lithium-metal and lithium-sulfur technologies is accelerating. Li-S batteries, particularly, are expected to achieve energy densities exceeding 500 Wh/kg for aviation, enabling longer flight durations and increased payload capabilities.

Outlook

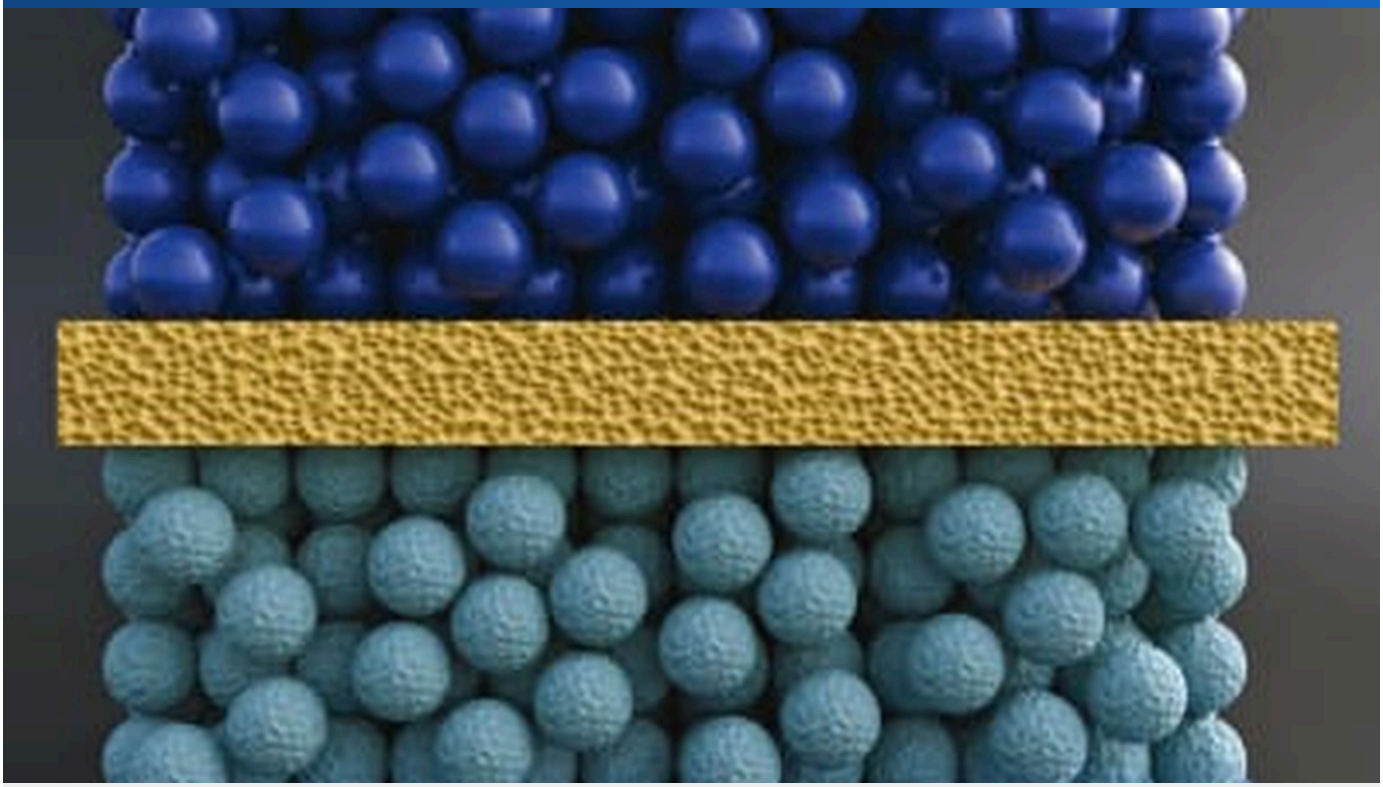
Should the CoRe-SoLiS project succeed, lithium-sulfur solid-state batteries could revolutionize the EV market, contributing to the realization of greener and more sustainable mobility. Batteries that combine low cost, high energy density, long cycle life, and enhanced safety are key to accelerating EV adoption. This project is anticipated to overcome major technical hurdles for Li-S batteries, paving the way for mass production and diversifying battery materials within the automotive industry, thereby strengthening supply chain resilience. In the future, Li-S batteries, alongside lithium-metal batteries, are poised to play a pivotal role in diverse high-performance applications, including aviation.

Source: https://sg.finance.yahoo.com/news/lithium-sulfur-battery-market-report-073000806.html

Collected: June 12, 2026 | Automated Research System (Gemini API)

KAIST/Korea University Develops 'Interfacial Instability' Control Technology Solving Dendrite Growth in Lithium Metal Batteries, Enabling Stable High-Current Fast Charging

Published June 08, 2026 Tech Briefs South Korea



OVERVIEW

A Korean research team from KAIST and Korea University has developed a breakthrough technology to resolve "interfacial instability" in lithium-metal batteries, which causes dendrite growth and reduces battery life and safety. By implementing an "intelligent protective layer" with thiophene in the electrolyte, they achieved stable lithium-ion movement, effectively suppressing dendrite growth even under fast-charging conditions. This innovation enables high-current operation exceeding 8 mA/cm^2 (equivalent to real-world EV fast charging) with significantly extended lifespan, bringing next-generation EVs and urban air mobility closer to reality.

IN DEPTH

Key Findings

A research team led by Professor Nam-Soon Choi and Professor Seungbum Hong from KAIST, in collaboration with Korea University, has developed a critical technology that resolves the long-standing challenge of "interfacial instability" in lithium-metal batteries at the electronic structure level. This breakthrough effectively suppresses the growth of lithium dendrites (needle-like crystals) during charging, thereby dramatically enhancing battery lifespan and safety. The new technology enables stable operation of lithium-metal batteries at high current densities exceeding 8 mA/cm^2 (equivalent to real-world EV fast charging), significantly accelerating their practical application.

Technical Details

The research team introduced an "intelligent protective layer" containing thiophene, an organosulfur compound, into the electrolyte. This protective layer forms on the surface of the lithium metal anode, promoting uniform lithium plating and stripping while physically and chemically inhibiting dendrite growth. In conventional lithium metal batteries, non-uniform lithium deposition during charging leads to dendrite formation, increasing the risk of internal short circuits and thermal runaway, and ultimately shortening battery life. The new protective layer also suppresses undesirable parasitic reactions at the lithium-electrolyte interface, fostering the formation of a stable solid electrolyte interphase (SEI). This allows the battery to maintain high Coulombic efficiency and capacity retention over extended periods.

Background and Industry Context

Lithium metal batteries are considered a next-generation technology with the potential to break the energy density limits of conventional lithium-ion batteries (approx. 250-300 Wh/kg), promising theoretical energy densities exceeding 500 Wh/kg. If commercialized, this could vastly extend the driving range of electric vehicles and significantly expand applications in high-energy-density demanding sectors such as Urban Air Mobility (UAM), drones, grid-scale energy storage, AI data center backup power, and space applications. However, safety and lifespan issues due to dendrite growth have long been the biggest barrier to commercialization. This research presents a highly promising solution to this core challenge, with the potential for significant industry impact.

Outlook

This technology to control "interfacial instability" represents a decisive step towards the commercialization of lithium metal batteries. Future efforts will focus on scaling up the research findings and conducting long-term durability tests in actual battery cells. If this technology proves applicable to large-scale production, the realization of higher-performance and safer batteries that could replace current lithium-ion technology becomes a tangible reality. Particularly, the enhanced fast-charging capability and extended lifespan will further drive the growth of the EV market and could fundamentally transform energy solutions in emerging markets like aerospace and data centers. This advance is expected to draw considerable attention from researchers, engineers, and investors as it opens a new era for battery technology.

