Energy & Storage

Field Intelligence Report

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Solid-State Batteries / Perovskite Solar Cells / Hydrogen Energy / Next-Gen Storage

Market Mood

78

/ 100 Optimistic

Accelerating Energy Transition

Global initiatives and technological breakthroughs drive rapid commercialization across next-gen energy storage and renewable generation.

Solid-State Battery Energy Density	Perovskite Solar Cell Efficiency	Green Hydrogen Production Capacity	US Utility-Scale Battery Storage Growth
500 Wh/kg	35.5%	600 tons/day	70%
—	+0.7%	—	—

Weekly Summary

This week's report highlights significant advancements in Solid-State Batteries, Perovskite Solar Cells, Hydrogen Energy, and Next-Gen Storage. Key trends include accelerated commercialization timelines for ASSBs (2027-2028), record efficiencies in perovskite tandems (35.5%), and substantial government investments in green hydrogen hubs ($7B+ in US). The convergence of AI with clean energy and the push for circular economy solutions are reshaping market dynamics, demanding strategic agility from Western players amidst rising Asian dominance.

4 Sub-Topic Summary

Sub-Topic	Headline	Momentum	Key Insight
Solid-State Batteries	ASSB Commercialization Accelerates with 2027-2028 Targets	Accelerating	Major players like Toyota, Samsung SDI, and Chinese OEMs are targeting 2027-2028 for initial solid-state EV deployments, driven by breakthroughs in electrolyte stability and manufacturing processes. U.S. government funding and domestic production scale-up are bolstering the supply chain.

Perovskite Solar Cells	Perovskite Efficiency Records Break 35% as Scale-Up Advances	**Accelerating**	Perovskite-silicon tandem cells achieved a world-record 35.5% efficiency, with commercial modules targeting 30% by 2030. Manufacturing scale-up for large-area modules and enhanced durability are key focus areas, supported by significant R&D; funding and pilot lines in China, UK, and USA.
Hydrogen Energy	Green Hydrogen Hubs Secure Billions, Electrolyzer Deployment Surges	**Building**	The U.S. DOE launched a $7 billion H2Hubs program, while NEOM's $8.5 billion plant nears commissioning, signaling massive investment in green hydrogen infrastructure. Electrolyzer technologies (PEM, AEM) are scaling, but project cancellations and funding gaps highlight persistent economic challenges.
Next-Gen Storage	Grid Storage Capacity Expands 70% Annually, New Chemistries Emerge	**Accelerating**	U.S. utility-scale battery storage capacity reached 52 GW, growing 70% annually, driven by solar co-location and AI data center demand. Lithium-sulfur batteries are projected for explosive growth ($4B by 2035), while dry electrode manufacturing and advanced recycling are reducing costs and enhancing sustainability.

□□ JAPAN EXCLUSIVE

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Energy & Storage — Weekly Intelligence from Japan

2026.08.17 — 08.23 | Sources: TDnet, METI, NEDO, Gemini Search Grounding

Toyota Accelerates Solid-State Battery Production for EVs

Source: Gemini Grounding (Toyota)

Summary: Toyota has received approval from Japan's Ministry of Economy, Trade and Industry (METI) to commence solid-state battery (SSB) production in 2026, with initial electric vehicle (EV) models featuring these batteries expected to launch in 2027-2028. These first-...

WHY ENGINEERS SHOULD CARE

EV powertrain and charging system engineers should track Toyota's SSB deployment roadmap for potential shifts in battery management system (BMS) requirements, thermal management, and fast-charging inf...

TDK Achieves 1,000 Wh/L Solid-State Battery for Wearables, Eyes EVs

Source: TDnet/TDK, Gemini Grounding (TDK)

Summary: TDK Corporation has developed a new material for solid-state batteries (SSBs) achieving a volumetric energy density of 1,000 Wh/L, which is approximately 100 times greater than their conventional SSBs. This technology is initially slated for wearable devices l...

WHY ENGINEERS SHOULD CARE

Design engineers for compact, high-power-density devices should evaluate TDK's 1,000 Wh/L SSB for next-generation wearables and IoT, considering its potential to miniaturize form factors or extend ope...

Panasonic Targets 25% EV Range Boost with Anode-Free Tech by 2027, Ships High-Temp SSBs

Source: TDnet/ HD, Gemini Grounding (Panasonic)

Summary: Panasonic Energy anticipates achieving "world-leading battery capacity" for EVs by the end of 2027 through anode-free technology, potentially increasing current EV battery range by 25% (an additional 90 miles for a Tesla Model Y equivalent). Concurrently, Pana...

WHY ENGINEERS SHOULD CARE

EV battery system architects should assess the implications of Panasonic's anode-free technology for cell chemistry, thermal management, and charging profiles by late 2027. Engineers designing power s...

This Week's Japan Technology Highlights

Japan's EV battery tech accelerates: Toyota targets 621-mile solid-state EVs by 2028, while TDK achieves 1,000 Wh/L SSBs for wearables, eyeing automotive scale.

□□ CHINA WATCH

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Energy & Storage — Technical Verification (Western Engineer Perspective)

2026.08.17 — 08.23 | 3-Axis: China Move / Verification / Engineer Implications

CATL's 500 Wh/kg Solid-State Battery Claim: Technical Hurdles to Mass Production

■ **China's Move**

CATL announced achieving an energy density of 500 Wh/kg with its solid-state batteries, targeting small-scale demonstrations by 2027 and broader mass production by 2030, with plans to extend this technology to electric passenger aircraft (CATL, August 2026). B...

■ **Technical Verification**

[CONFIRMED]	CATL and BYD are actively researching solid-state batteries and have publicly stated targets for pilot production by 2027 and mass production by 2030 (Multiple company statements, August 2026). / CA...
[BOTTLENECK]	The primary bottleneck for solid-state batteries remains achieving high ionic conductivity and stable electrode-electrolyte interfaces at scale, ensuring long cycle life, low internal resistance, and ...

■ **Implications for Western Engineers**

- Battery R&D teams should closely monitor CATL's and BYD's progress on solid-state battery materials and manufacturing processes, s...
- EV and grid storage system designers should assess the implications of 500 Wh/kg energy density on vehicle range, charging infrast...
- Procurement professionals should track the development timelines for solid-state batteries, understanding that "mass production" t...

China's Strategic Control Over Battery Materials: Temporary Export Easing Amidst Global Scramble

■ **China's Move**

China temporarily suspended export restrictions on high-end lithium-ion batteries, key materials, and artificial graphite anode materials until November 10, 2026, following trade negotiations with the United States (MOFCOM, November 2025). Concurrently, China ...

■ **Technical Verification**

[CONFIRMED]	China has implemented and enforced export controls on critical minerals (e.g., high-purity graphite in Oct 2023) and possesses the infrastructure to manage these resources (MOFCOM, December 2020 ECL)....
[BOTTLENECK]	The primary engineering bottleneck for Western nations is the lack of diversified and scaled domestic refining and processing capacity for critical battery minerals (lithium, cobalt, manganese, graphi...

