NextGenEnergyStorage

Weekly Intelligence Report

2026-07-26 | 9 articles | 6 countries

troy-technical.jp

This Week's Keyword

Battery Storage & Recycling

US/EU scale-up, China's market dynamics

24.3	Sub-$20	150k	6
GW	/kWh	Tons	countries
US BESS Capacity (2026)	Iron-Air Battery Cost	China Recycling Capacity	Source Countries

All 9 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	China Used Battery Market	Market Analysis	●○○○○	●●●●○	●●●●○	●●●○○	●●●●○	China's used battery cell market declined in July 2026 due to softening Li, Ni, Co prices and lower downstream acceptance.
#02	UK BESS Fire Safety	Regulatory Update	●●○○○	●●●●○	●●●○○	●●●●○	●●●●○	UK's Regen released BESS fire safety guidance, aligning with NFPA 855:2026, emphasizing thermal runaway and site layout.
#03	US Grid-Scale BESS 2026	Market Forecast	●●○○○	●●●●○	●●●●○	●●●○○	●●●●○	US to add 24.3 GW grid-scale BESS in 2026, driven by major projects like Darden (1.15 GW / 4.6 GWh).
#04	Sodium-Ion & Iron Flow	New Product/Deployment	●●●○○	●●●●○	●●●●○	●●●●○	●●●●○	Non-Li-ion BESS scales up: CATL deploys 2GWh sodium-ion in Eastern Europe; ESS Inc. secures 500MWh+ iron flow in US.
#05	China Battery Recycling	Corporate Strategy	●●●○○	●●●●○	●●●●○	●●●○○	●●●●○	China launches large-scale Li-ion battery recycling projects, including Narada Power (150k tons/year) and Hong Kong's first compliant facility.
#06	Form Energy Iron-Air	New Product	●●●●○	●●●●○	●●●●○	●●●●○	●●●●○	Form Energy's iron-air battery offers 100+ hour storage at sub-$20/kWh; shipments begin from West Virginia gigafactory.
#07	Cylib German Recycling	Corporate Strategy	●●●○○	●●●●○	●●●○○	●●●○○	●●●●○	German recycler Cylib acquires 10,000-ton EV battery recycling facility in Bavaria, launching Q4 2026, for black mass processing.
#08	Google US BESS	Corporate Strategy	●●○○○	●●●●○	●●●●○	●●●●○	●●●●○	Google secures all output from Cypress Creek's 1.6GW solar, 1.9GWh BESS project in US for 24/7 carbon-free data centers.
#09	Linca UK Recycling	Corporate Strategy	●●●○○	●●●○○	●●●○○	●●○○○	●●●●○	NZ's Linca spins off to focus on EV battery mineral recovery via hydrometallurgy, with a UK demo facility by 2027.

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

Three Questions That Demand Your Decision This Week

❶ Is your long-duration BESS strategy obsolete?

Form Energy's sub-$20/kWh iron-air battery (100+ hours) from a US gigafactory challenges existing long-duration storage economics. Can your current or planned solutions compete on cost and duration?

❷ How exposed are your battery material supply chains to China's recycling market?

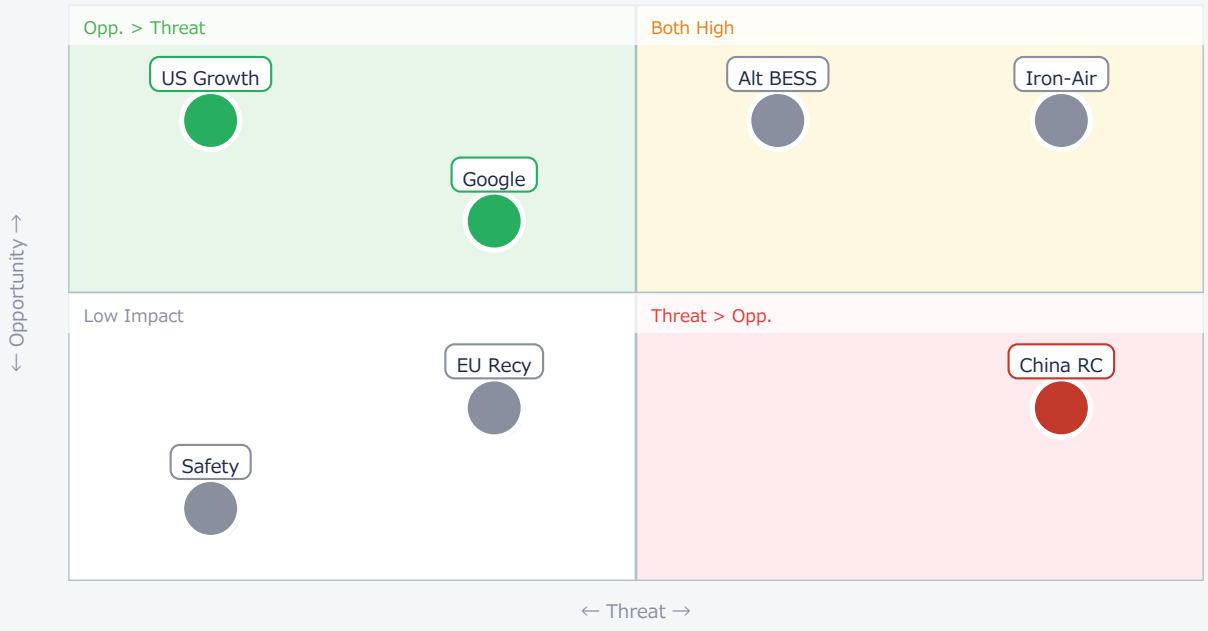
China's declining used battery prices and massive new recycling capacity (Narada Power 150k tons/year) will impact global raw material costs. Are your procurement teams tracking these shifts and diversifying?

