SkyTerra Group

Sodium-Ion Battery Show 2026

Too Busy, Didn't Attend (TBDA) Report

26 to 27 October 2026 | DoubleTree Fort Shelby, Detroit, Michigan



The DoubleTree by Hilton Fort Shelby in downtown Detroit, host venue for both days of the program. Photo: sodium-ion-battery-show.com.



A Peak Energy grid-scale sodium-ion storage unit. Peak, which spoke on policy and supply chain, plans a 4 GWh/yr Sacramento factory. Photo: Peak Energy.

SPEAKER HIGHLIGHT

"Sodium-ion does not need to replace LFP everywhere. It needs to win where application-level value offsets lower energy density and a less mature supply chain."

— Dr. Safak Dogu, ALTADER Energy Technologies (slide headline and subtitle)

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Executive Summary

Where sodium-ion stands after two days in Detroit, and what to watch next.

Sodium-ion is winning by segment, not on headline cost. FEV's draft data show LFP dominating storage today, while speakers saw sodium fitting stationary storage and 12 V starters first, with cold-weather operation a potential edge still to be proven. The open questions are industrial: repeatable hard carbon, separators tuned to sodium electrolytes, bankable certification data, and US policy that rewards domestic, non-critical inputs without whiplash.

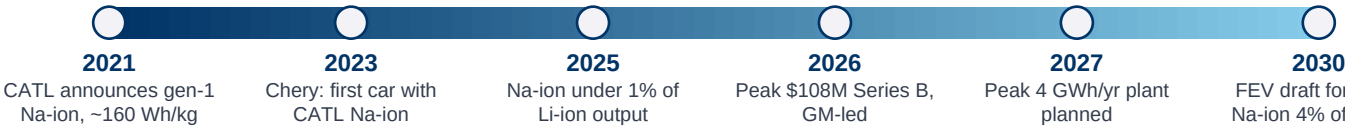
Six things that mattered most

- ON STAGE FROM SES AI (Dr. Jonathan Scharf): on a held-out test of 53 electrolytes, a model's top 15 picks held 9 of the 10 best cells, so 72% fewer to build; SES Recommend searches a 200M-molecule pool. Not sodium cells. [T4]
- Sodium-ion wins by segment, not cost: stationary storage and 12 V starters first, with cold-weather operation a potential edge still to be proven. [T1][T6]
- In FEV's draft outlook, LFP held 95% of 2025 global BESS battery demand; sodium is projected at 4% in 2030 and 18% in 2050. [T1]
- Peak Energy frames sodium as foreign-entity compliant by design, but the 45X credit steps down just as plants reach scale. [T7]
- Bankability is the gate: iM3NY, a US phosphate (not sodium) cell plant, won UL 1642 on 24 Jan 2025 and filed Chapter 11 three days later. [T9]
- Materials decide scale: ALTADER targets lignin hard carbon at or below $3.5/kg at mature scale, and Celgard has sodium-oriented separators in advanced development. [T6][T8]

Outlook: the next 18 months

Expect the next 18 months to be decided by delivered cells, not announcements. Peak Energy plans to start its Sacramento line in Q1 2027, CATL's gen-2 mass production is set for 2027 per FEV, and final US foreign-entity rules are still pending. Watch for third-party validated cycle-life data, sodium-specific separator and hard-carbon supply, and segment wins in cold-climate storage and starter batteries.

Industry timeline



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About this brief

What this brief covers, who SkyTerra was tracking, and how to read the next pages.

About iQ-Hub

The Sodium-Ion Battery Show 2026 is a two-day business program organized by iQ-Hub (IQ International Pte. Ltd.) at the DoubleTree Fort Shelby in downtown Detroit on 26 and 27 October 2026, two weeks after The Battery Show North America (12 to 15 October). It gathered cell developers, materials suppliers, consultants, engineering firms and policy specialists around one question: where sodium-ion batteries can compete with lithium-ion today and how the industry scales them. The program mixed single-speaker talks, a commercialization panel, speed networking and an exhibition. [W1]

How this report is organized

SkyTerra attended on behalf of SES AI, whose Dr. Jonathan Scharf spoke on AI agents for sodium-ion development and sat on the scaling panel. This brief draws on 46 slide photos from seven talks, the published program, the SES talk deck and public sources [W2] to [W5]. Slide text is quoted as shown on screen; private meetings are excluded.