■ **Implications for Western Engineers**

- Supply chain managers should leverage the current temporary easing of export restrictions to secure critical battery materials and...
- Battery R&D and manufacturing teams should accelerate research into alternative battery chemistries (e.g., sodium-ion, solid-state...
- Procurement professionals must closely monitor Chinese policy announcements and geopolitical developments, particularly concerning...

Key Trends This Week (5 Total)

TR-01 HIGH Cross-Domain

Next-Gen Batteries Target 2027-2028 Commercialization

Solid-state and Na-ion batteries accelerate market entry, driven by safety, energy density, and cost targets.

Solid-state batteries (ASSBs) are rapidly moving towards commercialization, with Toyota, Samsung SDI, and Chinese OEMs targeting 2027-2028 for initial EV deployments. Concurrently, CATL has launched mass production of sodium-ion batteries for EVs, achieving a breakthrough cost of $59/kWh and robust cold-weather performance. These advancements signal a transformative shift in the battery landscape, offering enhanced safety, higher energy density, and reduced reliance on critical minerals, but also intensifying global competition.

Toyota ASSB launch	CATL Na-ion cost	Li-Sulfur market by 2035
2027-2028	$59/kWh	$4B+

▶ Toyota ▶ Samsung SDI ▶ CATL ▶ Solid Power ▶ Factorial Energy

Refs: S1-01 S1-03 S1-11 S1-17 S1-20 S1-21 S1-23 S1-26 S4-01 S4-07

TR-02 HIGH Cross-Domain

Global Race for High-Efficiency Solar & Green Hydrogen Dominance

Perovskite solar cells achieve record efficiencies (35.5%), while multi-billion dollar green hydrogen projects scale globally, intensifying competition.

The global race for clean energy leadership is marked by significant breakthroughs in perovskite solar cell efficiency, with tandem cells reaching 35.5%, and massive investments in green hydrogen infrastructure. China leads in both areas, with LONGi investing $28M in a 100MW perovskite pilot line and dominating renewable hydrogen production (53% global share). Western nations, particularly the US with its $7B H2Hubs program, are responding with substantial funding to build domestic capabilities and secure supply chains, but face challenges in project execution and cost competitiveness.

Perovskite tandem efficiency	LONGi pilot line investment	China H2 production share	US H2Hubs funding
35.5%	$28M	53%	$7B

▶ LONGi ▶ Oxford PV ▶ NEOM Green Hydrogen Company ▶ Plug Power ▶ U.S. Department of Energy

Refs: S2-01 S2-04 S2-08 S2-30 S3-01 S3-06 S3-07 S3-29

TR-03 MED Next-Gen Storage

AI & Data Center Demand Reshaping Energy Storage Priorities

Surging AI workloads in data centers are accelerating demand for grid-scale and multi-day energy storage solutions, influencing design and deployment.

The exponential growth of AI workloads is creating unprecedented power demands from data centers, directly impacting the energy storage market. Companies like Form Energy are securing significant funding ($750M) to scale iron-air battery production for multi-day storage, while Fluence Energy and Cummins are

deploying BESS for data center power management. This trend is also driving new requirements for grid-forming features and enhanced fire safety in battery energy storage systems, reshaping design and procurement strategies from 2026 onwards.

Form Energy funding	Form Energy backlog	US utility storage growth
$750M	**80GWh**	**70% annually**

▶ Form Energy ▶ Fluence Energy ▶ Cummins ▶ Microsoft ▶ Google

Refs: S3-23 S4-02 S4-19 S4-21 S4-22

TR-04 MED Cross-Domain

Circular Economy & Domestic Supply Chains Fortify

Investments in battery recycling, critical mineral extraction, and local manufacturing aim to reduce reliance on foreign supply chains and enhance sustainability.

Governments and industry are heavily investing in building robust domestic supply chains and circular economy solutions for energy technologies. The U.S. DOE committed $2 billion to Redwood Materials for closed-loop Li-ion battery recycling and $500 million for critical mineral projects. Japan is advancing Li-ion recycling and flexible perovskite recovery. This strategic focus aims to reduce geopolitical risks, enhance resource sustainability, and secure local manufacturing capabilities, particularly for next-generation batteries and solar cells.

Redwood Materials DOE loan	DOE critical mineral grants	Anthro Energy plant capacity
$2B	**$500M**	**25 GWh**

▶ Redwood Materials ▶ U.S. Department of Energy ▶ KDDI ▶ Kanazawa University ▶ Anthro Energy

Refs: S1-10 S1-29 S4-04 S4-11 S4-13 S4-14 S4-17

TR-05 LOW Cross-Domain

Manufacturing Innovations Drive Scale & Cost Reduction

New manufacturing techniques like dry electrode coating and roll press technology are crucial for scaling next-gen batteries and solar cells.

Innovations in manufacturing processes are critical for overcoming commercialization hurdles for next-generation energy technologies. Dry electrode coating technology promises 10-20% cost reductions in Li-ion battery gigafactories, with LGES investing $540M in R&D; for its adoption. Honda's proprietary roll press technology enhances solid electrolyte density for ASSBs, improving performance and reducing costs. Similarly, advanced deposition techniques and interface engineering are vital for scaling perovskite solar cells to large areas while maintaining efficiency and stability.

Dry electrode cost reduction	LGES R&D; investment	Honda ASSB production approval
10-20%	**$540M**	**late 2025**

▶ LG Energy Solution ▶ Honda ▶ Solid Power ▶ Factorial Energy ▶ SoFab Inks

Refs: S1-07 S1-19 S4-03 S4-10 S4-15 S4-18

Macro Market Indicators

Indicator	Direction	Value	Note	Source
US DOE Clean Energy Funding	↑	$7B+	Allocated for H2Hubs, plus $2B+ for domestic battery supply chain	U.S. Department of Energy
Global Green Hydrogen Investment	↑	$110B	Total investment across 510 projects in 2025	GlobeNewswire
Perovskite Solar Market Projection	↑	$32.44B	Projected market value by 2033, up from $810.6M in 2026	openPR.com
China's Renewable Hydrogen Share	↑	53%	Share of global operational renewable hydrogen capacity	S&P; Global

Macro Environment Summary

Global clean energy investment surged this week, with the U.S. Department of Energy committing over $7 billion to regional hydrogen hubs and more than $2 billion to domestic battery supply chains. The perovskite solar market is projected to grow from $810.6 million in 2026 to $32.44 billion by 2033, reflecting rapid commercial scale-up. China continues to dominate renewable hydrogen production, holding 53% of global operational capacity, while also making significant strides in solid-state battery and perovskite solar manufacturing. This aggressive global push for decarbonization is driving unprecedented R&D; and infrastructure development, creating both opportunities and competitive pressures for Western industries.