❸ Are your BESS deployments compliant with evolving safety standards?

The UK's Regen guidance, aligned with NFPA 855:2026, emphasizes robust fire safety. Are your engineering and operations teams fully updated on the latest international best practices for BESS design and emergency response?

Opportunities vs. Threats for US/European Companies

Opportunity vs. Threat Matrix for US/European Companies



Item	Quadrant	↑ Opportunity	↓ Threat
Iron-Air	Critical	Disruptive cost	Li-ion obsolescence
Alt BESS	Critical	Diversify supply	New competition
US Growth	Opp.	Market growth	Intense bidding
Google	Opp.	Corporate PPA	Tech firm demand
China RC	Threat	Cheap materials	Supply reliance
Safety	Ref.	Public trust	Compliance cost
EU Recy	Ref.	Local supply	Scale-up needed

Deep Dive ① — Form Energy's Iron-Air Battery Disrupts LDES

#06 | 2026/07/20 | Energy Solutions Intelligence | Tech Novelty●●●●○ Proximity●●●●○ Market Impact●●●●● Data Reliability●●●●○ US/EU Relevance●●●●●

Form Energy has announced its iron-air battery technology can provide over 100 hours of grid-scale energy storage at a groundbreaking cost of less than $20/kWh. This US-developed solution, now shipping from its West Virginia gigafactory, offers a transformative pathway for renewable energy integration and grid stability.

The battery operates by reversibly rusting and derusting iron in air and water, leveraging abundant, inexpensive materials. This extended duration capability (4+ days) is crucial for balancing grids during prolonged periods of low renewable generation, significantly enhancing resilience beyond typical Li-ion limits.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The sub-$20/kWh claim for 100+ hour storage is highly disruptive and, if proven at scale, fundamentally shifts long-duration energy storage (LDES) economics. While the technology is now commercial, real-world performance and degradation rates in diverse grid conditions need close monitoring. [Opportunity] for US/EU grid operators and renewable developers to achieve deep decarbonization at unprecedented costs. [Threat] to existing Li-ion BESS manufacturers and developers focused on LDES, as their cost structures may become uncompetitive. Next actions: [R&D;] immediately benchmark this against internal LDES roadmaps; [Procurement] engage Form Energy for technical specs and pilot project opportunities within 3 months.

Deep Dive ② — Non-Li-ion BESS Scales Up Globally

#04 | 2026/07/24 | Energy-Storage.News | Tech Novelty●●●○○ Proximity●●●●○ Market Impact●●●●○ Data Reliability●●●●○ US/EU Relevance●●●●●

Global deployment of non-lithium-ion battery energy storage systems (BESS) is accelerating. CATL is launching a 2GWh sodium-ion BESS project in Eastern Europe, while US-based ESS Tech Inc. secured an LOI for over 500MWh of iron flow battery systems across the United States.

Sodium-ion batteries offer lower cost and abundant raw materials, while iron flow batteries provide inherent safety, environmental friendliness, and 8-12+ hour discharge durations. These deployments signal the commercial maturity of these alternative chemistries, diversifying the energy storage landscape.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The large-scale deployments by CATL and ESS Inc. confirm the commercial viability of non-Li-ion chemistries. While performance characteristics differ, these alternatives address critical mineral supply chain vulnerabilities and cost concerns for long-duration applications. [Opportunity] for US/EU materials & component suppliers to develop and market components for these emerging battery types, and for OEMs to diversify their BESS offerings. [Threat] for Li-ion focused manufacturers facing increased competition and potential market share erosion in specific segments. Next actions: [R&D;] initiate competitive analysis on sodium-ion and iron flow battery performance and manufacturing costs; [Business Dev] explore strategic partnerships with non-Li-ion technology providers within 6 months.

Deep Dive ③ — Google Powers Data Centers with US BESS

#08 | 2026/07/22 | Benchmark Source | Tech Novelty●●○○○ Proximity●●●●● Market Impact●●●●○ Data Reliability●●●●○ US/EU Relevance●●●●●

Google has secured all power output from the first two phases of Cypress Creek Renewables' Steel River Energy Center in Arkansas, set to be one of the largest grid-scale BESS projects in the US. This 1.6GW solar + 1.9GWh storage project will power Google's data centers.

This initiative marks a new strategy for tech giants to achieve 24/7 carbon-free operations through direct renewable energy integration, moving beyond traditional offsets. It sets a precedent for corporate renewable energy procurement and will significantly accelerate the US BESS market.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: Google's direct procurement of a massive solar-plus-storage project for 24/7 carbon-free data centers is a game-changer, validating the economic and operational benefits of integrated BESS. Published numbers are realistic given the scale of major tech companies' energy demands. [Opportunity] for US/EU BESS developers, integrators, and component suppliers to meet surging demand from corporate off-takers. This model will likely be replicated by other energy-intensive industries. [Threat] for traditional utilities and fossil fuel generators as large customers bypass them for direct clean energy solutions. Next actions: [Business Dev] target major tech and industrial clients with integrated solar+BESS solutions; [Strategy] analyze implications for grid infrastructure and market design within 3 months.

