

CASE STUDY

ACCELERATING BATTERY TESTING WITH CUSTOM TEST CHAMBERS FOR RENEWABLE ENERGY STARTUP

BACKGROUND

An innovative energy storage company needed a fast, customized solution for scaling up battery testing at its facility, which housed over 60 small-scale test chambers.

Their vision was to retrofit standard lab incubators into fully integrated test units—capable of supporting their unique battery module configurations and live data systems.

THE CHALLENGE

What were the problems

Several obstacles complicated the program:

- ▶ **Incomplete Design Package:** The company only had a CAD model and loosely defined specifications—no prints, work instructions, or finalized documentation.
- ▶ **Compressed Build Schedule:** A delay in the core incubator component delivery left just four weeks to build and deliver seven complete test units on an aggressive one-month timeline.
- ▶ **Complex Integration Scope:** The project required custom mechanical fabrication, electrical interface design, and seamless fit into the customer's live test environment.

Navigating these constraints called for a partner with the engineering depth, manufacturing agility, and program discipline to translate limited inputs into fully functional, production-grade custom test chambers.

- CUSTOMER:** Startup Company
- INDUSTRY:** Renewable Energy
- LOCATION:** New England Region
- DELIVERABLE:** 7 Custom Test Chambers

PROJECT TIMEFRAME

- ▶ Built 7 complete units in 5 months
- ▶ Shipped 5 weeks before schedule

CAPABILITIES UTILIZED

- ▶ Machine Design Engineering
- ▶ Procurement & Supply Chain
- ▶ Component Manufacturing
- ▶ Custom Frame Fabrication
- ▶ Electromechanical Assembly
- ▶ Final Assembly & Integration
- ▶ Program Management

THE SOLUTION

What we proposed

Selected for its proven ability to execute complex electro-mechanical builds under accelerated timelines, PEKO took full ownership of the program. The scope included engineering and fabricating custom frames for control hardware, integrating electrical cabling for battery module connectivity, and delivering fully operable units ready for deployment within the customer's live test environment.

To successfully execute the program, PEKO applied a lean, cross-disciplinary approach focused on speed, adaptability, and alignment. The NPD team coordinated closely with manufacturing, using structured project management and on-the-floor engineering support to drive real-time problem-solving and keep the build on track.

- ▶ **Parallel Development:** Subassemblies were fabricated in advance using only CAD files and inferred design intent, allowing work to begin before critical incubator components arrived.
- ▶ **Lean Documentation:** Instead of a full manufacturing package, PEKO developed lean, targeted assembly instructions—just enough to keep floor technicians moving quickly and accurately.
- ▶ **Integrated Teams:** Engineers and technicians worked side-by-side throughout the build, enabling real-time collaboration, rapid design adjustments, and hands-on troubleshooting.

THE SUCCESS

PEKO delivered all 7 units 5 weeks ahead of schedule. The final systems exceeded performance of the customer's legacy setup, accelerating their battery testing capacity and allowing them to hit internal product development goals.

"The customer was extremely happy with our ability to ship early, especially given the lack of starting documentation. They saw the value of working with a full-service partner."



WHY PEKO

This project showcased PEKO's ability to deliver production-grade solutions from incomplete inputs, manage cross-functional complexity, and maintain a customer-first mindset under tight constraints. It also demonstrated PEKO's ability to jump into any stage of the product lifecycle—bringing structure, clarity, and execution to drive concepts across the finish line.

RESULTS

- ✓ Delivered 7 fully-integrated test units 5 weeks ahead of schedule
- ✓ Units integrated seamlessly into customers live test environment
- ✓ Improved performance and scalability over legacy systems
- ✓ Enabled on-time product development milestones



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