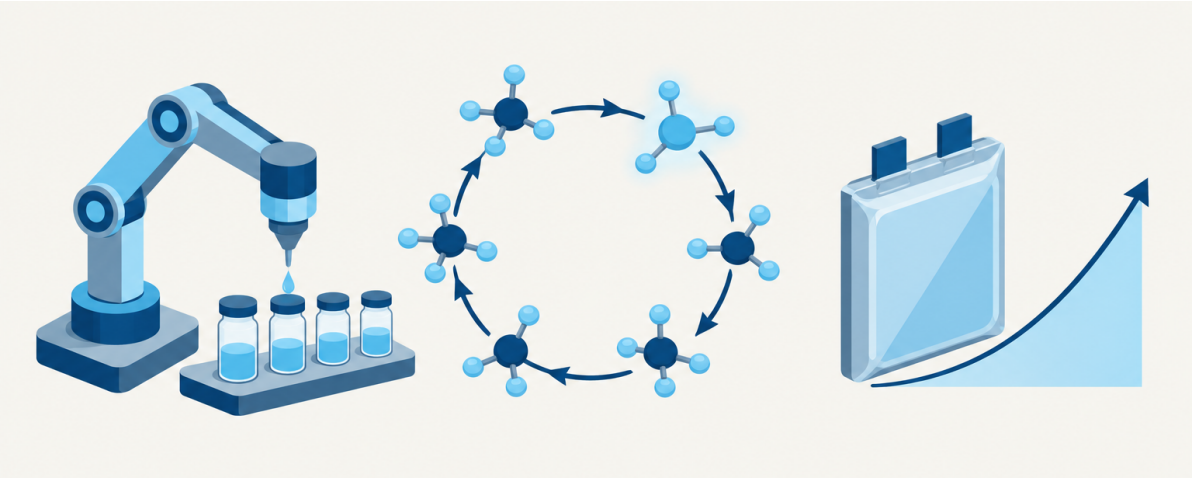
Reading guide

- Executives: the Executive Summary on page 2 gives the six takeaways, the outlook and an industry timeline.
- Technical teams: pages 5 to 7 cover chemistry fit, hard-carbon anodes and sodium-specific separators.
- Investors and policy teams: pages 8 to 10 cover tax credits, trade, bankability and plant scale-up. Citation codes [T#] and [W#] map to the source list on the final page.

Spotlight: SES AI

How AI agents are accelerating the development of high-performance sodium-ion batteries.

Dr. Jonathan Scharf of SES AI argued that AI pays off in battery R&D when it closes the loop: design, make, test and learn run as one system, trained on the customer's own chemistry data. He showed Molecular Universe, SES's AI platform, which has covered sodium as well as lithium chemistries since April 2026, and the M-Lab model, where SES support is temporary and company staff plus AI take over. [T4]



Conceptual: a closed-loop AI lab where every experiment updates the model that picks the next one.

- Surveys SES cited (MIT, McKinsey) find most firms get no measurable return from generative AI; SES argued the cause is how AI is used, not the models. [T4]
- SES Recommend ranks candidates from 200 million battery-relevant molecules, narrowed from 500 billion computed structures, with DFT data for 500 million. [T4]
- Of 53 electrolytes on a held-out fold, a model trained on about 50 rows of cell data put 9 of the 10 best cells in its top 15 by predicted retention. [T4]
- On electrolytes it never saw, retention predictions scored R squared 0.86 and mean absolute error 0.044; 48 of 53 fell within 0.10. [T4]
- From the first 110 cycles, SES Forecast predicted life to 90% health for 30 unseen cells at 9.8% average error, 26 of 30 within 20%. [T4]
- Neither case study used sodium-ion cells; SES said value must be measured on each partner's own chemistry. [T4]

15 of 53
cells built to capture 9 of the 10 best (72% fewer)