Other Notable Articles

China's Used Battery Cell Market Declines in July 2026 (SMM)
Tech Novelty●○○○○ Proximity●●●●● Market Impact●●●●○

Softening raw material prices in China's used battery market signal potential cost relief for global manufacturers.

U.S. Poised to Add 24.3 GW of Grid-Scale BESS in 2026 (Blackridge Research)
Tech Novelty●○○○○ Proximity●●●●● Market Impact●●●●○

The US BESS market is booming, with 24.3 GW projected for 2026, creating immense opportunities for suppliers and developers.

China Launches Multiple Large-Scale Lithium Battery Recycling Projects (SMM Analysis)
Tech Novelty●●●○○ Proximity●●●●● Market Impact●●●●○

China's massive new recycling capacity (150k tons/year) will further solidify its dominance in the global battery material supply chain.

German Recycler Cylib Acquires 10,000-Ton EV Battery Recycling Facility in Bavaria (Megaproject)
Tech Novelty●●●○○ Proximity●●●●○ Market Impact●●●○○

Cylib's acquisition boosts European recycling capacity, a crucial step for regional circular economy goals and regulatory compliance.

Recommended Actions This Week

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

Immediate (this week)

- [Strategy] Assess Form Energy's iron-air battery claims (sub-$20/kWh, 100+ hrs) against internal long-duration BESS roadmaps and competitor offerings.
- [Procurement] Review current and projected raw material sourcing strategies for lithium, nickel, and cobalt, in light of declining Chinese used battery cell prices.

Short-term (1 month)

- [R&D;] Evaluate the technical maturity and cost-effectiveness of sodium-ion and iron flow battery technologies for potential integration into future product lines.
- [Engineering/Legal] Conduct a comprehensive review of BESS project designs and operational procedures to ensure full compliance with NFPA 855:2026 and other evolving safety standards.
- [Business Dev] Identify opportunities for partnerships or acquisitions within the rapidly expanding US grid-scale BESS market, targeting projects like Darden and Roadhouse.

Medium-long term (quarter+)

- [Strategy] Develop a robust circular economy strategy for battery materials, including investments in advanced recycling technologies and localized processing capabilities within US/EU.
- [Executive] Formulate a competitive response to China's growing dominance in battery recycling, focusing on IP protection, technology differentiation, and strategic resource security.

NextGenEnergyStorage — Selected Articles

Date: 2026-07-26

Articles: 9

Table of Contents

#01 China's Used Battery Cell Market Declines in July 2026 Amid Softening Raw Material Prices and Lower Price Acceptance

Published July 24, 2026 SMM China

OVERVIEW

China's used battery cell market saw a general decline in July 2026, driven by a broad softening of lithium, nickel, and cobalt prices and reduced acceptance of high prices by downstream players. Ternary and LCO battery cells continued to fall, while LFP cells tracked lithium carbonate fluctuations. This trend indicates improved supply-demand dynamics and more efficient price transmission within the recycling sector, reflecting increased market maturity.

IN DEPTH

Key Findings

China's used battery cell market experienced a comprehensive downturn in July 2026, primarily due to the softening prices of key raw materials like lithium, nickel, and cobalt, coupled with decreased acceptance of high prices by downstream participants. Both ternary and LCO (lithium cobalt oxide) battery cells saw continuous price reductions, while LFP (lithium iron phosphate) battery cells fluctuated in tandem with lithium carbonate prices.

Technical & Market Details

- **Ternary & LCO Battery Cells:** These high-nickel and high-cobalt content batteries were directly impacted by the falling prices of their respective metals, leading to market price softening. Downstream recyclers and material producers are diversifying their raw material sourcing, reducing their reliance on expensive used cells.
- **LFP Battery Cells:** The price movements of LFP batteries are closely correlated with fluctuations in lithium carbonate, their primary constituent. As lithium carbonate prices entered a correctional phase in July, LFP used cell prices followed suit.
- **Supply-Demand Balance and Price Transmission:** Market dynamics indicate an improved supply-demand balance compared to previous periods, enabling faster and more efficient transmission of raw material price changes to the used battery cell market. This suggests increased transparency and efficiency within the sector.

Background & Industry Context

China stands as the world's largest electric vehicle (EV) market and a rapidly expanding hub for battery manufacturing and recycling. The used battery recycling market is gaining strategic importance for both critical mineral supply security and environmental sustainability. Ongoing government support, technological innovation, and an increasing number of market participants continue to reshape the recycling industry's structure.

Historically, escalating raw material prices pushed up used battery costs. However, diversification of supply chains and advancements in recycling technologies are shifting the market towards a more balanced state. Significant progress has been made in recovering nickel and cobalt from ternary batteries and lithium from LFP batteries.

Strategic Significance & Outlook

While the market downturn represents a short-term price correction, it is likely to foster the healthy long-term development of the recycling industry. Stabilized raw material procurement costs will enhance the price competitiveness of recycled products, potentially leading to broader adoption. Furthermore, the development of more efficient recycling processes and improved market transparency are critical steps towards building a sustainable battery supply chain. The interplay between raw material price trends and recycling technology evolution will remain a key determinant of market direction.

Source: https://news.metal.com/en/newscontent/104023241-smm-analysisused-battery-cell-market-in-july-2026-low-acceptance-of-high-prices-drives-market-to-drift-lower

Collected: July 24, 2026 | Automated Research System (Gemini API)

#02 Regen Issues Comprehensive BESS Fire Safety Guidance Aligned with NFPA 855:2026 Edition

Published July 24, 2026 Regen for Department for Energy Security & Net Zero (DESNZ) UK

OVERVIEW

Regen has released comprehensive fire safety information for planners on Battery Energy Storage Systems (BESS), emphasizing risks like thermal runaway and the critical role of site layout and emergency procedures. The guidance highlights international best practices, specifically citing NFPA 855:2026 Edition, as instrumental for safe design and operation. This initiative aims to mitigate fire hazards and ensure robust safety standards for rapidly deploying BESS infrastructure.

