



Open-Access Sizing — Detailed Report

Sample Industries Limited (illustration)

Industrial area, Maharashtra

TS-SAMPLE rev 1 · Prepared for Illustration only · Issued 2026-09-23 · Tariff Studio v0.9.24

1. Data basis and data-quality notes

Generation is a reference profile standing in until the site's own resource data is available — so the figures below demonstrate the method on this load, and are not numbers to contract on.

Consumption site	Sample factory, Maharashtra
Solar site	Reference solar profile
Wind site	Reference wind profile
Contract demand	1500 kVA
Power factor	0.98
Annual consumption (reference year)	60.00 lakh kWh
Months covered	12
State / structure	MH, third party open access
Solar reference yield	1086.0 kWh/kW/yr
Wind reference yield	3202.2 kWh/kW/yr
PPA tariff — solar	Rs 3.0000/kWh
PPA tariff — wind	Rs 3.4000/kWh

2. Methodology and inputs

Every figure in this report — optimisation points, the recommendation and the final bill — comes from the same full day-typed annual billing simulation: each year is built month by month, each month from its own real day-types, each day-type dispatched block by block against the state's open-access rules. Nothing here is estimated from a single representative day.

Discount rate (consumer WACC)	10%/yr
DISCOM tariff escalation	3%/yr
Open-access charge escalation	3%/yr
Term	25 years

Battery storage PPA rate	Rs 2.5000/kWh per kWh supplied
Banking charge override	rules pack default

Optimisation configuration: solar 0–12 MW in 2 MW steps; wind 0–12 MW in 2 MW steps; storage 0–4 MW in 2 MW steps, each storage size priced against the plant mix that would feed it.

3. Stage 1 — solar-only diagnostic

An optimisation of solar capacity alone, backed by the grid, before wind is introduced. It does not feed Stage 2 — Stage 2 re-optimises both together from the original case — it exists to show what solar alone could do.

Best solar-only size	4 MW
25-year NPV	Rs 11.15 Cr
Year-1 saving	Rs 78.60 L
Bill at this size	Rs 658.85 L
Grid-only bill (reference)	Rs 737.44 L

Solar alone stands up on this load: both 25-year NPV and Year-1 saving are positive at its best size, before wind or storage are considered.

4. Stage 2 — solar and wind combined

An optimisation over solar and wind capacity together, both backed by the grid. The mix reported is the NPV-maximising cell in the optimised grid.

Best mix (Stage 2)	2 MW wind
25-year NPV (before storage)	Rs 13.65 Cr
Bill at this mix	Rs 644.91 L
Grid-only bill (reference)	Rs 737.44 L
Grid drawal at this mix	22,35,188 kWh

5. Stage 3 — storage sizing

Battery power and duration optimised, with the leading sizes re-priced on their own solar and wind. A battery is charged by surplus generation, so the plants that feed it are not always the mix that was best without it.

Worthwhile?	Yes
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Best storage size	2 MW / 2h
Plants this battery was sized with	2 MW solar + 2 MW wind
Incremental NPV from storage	Rs 1.87 Cr
Baseline 25-year NPV (no storage)	Rs 13.65 Cr
Bill with storage added	Rs 644.45 L

Storage improves the result, though it is the smaller of the two effects here.

6. Recommended configuration — full results

Recommended mix	2 MW solar + 2 MW wind + 2 MW / 2h battery storage
25-year NPV	Rs 15.52 Cr
Year-1 saving	Rs 92.99 L
Year-1 bill with this mix	Rs 644.45 L
Grid-only bill (no open access at all)	Rs 737.44 L
Effective tariff, this mix	Rs 10.7414/kWh
Effective tariff, grid-only	Rs 12.2912/kWh
Renewable share of consumption	86.8%

