



RE & STORAGE ADVISORY · STEP 02 · CONCEPT, SIZING & RTC/FDRE MODELLING · REPORT

BESS Power/Duration Optimisation Report

Comparative sizing analysis identifying the least-cost MW/MWh combination across contract, tariff and augmentation scenarios.

Worked example (anonymised): Hybrid RTC Supply Portfolio · 300 MW solar + 150 MW wind + 300 MW/1,200 MWh BESS · Western India. Illustrative round-the-clock supply portfolio modelled for a state DISCOM tender requiring 85% annual availability against a flat RTC schedule.



Illustrative sample image

Sample excerpt · Sizing Scenario Summary (illustrative)

Scenario	Power (MW)	Duration (h)	Energy (MWh)	RTE (%)	LCOS (₹/kWh)	1st Augmentation (yr)
S1 - Base	300	4.0	1,200	86	5.9	9
S2 - Long duration	250	5.0	1,250	85	6.4	11
S3 - High power	350	3.4	1,190	87	6.1	8
S4 - Recommended	300	4.0	1,200	86	5.7	10
S5 - Low capex	280	3.8	1,064	85	6.8	7

Notes

- LCOS figures are illustrative and exclude land, financing and evacuation costs
- Augmentation year assumes 2.5% p.a. capacity fade with 70% end-of-life retention floor

What happens in this step

1. Translate Step 01 resource/load outputs into candidate technical configurations (solar:wind:BESS ratios, power-to-energy ratios)



2. Run BESS power/duration optimisation across tariff, ancillary and contract structures to find the least-cost MW/MWh combination
3. Build 8760-hour hybrid RTC/FDRE dispatch model incorporating curtailment, forecasting error and peak-shortfall penalties
4. Layer in degradation curves (solar, wind, cell) and RTE fade over project life to test 25-year energy delivery
5. Stress-test the configuration against low-RTE, high-degradation, and adverse-weather-year scenarios
6. Benchmark augmentation strategies (capacity top-up years, replacement cost timing) against contract penalty exposure
7. Issue sizing recommendation with sensitivity grid, LCOE/LCOS and compliance-probability outputs for investment decision

Outcomes

- A financially optimised BESS power/duration and hybrid capacity mix, backed by scenario and sensitivity analysis
- Quantified RTC/FDRE compliance probability and penalty-risk exposure ahead of PPA signing or financial close
- A degradation- and RTE-tested 25-year energy delivery profile accepted by lenders and internal investment committees
- A clear, costed augmentation roadmap that protects contracted output without over-sizing capex upfront

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.