IN DEPTH

Regen, on behalf of the UK Department for Energy Security & Net Zero (DESNZ), has provided detailed fire safety information for planners involved with Battery Energy Storage Systems (BESS). This guidance underscores the importance of adhering to the latest international best practices to manage and mitigate fire risks associated with BESS installations.

Key Findings

- The primary cause of BESS fires is identified as "thermal runaway," a phenomenon where an individual battery cell experiences an uncontrolled increase in internal temperature due to internal shorts, overcharging, or mechanical damage.
- Effective fire risk mitigation heavily relies on meticulous site layout, robust building structures, adequate ventilation systems, and the development and rigorous training of comprehensive emergency response plans (ERPs).
- International standards and guidelines, particularly the National Fire Protection Association (NFPA) standard for the Installation of Stationary Energy Storage Systems, "NFPA 855:2026 Edition," are highlighted as crucial frameworks for establishing safe BESS design, installation, and operation.

Technical & Clinical Details

BESS fires are often linked to the flammable electrolytes in lithium-ion batteries, where a single thermal runaway event can cascade, involving adjacent cells. The report encourages the implementation of fire detection and suppression systems (e.g., sprinklers, gaseous extinguishing systems), physical barriers to prevent thermal runaway propagation, efficient thermal management, and robust electrical safety measures. The guidance is intended to assist local planning authorities and fire departments in adequately assessing these safety requirements during the approval process for BESS projects.

NFPA 855:2026 Edition provides detailed safety requirements tailored to battery type, installation location, and scale. It covers a wide range of aspects, including fire load calculations, ventilation requirements, clearances from adjacent structures, access pathways, and emergency shutdown procedures. The standard aims for early detection and containment of thermal runaway and minimizing harm to personnel and property damage in the event of a fire.

Background & Context

The global proliferation of renewable energy necessitates a rapid increase in BESS deployment for grid stabilization and peak shifting. However, past BESS fire incidents have raised significant safety concerns. In response, governmental bodies and standardization organizations worldwide are enhancing regulations and guidelines for BESS safety. Regen's informational release is a critical step in supporting the safe deployment of BESS in the UK and building public confidence in this essential energy transition technology.

Future Outlook

BESS safety will continue to improve with technological advancements and regulatory maturity. The adoption of international standards like NFPA 855 is vital for ensuring consistent, high safety levels across BESS projects globally. Future developments are expected in advanced Battery Management Systems (BMS), thermal management techniques, and new materials like non-flammable electrolytes, which will further contribute to enhanced safety. This continuous improvement will solidify BESS's role as a core technology in the ongoing energy transition.

Source: https://vertexaisearch.cloud.google.com/grounding-api-redirect/AUZIYQFJwDwPNSysFInFMPuUPeTro_og6qHg3_-s0C_7gJo3SuplANCsgla2k6662f63XUwXaTbyQmY8e1UJRD3IU8iKIVdMz9gRPVb3JLJcLBatWMffQ6ezDS1SGb0ShlKU-AMZwQZVFU5O7V-8afusfazlVudLpjmzJYDawWuLZcbrHg2Tq6fzm8xy81ocH-_mWokEnpz-qALplVN6X-hDACQbqkZJL9RlpAO8wf8AJGXipwBhqd8ML_s3uN6BqsXjnOKU5glz

#03 U.S. Poised to Add 24.3 GW of Grid-Scale BESS in 2026, Led by Darden and Roadhouse Flagship Projects

Published July 20, 2026 Blackridge Research USA

OVERVIEW

The United States is projected to add a substantial 24.3 gigawatts (GW) of new grid-scale battery energy storage system (BESS) capacity in 2026. This significant expansion will be driven by seven major projects, including the Darden Battery Energy Storage System (1,150 MW / 4,600 MWh) and the Roadhouse Energy Storage Project (600 MW / 2,400 MWh). These deployments are critical for integrating intermittent renewable energy sources and enhancing grid stability across the nation.

IN DEPTH

Key Findings

The United States is on track to integrate an impressive 24.3 gigawatts (GW) of new battery energy storage system (BESS) capacity into its grid in 2026. This monumental addition, spearheaded by seven flagship projects such as the Darden Battery Energy Storage System (1,150 MW / 4,600 MWh) and the Roadhouse Energy Storage Project (600 MW / 2,400 MWh), underscores the nation's commitment to modernizing its energy infrastructure and accelerating renewable energy deployment.

Technical / Project Details

- **Darden Battery Energy Storage System:** Positioned as one of the largest BESS projects in the U.S., Darden boasts a formidable capacity of 1,150 MW output and 4,600 MWh of storage, designed to provide critical energy reserves and grid support.
- **Roadhouse Energy Storage Project:** With 600 MW of power and 2,400 MWh of energy capacity, this project will significantly contribute to peak shaving and grid flexibility, ensuring more reliable power delivery.
- **Strategic Deployment:** The seven identified projects, while varying in specific details beyond the two highlighted, collectively aim to bolster the grid's resilience against fluctuations from renewable sources. They are strategically located to optimize energy flow and support regional electricity markets, often benefiting from federal incentives and state-level clean energy mandates.
- **Technology Focus:** While specific battery chemistries are not detailed for all projects, large-scale BESS typically employs advanced lithium-ion battery technology, although alternative long-duration solutions are emerging.

