

**The Economics of the
Battery Supply Chain**

Manufacturing

NAATBatt Annual Conference 2025



A Peek at the US Battery Supply Chain

NREL Bat SC - Map



NREL Bat SC - Table

Company	Facility Name	Facility State or Province	Status	Supply Chain Segment	Production Units	Production Capacity	Facility Workforce	Count ID
Grand Total						8,075,830	366,603	980
3M	3M Cottage Grove	IN	Comme.	Downstream	Null			1
	3M Guin	AL	Comme.	Downstream	Null			1
	3M Springfield	MO	Comme.	Downstream	Null			1
6K, Inc.	6k PLUSCAM	MA	Planned	Midstream	MT cathod.	10,000	150	1
	Demonstration Plant	TN	Planned	Midstream	MT cathod.	13,000	260	1
	6K, Inc	MA	Comme.	Other - Research	Null		22	2
24M Technologies	Cambridge Facility	MA	Pre-com	Midstream	Null		110	1
		MA	merciel.	Other - Equipm.	Null		110	1
A123 Systems	A123 Advanced Engineering Center	MI	Comme.	Midstream	GWh/yr	1	493	1
	Cell Test Center	MA	Comme.	Other - Research	Null			1
	Research and Development	MA	Comme.	Other - Research	Null			1
ABD Technology	Null	MI	Comme.	Null	Null			1
AA Portable Power Corp.	Null	CA	Comme.	Other - Service..	Null		30	1
	AA Portable Power Corp.	CA	Comme.	Downstream	Null		30	1
Abbott Furnace	Abbott Furnace	PA	Comme.	Other - Equipm.	Null		53	1
Abel + Imray	Null	Null	Comme.	Other	Null			1
ABSL Power Solutions, Inc.	ABSL Power Solutions, Inc.	CO	Comme.	Midstream	Null		100	1
Accelera by Cummins	Accelera	IN	Comme.	Downstream	Null			1
Acculon Energy	Rev1	OH	Pre-co.	Downstream	Null	200	60	2
ACCURE Battery Intelligenc..	Null	MA	Comme.	Null	Null		3	1
ACCURE Battery Intelligenc..	Null	MT	Comme.	Null	Null		1	1
Across International	Across International LLC	NJ	Comme.	Other - Equipm.	units	2,000	25	1
		NV	Comme.	Other - Equipm.	units	2,000	21	1
ACT-ion Battery Technologies	ACT-ion CAM facility	TX	Pre-co.	Midstream	MT/yr			1
ADA Technologies, Inc.	ADA Technologies, Inc.	CO	Comme.	Other - Research	Null			1
ADA Technologies, Inc.	ADA Technologies, Inc.	CO	Comme.	Downstream	Null		20	1
Addionics	Addionics	CA	Comme.	Midstream	MT/yr	13,400		1
Admiral Instruments	Admiral Instruments HQ	AZ	Comme.	Other - Equipm.	Null			1
Adphos North America, Inc.	Adphos North America, Inc.	WI	Comme.	Other - Equipm.	Null		7	1
Advanced Battery Concepts	Advanced Battery Concepts	MI	Comme.	Midstream	Null		50	1
Advano	Advano	LA	Pre-co.	Midstream	Null		30	1
AESC	Bowling Green Plant	KY	Planned	Downstream	GWh/Yr	30	2,000	1
				Midstream	GWh/yr	10		1
				Under c.	Midstream	GWh/yr	30	2,000
	Florence County Electric B.	SC	Under c.	Midstream	GWh/yr	30	1,170	1
	Smyrna Battery Plant	TN	Comme.	Downstream	Null		400	1

Status

- (All)
- Commercial
- Planned
- Pre-commercial..
- Under construc..

Facility Country

(All)

Facility State or Pro..