Market Data: LIT (Battery & Storage) Weekly Trend

76.61 USD +1.83%

Action Recommendations by Player

Action Recommendations for Western OEM

OEM Tesla, BMW, Mercedes-Benz, Xcel Energy, Google

Western OEMs like BMW and Mercedes-Benz are testing solid-state cells, with Toyota targeting 2027-2028 launches. Xcel Energy and Google are key customers for Form Energy's 80GWh iron-air battery backlog, signaling strong demand for grid storage.

Risk

- If Chinese OEMs like BYD and Geely achieve 2027 SSB mass production, Western OEMs without secured supply will face 12-18 month product launch delays.

Opportunity

- Partner with Western solid electrolyte suppliers (e.g., Solid Power) to secure 75-500 MT/year supply by 2027-2028 for competitive EV models.

Actions This Week

- Initiate Q4 2026 strategic discussions with Solid Power and Factorial Energy to secure 2027-2028 SSB supply contracts for premium EV lines.

☐ Scenario: If Chinese OEMs launch 500 Wh/kg SSBs by 2027, then Western OEMs must accelerate domestic SSB R&D; and secure multi-year supply agreements to avoid losing market share.

☐ Quick Win : Schedule immediate meetings with Factorial Energy and Solid Power to assess their 2027 commercialization roadmaps and supply capabilities.

Action Recommendations for Western Contract Manufacturer

Foundry Factorial Energy

Western contract manufacturers face a critical window to adapt existing Li-ion gigafactories for solid-state battery production, as explored by SK On and Factorial Energy. This transition requires significant retooling and process innovation.

Risk

- Failure to invest in dry electrode coating and solid-state manufacturing by 2027 will lead to a 10-20% cost disadvantage against Asian competitors.

Opportunity

- Repurpose existing Li-ion gigafactories for solid-state battery production, targeting a $4B+ Li-S market by 2035 and securing Western OEM contracts.

Actions This Week

- Form a cross-functional team by Q4 2026 to evaluate dry electrode coating and roll press technologies for integration into existing Li-ion production lines.

☐ Scenario: If dry electrode technology becomes industry standard by 2027, then Western foundries must invest $100M+ in retooling to maintain cost competitiveness and secure future contracts.

☐ Quick Win : Engage with equipment makers and academic partners to pilot dry electrode coating by Q1 2027.

Action Recommendations for Western T&M; Provider

T&M; Teradyne, NI, Bureau Veritas, Eurofins

The U.S. DOE is establishing standardized testing protocols (IEC 61215, ISOS) for perovskite solar cells, creating demand for advanced validation services. New fire safety mandates (NFPA 855) for BESS also require extensive testing.

Risk

• Inadequate investment in advanced testing for solid-state batteries and perovskite cells by 2027 will lead to loss of market share to specialized Asian labs.

Opportunity

• Develop specialized testing and certification services for solid-state batteries (e.g., dendrite formation, interface stability) and large-area perovskite modules (IEC 61215).

Actions This Week

• Allocate Q4 2026 R&D; budget to develop testing protocols for 500 Wh/kg solid-state batteries and 30%+ efficient perovskite-silicon tandem cells.

☐ Scenario: If new battery and solar technologies fail to meet reliability standards by 2028, then Western T&M; providers must offer rapid, standardized certification to accelerate market adoption.

☐ Quick Win : Attend SSBAI 2026 (Xiamen, China) and DOE Perovskite Startup Prize events to identify emerging testing needs and potential partners this week.

Action Recommendations for Western Material Supplier

Material BASF, Dow, DuPont, Umicore, Sila Nanotechnologies, Lilac Solutions, Nth Cycle

U.S. government is investing $2B+ in domestic battery supply chains, including $1.4B to Sila Nanotechnologies and $100M to Lilac Solutions for lithium extraction. Solid Power aims to produce 75 MT/year of sulfide solid electrolyte by Q1 2027.

Risk

• Failure to scale domestic production of solid electrolytes and critical minerals by 2027 will leave Western OEMs reliant on Asian suppliers, creating supply chain vulnerabilities.

Opportunity

• Target the $4B+ lithium-sulfur battery market by 2035 and supply advanced materials for 500 Wh/kg solid-state batteries, leveraging DOE funding.

Actions This Week

• Secure long-term supply contracts with Western battery manufacturers (e.g., Solid Power, Factorial Energy) for sulfide electrolytes by Q1 2027.

☐ Scenario: If global demand for solid electrolytes exceeds 500 MT/year by 2028, then Western material suppliers must rapidly expand production capacity to meet demand and avoid market shortages.

☐ Quick Win : Engage with DOE-funded projects like Anthro Energy (25 GWh electrolyte plant) and Nth Cycle ($100M black mass refining) for immediate supply chain integration.

Action Recommendations for Western Distributor

Distributor Arrow, Avnet, Brenntag

The market for perovskite solar cells is entering a commercial scale-up phase, projected to reach $32.44 billion by 2033, creating new distribution channels for advanced modules.

Risk

• Over-reliance on traditional Li-ion battery and silicon solar distribution channels will lead to missed opportunities in the rapidly growing next-gen energy markets.

Opportunity

• Establish distribution networks for next-gen products like perovskite-silicon tandem modules (30%+ efficiency) and solid-state battery components, targeting $32B+ market by 2033.

Actions This Week

• Develop a Q4 2026 market entry strategy for perovskite solar modules, identifying key installation partners and utility-scale projects in the US/EU.

☐ Scenario: If next-gen energy products achieve mass production by 2028, then Western distributors must have established logistics and sales channels to capture market share from Asian competitors.

☐ Quick Win : Partner with emerging Western perovskite solar companies (e.g., Oxford PV, Tandem PV) to pilot distribution of commercial modules by Q1 2027.

Action Recommendations for Western Equipment Maker

Equipment Applied Materials, Thermo Fisher, Sartorius

Honda developed proprietary roll press technology for ASSB production, while dry electrode coating offers 10-20% cost reduction for Li-ion gigafactories, creating demand for new manufacturing equipment.

Risk

- Failure to develop and supply advanced manufacturing equipment for solid-state batteries and large-area perovskite cells by 2027 will cede market leadership to Asian competitors.

Opportunity

- Supply advanced manufacturing equipment for dry electrode coating, roll press technology, and large-area perovskite deposition, targeting global gigafactory expansions.

Actions This Week

- Launch a Q1 2027 R&D; initiative to develop next-generation equipment for 500 Wh/kg solid-state battery production and 30%+ efficient perovskite-silicon tandem cell manufacturing.

☐ Scenario: If Asian equipment makers dominate next-gen battery and solar manufacturing by 2028, then Western equipment makers must acquire or partner with innovative startups to regain competitive edge.

☐ Quick Win : Engage with LGES (investing $540M in R&D;) and Factorial Energy (repurposing gigafactories) to offer dry electrode and roll press equipment solutions by Q1 2027.