Background & Context

The rapid expansion of solar and wind power in the U.S. has created an urgent need for robust energy storage solutions. BESS technology is crucial for time-shifting renewable generation, providing ancillary services like frequency regulation, and reducing curtailment. The 2026 forecast reflects a maturing market where BESS is transitioning from a nascent technology to a foundational component of the electric grid. Policy drivers, including the Investment Tax Credit (ITC) and state-level Renewable Portfolio Standards, continue to spur investment and deployment in this sector.

Strategic Significance & Outlook

This projected 24.3 GW addition marks a pivotal moment for the U.S. energy transition, potentially solidifying the pathway to a decarbonized grid. It will not only help meet ambitious renewable energy targets but also enhance the stability and reliability of the electricity supply, reducing reliance on fossil fuel peaker plants. The sheer scale of these projects signals increasing investor confidence and technological readiness. Further innovation in battery chemistry and manufacturing, coupled with favorable policy environments, is expected to sustain this growth trajectory, paving the way for a more resilient, efficient, and sustainable energy future for the United States.

Source: https://www.blackridgeresearch.com/blog/latest-list-top-largest-biggest-bess-battery-energy-storage-system-projects-us-united-states-america

Collected: July 24, 2026 | Automated Research System (Gemini API)

#04 Sodium-Ion and Iron Flow Batteries Scale Up: CATL Powers 2GWh in Eastern Europe, ESS Inc. Secures 500MWh+ U.S. Deployments

Published July 24, 2026 Energy-Storage.News Multiple Countries

OVERVIEW

Global deployment of non-lithium-ion battery energy storage systems (BESS) is rapidly accelerating. CATL has partnered with Solarpro to launch a 2GWh sodium-ion BESS project in Eastern Europe, marking a significant step for the technology. Concurrently, ESS Tech Inc. signed a Letter of Intent with Juniper Energy to deploy over 500MWh of its iron flow battery systems across the United States, including an initial 10MW/80MWh project in California targeting 2027 operation.

IN DEPTH

Key Findings

The market for grid-scale battery energy storage systems (BESS) based on non-lithium-ion chemistries is witnessing significant expansion, with major deployments announced in both Eastern Europe and the United States. Chinese battery giant CATL is collaborating with Solarpro on a 2GWh sodium-ion BESS project in Eastern Europe, signaling the technology's readiness for large-scale application. Meanwhile, U.S.-based ESS Tech Inc. has secured a Letter of Intent (LOI) with Juniper Energy to supply over 500MWh of its long-duration iron flow battery systems across various U.S. locations.

Technical / Company Details

- **CATL's Sodium-Ion Venture:** CATL, a leader in battery manufacturing, is supplying its advanced sodium-ion battery technology for a substantial 2GWh BESS project in Eastern Europe. This deployment is expected to support large-scale renewable energy integration and enhance grid stability in the region. Sodium-ion batteries offer advantages such as abundant raw materials, lower cost compared to lithium, and comparable performance in certain applications, making them an attractive alternative for utility-scale storage.
- **ESS Tech Inc.'s Iron Flow Battery Expansion:** ESS Tech Inc. specializes in iron flow batteries, a non-lithium, long-duration energy storage solution. Under the LOI with Juniper Energy, ESS will provide more than 500MWh of its systems, with an initial 10MW/80MWh project in California aiming for operational status by 2027. Iron flow batteries are renowned for their inherent safety, environmental friendliness, and ability to discharge for extended periods (e.g., 8-12+ hours), making them ideal for managing renewable energy intermittency and providing long-duration grid services.

Background & Context

The global energy transition is driving unprecedented demand for energy storage, particularly for integrating solar and wind power. While lithium-ion batteries have dominated the short-duration storage market, concerns over lithium supply chain vulnerability, environmental impact, and cost for very long durations have fueled the search for alternatives. Sodium-ion and iron flow batteries leverage readily available, low-cost materials, offering a compelling proposition for enhancing grid resilience and achieving decarbonization goals without increasing reliance on critical minerals. These advancements represent a crucial step in diversifying the energy storage landscape.

Strategic Significance & Outlook

These large-scale commitments by CATL and ESS Tech Inc. demonstrate that sodium-ion and iron flow battery technologies are transitioning from research and pilot stages to commercial maturity. The 2GWh deployment in Eastern Europe and the 500MWh+ rollout in the U.S. will serve as critical proof points for the performance and economic viability of these non-lithium chemistries. Their success could significantly accelerate the global shift towards more diversified and sustainable energy storage portfolios, potentially leading to reduced grid congestion, lower electricity costs, and a more robust integration of renewable energy sources worldwide. This marks a pivotal moment in expanding the options for reliable, long-duration energy storage.

Source: https://www.energy-storage.news/sodium-ion-bess-catl-in-2gwh-eastern-europe-collaboration-ess-inc-signs-loi-for-500mwh-of-us-deployments/

#05 China Launches Multiple Large-Scale Lithium Battery Recycling Projects: Narada Power at 150,000 Tons, Envision Green Energy Unveils Hong Kong's First Compliant Facility

Published July 20, 2026 SMM Analysis China

OVERVIEW

In July 2026, several significant lithium battery recycling projects commenced production across China, signaling the industry's transition to full-scale implementation. A subsidiary of Narada Power launched a recycling facility capable of processing 150,000 tons of spent batteries annually. Envision Green Energy opened Hong Kong's first compliant recycling facility, while Gansu Chenyue Yuchen New Energy commissioned a dry-process negative electrode recycling line.