Source: https://www.techbriefs.com/component/content/article/55254-lithium-metal-battery-issue-might-be-solved

Collected: June 12, 2026 | Automated Research System (Gemini API)

Silicon-Carbon Anode Industrialization Accelerates: Demand for High-Energy Density Applications in EVs, eVTOLs, and AI Devices Projected to Increase 40-Fold Post-2026

Published June 12, 2026 Internet Info Agency China

OVERVIEW

Silicon-carbon anode materials are entering large-scale industrialization, with high-energy-density applications in premium New Energy Vehicles (NEVs), eVTOLs, and on-board AI devices expected to drive over a 40-fold growth in output over the next five years, starting 2026. Silicon offers approximately ten times the theoretical capacity of graphite, enabling extended EV ranges, extreme fast charging, and ultra-high energy density. Companies like Group14 Technologies (SCC55) and Sila Nanotechnologies are addressing silicon's 300% volume expansion issue through silicon-carbon nanocomposites. China's 15th Five-Year Plan emphasizes low-altitude economy and on-board intelligence, accelerating the adoption of silicon anode materials.

IN DEPTH

Key Findings

Silicon-carbon (Si-C) anode materials are poised for a significant industrialization phase post-2026, with demand projected to surge dramatically in high-energy-density sectors such as premium New Energy Vehicles (NEVs), electric vertical take-off and landing (eVTOL) aircraft, and on-board Artificial Intelligence (AI) devices. These high-value applications are expected to drive over a 40-fold growth in Si-C anode material output over the next five years, making them a primary catalyst for market expansion.

Technical Details

Silicon boasts a theoretical capacity approximately ten times higher than conventional graphite anodes (3579 mAh g^{-1} vs. 372 mAh g^{-1}), offering the potential for dramatically extended EV ranges, extreme fast charging (XFC), and ultra-high energy density. However, the substantial volumetric expansion (up to 300%) during lithium ion intercalation and de-intercalation has historically caused mechanical degradation of electrodes and shortened battery lifespans. To counter this, companies like Group14 Technologies with its SCC55 and Sila Nanotechnologies are developing silicon-carbon nanocomposites that encapsulate silicon particles within a rigid carbon scaffold, effectively mitigating volume expansion. Additionally, targeted prelithiation materials are being used to compensate for irreversible lithium loss, further improving battery performance and stability. Dongfeng Motor's 350 Wh/kg semi-solid-state battery and GAC Group's 400 Wh/kg semi-solid-state battery are slated to begin mass production or vehicle integration trials with silicon anode technology in the second half of 2026.

Background and Industry Context

The global battery industry is intensely seeking novel material innovations, driven by the widespread adoption of EVs, the need for renewable energy storage, and advancements in high-performance electronics. Silicon, being abundantly available, also holds strategic importance in supporting the establishment of localized and resilient battery material supply chains outside of China. The 'low-altitude economy' (e.g., drones, eVTOLs) and 'on-board intelligence' (AI devices), emphasized in China's 15th Five-Year Plan, both impose high demands on battery energy density, significantly contributing to Si-C anode materials' emergence as a critical technological pathway. Anodes constitute approximately 14% of battery costs, making the introduction of high-performance materials like Si-C crucial for overall cost reduction and performance enhancement.

Outlook

The industrialization of silicon anode technology will not only elevate EV performance but also unlock new possibilities in diverse high-value applications where lightweighting and high energy density are paramount, such as aerospace, defense, and portable electronics. With the primary technical hurdle of volumetric expansion being progressively addressed, silicon anodes are expected to accelerate the shift away from graphite anodes in the coming years, establishing a new standard for battery technology. Global competition in technological development is intense, with entities like the U.S. Department of Energy and The Faraday Institution funding advanced anode material research. This technology is anticipated to disrupt China's dominance in certain segments of the battery market and contribute to the creation of more diversified and robust global supply chains.

Source: https://english.news18a.com/news/english_265226.html

Collected: June 12, 2026 | Automated Research System (Gemini API)

U.S. Department of Energy Reinstates $57 Million Grant to American Battery Technology, Accelerating Lithium Refining Facility Construction

Published June 09, 2026 Waste Dive USA

OVERVIEW

The U.S. Department of Energy (DOE) has reinstated a $57 million grant to American Battery Technology Co. (ABTC) for the construction of a lithium refining facility in Tonopah Flats, Nevada. This $115 million commercial-scale facility plans to produce 5,000 metric tons of battery-grade lithium hydroxide annually. ABTC emphasizes that while battery recycling is crucial for improving domestic battery metal supply, it alone cannot meet rapidly escalating demand, advocating for both new extraction and recycling. This grant aims to bolster the domestic supply chain and reduce foreign dependence on critical minerals.

IN DEPTH

Key Findings

The U.S. Department of Energy (DOE) has reinstated a $57 million grant to American Battery Technology Co. (ABTC) for the construction of a lithium refining facility in Tonopah Flats, Nevada. This funding is part of a broader U.S. initiative to strengthen its domestic supply chain for critical minerals essential to clean energy technologies and reduce foreign dependence. ABTC plans to proceed with its $115 million commercial-scale refining facility, aiming to produce 5,000 metric tons of battery-grade lithium hydroxide annually.

Technical Details

ABTC's lithium refining facility will employ state-of-the-art extraction and purification technologies to produce high-purity lithium hydroxide from domestically sourced lithium resources. Battery-grade lithium hydroxide is a crucial material for manufacturing high-energy-density batteries, particularly those used in electric vehicles (EVs). The facility will prioritize efficient refining processes with minimal environmental impact, contributing to the establishment of a sustainable supply chain. While ABTC is also developing technologies for recovering valuable metals from used batteries, it maintains a strategic view that expanding new mining supplies is also essential to meet the rapidly increasing demand for lithium, as recycling alone cannot keep pace.

Background and Industry Context

The U.S. currently relies heavily on foreign imports for most critical minerals like lithium, posing a significant vulnerability in its supply chains. China, in particular, holds a dominant position in the global battery supply chain, raising geopolitical and supply security concerns. The DOE's grant is part of a $3 billion program under the Infrastructure Investment and Jobs Act (IIJA) to stimulate domestic production of advanced batteries and battery materials. This policy aims to boost domestic mineral processing capacity, support the growth of the EV industry and renewable energy storage, and accelerate the greening of the U.S. economy. Addressing the volatility of lithium prices, securing stable domestic sources is also vital for stabilizing battery costs.

Outlook

The construction of ABTC's lithium refining facility marks a significant milestone in the U.S. battery supply chain. This effort, combined with other major lithium-ion battery recycling facilities like Redwood Materials' Ridgeville plant in South Carolina and Cirba Solutions' Lancaster plant in Ohio, which are expected to be completed by late 2026 and mid-2026 respectively, will dramatically enhance domestic battery material supply capabilities. This initiative is a critical step for the U.S. to accelerate its transition to a clean energy economy while simultaneously bolstering national security and economic independence. Investors and industry stakeholders will closely watch the increase in domestic material production capacity and the resulting stabilization of the supply chain.

Source: https://www.wastedive.com/news/american-battery-announces-reinstated-57m-grant-from-doe/822326/

Collected: June 12, 2026 | Automated Research System (Gemini API)

China Cracks Power Storage Profit Puzzle: Capacity Charges Post-2026 Policy Reduce BESS Costs by Up to 40% Compared to US/Japan

Published June 10, 2026 S&P Global China

OVERVIEW

China has enhanced its energy transition by improving power sector pricing mechanisms with "Notice 114," a policy issued in January 2026, which introduces capacity charges for new energy storage systems like BESS. This policy results in a levelized cost of storage for standard 4-hour lithium-ion battery systems in China that is 28% to 40% lower than in the U.S. or Japan. China is actively promoting the growth of power storage through pumped hydro and batteries, mandating that new data centers in domestic hub nodes operate with at least 80% renewable energy, accelerating renewable integration and grid stabilization.