Impact Matrix (Players × Trends)

++ = Strong Tailwind + = Tailwind 0 = Neutral − = Headwind −− = Strong Headwind

Player	TR-01 HIGH Next-G	TR-02 HIGH Global	TR-03 MED AI & D	TR-04 MED Circul	TR-05 LOW Manufa
Western OEM	++	+	++	+	+
Western Contract Manufacturer	+	0	+	+	++
Western T&M; Provider	+	++	+	+	+
Western Material Supplier	++	+	+	++	++
Western Distributor	+	++	+	+	0
Western Equipment Maker	++	++	+	+	++

Timeline This Week (10 Events)

Date	Tag	Headline	Source
2026-03	deal	Swift Solar acquires manufacturing assets for GW-scale tandem production	USA S2-28
2026-07	milestone	LONGi achieves 35.5% perovskite-silicon tandem efficiency record	China S2-01
2026-08	milestone	CF Industries breaks ground on Blue Point One blue ammonia complex	USA S3-38
2026-H2	product	Samsung SDI targets LFP-based ESS battery production	South Korea S1-25
2027-Q1	milestone	Solid Power targets 75 MT/year sulfide solid electrolyte production	USA S1-17
2027	product	Toyota, BYD, Geely target limited/pilot solid-state EV production	Japan, China S1-01, S1-03
2027	milestone	NEOM green hydrogen plant targets commercial operations	Saudi Arabia S3-01
2028	milestone	Anthro Energy's 25 GWh solid-state electrolyte plant operational	USA S1-29
2029	milestone	CF Industries Blue Point One blue ammonia complex 1.4M MT/year production	USA S3-38
2030	milestone	Oxford PV targets 30% efficient, 30-year lifespan perovskite modules	UK S2-11

Company Spotlight

Form Energy ↑ Secures $750M Funding

Closed Series G funding, bringing total capital to over $2B, to scale iron-air battery production for data centers and grid storage, with project backlog growing to 80GWh.

- Western investors: Evaluate Form Energy's long-duration storage technology for strategic partnerships and potential investment by Q4 2026.

Solid Power [SLDP] ↑ Scales Electrolyte Production

Shifting to commercial supply of sulfide solid electrolytes, targeting 75 MT/year by Q1 2027 and 500 MT/year by 2028 through a Korean partnership, addressing a critical supply bottleneck.

- Western OEMs/Material Suppliers: Engage Solid Power for 2027-2028 supply contracts for sulfide solid electrolytes to secure next-gen battery materials this month.

Oxford PV ↑ Accelerates Commercialization

Appointed former First Solar executive as CCO to accelerate perovskite-on-silicon solar cell commercialization, targeting 30% efficiency and 30-year lifespan by 2030.

- Western Investors/Distributors: Assess Oxford PV's commercialization roadmap and explore partnership opportunities for high-efficiency solar module distribution by Q1 2027.

Technology Roadmap

2026

- ◆ Perovskite solar market enters commercial scale-up phase ($810.6M)
- ◆ CATL launches Na-ion batteries for EVs at $59/kWh
- ◆ US DOE launches $7B Regional Clean Hydrogen Hubs program

2027

- ◆ Toyota, BYD, Geely target pilot/limited solid-state EV production
- ◆ NEOM green hydrogen plant begins commercial operations (600 tons/day)
- ◆ Solid Power scales sulfide electrolyte production to 75 MT/year

2028

- ◆ Anthro Energy's 25 GWh solid-state electrolyte plant operational
- ◆ Asahi Kasei targets 3 GW+ electrolyzer capacity
- ◆ Tandem PV aims for gigawatt-scale perovskite production

2029

- ◆ CF Industries Blue Point One blue ammonia complex produces 1.4M MT/year
- ◆ LGES targets widespread all-solid-state battery adoption
- ◆ First Ammonia Texas green ammonia commercial operations

2030

- ◆ Oxford PV targets 30% efficient, 30-year lifespan perovskite modules
- ◆ Japan targets 3M tons hydrogen deployment
- ◆ SOLIVIS aims for global battery leadership

References (123 Total)

ID	Title	Source	Date	Region	Sub-Topic
S1-01	Toyota and Samsung SDI Target 2027 Commercialization as GreenLancer Highlights Solid-State Battery Advancements for EV and Solar Storage Safety, Energy Density	GreenLancer	2026-08-13	US	Solid-State Batteries
S1-02	Surface Oxidation Strategy Dramatically Boosts Air and Long-Term Cycling Stability of Sulfide Solid Electrolyte Li6PS5Cl, Advancing All-Solid-State Battery Practicality	Royal Society of Chemistry	2026-08-17	UK	Solid-State Batteries
S1-03	Toyota Targets 2027-2028 Launch of Sulfide All-Solid-State EVs in Premium Models Like Lexus, Aiming for 500 Wh/kg and Sub-10-Minute 80% Charge	Road Ethos	2026-08-16	US	Solid-State Batteries
S1-04	U.S. Department of Energy Prioritizes All-Solid-State and Flow Batteries as Next-Gen Technologies for Enhanced Safety and Performance	Department of Energy	2026-08-14	US	Solid-State Batteries
S1-05	Novel Off-Stoichiometric LTP Anode Achieves Ultra-Fast, Damage-Free Charging, Demonstrating 86% Capacity Retention at 10C and Over 250 Cycles for EV Bottleneck Resolution	Digital Journal	2026-08-14	International	Solid-State Batteries
S1-06	LIPOWER's All-Solid-State Automotive Battery Doubles Lifespan, CCA, Halves Weight Compared to AGM, Significantly Enhancing Safety	Lipower	2026-08-13	China	Solid-State Batteries
S1-07	Honda Establishes All-Solid-State Battery Production Line with Proprietary Roll Press Technology, Boosting Solid Electrolyte Density and Improving Charge Time, Range, and Durability	How-To Geek	2026-08-20	Japan	Solid-State Batteries
S1-08	International Conference on Solid-State Batteries and Interfaces (SSBAI 2026) Announced in Xiamen, China, Focusing on Manufacturing Processes and Interface Research	SSBAI 2026 Conference Organizer	2026-08-21	China	Solid-State Batteries
S1-09	Solid-State Battery "Reality Check" on YouTube: Mercedes EQS Achieves 1205km, Toyota & BMW Target 2027-2028, But Dendrites and Manufacturing Defects Remain Major Obstacles	How Engineering Works (YouTube)	2026-08-17	US	Solid-State Batteries
S1-10	US Government Invests Over $2 Billion in Domestic Battery Supply Chain, Including $1.4B DoD Loan to Sila Nanotechnologies	Facebook (U.S. Department of Energy ARPA-E)	2026-08-18	US	Solid-State Batteries
S1-11	Samsung SDI Unveils "SolidStack" Anode-Free Solid-State Battery for Humanoid Robots, Targeting H2 2027 Mass Production	Samsung SDI | Facebook	2026-08-16	South Korea	Solid-State Batteries