200M
battery-relevant molecules in the SES Recommend pool

9.8%
average (MAPE) cycle-life forecast error at cycle 110, 30 unseen cells

WHY THIS MATTERS

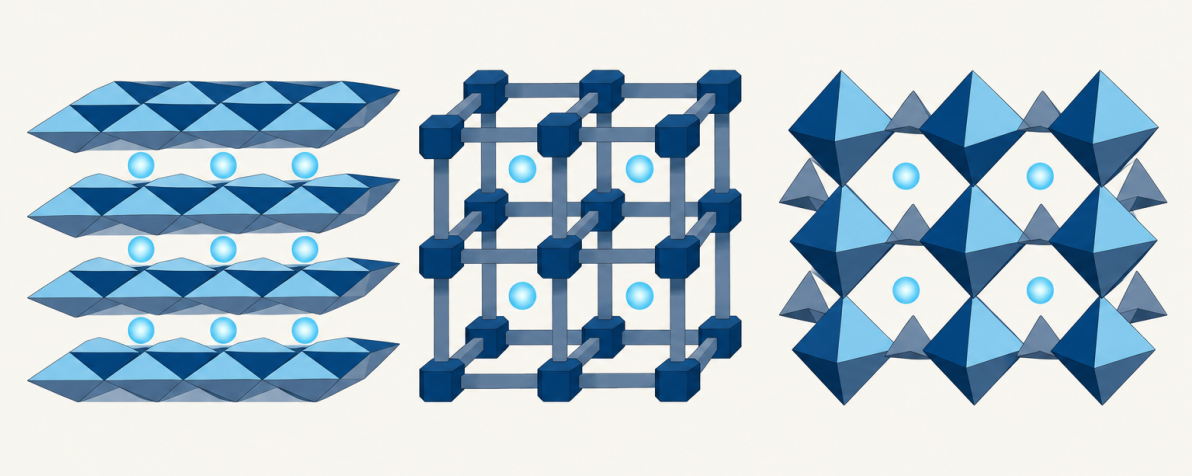
Sodium-ion is young, so most teams lack the decade of test data lithium programs lean on. Building 15 cells instead of 53, and deciding at cycle 110 instead of waiting months, are the two levers SES showed; both still need to be proven on sodium cells.

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Chemistry and Where Sodium Fits

Cathode families, cost reality and the segments sodium can win first.

Prasanna Mantravadi of FEV Consulting opened the show with a sober map of sodium-ion chemistry, while Dr. Grigorii Soloveichik of SolEXS Consulting placed today's cells in the longer history of sodium batteries. Both pointed to the same conclusion: sodium suits storage and specific vehicle niches first, with LFP the benchmark to beat. [T1][T5]



Conceptual: layered oxide, Prussian blue analogue and polyanion frameworks hosting sodium ions.

- Layered oxides offer the highest energy density at affordable cost but are ambient sensitive; Prussian blue analogues are cheap but shorter lived; polyanions offer the highest power. [T1]
- In FEV's illustrative comparison, sodium's material cost undercuts even LFP, but lower energy density and maturity can erase the gain; some Na-ion cells cost more than Li-ion. [T1]
- Per FEV's draft, CATL says its gen-2 cell reaches 175 Wh/kg and can discharge at -40 C, with mass production set for 2027. [T1]
- 12 V sodium starters exist: distributor Aeson Power lists a 12 V, 50 Ah, 9 kg unit with 950 cold cranking amps and at least 4,000 cycles. [T1]
- Per the IEA, 2025 global sodium-ion production was under 1% of lithium-ion; market-research estimates put 2030 at $2 to 3.4bn. [T5]