IN DEPTH

Key Findings

China is actively driving its energy transition by vigorously promoting the growth of power storage through both pumped hydro and Battery Energy Storage Systems (BESS). The policy document "Notice 114," issued in January 2026, has fundamentally improved pricing mechanisms within the power sector by introducing capacity charges for new energy storage systems, including BESS. As a result, the levelized cost of storage for standard 4-hour lithium-ion battery systems in China is now 28% to 40% lower than in the United States or Japan, creating a globally competitive environment for energy storage deployment.

Technical Details

"Notice 114" strengthens investment incentives for power storage projects by introducing a payment mechanism for storage capacity. This allows BESS to provide services such as grid peak shaving, frequency regulation, and smoothing of renewable energy output, for which they receive compensation. This enhances the economic viability of BESS and shortens payback periods for investors. Technologically, lithium-ion batteries, particularly Lithium Iron Phosphate (LFP) cells, dominate grid-scale storage due to their superior safety profile and cycle life (up to 8,000 cycles). China also mandates that new data centers in domestic hub nodes operate with at least 80% renewable energy, further accelerating the integration of BESS with renewable sources.

Background and Industry Context

As the world's largest energy consumer and leading deployer of renewable energy, China faces the dual challenge of stabilizing its power grid and transitioning to cleaner energy. Power storage is critically important for enabling the integration of intermittent renewable energy sources (solar, wind) and enhancing grid resilience. Robust government policy support has spurred rapid growth in the BESS market, establishing China as a global leader in this sector. The low cost of BESS further reinforces China's existing advantage in the clean energy supply chain. Such policies are also influencing the international competitive landscape, with the European Union, for instance, launching new strategies to reduce its dependence on China for battery supply chains.

Outlook

Policies like "Notice 114" are expected to accelerate power storage deployment within China, driving grid modernization and decarbonization. Cost-effective power storage solutions improve the economics of renewable energy projects, further reducing reliance on fossil fuels. This successful model could serve as a reference for other nations, particularly those looking to expedite their clean energy transitions. The mandate for renewable energy use in power-intensive facilities like AI data centers will generate new demand for the BESS market, further stimulating innovation and adoption of power storage technologies. Investors will continue to monitor the growth of China's power storage market and the new business opportunities it presents.

Source: https://www.spglobal.com/ratings/en/regulatory/article/sustainability-insights-chinas-energy-transition-cracking-the-profit-puzzle-of-power-storage-s101681063

Collected: June 12, 2026 | Automated Research System (Gemini API)

EU Unleashes €1.5 Billion 'Battery Booster' to Fast-Track Gigafactories, Counter China Dependence

Published Published June 09, 2026 Battery Technology ヨーロッパ

OVERVIEW

The European Commission has launched a comprehensive strategy to secure its battery supply chain and establish leadership in gigafactory production. Addressing a critical vulnerability where 87% of Europe's €27 billion 2024 battery imports originated from China, the plan, under the Net Zero Industrial Act, will slash permitting times for strategic battery plants to 9-12 months. Additionally, a new €1.5 billion "Battery Booster Facility" will provide interest-free loans to bolster domestic manufacturing and reduce reliance on external suppliers.

IN DEPTH

Key Findings

The European Commission has unveiled a comprehensive new strategy designed to transform its battery supply chain and cultivate European leadership in gigafactory production. The strategy's primary objective is to address Europe's profound strategic vulnerability stemming from its current, extremely high dependence on China, which supplied 87% of the €27 billion worth of batteries imported by Europe in 2024. This new framework prioritizes drastically reducing permitting times for battery factories and bolstering in-region battery production capacity through targeted financial support for critical domestic projects.

Technical Details

The new strategy is anchored in the Net Zero Industrial Act (NZIA). Specifically, it aims to cut the permitting period for battery factories from several years to a mere 9-12 months, implementing expedited, prioritized review processes for strategically important projects. Furthermore, a newly established "Battery Booster Facility" will provide €1.5 billion (approximately $1.6 billion USD) in interest-free loans to qualifying battery manufacturing projects within the European Union. These measures are designed to strengthen the entire battery value chain within Europe, encompassing critical raw material extraction and refining, cell manufacturing, and recycling. Technologically, the focus is expected to be on enhancing existing lithium-ion battery production capabilities while simultaneously investing in next-generation technologies such as sodium-ion batteries.

Background and Industry Context

Batteries represent a foundational technology indispensable for Europe's clean energy transition, essential for powering electric vehicles (EVs) and grid-scale renewable energy storage systems. However, Europe's current reliance on China for the majority of its battery supply chain—from raw material sourcing and processing to final product manufacturing—poses a significant economic and security concern. China notably dominates the processing of critical minerals like lithium, nickel, and cobalt, alongside a substantial share of global battery cell manufacturing. The United States has implemented similar initiatives, including a $3 billion program under the Infrastructure Investment and Jobs Act (IIJA), to strengthen its domestic battery supply chain, underscoring escalating global competition and geopolitical tension in this critical sector. Europe's new policy is thus situated within this broader international competitive and geopolitical landscape.

Outlook

This new European strategy represents a crucial step toward building an indigenous battery manufacturing ecosystem and enhancing supply chain resilience within the bloc. The streamlined permitting processes and significant financial assistance are expected to serve as potent incentives for European companies to construct gigafactories and expand production capacities. This initiative is anticipated to boost Europe's energy independence, foster economic growth, and create new jobs. However, to effectively compete with China's established scale and cost competitiveness, continuous technological innovation and the establishment of highly efficient, vertically integrated production systems will be required, extending beyond mere policy support. Investors and the industry alike will closely monitor the progress of battery manufacturing in Europe and its impact on the global supply chain balance.

Source: https://www.batterytechonline.com/industry-outlook/eu-spent-27-billion-on-batteries-in-2024-87-from-china-now-it-s-fighting-back

U.S. DOE Awards $3 Billion in Grants for Domestic Battery Manufacturing and Recycling, Supporting Next-Gen EV Batteries and LDES

Published June 10, 2026 U.S. Department of Energy (DOE) USA

OVERVIEW

The U.S. Department of Energy (DOE) is providing a total of $3 billion in grant programs under the Infrastructure Investment and Jobs Act (IIJA) to foster domestic production of advanced batteries and battery materials. This initiative aims to secure viable domestic manufacturing and recycling capabilities for the North American battery supply chain. To date, $1.82 billion has been awarded to 14 projects demonstrating new approaches to lithium, graphite, and other battery material extraction, component manufacturing, and recycling. Additionally, $44.8 million will fund eight projects dedicated to improving EV battery recycling and second-life applications.

IN DEPTH

Key Findings

The U.S. Department of Energy (DOE) is providing a total of $3 billion in grant programs under the Infrastructure Investment and Jobs Act (IIJA) to bolster domestic production and recycling capabilities for advanced batteries and battery materials. This significant funding aims to strengthen the North American battery supply chain and reduce foreign dependence on critical minerals. To date, $1.82 billion has been allocated across 14 projects demonstrating novel approaches to the extraction, component manufacturing, and recycling of lithium, graphite, and other battery materials. Furthermore, an additional $44.8 million has been granted to eight projects focused on improving electric vehicle (EV) battery recycling and enhancing second-life applications.

Technical Details

The DOE grants cover multiple stages of the battery value chain. This includes battery material extraction (e.g., a $57 million grant to American Battery Technology Co. for a lithium refining facility), advanced dry process electrode manufacturing (e.g., collaborative projects involving NREL, ORNL, SLAC, and Solid Power), and battery recycling (e.g., reducing costs associated with the transportation, dismantling, and preprocessing of end-of-life EV batteries). These technological innovations aim to improve manufacturing efficiency, reduce costs, and lessen the environmental impact of producing high-energy-density batteries (such as lithium metal and silicon anode types). Specifically, dry electrode processes eliminate solvent use in manufacturing, potentially reducing capital expenditure by up to 30% and obviating the need for toxic solvent recovery systems. Second-life applications maximize the overall lifecycle value of batteries by repurposing used EV batteries for applications like grid storage.