ID	Title	Source	Date	Region	Sub-Topic
S1-12	China Introduces World's First National Standard for Automotive Solid-State Batteries, Mandating Sub-0.5% Weight Loss Rate	digitimes	2026-08-21	China	Solid-State Batteries
S1-13	Breakthrough: Amorphous Zirconium Halides Unlock Cost-Effective, High-Performance Solid Electrolytes for All-Solid-State Batteries	ACS Energy Letters	2026-08-14	International	Solid-State Batteries
S1-14	Solid-State Battery Breakthrough: Zero External Pressure Pouch Cell Achieves Record 376 Wh/kg and 300-Cycle Stability	Semantic Scholar (Science Advances)	2026-08-14	International	Solid-State Batteries
S1-15	UK Boosts Next-Gen EV Batteries: Nissan, Oxford, Gelion Secure £3.4M for Sulfur Solid-State Cell Development	Industry News	2026-08-13	UK	Solid-State Batteries
S1-16	SOLIVIS Secures ₩23 Billion Series C to Scale Sulfide Solid Electrolyte Production, Targets Global Battery Leadership with 150 Patents	Signalbase / Dealroom	2026-08-13	South Korea	Solid-State Batteries
S1-17	Solid Power Pivots to Commercial Electrolyte Supply for Solid-State Batteries, Targeting 75 MT/Year by 2027	Investing.com	2026-08-13	US	Solid-State Batteries
S1-18	Solid Power Gears Up for Mass Production of Solid-State Battery Electrolytes: 75 Tons by 2027, 500 Tons by 2028 Through Korean Partnership	MarketBeat	2026-08-17	US	Solid-State Batteries
S1-19	Bridging the Gap: SK On and Factorial Energy Aim to Repurpose Lithium-ion Gigafactories for Solid-State Battery Manufacturing	Facebook	2026-08-15	USA / South Korea	Solid-State Batteries
S1-20	BYD Sets 2027 Target for Limited Solid-State EV Battery Production, Prioritizing Luxury Brands	Intelligent Living	2026-08-16	China	Solid-State Batteries
S1-21	China's Solid-State Battery Race Heats Up: More Manufacturers Join BYD, CATL with 2027 Pilot Plans	Car News China	2026-08-20	China	Solid-State Batteries
S1-22	MK Plus Secures $12M Swedish Grant to Accelerate Vanadium Solid-State Battery Industrialization	Pluang / Newsfile Corp.	2026-08-13	Sweden	Solid-State Batteries
S1-23	Geely Targets 1,000km+ EV Range with Game-Changing 500 Wh/kg Solid-State Battery, Pilot Testing by 2027	Carscoops	2026-08-19	China	Solid-State Batteries
S1-24	China's Solid-State Battery Surge: Eight Firms Invest Over $2.9 Billion in GWh-Scale Production	Energytrend	2026-08-19	China	Solid-State Batteries
S1-25	Samsung SDI Fuels North American Battery Expansion, Solid-State R&D; with $3.3 Billion Samsung Display Stake Sale	BigGo Finance	2026-08-21	South Korea	Solid-State Batteries

ID	Title	Source	Date	Region	Sub-Topic
S1-26	Geely Unveils 500 Wh/kg Solid-State EV Battery, Targets Diesel-Comparable Range and 2027 Pilot Deployment	Electrek	2026-08-20	China	Solid-State Batteries
S1-27	Factorial Energy Secures First Aerospace Battery Order, Fuels Commercialization with Over $100M in Funding	Shanghai Metals Market (SMM)	2026-08-17	US	Solid-State Batteries
S1-28	China Unveils Solid-State Battery Breakthroughs: Sulfide Electrolyte Production Scales, High-Density Cells Emerge	Shanghai Metals Market (SMM)	2026-08-18	China	Solid-State Batteries
S1-29	Anthro Energy Initiates Construction of 25 GWh Solid-State Electrolyte Plant in Kentucky, Bolstering U.S. Battery Supply Chain	Digital Today	2026-08-19	US	Solid-State Batteries
S2-01	LONGi to Invest $28M in 100MW Perovskite-Silicon Tandem Pilot Line in China, Following 35.5% World Record Efficiency	PV Magazine	2026-08-14	China	Perovskite Solar Cells
S2-02	Chinese Scientists Achieve World Record 28.04% Efficiency with Stable Perovskite-Organic Tandem Solar Cell, Published in Nature	Facebook	2026-08-20	China	Perovskite Solar Cells
S2-03	Oxford PV Appoints Former First Solar Executive Matthew Merfert as CCO to Accelerate Perovskite Solar Commercialization	Solar Power Portal	2026-08-18	UK	Perovskite Solar Cells
S2-04	Perovskite-Silicon Tandem Cells Achieve 34.85% Efficiency, Mass Adoption Expected by 2027-2028, Driving Global Solar Trends in 2026	GreenLancer	2026-08-18	US	Perovskite Solar Cells
S2-05	U.S. Department of Energy Invests in R&D; to Solve Perovskite Solar Cell Challenges: Efficiency, Stability, Reproducibility, and Cost-Effectiveness	Department of Energy	2026-08-14	US	Perovskite Solar Cells
S2-06	US DOE SETO Funds R&D; for 27% Efficient Perovskite-Silicon Tandem Cells and Stability Enhancement via Self-Assembled Monolayers	Department of Energy	2026-08-14	US	Perovskite Solar Cells
S2-07	US DOE Launches $3M Perovskite Startup Prize to Accelerate Development and Commercialization of Lightweight, >28% Efficient Tandem Solar Cells	Department of Energy	2026-08-14	US	Perovskite Solar Cells
S2-08	US DOE Drives Perovskite Solar Cell Efficiency from 3% to 34%, Focuses on Manufacturing Cost Reduction and Stability Challenges	Department of Energy	2026-08-14	US	Perovskite Solar Cells
S2-09	China PV Brief: LONGi Plans 100MW Perovskite-Silicon Tandem Pilot Line; Renshine Solar Achieves 22.0% Efficiency on Meter-Scale Modules	TaiyangNews	2026-08-13	China	Perovskite Solar Cells