<1%
FEV draft: sodium share of 2025 global BESS demand

18%
FEV draft projection of sodium BESS share, 2050

175 Wh/kg
CATL-stated gen-2 cell energy density (via FEV)

WHY THIS MATTERS

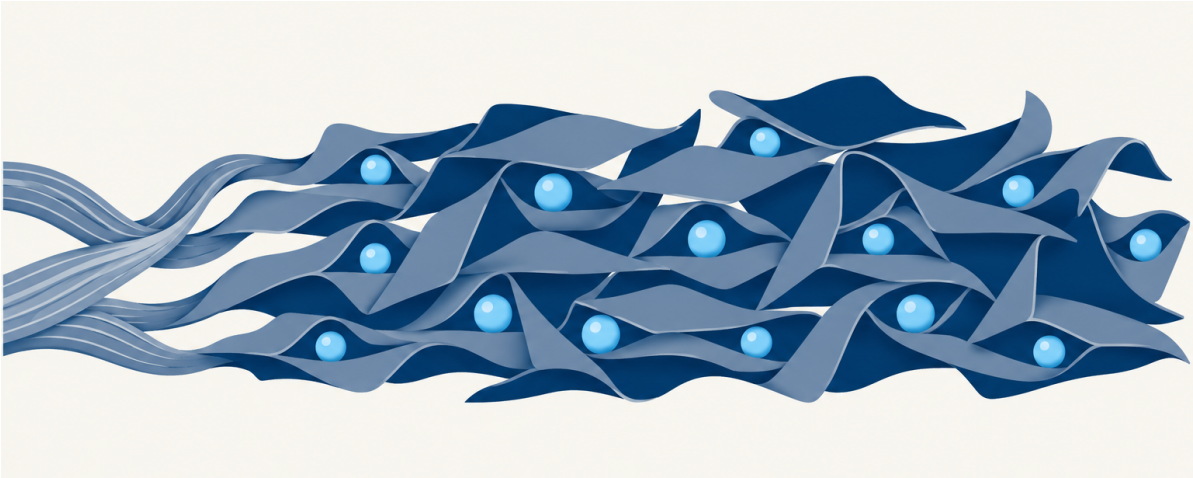
FEV's illustrative costs show sodium's material edge over LFP can be erased by lower energy density, so the near-term case rests on fit: high-cycle storage and lead-acid replacement. Soloveichik's molten-sodium history flagged NAS fire risk, ZEBRA nickel cost and costly ceramics. [T1][T5]

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Hard Carbon: The Anode Bottleneck

Engineering carbon structure for commercial sodium-ion batteries.

Dr. Safak Dogu of ALTADER Energy Technologies made the case that repeatable, battery-grade hard carbon is the bridge between promising chemistry and reliable scale. His thesis: engineer the anode around the application, position sodium as a complementary chemistry, and avoid claims of universal cost, safety or performance superiority. [T6]



Conceptual: disordered hard carbon with closed nanopores storing sodium, grown from plant-derived feedstock.

- Graphite stores sodium poorly, so hard carbon is the default anode; porosity, layer spacing, defects and surface chemistry govern storage. [T6]
- Lignin, a paper-industry by-product, ranks among the best sustainable precursors; anthracite is flagged as an underexploited opportunity. [T6]
- Aluminum current collectors on both electrodes plus low-cost hard carbon could deliver a substantial cell BOM cut, potentially exceeding other single material swaps. [T6]
- Cited literature says sodium lines can use aqueous binders and accept a -35 C dew point versus -45 C or below for lithium. [T6]
- Per Benchmark data, BESS additions rose from 78 GWh (2022) to a forecast 323 GWh (2025); ALTADER contrasted this with 2020 projections of 100 to 150 GWh. [T6]