Background and Industry Context

The global energy storage market is experiencing rapid growth, driven by the proliferation of EVs and the expanding integration of renewable energy sources, leading to a surge in demand for battery materials. However, the U.S. faces strategic vulnerabilities due to its high reliance on foreign nations, including China, for the mining, processing, and manufacturing of critical minerals like lithium. The DOE's program aims to mitigate this dependence and foster domestic technological innovation and production capacity. This policy support is crucial for reducing geopolitical risks in the U.S. battery supply chain and accelerating the transition to a clean energy economy. The increasing volatility of prices for battery materials such as lithium, graphite, nickel, and cobalt also underscores the importance of securing stable domestic supply sources to stabilize battery costs.

Outlook

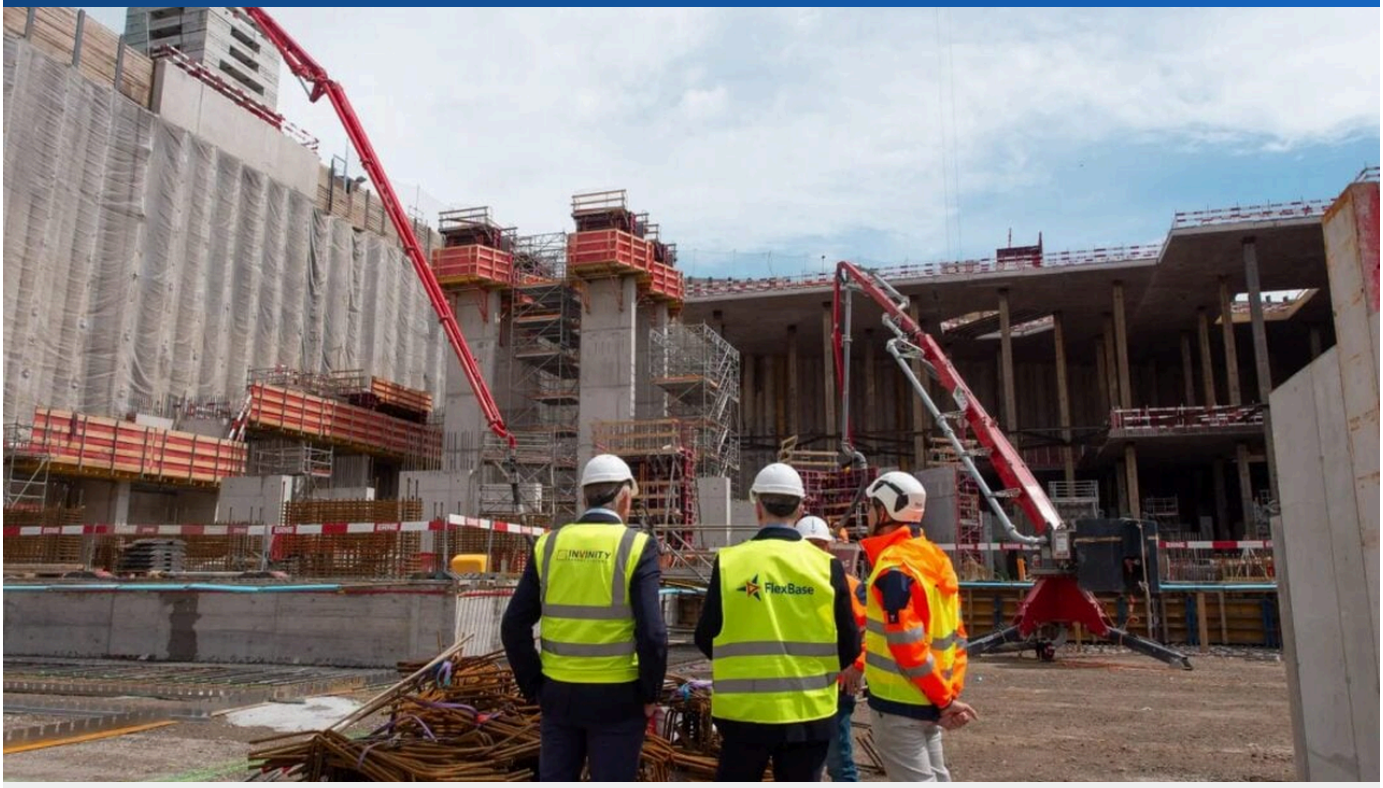
Outlook

The DOE's grant programs are pivotal for strengthening the foundation of the U.S. battery industry and enhancing its competitiveness in the global market. Successful execution of these funded projects will enable the production of higher-performance, safer batteries at lower costs, further accelerating the adoption of EVs, supporting data centers, and expanding grid-scale energy storage (BESS). Advances in areas such as dry electrode manufacturing and lithium refining hold the potential to simultaneously reduce manufacturing costs and environmental footprints. The development of domestic recycling capabilities and second-life applications will boost battery sustainability and facilitate the transition towards a circular economy model. Investors and industry stakeholders are closely monitoring the long-term impact of this government funding on next-generation energy storage technologies and energy infrastructure in the U.S.

Source: https://www.energy.gov/cmei/manufacturing/battery-manufacturing-and-recycling-grants

Swiss FlexBase Partners with Invinity Energy Systems to Design World's Largest 2.1GWh Vanadium Flow Battery for Data Center Storage, Expected by 2029

Published June 04, 2026 Energy-Storage.news Switzerland



OVERVIEW

Invinity Energy Systems has secured a contract to design a 1.5GW/2.1GWh vanadium redox flow battery (VRFB) system for a FlexBase data center in Switzerland, marking the largest VRFB system globally and a "world-first" in establishing a niche for flow batteries where lithium alternatives fall short. Expected to be completed by 2029, this non-flammable system can power 210,000 homes for a day, offers less performance degradation over long cycles than lithium-ion, and is strategically located near a major European power hub to stabilize grids and support a new AI data center. Groundwork for this significant deployment is currently underway.

IN DEPTH

Key Findings

Invinity Energy Systems has been awarded a design contract for a 1.5GW/2.1GWh vanadium redox flow battery (VRFB) system, to be co-located with a data center developed by FlexBase in Switzerland. This groundbreaking project represents the largest VRFB system globally and is hailed as a "world-first" for definitively carving out a niche where flow battery technology is ideally suited to meet the specific power requirements of a data center, which lithium-ion batteries cannot easily satisfy. The system is slated for completion by 2029 and is recognized for its non-flammable characteristics and long-term performance stability.

Technical Details

This 2.1GWh VRFB system maximizes the architectural advantage of flow batteries, which store energy in liquid electrolytes within large tanks, allowing for independent scaling of power and energy capacity. This enables the system to deliver power for significantly longer durations (up to a full day) compared to traditional batteries, capable of supplying 210,000 homes for a day. VRFBs boast superior characteristics compared to lithium-ion batteries, including cycle lives exceeding 20,000 cycles and near-zero capacity degradation over time. Furthermore, their use of aqueous electrolytes makes them inherently non-flammable, a substantial safety advantage. Strategically positioned near a major European power hub, the system will store electricity from variable renewable energy sources, contribute to grid stabilization, and support the burgeoning power demands of new AI data centers.

Background and Industry Context

Energy storage is indispensable for the large-scale integration of intermittent renewable energy sources (such as solar and wind power) into the grid, for grid stabilization, and for meeting the surging power demands of data centers. While lithium-ion batteries are widely used for short-duration storage, flow batteries are increasingly demonstrating clear advantages for applications requiring long-duration storage, non-flammability, and stable performance under extreme temperature conditions. The global market for flow battery technology is valued at US$1.22 billion in 2026, projected to reach US$2.88 billion by 2034, driven by increasing demand for Long Duration Energy Storage (LDES) solutions. U.S. government policies, aimed at reducing dependence on Chinese battery supply chains, are also accelerating the commercialization of non-lithium-based technologies like flow batteries.

