



RE & STORAGE ADVISORY · STEP 03 · DETAILED ENGINEERING · DRAWING

Single Line Diagrams & Plant Layout Drawings

AC/DC architecture SLDs, PCS-to-transformer block diagrams, container/skid general arrangement and cable routing layouts.

Worked example (anonymised): Example: Standalone BESS Detailed Engineering · 150 MW / 300 MWh, LFP-based, 33 kV collection · Western India. Illustrative intra-state open-access BESS project requiring 132 kV interconnection studies, protection philosophy and procurement-ready EPC tender documents.



Illustrative sample image

Sample excerpt · SLD Equipment Schedule (Extract)

Tag	Equipment	Rating	Qty	Remarks
PCS-01 to 30	Power Conversion System	3.5 MVA, 33 kV	30	Grouped in 5 blocks
TX-01 to 05	Step-up Transformer	21 MVA, 33/132 kV	5	ONAN/ONAF
SWG-132	132 kV GIS Switchgear	132 kV, 2000 A	1 bay set	Bus coupler incl.
BESS-CONT	Battery Container	3.72 MWh LFP	84	20 ft, IP54
SCADA-01	Plant SCADA/EMS	N/A	1	Redundant servers

Notes

- Drawings issued in AutoCAD/PDF with IEC symbology for EPC bid packages
- Layout accounts for fire-safety separation per applicable battery storage guidelines

What happens in this step

1. Develop electrical SLDs for AC/DC architecture, PCS/inverter blocks, MV collection, and interconnection switchyard
2. Prepare general arrangement and cable/trench layouts for BESS containers, PCS skids, transformers and control room



3. Define protection philosophy: relay coordination, arc-flash study, differential/distance protection settings
4. Run grid studies — load flow, short-circuit, transient stability, harmonic and voltage-ride-through per CEA/STU requirements
5. Draft technical specifications and BoQ for PCS, batteries/modules, transformers, switchgear, SCADA and civil works
6. Coordinate with STU/CTU and DISCOM for connectivity/LTA approval and interconnection agreement inputs
7. Compile a bid-ready procurement dossier with drawings, specs and evaluation criteria for EPC tendering

Outcomes

- A procurement-ready engineering package accepted by EPC bidders and lenders without major clarification rounds
- Grid-connection studies aligned with STU/CTU requirements, reducing connectivity approval delays
- Protection and safety philosophy validated ahead of equipment ordering, minimising rework risk
- Clear BoQ and specifications enabling like-for-like EPC bid comparison and faster contract award

Want this for your project? Write to info@growthifye.com or use the Contact page — we will scope the real deliverable set for your capacity, state and lender requirements.

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