300 mAh/g
ALTADER target: hard-carbon reversible capacity

$3.5/kg
ALTADER target: mature-scale cost ceiling

4,000
ALTADER target: cycles to at least 80% retention

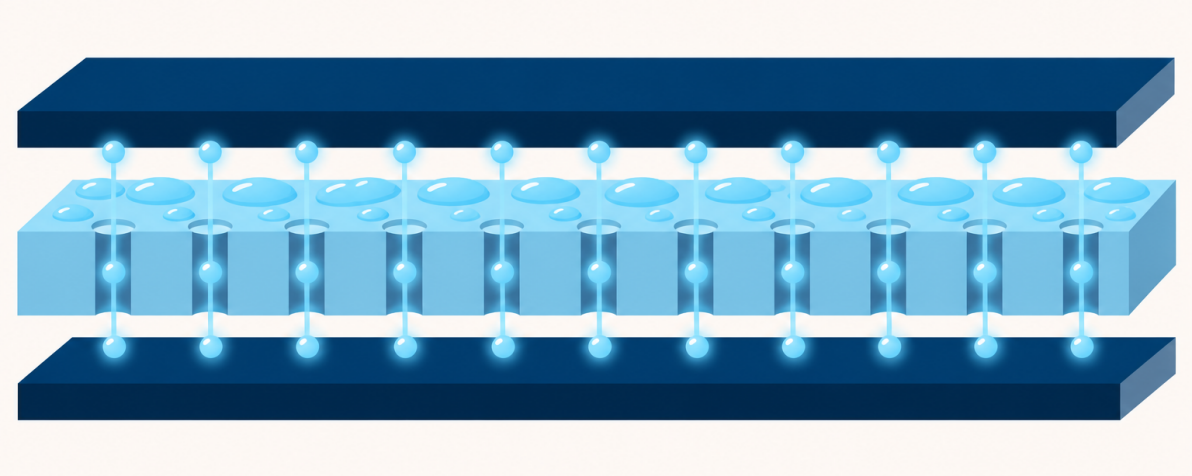
WHY THIS MATTERS

Counting installed and announced plants, the IEA puts China at over 95% of 2030 sodium-ion manufacturing capacity. [W3] ALTADER argues that hard carbon made from industrial waste such as lignin could lower cost and supply risk together. [T6]

Separators Tuned for Sodium

Localized separator supply and membranes designed for sodium electrolytes.

Richard Miller of Celgard, an Asahi Kasei company, argued that sodium-ion cell designs may create distinct separator requirements. Higher-viscosity electrolytes and polar or ether solvents, which sodium designs may use, can challenge the wetting of standard polyolefin membranes, especially in the cold. [T8]



Conceptual: a low-tortuosity separator with direct pore paths and even electrolyte wetting.

- Lithium separator pore paths may raise resistance in higher-viscosity electrolytes, and sodium salts such as NaPF6 or NaFSI need excellent wetting. [T8]
- Celgard's All-Electric Separator, in advanced development, uses lower tortuosity for faster ion transport, aimed at frequency regulation and cold operation. [T8]
- DuraWet is a permanent wettability treatment, not a coating; initial tests show up to 30% lower contact angle and resistance than other polyolefin membranes. [T8]
- In 10 mAh LFP/graphite lithium pouch cells at -20 C, DuraWet showed about 25% higher capacity retention at 1C; no sodium-cell data were shown. [T8]

Ceramic-coated separators

Improve surface wetting and tension, but lack through-plane wetting across the pore structure, and add 2 to 4 microns of thickness that cost energy density, resistance and money. [T8]

Celgard DuraWet

Adds no thickness; after five minutes in a LiPF6 lithium electrolyte it retained slightly more than two-sided ceramic-coated PE, and Celgard says it cuts filling and soaking time. [T8]

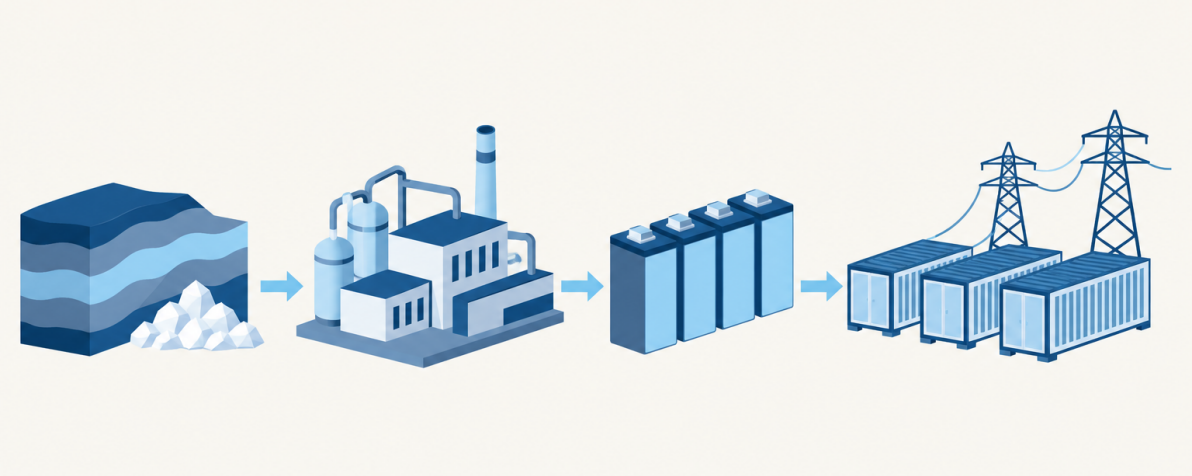
WHY THIS MATTERS

Separators shape power, cold performance and cycle life, and ALTADER's cost slide groups them with cathode and electrolyte as most of cell material cost. Celgard argued localized supply and sodium-oriented membranes, still in development, could cut sourcing risk. [T6][T8]

Policy, Trade and the US Supply Chain

From mine to grid: tax credits, tariffs and where sodium-ion wins.