Outlook

The FlexBase data center project in Switzerland serves as a crucial proving ground, demonstrating that flow batteries are moving beyond experimental stages to be deployed as practical, gigawatt-hour scale solutions. Its success will not only showcase the reliability and economic viability of flow battery technology globally but also encourage other data center operators and utilities to adopt flow batteries as an alternative or complement to lithium-ion solutions. The escalating power demands of AI data centers, in particular, necessitate stable, safe, and sustainable energy supplies. This project is expected to be a powerful model for how renewable energy and energy storage can collaborate to support future digital infrastructure. Other VRFB developers, such as Richmond Vanadium Technology, are also advancing similar projects with a focus on strengthening domestic supply chains.

Source: https://www.energy-storage.news/giga-scale-swiss-data-centre-project-will-be-world-first-in-carving-out-niche-for-flow-batteries-invinity-says/

Eos Energy Secures $305.3 Million DOE Loan Guarantee for Zinc-Bromine Battery Manufacturing Lines, Targeting 8 GWh Annual Production by 2026

Published June 04, 2026 U.S. Department of Energy (DOE) USA

OVERVIEW

Eos Energy Enterprises has secured an up to $305.3 million loan guarantee from the U.S. Department of Energy's Loan Programs Office for the construction of two manufacturing lines for next-generation zinc-bromine battery energy storage systems (BESS) in Pennsylvania. These lines are expected to produce over 8 GWh of storage capacity annually by 2026, sufficient to power over 300,000 average U.S. homes instantaneously. Eos's Eos Z3™ zinc-bromine batteries are designed for long-duration grid-scale storage, featuring 100% depth of discharge, 6,000 cycles (approximately 20 years), non-flammability, and no active cooling.

IN DEPTH

Key Findings

Eos Energy Enterprises has secured a significant loan guarantee of up to $305.3 million from the U.S. Department of Energy's (DOE) Loan Programs Office. This crucial financing will enable Eos Energy to construct two manufacturing lines for its next-generation utility and industrial-scale zinc-bromine Battery Energy Storage Systems (BESS) in Pennsylvania. These lines are projected to produce over 8 GWh of storage capacity annually by 2026, an amount sufficient to instantaneously power more than 300,000 average U.S. homes.

Technical Details

Eos Energy's flagship product, the Eos Z3™ zinc-bromine battery, is specifically engineered for long-duration, grid-scale storage. This battery offers several key technical advantages. Firstly, it supports a 100% depth of discharge (DoD), allowing for efficient and full utilization of the battery's capacity. Secondly, it boasts an exceptionally long lifespan of 6,000 cycles or 20 years, with no age-related capacity degradation, ensuring long-term reliability and reduced maintenance costs. Furthermore, its use of an aqueous electrolyte makes it inherently non-flammable, and it does not require active cooling systems, which simplifies BESS installation and operation while reducing overall system costs. The Eos Z3™ serves as a compelling alternative to other chemistries like lithium-ion, lead-acid, sodium-sulfur, and vanadium redox, providing a safe and sustainable LDES solution.

Background and Industry Context

The U.S. is experiencing an accelerating integration of renewable energy sources (solar, wind) into its power grid, necessitating the deployment of Long Duration Energy Storage (LDES) systems for grid stabilization and enhanced reliability. The DOE's loan guarantee program is part of a broader government strategy aimed at strengthening domestic clean energy manufacturing capabilities and reducing reliance on foreign supply chains. Particularly, with U.S. government trade restrictions on Chinese battery storage companies, policy-driven commercial opportunities are emerging for non-lithium-based LDES technologies such as flow batteries (vanadium redox and zinc-bromine), iron-air systems, and sodium-ion batteries. This policy support plays a vital role in enabling domestic companies like Eos Energy to compete effectively in the LDES market.

Outlook

The loan guarantee from the DOE is critical for Eos Energy to significantly scale up its zinc-bromine battery production capacity and solidify its position in the U.S. LDES market. The establishment of 8 GWh annual manufacturing capacity by 2026 will enhance the resilience of the U.S. grid and further accelerate renewable energy deployment. Non-flammable, long-life batteries like the Eos Z3™ will be an attractive option for utility, industrial, and commercial customers, with particular adoption expected in facilities requiring continuous operation, such as data centers and critical infrastructure. This investment will serve as a successful case study in the national effort to build a domestic clean energy technology supply chain and enhance energy security in the United States.

Source: https://www.energy.gov/edf/articles/sector-spotlight-energy-storage

Collected: June 12, 2026 | Automated Research System (Gemini API)

BESS Safety and Grid Interconnection Standards Tightened: UL 9540A 6th Edition Mandates Installation-Level Fire Testing, NFPA 855 Requires Active Explosion Control

Published June 10, 2026 JM Batteries USA

OVERVIEW

To address safety challenges with scaling Battery Energy Storage Systems (BESS), key U.S. safety standards have been strengthened. UL 9540A 6th Edition, published March 13, 2026, mandates large-scale, installation-level fire testing under real-world failure conditions, moving beyond component-level certifications. The updated NFPA 855 now restricts passive deflagration venting, requiring active explosion control and Combustible Concentration Reduction (CCR) systems for enclosed BESS installations. These standards are critical for BESS projects to secure financing and integrate into the grid, requiring round-trip efficiency over 85%, cycle life exceeding 6,000 cycles at 80% DoD, and response times under 100 milliseconds.

IN DEPTH

Key Findings

Major technical standards for ensuring the safety and reliability of Battery Energy Storage Systems (BESS) have been significantly strengthened in the United States. Notably, the 6th Edition of UL 9540A, published on March 13, 2026, now mandates large-scale, installation-level fire testing under real-world failure conditions, such as thermal runaway, moving beyond mere component-level certifications for BESS developers. Furthermore, the updated NFPA 855 restricts the use of passive deflagration venting, requiring the implementation of more active explosion control systems and Combustible Concentration Reduction (CCR) systems for enclosed BESS installations. Compliance with these stringent standards is a prerequisite for BESS projects to secure financing and integrate safely and effectively into the electrical grid.

Technical Details

For BESS to be grid-connected, adherence to strict technical standards including IEC 62933 (electrical safety), UL 9540 (fire safety), and IEEE 1547 (grid interconnection) is essential. UL 9540A 6th Edition aims to validate safe designs by evaluating thermal runaway propagation and fire behavior at the battery module, rack, and container levels through fire tests simulating actual installation environments. The revisions to NFPA 855 enhance responses to the severity and complexity of BESS fires, specifically addressing the potential risks associated with thermal runaway in lithium-ion batteries. To secure financing, BESS projects must also meet high-performance requirements, including a round-trip efficiency exceeding 85%, a cycle life of over 6,000 cycles at 80% depth of discharge, and response times under 100 milliseconds for grid services. Lithium Iron Phosphate (LFP) batteries are widely adopted as the dominant technology for grid-scale storage due to their superior safety profile and extended cycle life (up to 8,000 cycles).

Background and Industry Context

The large-scale deployment of renewable energy and the rapid growth in electricity demand driven by AI data centers are accelerating the adoption of BESS for grid stabilization and resilience. However, BESS fire incidents have occurred worldwide, making safety the paramount concern for the entire industry. The tightening of UL 9540A and NFPA 855 reflects lessons learned from these incidents, representing critical measures to align safety standards with modern technology and risk assessments. International standards like IEEE 1547 and IEC 62933 for grid interconnection provide the technical framework for BESS to seamlessly integrate into the power grid and reliably provide ancillary services such as frequency regulation, voltage support, and peak shifting. These standards serve as a common language for suppliers, developers, financiers, and regulators in evaluating BESS reliability and safety.