IN DEPTH

Key Findings

July 2026 marks a pivotal moment for the lithium battery recycling industry in China, as several major projects have begun operations, pushing the sector into a phase of large-scale industrial implementation. These new facilities are crucial for establishing a circular economy for batteries and stabilizing the supply chain for critical raw materials. Notable among them are a 150,000-ton capacity project by a Narada Power subsidiary, Envision Green Energy's first compliant recycling facility in Hong Kong, and Gansu Chenyue Yuchen New Energy's dry-process negative electrode recycling line.

Technical / Project Details

- **Narada Power Subsidiary Project:** This new facility boasts an annual processing capacity of 150,000 tons of spent lithium-ion batteries. It represents one of the largest recycling operations in China, significantly enhancing the recovery efficiency of valuable metals like cobalt, nickel, and lithium, thereby contributing to the localization and stability of the battery material supply chain.
- **Envision Green Energy's Hong Kong Facility:** This groundbreaking facility is Hong Kong's first to comply with the region's stringent environmental regulations for battery recycling. It addresses the growing need for safe and efficient processing of end-of-life EV batteries in urban areas. The facility is expected to employ advanced hydrometallurgical techniques to recover high-purity rare metals.
- **Gansu Chenyue Yuchen New Energy:** This company has operationalized a dry-process recycling line specifically for negative electrodes. Dry processes typically involve thermal treatment to remove organic components and concentrate metal values, potentially offering advantages in energy efficiency and overall recycling throughput compared to purely wet-chemical methods.

Background & Context

The rapid growth of the electric vehicle (EV) market is set to generate a massive volume of end-of-life lithium-ion batteries in the coming years. The critical metals contained within these batteries—such as lithium, cobalt, and nickel—are subject to environmental concerns associated with mining, geopolitical supply risks, and price volatility. Battery recycling is an indispensable solution to mitigate these challenges and enable a sustainable battery industry. The Chinese government has actively promoted the development of the battery recycling sector, driven by both environmental protection mandates and national resource security priorities.

Strategic Significance & Outlook

The commencement of these large-scale recycling facilities establishes new benchmarks for lithium battery lifecycle management. By enabling the efficient recovery of resources, these projects will reduce reliance on virgin mining and help stabilize the costs of battery manufacturing. China's advancements in recycling technology and infrastructure further solidify its influence in the global battery supply chain. Moreover, these developments empower battery manufacturers to pursue more sustainable material sourcing and product development, while also improving compliance with global environmental regulations, paving the way for a truly circular battery economy.

Source: https://news.metal.com/en/newscontent/104013685-summary-of-lithium-battery-recycling-projects-starting-production-in-july-2026-smm-analysis

#06 Form Energy's Iron-Air Battery Delivers 100+ Hour Storage at Sub-$20/kWh, Shipments Begin from West Virginia Gigafactory

Published July 20, 2026 Energy Solutions Intelligence USA

OVERVIEW

Form Energy has announced that its innovative iron-air battery technology can provide over 100 hours of grid-scale energy storage at an unprecedented cost of less than $20/kWh. This breakthrough offers a transformative solution for renewable energy intermittency and grid stability. Commercial shipments have already commenced from the company's gigafactory in West Virginia, underscoring its significant cost advantage over conventional lithium-ion solutions for long-duration applications.

IN DEPTH

Key Findings

Form Energy has achieved a significant milestone with its iron-air battery technology, demonstrating the capability for over 100 hours of ultra-long-duration grid storage at a disruptive cost of less than $20 per kilowatt-hour (kWh). This breakthrough addresses one of the most critical challenges in renewable energy integration: intermittency. The company has already begun commercial shipments from its gigafactory in West Virginia, marking a transition from research and development to tangible market deployment.

Technical / Clinical Details

- **Iron-Air Battery Mechanism:** Form Energy's battery utilizes abundant and inexpensive iron as its core material. The system operates by reversibly rusting (oxidizing) and derusting (reducing) the iron in the presence of air and water. This fundamental and simple chemical reaction allows for safe, long-duration energy storage. Unlike some other battery types, it avoids reliance on scarce or costly critical minerals, enhancing its sustainability and cost-effectiveness.
- **Extended Duration Capabilities:** While typical lithium-ion batteries offer 4-6 hours of storage, Form Energy's iron-air battery can provide electricity for more than 100 hours, or approximately four days. This extended discharge capability is crucial for balancing the grid during prolonged periods of low renewable generation (e.g., "doldrums" without wind, or multi-day cloudy spells), thereby enhancing grid resilience and enabling higher penetrations of renewables.
- **Cost-Efficiency:** The sub-$20/kWh cost target represents a dramatic reduction compared to current lithium-ion battery prices, potentially making it 5-10 times cheaper for long-duration applications. This unparalleled cost advantage stems from the low cost and global abundance of iron, combined with a relatively straightforward manufacturing process, making it a game-changer for grid-scale storage economics.

Background & Context

The global transition to renewable energy sources like solar and wind is hampered by their inherent variability. To ensure a stable and reliable electricity supply, long-duration energy storage capable of bridging gaps of days or even weeks is essential, a capability beyond the economic reach of most existing battery technologies. Historically, such long-duration needs were met by pumped-hydro storage, which is geographically constrained. Form Energy's iron-air battery provides a chemical battery solution that offers flexibility and scalability for long-duration storage, positioning it as a potentially transformative technology in the energy sector.