Edward McGlone of Peak Energy walked through the policy stack shaping US sodium storage. Peak went from founding to a $108M Series B led by GM Ventures in three years, with over $1B in customer commitments. Storage kept its tax credits through the OBBBA, but with heavy foreign-entity restrictions. [T7][W2]



Conceptual: a domestic sodium supply chain from soda ash to cells to grid storage.

- 48E keeps the full storage credit for projects starting by 2033; 45X pays $35/kWh for cells, stepping down after 2029. [T7]
- Storage projects claiming 48E need a minimum non-prohibited-foreign-entity cost share rising from 55% (2026 starts) to 75% (2030 and later). [T7]
- An indicative duty stack near 40% on imported Chinese LFP storage strengthens the case for US cells built from non-critical minerals. [T7]
- Wyoming's Green River Basin holds the world's largest trona deposit, and over half of US soda ash is exported today. [T7][W5]
- Procurement rewards duration: PJM's 2027/28 storage accreditation climbs with duration, from 58% for the shortest class shown to 78% at 10 hours; a Feb 2026 CPUC order calls for 750 MW of 8-plus-hour storage by 2032. [T7]

6.2 GWh
Peak-reported contracts signed for 2027 to 2030

4 GWh/yr
planned Sacramento capacity, production due Q1 2027

75%
minimum non-foreign-entity share, 48E storage, 2030+ starts

WHY THIS MATTERS

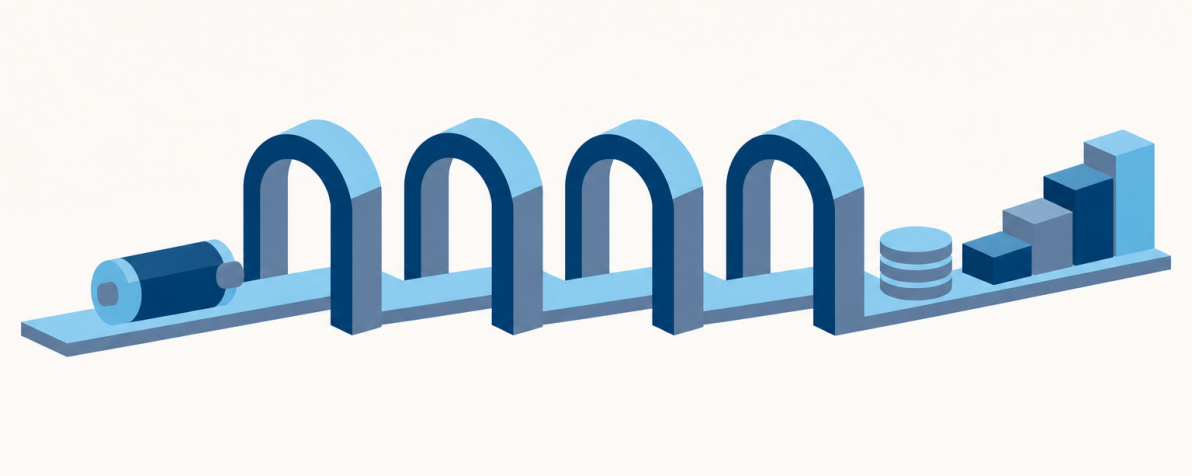
Sodium's inputs are abundant and non-critical, though McGlone noted US soda ash processing capacity is limited. Safe-harbor tables are built around lithium parts, 45X steps down from 2030, and Natron's September 2025 shutdown shows first-of-a-kind financing stays fragile. [T7][W4]

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Bankability Before Scale

Why domestic cell plants stall and what makes one financeable.