Outlook

Compliance with these strengthened safety and performance standards is crucial for the sustainable growth and enhanced reliability of the BESS market. BESS designers and manufacturers will be driven to innovate further in areas such as thermal management systems (with advanced liquid-cooling becoming standard), cell balancing, and data monitoring. Reliable and safe BESS solutions are indispensable, particularly for facilities with power-intensive loads like AI data centers. This will enable companies that provide high-quality, compliant BESS to establish a competitive advantage in the market, accelerating BESS adoption. Consequently, the proliferation of safer and more efficient energy storage solutions is expected to accelerate the clean energy transition.

Source: https://jmbatteries.com/blogs/news/bess-problems-and-risks

Collected: June 12, 2026 | Automated Research System (Gemini API)

Tesla Constructs 50 GWh Megapack Factory in Texas, Shipping Next-Gen Megapack 3 and New Megablock Systems by H2 2026

Published June 08, 2026 basenor USA

OVERVIEW

Tesla is constructing its largest Megapack factory in Brookshire, Texas, aiming for an annual production capacity of 50 GWh of energy storage (exceeding its California and China plants combined) and creating up to 1,500 jobs by 2028. This new facility will produce the next-generation Megapack 3 (5 MWh per unit, a 28% increase from Megapack 2) and the innovative Megablock system, which integrates four Megapack 3 units into a single 20 MWh assembly. This significantly boosts density, reducing installation time and footprint for utility-scale grid projects. Tesla targets Megapack 3 deliveries from this facility in the second half of 2026.

IN DEPTH

Key Findings

Tesla is currently constructing its largest Megapack factory in Brookshire, Texas, designed to achieve an impressive annual energy storage production capacity of 50 gigawatt-hours (GWh). This capacity will surpass that of its existing California and China plants combined. The new facility will manufacture the next-generation Megapack 3, offering approximately 5 MWh per unit (a 28% increase from Megapack 2), and introduce the innovative "Megablock" system, which integrates four Megapack 3 units with transformers and switchgear into a single 20 MWh assembly. Tesla aims to commence shipments of the Megapack 3 from this facility in the second half of 2026. This strategy is designed to address the challenges of installation time and footprint in utility-scale grid projects, dramatically enhancing energy storage density.

Technical Details

The Megapack 3 offers a 28% increase in capacity over its predecessor, the Megapack 2, enabling more energy storage in a smaller physical footprint. The new "Megablock" system modularizes multiple Megapack 3 units into a 20-foot container, facilitating high-density, rapid deployment. This is crucial for large-scale grid projects where installation time and area represent a significant portion of the total deployment cost. Furthermore, Tesla is utilizing a fully dry electrode process for both the anode and cathode of its 4680 cells, contributing to reduced manufacturing costs and factory space. These innovations collectively enhance the overall efficiency, cost-competitiveness, and scalability of Tesla's energy storage solutions.

Background and Industry Context

The global energy storage market is experiencing unprecedented growth, driven by the escalating power demands of AI data centers and the accelerating deployment of renewable energy sources (solar, wind). Tesla has established itself as a market leader, deploying a record 46.7 GWh of energy storage systems globally in 2025. The Megapack stands as one of the most visible utility-scale grid storage products on the market. Other automotive giants, such as General Motors (GM) and Ford, are following Tesla's successful energy storage playbook, intensifying their entry into this market. For instance, Ford has launched a new subsidiary to manufacture LFP-based BESS with an annual capacity of 20 GWh. This heightened competition signals a growing demand for more efficient and cost-effective energy storage solutions.

Outlook

The operation of the new Megapack factory in Texas is essential for Tesla to further solidify its leadership in the global energy storage market. Its massive 50 GWh annual production capacity will provide grid-scale energy storage solutions at an unprecedented scale, accelerating the world's clean energy transition. Innovative high-density systems like the Megapack 3 and Megablock will be powerful tools for utilities to more effectively integrate renewable energy, enhance grid stability, and mitigate blackout risks. This move is expected to further drive down the cost of energy storage technology and promote its widespread adoption, thereby significantly reducing reliance on fossil fuels and accelerating the transition to a sustainable future. Investors and industry stakeholders are watching Tesla's energy business growth as a potential new revenue pillar alongside its EV operations.

Source: https://www.basenor.com/blogs/news/teslas-new-texas-megapack-factory-50-gwh-and-1-500-jobs

Collected: June 12, 2026 | Automated Research System (Gemini API)

MET Group Activates Hungary's Largest BESS (40 MW / 80 MWh), Integrating Huawei and Tesla Technology to Propel Energy Transition

Published Published June 10, 2026　MET Group　ハンガリー

OVERVIEW

MET Group has commissioned Hungary's largest standalone battery energy storage system (BESS), a 40 MW / 80 MWh facility in Százhalombatta. Expanding upon an existing Tesla Megapack 2 demonstrator and primarily equipped by Huawei Technologies, this project aims to significantly boost renewable energy integration and enhance grid stability for Hungary's energy transition. It also marks a strategic step in MET Group's wider European BESS investment to bolster regional energy security.

IN DEPTH

Background

Across Europe, the transition to renewable energy and the associated modernization of power grids are accelerating. Battery energy storage systems (BESS) are indispensable components for the success of this transition, enhancing grid resilience, supply security, and efficiency. MET Group's investment in Hungary is part of its broader strategy to actively invest in BESS across Europe, supporting individual countries in achieving their clean energy goals. Lithium Iron Phosphate (LFP) technology is widely adopted for utility-scale battery storage due to its superior safety profile and lifecycle, often exceeding 10 years. This Hungarian BESS reflects global trends in the growing importance of energy storage, mirroring reports like Wood Mackenzie's finding that solar and energy storage accounted for 91% of all new power added to the U.S. grid in Q1 2026.

Key Findings

MET Group has inaugurated Hungary's largest standalone Battery Energy Storage System (BESS) plant, a substantial 40 megawatts (MW) / 80 megawatt-hours (MWh) facility located in Százhalombatta. This plant represents a significant expansion built upon an existing 4 MW / 8 MWh Tesla Megapack 2 demonstrator unit that has been operational since 2022. Huawei Technologies served as a critical equipment supplier for the project, which aims to bolster Hungary's energy transition efforts and substantially increase the penetration of renewable energy sources into the national power grid.

Technical Details

The 40 MW / 80 MWh BESS plant leverages large-scale lithium-ion battery technology, providing the rapid response capabilities essential for grid stabilization. This system is designed to store electricity from intermittent renewable energy sources (such as solar and wind) and discharge it when needed, thereby maintaining grid balance and enhancing stability. It also offers ancillary services like peak shaving and frequency regulation, which improve electricity market efficiency. By integrating Tesla Megapack 2 technology with advanced energy management systems (EMS) and power conversion systems (PCS) supplied by Huawei Technologies, the plant maximizes overall operational efficiency and reliability. This aligns with industry demands for grid-scale BESS to meet performance criteria such as round-trip efficiency exceeding 85%, a lifespan of over 6,000 cycles, and response times under 100 milliseconds.

Outlook

The operationalization of Hungary's largest BESS plant marks a significant milestone for MET Group and Hungary's energy transition. It will enable Hungary to integrate more renewable energy into its grid, reducing reliance on fossil fuels and lowering its carbon footprint. Furthermore, this plant has the potential to contribute to grid stabilization in neighboring European countries. Looking ahead, such large-scale BESS projects will become increasingly vital for enhancing grid flexibility, ensuring stable power supply to consumers, and improving the ability to meet new power demands from sources like AI data centers. Investors and industry stakeholders are monitoring further BESS deployments in Europe and their impact on regional and global energy markets.