ID	Title	Source	Date	Region	Sub-Topic
S2-10	Perovskite/Silicon Tandem Cells May Lose Up to 3.25% Annual Energy Yield Due to Spectral Mismatch, but Outperform Single-Junction Silicon Overall	PV Magazine	2026-08-15	China	Perovskite Solar Cells
S2-11	Oxford PV Unveils Roadmap to Achieve 30% Efficient, 30-Year Lifespan Perovskite-Silicon Tandem Solar Modules by 2030	Facebook	2026-08-18	UK	Perovskite Solar Cells
S2-12	SoFab Inks Secures $6M Seed Funding for Perovskite Solar Reliability, Targeting Mass Production of 1x2m Commercial Modules	Dealroom.co	2026-08-17	US	Perovskite Solar Cells
S2-13	UNIST and KRICT Achieve 22.75% Efficiency in 100cm² Perovskite Solar Module via Non-Destructive X-ray Diffraction Mapping	UNIST News Center	2026-08-21	South Korea	Perovskite Solar Cells
S2-14	India's P3C Technology Manufactures NISE-Certified Perovskite Solar Modules, Plans 1MW Expansion, Launches 'P3SKY' Test Platform	YourStory.com	2026-08-20	India	Perovskite Solar Cells
S2-15	Nanjing University & Renshine Solar Achieve World Record 24.0% Efficiency for 810cm² Large-Area Perovskite Module, Meets IEC 61215 Reliability	PV Magazine	2026-08-17	China	Perovskite Solar Cells
S2-16	Monochrome Initiates High-Altitude Field Testing of Perovskite Solar Modules in Pakistan's Karakoram Range at 5150m	pv magazine Global	2026-08-15	Japan	Perovskite Solar Cells
S2-17	Nanjing University & Renshine Solar Set World Record with 24.0% Efficiency in 810 cm² Perovskite Solar Module	PV Magazine	2026-08-17	China	Perovskite Solar Cells
S2-18	Korean Researchers Achieve 22.75% Efficiency in 100 cm² Perovskite Solar Cell, Validating Dynamic Spin Casting	Seoul Economic Daily	2026-08-19	South Korea	Perovskite Solar Cells
S2-19	Nanjing University and Renshine Solar Certify 22.0% Efficiency in 0.72 m² Perovskite Module, Advancing Mass Production Scale	XenoSpectrum	2026-08-18	China	Perovskite Solar Cells
S2-20	Cypris AI Report: Analysis of Perovskite Solar Patent Landscape and White Space	Cypris AI	2026-08-14	Unknown	Perovskite Solar Cells
S2-21	Ionic Salts Unlock Enhanced Durability for Perovskite Solar Cells at Kaunas University of Technology	The Cool Down	2026-08-21	リトアニア	Perovskite Solar Cells
S2-22	openPR Report: Perovskite Solar Cell Market Enters Commercial Scale-Up Phase in 2026, Projected to Reach $32.44 Billion by 2033	openPR.com	2026-08-13	Unknown	Perovskite Solar Cells
S2-23	Novel Additive "AMTZ" Boosts Perovskite Solar Cell Efficiency to 25.47% While Retaining 91.1% After 1000 Hours	Growatt	2026-08-18	Unknown	Perovskite Solar Cells

ID	Title	Source	Date	Region	Sub-Topic
S2-24	Indian Startup P3C Commences Perovskite Solar Module Production, Achieves 19.3% Cell Efficiency with Plans for 1MW Expansion	YourStory	2026-08-20	India	Perovskite Solar Cells
S2-25	China's Guangji Lvneng Initiates Production Line for Crystalline Silicon-Perovskite Tandem Thin-Film Cells, Accelerating Commercialization	Shanghai Metals Market (SMM)	2026-08-21	China	Perovskite Solar Cells
S2-26	Tandem PV Secures $1 Billion LOI for Next-Gen Perovskite-Silicon Tandem Modules, Commencing Commercial Sales This Year	pv magazine Global	2026-08-14	US	Perovskite Solar Cells
S2-27	South Korean Researchers at GIST Develop Molecular Interface Design to Scale Perovskite Solar Cells, Mitigating Charge Loss	PowerInfoToday	2026-08-13	South Korea	Perovskite Solar Cells
S2-28	Perovskite Solar Cells Market Estimated at $810.6M in 2026, Projected to Reach $32.44B by 2033 Amidst Commercial Scale-Up	openPR.com	2026-08-13	US	Perovskite Solar Cells
S2-29	Monochrome to Conduct Perovskite Solar Cell Field Trials at Over 5,000m Altitude Near K2 Base Camp, Pakistan	The Cool Down	2026-08-21	Japan	Perovskite Solar Cells
S2-30	LONGi Achieves 34.85% NREL-Certified Efficiency for Perovskite-Silicon Tandem Solar Cell, Setting New Industry Record	Facebook	2026-08-16	China	Perovskite Solar Cells
S2-31	Durability Breakthrough: Lithuanian Team Unlocks Perovskite Solar's Commercial Potential	The Cool Down	2026-08-21	リトアニア	Perovskite Solar Cells
S2-32	Chinese Study Finds Optimal Performance of Two-Terminal Perovskite-Silicon Tandems Highly Dependent on Geographical Conditions	PV Magazine	2026-08-18	China	Perovskite Solar Cells
S3-01	NEOM's $8.5 Billion Green Hydrogen Plant, Set to be World's Largest, Completes Construction in Saudi Arabia	Fast Company ME	2026-08-13	Saudi Arabia	Hydrogen Energy
S3-02	Japan and India's Uttar Pradesh Bolster Green Hydrogen Partnership, Targeting 3 Million Tons of Hydrogen Deployment by 2030	Facebook (IT Business Today)	2026-08-20	Japan	Hydrogen Energy
S3-03	PowerCell Secures €1.9 Million Order from DLR for Integrated Methanol-to-Power System, Set for 2027 German Marine Facility Deployment	Bioenergy International	2026-08-13	Germany	Hydrogen Energy
S3-04	Ballard Power Systems to Deploy 40 Fuel Cell Modules for Buses in Germany, Initial Shipments Expected by End of 2026	ITS International	2026-08-18	Germany	Hydrogen Energy

ID	Title	Source	Date	Region	Sub-Topic
S3-05	Liquid Hydrogen Storage Market Reaches Commercial Scale in 2026, Driven by Kawasaki Heavy Industries' Import Terminal and European Supply Chains	NextMSC	2026-08-19	Japan	Hydrogen Energy
S3-06	U.S. Department of Energy Announces $7 Billion Regional Clean Hydrogen Hubs (H2Hubs) Program to Establish 6-10 Hubs Nationwide	U.S. Department of Energy	2026-08-14	US	Hydrogen Energy
S3-07	Plug Power Records 343% YoY Electrolyzer Revenue Growth in Q1 2026, Scaling Green Hydrogen Projects to Commercial Phase	Plug Power	2026-08-14	US	Hydrogen Energy
S3-08	Plug Power Reports Soaring U.S. Hydrogen Operations in Q2 2026, Doubling Fuel Cell Deployments Year-over-Year	Energies Media	2026-08-19	US	Hydrogen Energy
S3-09	U.S. DOE to Invest Up to $1.2 Billion in Gulf Coast Hydrogen Hub, Targeting 7 Million Metric Tons Annual CO2 Reduction	U.S. Department of Energy	2026-08-14	US	Hydrogen Energy
S3-10	Power to Hydrogen Deploys Commercial AEM Electrolyzer at Port of Antwerp-Bruges, Promises Up to 65% CAPEX Reduction for Green Hydrogen	Energies Media	2026-08-19	Belgium	Hydrogen Energy
S3-11	Japan and South Korea Retreat from Ammonia Co-Firing Plans Amidst High Costs and Technical Challenges, Budget Cuts Ensue	Gas Outlook	2026-08-20	Japan	Hydrogen Energy
S3-12	U.S. DOE Awards Mid-Atlantic Hydrogen Hub (MACH2) Up to $750 Million, Utilizing Renewables and Nuclear for Production	U.S. Department of Energy	2026-08-14	US	Hydrogen Energy
S3-13	PEM Electrolyzer Technology Powers Next Wave of Green Hydrogen Projects Globally: Hystar and BHEL Partner for Local Manufacturing in India	Gitanelect	2026-08-19	India	Hydrogen Energy
S3-14	U.S. DOE to Invest Up to $1 Billion in Pacific Northwest Hydrogen Hub (PNWH2), Targeting Electrolyzer Cost Reduction and 1.7 Million Tons Annual CO2 Reduction	U.S. Department of Energy	2026-08-14	US	Hydrogen Energy
S3-15	CHARBONE Achieves Major Milestone in Sorel-Tracy Phase 1B as Electrolyzer Arrives, Targeting Additional Production Capacity Launch by Fall 2026	PR Newswire	2026-08-19	Canada	Hydrogen Energy
S3-16	Intelligent Energy Deploys Hydrogen Fuel Cell Microgrid with University of Nottingham, Enhancing Grid Resilience	Intelligent Energy	2026-08-16	UK	Hydrogen Energy
S3-17	Asahi Kasei Secures Regional Economic Incentives for 3 GW+ Electrolyzer & Chlor-Alkali Equipment Expansion in Kawasaki by 2028	Business Wire	2026-08-19	Japan	Hydrogen Energy