Strategic Significance & Outlook

The commercialization of Form Energy's iron-air battery is poised to revolutionize the global energy storage market, particularly for grid-scale, long-duration applications. By overcoming the cost and duration limitations of lithium-ion batteries, it offers a viable pathway for deep decarbonization of electricity grids. This technology can accelerate the retirement of fossil fuel peaker plants, facilitate further integration of renewable energy, and ultimately contribute significantly to global climate targets. The commencement of shipments from the West Virginia gigafactory is a critical validation, signaling that this technology is ready to play a central role in building a resilient and sustainable clean energy future worldwide.

Source: https://energy-solutions.co/articles/sub/aqueous-iron-air-batteries-long-duration-storage

Collected: July 24, 2026 | Automated Research System (Gemini API)

#08 German Recycler Cylib Acquires 10,000-Ton EV Battery Recycling Facility in Bavaria, Set for Q4 2026 Launch

Published July 23, 2026 Megaproject Germany

OVERVIEW

German battery recycling company Cylib has acquired a used electric vehicle (EV) battery recycling facility in Wernberg-Köblitz, Bavaria. This strategic acquisition grants Cylib a processing capacity of up to 10,000 tons of EV batteries annually, with operations slated to commence in the fourth quarter of 2026. The "black mass" recovered from this facility will feed into Cylib's hydrometallurgical plant, currently under construction, reinforcing a closed-loop system for battery materials.

IN DEPTH

Key Findings

Cylib, a leading German battery recycling company, has made a strategic acquisition of a used electric vehicle (EV) battery recycling facility located in Wernberg-Köblitz, Bavaria. This move significantly expands Cylib's operational capabilities, enabling it to process up to 10,000 tons of EV batteries annually. The facility is targeted to become operational in the fourth quarter of 2026, and the "black mass" recovered will be supplied to Cylib’s hydrometallurgical plant, currently under development, to facilitate the high-purity recovery of critical battery raw materials.

Technical / Project Details

- **Facility Capabilities:** The newly acquired facility specializes in the pre-treatment and mechanical shredding of end-of-life EV batteries. It is designed to safely dismantle battery packs and modules, separating various components and efficiently producing black mass—the valuable concentrate of active materials from shredded lithium-ion cells.
- **Capacity & Scale:** With an annual processing capacity of 10,000 tons, the facility is poised to address a significant portion of the growing EV battery recycling demand in Germany and across Europe. This capacity is equivalent to tens of thousands of EV battery packs, indicating a substantial scale-up to meet market growth.
- **Closed-Loop Integration:** The black mass generated at this facility will be channeled to Cylib’s hydrometallurgical plant, which utilizes chemical solutions to extract high-purity cobalt, nickel, lithium, and manganese. This integrated approach from pre-processing to advanced refining is central to Cylib’s strategy for achieving a sustainable, closed-loop supply chain for battery materials, reducing reliance on virgin mining.

Background & Context

The proliferation of electric vehicles has led to an impending wave of end-of-life batteries, necessitating robust and sustainable recycling solutions. Europe, in particular, is at the forefront of implementing stringent new battery regulations (EU Battery Regulation), which mandate specific recycling efficiencies and targets for recycled content. Cylib's acquisition is a strategic response to these regulatory pressures and a critical step towards strengthening the European battery supply chain. Advanced recycling technologies are crucial not only for environmental protection but also for ensuring a secure and stable supply of critical minerals.

Strategic Significance & Outlook

The planned Q4 2026 operational start of the Bavarian facility is a key milestone for Cylib, cementing its position as a major player in the European battery recycling market. The company’s vertically integrated approach, covering both mechanical pre-treatment and hydrometallurgical refining, is expected to maximize recycling efficiency and the quality of recovered materials, enhancing its competitive edge. This development is a concrete step towards achieving Europe's goals for sustainable mobility and a circular economy. It also sets a precedent that may encourage other battery recyclers and automotive manufacturers to invest in similar advanced recycling infrastructures, ultimately contributing to a more sustainable lifecycle for EVs and a greener society.

Source: https://megaproject.com/news/factory/cylib-acquires-battery-recycling-facility-in-bavaria

Collected: July 24, 2026 | Automated Research System (Gemini API)

#10 Google to Power Data Centers with Largest U.S. BESS: Secures All Output from Cypress Creek's 1.6GW Solar, 1.9GWh Storage Project

Published July 22, 2026 Benchmark Source USA

OVERVIEW

Google has signed a definitive agreement to purchase all power output from the first two phases of Cypress Creek Renewables' Steel River Energy Center in Arkansas, set to be one of the largest grid-scale battery energy storage systems (BESS) under construction in the U.S. This massive project combines 1.6GW of solar generation with 1.9GWh of energy storage. The initiative aims to meet Google's expanding clean energy demands for its data centers, signaling a new strategy for technology giants to achieve 24/7 carbon-free operations through direct renewable energy integration.

IN DEPTH

Key Findings

Google, the technology giant, has entered a long-term agreement to procure all electricity generated from the initial two phases of the Steel River Energy Center, a project currently under construction by Cypress Creek Renewables in Arkansas. This facility is poised to become one of the largest grid-scale battery energy storage systems (BESS) in the United States, integrating 1.6 gigawatts (GW) of solar generation with 1.9 gigawatt-hours (GWh) of energy storage. This strategic move is designed to fulfill Google's burgeoning clean energy requirements for its data centers, underscoring a proactive approach to achieving 24/7 carbon-free operations.