Source: https://met.com/en/media/press-releases/met-group-inaugurates-hungary-s-largest-battery-energy-storage-facility/

Collected: June 12, 2026 | Automated Research System (Gemini API)

Virtual Power Plants (VPPs) Tackle U.S. Energy Demand: Massachusetts Sets 3.5 GW VPP Target by 2035

Published June 04, 2026 Inside Climate News USA

OVERVIEW

U.S. states like Massachusetts and Minnesota are accelerating the adoption of Virtual Power Plants (VPPs) to manage rising energy demand and transition away from fossil fuels. VPPs, networks of distributed energy resources like home batteries and smart thermostats, function as conventional power plants, offering a cheaper and cleaner alternative to peaker plants. Massachusetts has set an ambitious target of 3.5 gigawatts (GW) of VPPs by 2035, while Minnesota regulators approved Xcel Energy's plan for 200 megawatts (MW) of neighborhood-based batteries. In 2025, U.S. VPP capacity reached 38 GW, marking a 21% increase year-over-year.

IN DEPTH

Key Findings

U.S. states, including Massachusetts and Minnesota, are rapidly advancing the deployment of Virtual Power Plants (VPPs) to address increasing energy demand and accelerate the transition away from fossil fuels. VPPs integrate and network distributed energy resources (DERs) such as home batteries and smart thermostats, allowing them to operate as a single, cohesive conventional power plant. This offers a cheaper and cleaner alternative to aging peaker plants. Notably, Massachusetts has set an ambitious target to deploy 3.5 gigawatts (GW) of VPPs by 2035, emphasizing the integration of energy storage and demand response. In 2025, U.S. VPP capacity reached 38 GW, representing a 21% increase over the previous year.

Technical Details

VPPs leverage advanced software and communication technologies to dynamically balance grid supply and demand in real-time. These systems typically integrate home battery storage, rooftop solar installations, electric vehicle chargers, and smart appliances. For instance, during periods of grid strain, a VPP can discharge power from networked residential batteries or temporarily reduce HVAC loads via smart thermostats to mitigate peak demand. Xcel Energy's approved 200 MW neighborhood-based battery plan in Minnesota serves as a model for how such distributed battery storage can function as part of a VPP, providing direct grid support to local communities. VPPs play a crucial role in addressing the intermittency challenges of renewable energy and enhancing grid resilience.

Background and Industry Context

Several factors in the U.S., including the escalating power demands from the proliferation of AI data centers, aging infrastructure, and ambitious decarbonization goals, are intensifying the need for advanced energy storage solutions. Traditional large-scale power plants and transmission grid expansions are often time-consuming, costly, and carry significant environmental impacts. VPPs offer a more agile and cost-effective approach to addressing these challenges by harnessing existing distributed energy resources. In 2025, approximately one-third of VPP capacity comprised residential assets, and while commercial and industrial resources still dominate, state-level policy actions (over 150 utility, regulatory, and legislative actions tracked in 2025) are strongly propelling VPP development. State policies will remain a critical driver for energy storage deployment in the U.S. for 2026 and beyond.

Outlook

The accelerated adoption of VPPs holds the potential to transform the U.S. power grid into a more flexible, resilient, and sustainable system. Massachusetts' 3.5 GW target could serve as a model for other states, fostering nationwide VPP deployment. This will lead to a reduction in reliance on peaker plants and contribute to lower greenhouse gas emissions. Furthermore, VPPs offer consumers opportunities to monetize their home energy assets, encouraging participation in energy markets. Future developments are expected to focus on further enhancing VPP optimization and management through the integration of AI and machine learning. Investors and policymakers are keenly observing the role VPPs play in reshaping the future of the power grid, with market size projected to grow rapidly beyond 2026.

Source: https://insideclimatenews.org/news/04062026/inside-clean-energy-virtual-power-plants-role-in-transition-away-from-fossil-fuels/

Collected: June 12, 2026 | Automated Research System (Gemini API)

EV Battery Recycling to Be Key Investment Recovery Sector in 2026: Market Projected at $6.9 Billion, Achieving Over 95% Metal Recovery Rates

Published Date unknown Invrecovery USA

IRA INSIGHTS • INVESTMENT RECOVERY

EV Battery Recycling for Investment Recovery: The 2026 Playbook

INVESTMENT RECOVERY ASSOCIATION
Promoting Professional Management of Surplus Assets
13 MIN READ

OVERVIEW

EV battery recycling is emerging as a critical area for investment recovery in 2026, with the global lithium-ion battery recycling market projected to reach $6.9 billion. Modern hydrometallurgical recycling technology can recover over 95% of lithium and cobalt, and 97% of nickel, transforming spent batteries into a revenue stream. Three end-of-life pathways are competing: refurbishment, second-life energy storage, and material recycling, with second-life capacity expected to scale significantly by 2030. In the U.S., Redwood Materials and Cirba Solutions are scheduled to open large-scale recycling facilities by the end of 2026 and mid-2026, respectively, strengthening domestic supply chains.

IN DEPTH

Report Overview

This article provides an overview of a market analysis on EV battery recycling, presented by Invrecovery.

Key Findings

- **Market Size:** The global lithium-ion battery recycling market is projected to reach $6.9 billion in 2026.
- **Recovery Rates:** Modern hydrometallurgical recycling technologies are capable of recovering over 95% of lithium and cobalt, and 97% of nickel, transforming waste into a valuable revenue stream.
- **Recycling Pathways:** Three primary end-of-life pathways for spent EV batteries are identified: refurbishment, second-life energy storage, and material recycling.
- **Second-Life Market:** Second-life energy storage capacity is anticipated to expand significantly by 2030, presenting a crucial opportunity to extend battery lifecycles.
- **U.S. Developments:** In the United States, Redwood Materials' Ridgeville facility in South Carolina is projected to be operational by the end of 2026, while Cirba Solutions' Lancaster plant in Ohio is expected to finish by mid-2026, enhancing domestic recycling capabilities.
- **Economic Impact:** Battery recycling is essential for turning waste into profit, reducing dependence on critical minerals, and strengthening domestic battery supply chains.

About the Publisher

Invrecovery is a company that provides information on investment recovery and market analysis.

Source: https://invrecovery.org/ev-battery-recycling-investment-recovery-2026-playbook/

AI's Power Challenge Met: Energy Dome's CO2 Battery Plus Delivers 30-Year Lifespan for Data Centers and Grid Stability

Published Published June 04, 2026 everything PE イタリア

OVERVIEW

Energy Dome has introduced the CO2 Battery Plus, an advanced long-duration energy storage (LDES) platform engineered to meet the escalating power demands of AI data centers. This innovative system combines CO2-based storage with gas turbine infrastructure, offering a projected 30-year operational lifespan without capacity degradation—a significant advantage over lithium-ion batteries—while leveraging globally available components for cost-effectiveness. A pilot system is slated for deployment in the U.S. in 2026, aiming to bolster grid reliability and sustainable energy integration.

IN DEPTH

Key Findings

Energy Dome has introduced its groundbreaking Long Duration Energy Storage (LDES) platform, the "CO2 Battery Plus," engineered specifically to address the accelerating power demands of AI data centers. This system uniquely integrates a proprietary carbon dioxide (CO2)-based energy storage technology with existing gas turbine infrastructure, aiming to both enhance power output and reduce carbon intensity. Key advantages include a projected operational lifetime exceeding 30 years without capacity degradation—a significant differentiator from lithium-ion batteries—and the utilization of globally available industrial components, ensuring both cost-effectiveness and sustainability. The first commercial pilot system for this technology is scheduled to become operational in the United States in 2026.

Technical Details

At the heart of the CO2 Battery Plus is Energy Dome's novel CO2-based storage technology. The system stores electrical energy by compressing CO2 into a liquid phase and then generates power by vaporizing this CO2 to drive a turbine. This "closed-loop CO2" process ensures that CO2 is continuously reused within a sealed system, resulting in zero emissions and making it an environmentally sound solution. The integration with gas turbine infrastructure is crucial, enabling both rapid, instantaneous power delivery and robust long-duration energy storage. This hybrid capability is designed to meet the stringent high reliability and flexible power supply demands of power-intensive facilities such as AI data centers. Furthermore, the system operates stably across a wide temperature range without requiring active cooling, which significantly reduces infrastructure complexity and lowers the total cost of ownership (TCO). In a key U.S. deployment, the "Columbia Energy Storage Project" aims to commission a 200 MWh system in Wisconsin by 2026, bolstered by up to $30 million in federal grants from the Department of Energy (DOE).