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S3-18	Asahi Kasei's 2 GW Hydrogen Manufacturing Target Potentially Outpaces Japan's Domestic Green Hydrogen Market Demand	Energy News.biz	2026-08-20	Japan	Hydrogen Energy
S3-19	Singapore's Hydrogen Power Plans Confront Supply and Land Constraints, Hindering High-Blend Gas Turbine Implementation	Asian Power	2026-08-19	Singapore	Hydrogen Energy
S3-20	Indian Paradip Port Advances 1MW Green Hydrogen Project, Procuring 8 Hydrogen Fuel-Cell Buses for Green Hydrogen Hub Transformation	Enlit World	2026-08-18	India	Hydrogen Energy
S3-21	U.S. DOE to Invest Up to $925 Million in Heartland Hydrogen Hub, Boosting Low-Carbon Nitrogen Fertilizer Production	U.S. Department of Energy	2026-08-14	US	Hydrogen Energy
S3-22	South Africa Secures €780M EU Funding for $5.8B Green Hydrogen-Ammonia Hub, Targets 400 MW Electrolysis	Engineering News / Creamer Media	2026-08-18	South Africa	Hydrogen Energy
S3-23	AI and Green Hydrogen Convergence Fuels $110 Billion Investment Surge, Driven by Hyperscaler Demand for Data Center Power	GlobeNewswire	2026-08-20	US	Hydrogen Energy
S3-24	Germany's Raffinerie Heide Cancels HyScale 100 Green Hydrogen Project for Second Time, Highlighting Industry Decarbonization Challenges	Hydrogen Insight	2026-08-17	Germany	Hydrogen Energy
S3-25	Europe's Hydrogen Pipeline Ambitions Confront Reality: Delays to 2030s Amid Funding Gaps and Electrolyzer Overcapacity Concerns	S&P; Global	2026-08-19	EU	Hydrogen Energy
S3-26	China's Ningxia Coal Industry Integrates Green Hydrogen into Coal-Based Ammonia Production, Cuts CO2 Emissions by 36,500 Tons	Shanghai Metals Market	2026-08-19	China	Hydrogen Energy
S3-27	Plug Power Pulls Plug on 100-MW Antwerp Green Hydrogen Project Amid Economic Headwinds and DOE Loan Withdrawal	H2-View	2026-08-20	Belgium	Hydrogen Energy
S3-28	Power to Hydrogen Pioneers Industrial AEM Electrolysis with World's First 0.5MW System at Antwerp-Bruges Port	Hydrogen Fuel News	2026-08-13	Belgium	Hydrogen Energy
S3-29	China Dominates Global Renewable Hydrogen Production with 53% Share, Overall Capacity Doubles to Over 51 Million Tons/Year	S&P; Global	2026-08-18	China	Hydrogen Energy
S3-30	HPQ Silicon's Novacium to Present HyDRAS™ Process at COM 2026: Doubling Hydrogen Yield from Aluminum Waste by Integrating Bauxite Residue	GlobeNewswire	2026-08-20	Canada	Hydrogen Energy

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S3-31	California's Multi-Billion Dollar Hydrogen Energy Bet Fades: High Costs and Fueling Station Failures Lead to Industry's "Death"	LA Times	2026-08-17	US	Hydrogen Energy
S3-32	Hystar and BHEL Forge Strategic Partnership for Local PEM Electrolyzer Manufacturing in India, Advancing National Green Hydrogen Mission	Hydrogen Fuel News	2026-08-14	India	Hydrogen Energy
S3-33	MIT Researchers Develop Machine Learning Method to Predict Next-Gen Catalysts for Electrochemical Ammonia Synthesis, Aiming for Economically Competitive Low-Emission Production	AZoCleantech (citing MIT)	2026-08-21	US	Hydrogen Energy
S3-34	IEA's 'Global Hydrogen Review 2026' Highlights Low-Emissions Hydrogen's Role in Strengthening Energy Security Amidst Supply Chain Vulnerabilities Exposed by Middle East Conflicts	YouTube (IEA)	2026-08-14	International	Hydrogen Energy
S3-35	U.S. Department of Energy Emphasizes Criticality of Hydrogen Storage: Evolving from 700-bar Composites to Cryo-Compressed and Materials-Based Solutions	Department of Energy	2026-08-14	US	Hydrogen Energy
S3-36	China's SPIC Exports Record 3,750-Ton 'HYGLOBAL' Green Ammonia Cargo to South Korea, Solidifying Global Leadership in Green Ammonia Operations	BC Insight	2026-08-17	China	Hydrogen Energy
S3-37	China's Hydrogen Fuel Cell Vehicle Market Sees Steep Declines in July 2026 Amid Policy Vacuum, While Dongfang Hydrogen Energy Secures Capital Injection	Shanghai Metals Market	2026-08-21	China	Hydrogen Energy
S3-38	CF Industries Breaks Ground on Blue Point One Blue Ammonia Complex, Targeting 1.4M Metric Tons/Year by 2029 for Asian Exports; JERA Building Storage to Meet Demand	decarbonfuse.com	2026-08-17	US	Hydrogen Energy
S3-39	Topsoe Partners with First Ammonia to Provide Dynamic Synthesis Technology for Texas Green Ammonia Project, Targeting 2029 Commercial Operations	BC Insight	2026-08-18	US	Hydrogen Energy
S4-01	Lithium-Sulfur Battery Market Set to Explode Past $4 Billion by 2035, Fueled by Demand for High Energy Density and Lightweight Solutions	Astute Analytica の調査に基づく	2026-08-21	US	Next-Gen Storage
S4-02	Form Energy Secures $750M Series G Funding, Exceeding $2B Total, to Scale Iron-Air Battery Production for Data Center Demand	Forbes	2026-08-14	US	Next-Gen Storage