Lukasz Cianciara of Silmera presented iM3NY, a US phosphate cell plant, as a warning that applies to sodium plants too: certification arrived as the runway closed. Every bull case for sodium rests on third-party validated performance, safety and degradation data, and that same data is the gate a domestic line must clear to be financed. [T9]



Conceptual: a cell passing through successive approval gates before recurring revenue.

- A launch claim is where diligence starts: CATL's 'self-healing' is fault isolation that keeps systems available, not cell repair. [T9]
- Commercial release has separate gates: UN 38.3 for transport, UL 1973 and UL 9540 for safety, then lot acceptance tests. [T9]
- A customer can like your cell and still not be revenue; at iM3NY, buyers waited for UL 9540A before qualifying. [T9]
- Policy can wall off demand but not create bankability; China exempts sodium from its battery consumption tax through December 2028. [T9]

3 days
iM3NY: UL 1642 to Chapter 11, Jan 2025

$10M
two months of costs with no receipts (illustrative)

15,000
cycles to 70% SoH: CATL launch claim, not independently tested

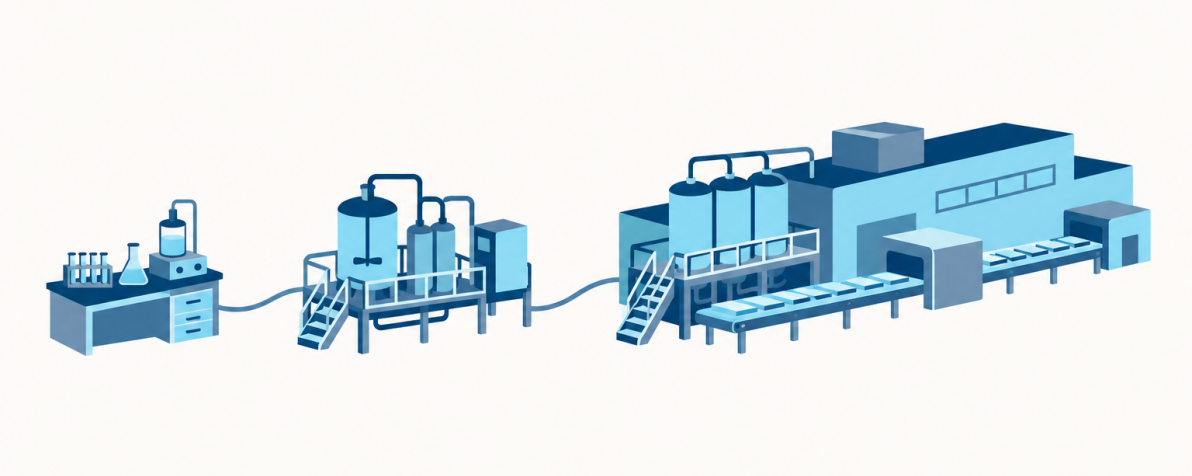
WHY THIS MATTERS

Lenders fund certified, accepted, repeatable product, not chemistry. Sodium startups should plan cash for the full qualification calendar, treat paid pilots as engagement rather than demand, and build early the third-party validation dataset that lenders and customers will both ask for before signing.

From Pilot Plant to Production

Phased planning, decision discipline and management of change.

Randy Drake of Gresham Smith closed the program with the engineering firm's view of scale-up. His message: most of a plant's value is set before construction, when definition is good and changes are cheap. Sodium-ion teams moving from pilot to commercial lines should lock design criteria early and decide with explicit tools. [T10]



Conceptual: phased scale-up from a lab bench to a pilot line to a commercial factory.

SCHEDULE

Fast track

Overlap design development and construction documents with bidding and early construction to save time, accepting more coordination risk. [T10]

CHANGE

Management of change

Separate managed change from reaction to change, identify uncertainties early, lock design criteria, and require a business case for each change. [T10]

GOVERNANCE

Decision makers and process

Establish decision makers and process up front: information flows up from SMEs, engineers and consultants to a director, who makes the decisions. [T10]

LEAN TOOLS

Choosing By Advantages

Rank alternatives by the importance of their advantages, then weigh cost: in a heating study the central plant won 19 to 11 despite the other option saving 500,000 kWh a year of pumping. [T10]

Value identification

Phases 1 to 3: identify and assess, select, define. The ability to make changes is highest and their cost lowest, so this is the best opportunity for improvement. [T10]

Value realization

Phases 4 and 5: execute and operate. Good execution only partly recovers poor definition, ending below a well-defined project; failing to plan is planning to fail, as Drake's closing slide put it. [T10]

WHY THIS MATTERS

Drake's charts show changes cost least during planning and design. Sodium teams that lock definition early protect the cash and months that certification and customer qualification need, the gap Silmera's iM3NY case exposed. [T10][T9]

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State of the Industry

Cross-cutting themes that emerged across the talks.