(All)

Company

(All)

Facility Name

(All)

Product/Facility Type

(All)

Product

(All)

Status

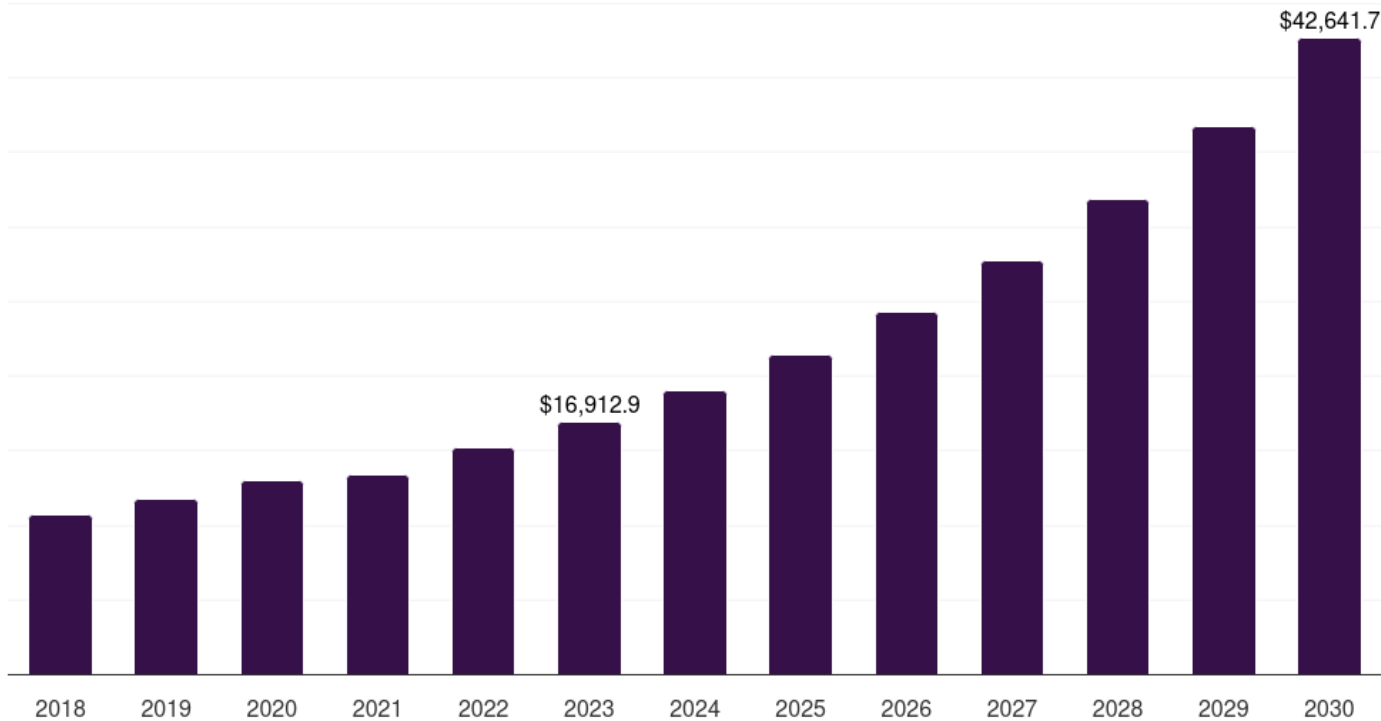
- Commercial
- Planned
- Pre-commercial..
- Under construc..

Facility Workforce

1 20,000



US Battery Market Prize



US Battery Market 2018 – 2030
Source: Grandview Research

- SEIA target is 10 million distributed storage installations with 700 gigawatt-hours (GWh) of total installed storage capacity by 2030
- Technology is changing to reflect regulations, economics, densities, fire & environmental risks
- Energy security concerns will drive the creation of a wholly domestic supply chain

Challenges to Starting

Permitting

Permitting can require approvals at the Federal, State and Local level
Environmental (wetlands, air, water) permits generally take the longest and are most susceptible to interventionist litigation delays
Understand the permitting demands of your capital/grant providers

Tax Optimization

Especially challenging for companies coming “onshore” to the US who need to understand federal, state and local tax consequences

Capital Access

Tax equity financing can be tough to get
Government subsidy risks have changed “bankability”

Construction Mgmt.