Technical / Project Details

- **Steel River Energy Center:** The project uniquely combines large-scale solar photovoltaic generation with a substantial BESS, designed to overcome the inherent intermittency of renewable energy. The 1.6GW solar array will provide direct power to Google's key data center operations in Arkansas, while the 1.9GWh battery storage system will store excess energy for deployment during periods when solar generation is unavailable, ensuring a consistent supply of clean electricity around the clock.
- **Google's Carbon-Free Ambition:** This agreement is a crucial step towards Google's ambitious goal of operating all its data centers and campuses on 24/7 carbon-free energy by 2030. By directly integrating and purchasing power from such a large-scale BESS, Google is moving beyond traditional carbon offsets or renewable energy credit purchases, adopting a more direct and impactful decarbonization strategy that ensures the origin of its power is genuinely clean at all times.

Background & Context

Data centers are enormous consumers of electricity, making the decarbonization of their energy supply a critical component of global climate efforts. While many corporations have invested in renewable energy, achieving continuous 100% clean energy operations has been challenging due to the variability of sources like solar and wind. BESS technology is the key enabler for solving this challenge, allowing large IT companies like Google to maximize the value of renewable energy by firming its output and ensuring stable, round-the-clock availability. This direct procurement model sets a new standard for corporate renewable energy strategies.

Strategic Significance & Outlook

The partnership between Google and Cypress Creek provides a powerful blueprint for other technology companies and energy-intensive industries seeking to achieve truly carbon-free operations by integrating renewable generation with large-scale storage. This development will undoubtedly accelerate the growth of the U.S. BESS market and further enhance the commercial and technical maturity of grid-scale storage solutions. In the long term, such integrated energy projects are expected to become the industry standard for data centers, significantly contributing to the global decarbonization of energy infrastructure and fostering a more sustainable digital economy.

Source: https://source.benchmarkminerals.com/article/google-to-purchase-all-power-from-largest-under-construction-bess-project-in-us

#11 New Zealand's Linca Spins Off to Focus on EV Battery Mineral Recovery, UK Demonstration Facility Slated for 2027

Published Published July 23, 2026　Resource Recycling　ニュージーランド、UK

OVERVIEW

Linca, a New Zealand spin-off from Mint Innovation, is exclusively focused on recovering critical minerals from end-of-life electric vehicle (EV) batteries. Leveraging an advanced hydrometallurgical process to extract high-value metals like cobalt and nickel from "black mass," the company aims to establish localized, urban recycling solutions. A UK demonstration facility is slated for 2027 to prove scalability and contribute to decentralized battery recycling infrastructure.

IN DEPTH

Key Findings

Linca, a company based in New Zealand, has strategically spun off from its parent entity, Mint Innovation, to dedicate its operations solely to the recovery of valuable minerals from end-of-life electric vehicle (EV) batteries. This move aims to sharpen Linca's expertise within the rapidly expanding battery recycling sector. Leveraging a core hydrometallurgical process, Linca seeks to efficiently recover high-value metals such as cobalt and nickel from "black mass." The company is targeting the commissioning of a demonstration facility in the United Kingdom by 2027, marking its serious entry into the European market.

Technical / Business Details

- **Linca's Technology:** Linca has developed an advanced hydrometallurgical process designed to treat "black mass," which is the crushed and shredded material derived from spent lithium-ion batteries. This process uses chemical solutions to selectively dissolve and separate critical battery minerals—including cobalt, nickel, lithium, and manganese—at high purity. This enables the reintroduction of these resources into the battery supply chain without relying on virgin mining.
- **Rationale for Spin-off:** The parent company, Mint Innovation, had a broader focus on metal recovery from various electronic waste streams. Linca's spin-off allows for a concentrated allocation of resources and expertise specifically on the high-growth sector of EV battery recycling. This specialization is expected to accelerate technological development and commercial deployment tailored to market demands.
- **Significance of UK Demonstration Facility:** The planned demonstration facility in the UK for 2027 is a crucial step for Linca to prove the commercial viability and scalability of its technology. The UK, like much of Europe, is experiencing rapid EV adoption and faces a pressing need for robust battery recycling infrastructure. Linca's facility will contribute to the regional battery circular economy and help meet emerging European battery regulations.

Background & Context

The global expansion of the EV market presents a dual challenge: managing the growing volume of end-of-life batteries and ensuring a sustainable supply of critical minerals. These batteries contain significant quantities of valuable metals whose extraction can be environmentally intensive and geopolitically sensitive. Efficient recycling is thus imperative for resource sustainability and supply chain security. There is a rising demand for localized, urban recycling facilities to reduce logistics costs and carbon footprints, a trend that Linca's business model is well-positioned to address.

Strategic Significance & Outlook

Linca's spin-off and the establishment of its UK demonstration facility signal a broader trend towards specialization and decentralization within the battery recycling industry. If commercially successful, Linca's technology will reduce dependence on new mining for expensive critical metals and help stabilize battery manufacturing costs. Furthermore, enhancing regional recycling capacities strengthens the resilience of the global battery supply chain. Linca's efforts represent a significant step towards accelerating the transition to a circular economy and building a more sustainable future.

Source: https://resource-recycling.com/recycling/2026/07/23/spin-off-lets-linca-focus-on-battery-mineral-recovery/

Collected: July 24, 2026 | Automated Research System (Gemini API)