Win by segment, not on headline cost

FEV's draft shows sodium's material-cost edge over LFP can be erased today by lower energy density and maturity. FEV and ALTADER placed the early case in high-cycle stationary storage, 12 V starters and possibly cold climates, while Peak noted procurement increasingly rewards duration. Compare at the use-case level, not cathode against cathode. [T1][T6][T7]

Materials and components are the real bottleneck

Hard carbon and separators came up as gating items. ALTADER set concrete targets for capacity, efficiency and cost from lignin feedstock, while Celgard argued sodium electrolytes may need membranes that wet better and conduct faster, citing lithium-cell data so far. Whoever supplies these at consistent quality in North America shapes the domestic industry. [T6][T8]

Policy helps, but whiplash hurts

Tax credits, foreign-entity rules and an indicative duty stack near 40% on Chinese LFP storage all favor domestic sodium built from non-critical inputs. Yet the 45X step-down, lithium-centric safe-harbor tables and shifting tariffs make factories harder to finance. McGlone asked for sodium component tables and a longer 45X runway for emerging chemistries. [T7][T9]

Proof beats promises

Silmera's iM3NY case and its reading of CATL launch claims set a high bar: third-party data, certification calendars and acceptance testing decide revenue. SES AI's cycle-life forecasting targets the same pain from the R&D side, aiming to cut the months of cycling before a decision, though its case study was not on sodium cells. [T9][T4]

Notable researchers and organizations

Who shaped the conversation.

Speakers and citation codes

- [T1] Prasanna Mantravadi, FEV Consulting: Decoding sodium-ion chemistry (26 Oct).
- [T2] Scaling panel: Mantravadi (moderator), Jordan Arocha (Munro & Associates), John Wenfu Zhang (Exyte), Dr. Jonathan Scharf (SES AI), Dr. Grigorii Soloveichik (SolEXS).
- [T3] Ty Keefe, PHENOGY AG: Sodium-ion stationary storage for modern grids.
- [T4] Dr. Jonathan Scharf, SES AI: AI agents for high-performance sodium-ion batteries.
- [T5] Dr. Grigorii Soloveichik, SolEXS Consulting: Path from bench to competitive product.
- [T6] Dr. Safak Dogu, ALTADER Energy Technologies: Beyond hard carbon.
- [T7] Edward McGlone, Peak Energy: Policy opportunities from mine to grid.
- [T8] Richard Miller, Celgard (Asahi Kasei): Localized separator supply (27 Oct).
- [T9] Lukasz Cianciara, Silmera: Why domestic cell plants stall.
- [T10] Randy Drake, Gresham Smith: Scale-up from pilot plant to production.

Companies referenced on stage

- Cell and system makers: CATL, Peak Energy, Biwatt, Aeson Power (distributor), iM3NY, Natron Energy, NGK Insulators.
- Partners and buyers: GM and GM Ventures, Jupiter Power, Energy Vault, RWE, Chery.

Public sources

- [W1] Event program: sodium-ion-battery-show.com
- [W2] pv magazine, 23 Oct 2026: pv-magazine.com/2026/10/23/sodium-ion-storage-maker-peak-energy-raises-108-million-in-gm-led-round/
- [W3] IEA, Feb 2026: iea.org/commentaries/sodium-ion-battery-momentum-grows-but-challenges-remain
- [W4] IEEE Spectrum: spectrum.ieee.org/natron-sodium-ion-battery-failure
- [W5] USGS Mineral Commodity Summaries 2026, soda ash: pubs.usgs.gov/periodicals/mcs2026/mcs2026-soda-ash.pdf
- Cover photos: venue, sodium-ion-battery-show.com/venue; storage unit, Peak Energy, via pv magazine [W2].