Background and Industry Context

The accelerating progression of artificial intelligence (AI) has propelled data center power demand to unprecedented levels, with exponential growth anticipated. Simultaneously, the global imperative for decarbonization and expanded integration of renewable energy sources mandates reliable, safe, and cost-effective Long Duration Energy Storage (LDES) solutions. In this context, the CO2 Battery Plus positions itself as a compelling alternative to lithium-ion batteries within the LDES sector. Its inherent non-flammability and extended lifespan offer distinct advantages over lithium-based technologies, which are increasingly scrutinized for safety concerns and susceptibility to resource scarcity risks. This technology is poised to play a pivotal role in bolstering grid resilience and facilitating a stable renewable energy supply, thereby accelerating the broader energy transition.

Outlook

As the escalating power demand from AI data centers transforms from a mere "capacity problem" into a complex challenge encompassing "control, quality, and interconnection," advanced LDES solutions such as the CO2 Battery Plus become indispensable. The anticipated operation of the first commercial pilot system in the U.S. in 2026 will be a critical milestone, demonstrating the technology's market viability and scalability. Energy Dome's innovation holds the potential to significantly reshape future energy infrastructure by streamlining renewable energy integration and enabling data centers to procure power in a cleaner, more sustainable fashion. Investors and industry stakeholders are closely monitoring the emerging energy storage market opportunities propelled by AI growth and the transformative role the CO2 Battery Plus is expected to play within this landscape.

Source: https://www.everythingpe.com/news/details/10487-energy-dome-unveils-co-battery-plus-for-ai-power-infrastructure

U.S. Lithium-Ion Battery Recycling Projects Surge to $5.5 Billion, Aiming to Recover Materials for 500,000+ EVs Annually by 2026

Published Date unknown Industrial Info USA

OVERVIEW

U.S. lithium-ion battery recycling projects have surged to $5.5 billion, aiming to recover materials for over 500,000 EVs annually once construction is complete. Redwood Materials' Ridgeville, South Carolina facility is projected to finish by the end of 2026, while Cirba Solutions' Lancaster, Ohio plant is expected to finish by mid-2026. These large-scale projects are crucial for strengthening the domestic battery supply chain and reducing reliance on virgin materials. The U.S. Department of Energy is funding projects with $44.8 million to improve battery recycling and second-life applications, boosting domestic recycling capabilities.

IN DEPTH

Key Findings

In the United States, lithium-ion battery recycling projects have rapidly escalated to a valuation of $5.5 billion, reflecting a national commitment to strengthen the domestic battery supply chain and reduce reliance on virgin materials. Upon completion, these facilities aim to recover sufficient battery materials for over 500,000 electric vehicles (EVs) annually. Notably, Redwood Materials' Ridgeville facility in South Carolina is projected to be completed by the end of 2026, and Cirba Solutions' Lancaster plant in Ohio is expected to finish by mid-2026, significantly expanding U.S. recycling capabilities.

Technical Details

Modern battery recycling processes primarily focus on hydrometallurgical technologies. This process efficiently separates and recovers valuable metals such as lithium, cobalt, and nickel from the "black mass" (pulverized electrode materials) of spent batteries with high purity. Hydrometallurgy achieves high recovery rates (over 95% for lithium and cobalt, 97% for nickel) with zero wastewater discharge, minimizing environmental impact while supplying high-quality precursor materials necessary for manufacturing new batteries. The U.S. Department of Energy (DOE) is further supporting innovation and efficiency in recycling technologies by funding eight projects with $44.8 million, aimed at reducing costs associated with the transportation, dismantling, preprocessing, and recycling of plastic and polymeric accessory components from end-of-life EV batteries.

Background and Industry Context

The explosive growth of the EV market and the proliferation of renewable energy storage systems have led to a surge in demand for lithium-ion batteries, consequently increasing the volume of end-of-life batteries. This makes End-of-Life (EoL) battery management a critical issue not only for environmental concerns but also for the supply security and sustainability of critical minerals. As China dominates the global battery material supply chain, the U.S. is striving to mitigate this geopolitical risk and accelerate the transition to a circular economy model by enhancing domestic recycling capabilities. Battery recycling not only reduces the need for virgin mining and alleviates environmental impact but also creates new value and jobs within the domestic economy.

Outlook

The advancement of the $5.5 billion lithium-ion battery recycling projects in the U.S. is expected to significantly enhance the resilience of the domestic supply chain and contribute to a stable supply of battery materials. The operationalization of these large-scale facilities in 2026 will ensure a sustainable material supply for the U.S. EV industry and energy storage sector, and is projected to stabilize manufacturing costs. Future efforts will focus on further technological innovations to improve battery recycling rates and efficiency, as well as establishing robust quality control systems to ensure that recycled materials perform at par with, or even surpass, virgin materials. Investors and policymakers are keen on the value creation across the entire battery lifecycle and its impact on environmental and economic objectives.

Source: https://www.industrialinfo.com/iirenergy/industry-news/article/us-home-to-55-billion-worth-of-lithium-ion-battery-recycling-projects--340723

Collected: June 12, 2026 | Automated Research System (Gemini API)

Lithium-Sulfur Battery Market Projected to Exceed $1.2 Billion by 2035, Driven by 35.08% CAGR

Published June 05, 2026 SNS Insider International

OVERVIEW

This article provides an overview of a market research report published by SNS Insider. The global Lithium-Sulfur (Li-S) Battery Market is projected to grow significantly from USD 59.39 Million in 2025 to USD 1201.27 Million by 2035, with a CAGR of 35.08% during 2026-2035. This growth is driven by the superior energy density of Li-S batteries compared to traditional lithium-ion, making them ideal for aerospace, electric planes, and high-performance, lightweight consumer gadgets. Recent developments include pilot-scale production advancements and Sion Power's progress with its Licerion lithium-sulfur platform, achieving energy densities above 500 Wh/kg for aerospace and electric mobility.

IN DEPTH

Report Overview

This article provides an overview of a market research report published by SNS Insider.

Report Scope

This report covers the global Lithium-Sulfur (Li-S) battery market from 2026 to 2035. Market segments include applications (aerospace, automotive, consumer electronics, and others) and regions (North America, Europe, Asia Pacific, and Rest of the World).

Key Findings

- **Market Size and Growth:** The global Lithium-Sulfur (Li-S) Battery Market is projected to grow significantly from USD 59.39 Million in 2025 to USD 1201.27 Million by 2035, with an impressive Compound Annual Growth Rate (CAGR) of 35.08% during the 2026-2035 forecast period.
- **Key Drivers:** This robust growth is primarily driven by increasing demand for high-energy-density batteries in aerospace, electric aircraft (eVTOLs), and high-performance lightweight consumer gadgets. Li-S batteries offer significantly higher theoretical specific energy density (500-600 Wh/kg in practical implementations) compared to conventional lithium-ion batteries, making them ideal for weight-sensitive applications.
- **Technological Advantages:** Li-S batteries benefit from the use of abundant and low-cost sulfur as a cathode material, which contributes to lower material costs and improved supply chain stability. Recent advancements, such as Sion Power's Licerion lithium-sulfur platform, have achieved energy densities exceeding 500 Wh/kg for aerospace and electric mobility, indicating progress towards commercialization.

About the Publisher

SNS Insider is a global market intelligence provider offering market research reports and consulting services.

Source: https://sg.finance.yahoo.com/news/lithium-sulfur-battery-market-report-073000806.html