Pacific Northwest NATIONAL LABORATORY

COSTIME

COSTIME

SI-Powered Battery Manufacturing Cost, Supply Chain, and Commercialization Analysis

Pacific Northwest National Laboratory's COSTIME is software designed to help researchers, manufacturers, technology developers, and decision-makers evaluate technical and economic pathways for manufacturing and commercializing next-generation battery technologies. It integrates battery design, materials pricing, manufacturing cost modeling, supply chain analysis, smart manufacturing, and commercialization assessment within a single analytical framework.

CORE CAPABILITIES

- >1000 layouts for Cell–Module–Pack electric vehicle and Energy Storage System design with 3D visualization and SI-assisted battery design. Five battery technologies (Na-ion, all-solid-state, Li metal, and more).
- Gigafactory modeling for multiple battery technologies, including a 20 GWh/year plant organizational model. HVAC and dry-room analysis for energy impacts. Dry process for solid-state batteries.
- Bottom-up manufacturing cost model covering materials, labor, overhead, Selling, General, and Administrative expenses, Research and Development, and profit with sensitivity analyses and cost projection.
- Smart manufacturing analysis (humanoid robotics) for evaluating the labor impact and manufacturing economics.
- SI-assisted supply chain tracking across materials, suppliers, risk, and manufacturing, extending upstream to critical minerals.
- SI-assisted commercialization analysis linking technical performance and economics to market timelines.
- >600 pouch cells in the battery performance database. Built-in professional SI assistant.



COSTIME was developed with funding support from the Department of Energy Advanced Materials and Manufacturing Technologies Office.

This software is publicly available.

Researchers, battery manufacturers, startups, universities, and technology developers are encouraged to evaluate COSTIME and provide feedback to inform future releases.

To request access to COSTIME, contact:

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