ID	Title	Source	Date	Region	Sub-Topic
S4-03	Dry Electrode Coating Technology Poised to Significantly Cut Lithium-Ion Battery Manufacturing Costs in Gigafactories	Electronic Design	2026-08-13	US	Next-Gen Storage
S4-04	Closing the Loop: KDDI-Led Consortium Achieves Virgin-Grade Performance with Recycled Li-Ion Battery Cathodes	KDDI, — — — — , — — , — , , (—)	2026-08-21	Japan	Next-Gen Storage
S4-05	Fluence Energy, LEAG Commence 400 MWh Battery Storage Deployment in Eastern Germany	GLOBE NEWSWIRE	2026-08-13	Germany	Next-Gen Storage
S4-06	U.S. DOE Announces $355 Million in Grants for Energy Storage Demonstration and Pilot Programs	U.S. Department of Energy	2026-08-14	US	Next-Gen Storage
S4-07	CATL Initiates Mass Production of Na-Ion Batteries for EVs; Changan Nevo A06 Debuts 'Naxtra' with Breakthrough $59/kWh Cost and -40°C Performance	(— /)	2026-08-15	China	Next-Gen Storage
S4-08	Japan Accelerates Decarbonization with Third Call for Energy Storage and Smart Grid Subsidies	SII	2026-08-20	Japan	Next-Gen Storage
S4-09	Rapid Uptake of Fukuyama City's Clean Energy Subsidies Signals Surging Demand for Home Solar and Storage	( )	2026-08-20	Japan	Next-Gen Storage
S4-10	LG Energy Solution Pours Record $540M into Next-Gen Battery R&D;, Accelerating Dry Electrode and Solid-State Breakthroughs	(—)	2026-08-21	South Korea	Next-Gen Storage
S4-11	Global Reports Analyzes Competitive Strategies in Battery-Grade Recycled Lithium Iron Phosphate Market Amid Rising Demand	Global Reports	2026-08-21	US	Next-Gen Storage
S4-12	Tokyo Unleashes Substantial Demand Response Incentives: ¥600,000 Subsidies Accelerate Home Battery Adoption and Grid Modernization	( )	2026-08-17	Japan	Next-Gen Storage
S4-13	Redwood Materials Expands Closed-Loop Li-Ion Battery Recycling in Nevada with $2 Billion DOE Loan to Support Over 1M EV Production	U.S. Department of Energy	2026-08-14	US	Next-Gen Storage
S4-14	U.S. DOE Awards $500M to Seven Projects to Strengthen Critical Mineral and Battery Supply Chains	Discovery Alert	2026-08-21	US	Next-Gen Storage
S4-15	Dragonfly Energy & Sphere Energy Forge AI-Enhanced Dry Electrode Partnership to Accelerate Solid-State Battery Revolution	Dragonfly Energy	2026-08-17	US	Next-Gen Storage
S4-16	U.S. DOE Invests $25M in Next-Gen Battery Manufacturing via Energy Storage Grand Challenge, Opens Grid Storage Launchpad	U.S. Department of Energy	2026-08-14	US	Next-Gen Storage

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S4-17	Kanazawa University Pioneers One-Step Recycling of Flexible Perovskite Solar Cells for Critical Metals	(—)	2026-08-21	Japan	Next-Gen Storage
S4-18	U.S. DOE Funds Next-Gen Battery Tech, Including Solid-State Battery Dry Electrode Manufacturing for >400 Wh/kg, >1Ah Cells	U.S. Department of Energy	2026-08-14	US	Next-Gen Storage
S4-19	Fluence Energy Establishes Dominance in Grid-Scale Storage Market, Responding to Surging AI Data Center Power Demand	Kalkine Media	2026-08-18	US	Next-Gen Storage
S4-20	U.S. Utility-Scale Battery Storage Capacity Hits 52 GW, Averaging 70% Annual Growth Over Three Years, with 54 GW Planned by 2028	Energies Media	2026-08-16	US	Next-Gen Storage
S4-21	Cummins to Supply Battery Energy Storage Systems for U.S. Data Center Project, Addressing AI Workload Demands	Local News	2026-08-18	US	Next-Gen Storage
S4-22	Seven Trends Reshaping Battery Energy Storage: Fire Safety Mandates and Grid-Forming Features to Redefine Design from 2026 Onward	Energy Storage News	2026-08-13	UK	Next-Gen Storage
S4-23	Virtual Power Plants Take Hold in the U.S.: Home Batteries Evolve into Active Grid Assets, Driven by Energy Density Gains and Cost Reductions	WAMC	2026-08-20	US	Next-Gen Storage

Editor's Note

Navigating the Energy Transition: Western Strategies for 2027-2030

The energy and storage domain is at an inflection point, characterized by rapid technological maturation and aggressive commercialization timelines. This week's analysis reveals a clear trend: next-generation technologies—solid-state batteries, perovskite solar cells, and green hydrogen—are moving from R&D; to market deployment by 2027-2028. Western manufacturers, investors, and executives must recognize the urgency of this transition, particularly as Asian competitors demonstrate significant scale and speed in bringing these innovations to market. Strategic investments in domestic supply chains, manufacturing innovation, and advanced testing are paramount to securing a competitive edge.

The convergence of AI with energy demand, especially from data centers, presents both a challenge and a unique opportunity. This new demand driver is accelerating the need for robust, long-duration energy storage solutions and grid modernization. Western players should leverage their strengths in software, AI, and systems integration to develop intelligent energy management platforms that optimize these next-gen technologies. Furthermore, embracing circular economy principles through advanced recycling and sustainable material sourcing will not only mitigate supply chain risks but also enhance brand value and regulatory compliance.

While the U.S. and EU are making substantial policy and funding commitments, the execution gap between announced projects and actual deployment remains a critical concern, particularly in green hydrogen.

Western stakeholders must prioritize de-risking large-scale projects, fostering public-private partnerships, and streamlining regulatory processes to ensure that domestic innovation translates into tangible market leadership. The coming 12-24 months will be decisive in shaping the global energy landscape for the next decade.

- ◆ How can Western OEMs secure sufficient supply of solid-state battery electrolytes and components to meet 2027-2028 EV launch targets amidst global competition?
- ◆ What specific manufacturing process innovations (e.g., dry electrode, roll press) should Western foundries prioritize to achieve cost parity with Asian competitors in next-gen battery production by 2027?
- ◆ Beyond funding, what policy and regulatory reforms are immediately needed in the US/EU to accelerate the deployment of green hydrogen hubs and utility-scale storage projects by 2028?

Troy Technical Weekly Editorial Board Editorial Assistant

Next Issue Vol. 56 Monday, August 31, 2026 06:00 JST Feature: Advanced Materials for Sustainable Manufacturing