Access to construction labor (Note, 45X eligibility does NOT require compliance with Prevailing Wage and Apprenticeship)
Access to key components (e.g. power transformers)

Local Infrastructure

Access to high reliability power
Access to water/wastewater facilities
Access to road and rail



Incentives Can Make Manufacturing Viable

- Federal incentives align around 45X
 - Phase out for battery cells/modules in 2032
 - Critical minerals support **currently** has no end date
 - These are “entitlement” credits, requiring documentation, not negotiation.
- State & Local incentives reduce property and sales tax based on job creation and capital invested
 - Automation will continue to decrease facility employment needs to be competitive
 - Capital investment will drive significant tax-benefits to jurisdictions

• **Negotiate your State & Local incentive packages for the best outcome.**

• **Understand the “But For” test. Incentives are competitive so committing too early to a site can reduce your negotiating leverage.**

Incentive Example

- \$1.2B in capital
- 1100 construction jobs (24 months)
- ~145 long term jobs

Negotiated Incentive Structure

- 45X estimated to return 47% of the project capital in 10 years
- County Property Tax Abatement – 50% reduction for 10 years with a 5 years valuation cap
- School Tax Abatement – 0% during construction, 50% reduction for 10 years
- City Property Tax – “in lieu of” payment negotiated to pay for expansion of fire department to new development area



45X Advanced Manufacturing tax credit fundamentals

- Manufacturing Production Tax Credit
 - Earned based on units produced and sold
 - Targeted products in the advanced energy supply chain
- Requires domestic production
- Credit rates vary by product type for qualifying technology
 - Full credit rates through 2029 with a phase-out period through Dec. 31, 2032
- Three monetization options
 - Claim on return
 - Direct Pay
 - Transfer
 - If electing direct pay or transfer, must complete an IRS registration process
 - Budget at least 6-8 weeks for IRS evaluation

45X Considerations

Product

- Does it conform to the definition provided in regulations?

Process

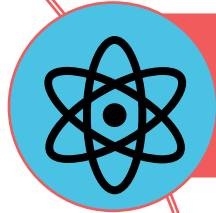
- Does the production process substantially transform into the product defined in the regulations?

Commercial structure

- Has the taxpayer sold the product to an unrelated party or met related party requirements?

- Electrode active materials: 10% of the production costs
- Battery Cells \$35/kwh
- Battery Modules \$10 (or in the case of a module that does not use a cell \$45)/kwh
- Critical Minerals 10% of the production costs

45X Considerations



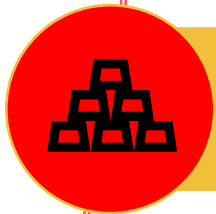
Electrode Active Materials

- 10% of the taxpayer's production costs



Battery Cells

- \$35/kWh produced



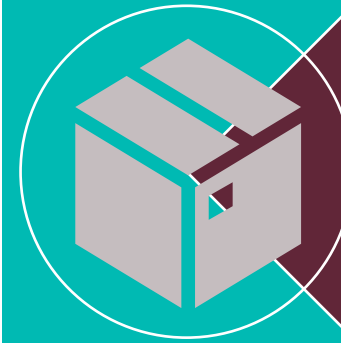
Battery Modules

- \$10/kWh for modules that use cells
- \$45/kWh for modules that do not use cells



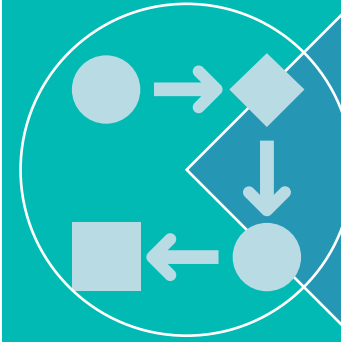
Critical Minerals

- 10% of the taxpayer's production costs



Product

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Process

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Commercial Structure

- Has the taxpayer sold the product to an unrelated party or met related party requirements?



Tax credits are not a handout – what to consider



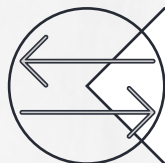
Must result in substantial transformation



Must occur in the U.S.



Contract manufacturing arrangements



Related party sales and transfers



Documentation requirements



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