



Lithium Battery-Pack & Energy-Storage Systems

Complete Turnkey Business Proposal



Made-in-China supplier reference: real lithium battery-pack & energy-storage systems equipment.

bankable study investment gate	confirmed feedstock supply gate	EPC scope delivery gate	quality laboratory release gate
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Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

Executive Summary

Strategic lithium battery-pack and energy-storage assembly that qualifies imported cells, matches/modules them, integrates BMS, thermal and protection systems, completes pack/rack assembly, performs functional and safety tests, and commissions specified ESS products.

Why this project fits Afghanistan

- This is a strategic plant, not a low-entry equipment package.
- Bankable feedstock, utility, permit, market, EPC and financing evidence is required before selection.
- Operate only with an independent laboratory, defined quality release and preventive-maintenance program.

Sanaatchi delivery scope

- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

Recommended configuration

Proceed only after approved cell suppliers, BMS/thermal design responsibility, fire and transport compliance, target voltage/capacity, test laboratory, warranty service and trained battery engineers are bankable.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Lithium battery packs and ESS racks	Cell chemistry, voltage, kWh capacity, BMS, enclosure/IP rating, thermal management, safety certification and warranty	Solar storage, telecom, UPS, commercial facilities, microgrids, distributors and qualified EPC contractors

Final capacity, process, resource quality, utilities, permit conditions, emissions, acceptance test and commercial terms require independent engineering review before any order.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Cell incoming QC/grading	Qualifies cells	Chemistry and matching
2	Module/pack assembly	Builds electrical package	Torque and insulation
3	BMS/protection integration	Controls battery operation	Firmware and protection
4	Thermal/enclosure/rack assembly	Creates deployable ESS	IP, cooling and safety
5	Electrical/safety test laboratory	Releases packs	Capacity, isolation and protections

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

Reference Equipment Gallery



Made-in-China supplier reference: real lithium battery-pack & energy-storage systems equipment.



Made-in-China supplier reference: second real machine configuration for lithium battery-pack & energy-storage systems.

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

Plant, Raw Materials & Utility Requirements

Raw materials

- Approved lithium cells, BMS, busbars, fuses/contactors, enclosures, thermal materials, cables, labels, fire-safety components, packaging and laboratory consumables

Utilities & infrastructure

- Bankable electricity/fuel/water plans, process cooling and treatment, plant fire safety, laboratory, covered stores and qualified operation team
- Environmental permits, emissions control, waste route, maintenance workshop, critical spares and site-specific safety systems

Quality, safety and environmental controls

- Confirm approved cell source, BMS design, fire code, shipping classification, warranty terms, customer ESS use case and engineer capability
- Control cell matching, weld/torque, insulation, BMS configuration, cooling, enclosure seals, charge/discharge and fault protections
- Test capacity, voltage, insulation, BMS functions, thermal response, communication, short/fault protections and traceability

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

Indicative Investment & Implementation Plan

LOW-ENTRY CONFIGURATION

Lithium packs are an engineering, safety and warranty product. No pack should be offered without an approved cell/BMS design and a tested fire-protection route.

Component	Indicative range	Notes
Cell QC, module/pack/rack assembly	US\$8m-30m	Voltage and automation
BMS, test, safety and burn-in systems	US\$12m-45m	Certification/warranty scope
Fire safety, utilities and installation	US\$8m-25m	Critical compliance
Indicative strategic project total	US\$28m-100m	Cell inventory, land and finance excluded

Implementation sequence

Phase 1	2-5 weeks	Confirm product specification, representative raw material, buyer, capacity, site and utilities
Phase 2	3-7 weeks	Run supplier trials with the buyer material and freeze the balanced machine, tooling and utility scope
Phase 3	8-22 weeks	Manufacture or refurbish, inspect, document and ship the contracted equipment
Phase 4	3-12 weeks	Install, commission, train operators and pass material-specific acceptance tests

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

Next Steps & Contact Information

Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

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Research and image references

- solar-module-factory-20-100mw
- manual-solar-module-assembly-line