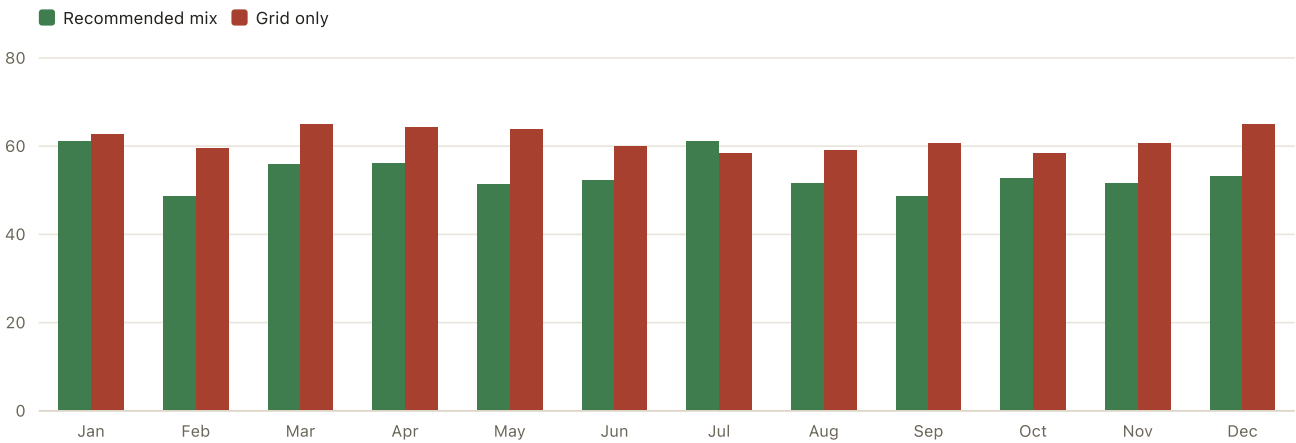
7. Annual cost-line breakdown — Recommended mix

Printed in the engine's own line names so the report can be reconciled against a real invoice line by line.

LINE	UNITS (ANNUAL)	AMOUNT (RS)	% OF BILL
PPA energy - SOLAR			
PPA energy - WIND			
PPA energy - Storage (BESS)			
Wheeling charge			
Transmission charge			
Wheeling charge (MSEDCL supply)			

LINE	UNITS (ANNUAL)	AMOUNT (RS)	% OF BILL
Cross-Subsidy Surcharge	100000	100000	10%
Additional Surcharge	100000	100000	10%
Tax on sale	100000	100000	10%
Banking charge (in-kind)	100000	100000	10%
Lapsed banked energy	100000	100000	10%
Grid energy (ToD retail)	100000	100000	10%
Fuel adjustment (MSEDCL supply)	100000	100000	10%
Total	1000000	1000000	100%

8. Monthly bill vs grid-only



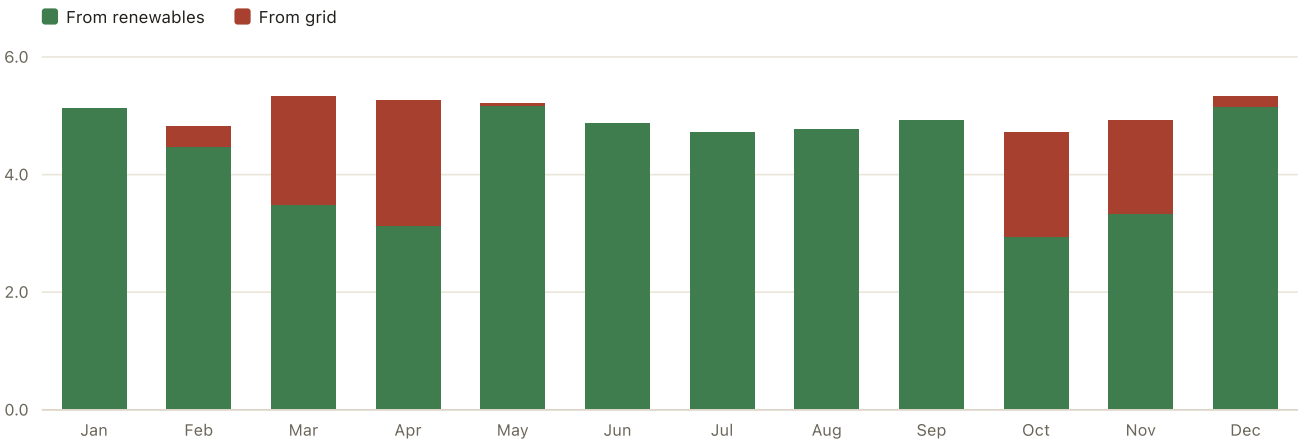
Every bar is the same month’s bill for the same load. Axis in Rs lakh; the gap is what the renewables saved that month.

MONTH	RECOMMENDED MIX	GRID ONLY
Jan	61	62
Feb	49	59
Mar	56	65

MONTH	RECOMMENDED MIX	GRID ONLY
Apr		
May		
Jun		
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		

The recommended mix bills lower than grid-only supply in 11 of 12 months. It bills higher in Jul — worth knowing before the figure is quoted as a monthly saving, because the annual result nets these months against the rest.

9. Monthly consumption — renewables against grid



The two parts add to that month's consumption. Axis in lakh kWh. A month where the green band is short is a month the plant did not cover, which is what the grid-only bar in the previous chart is paying for.

10. 25-year saving trajectory



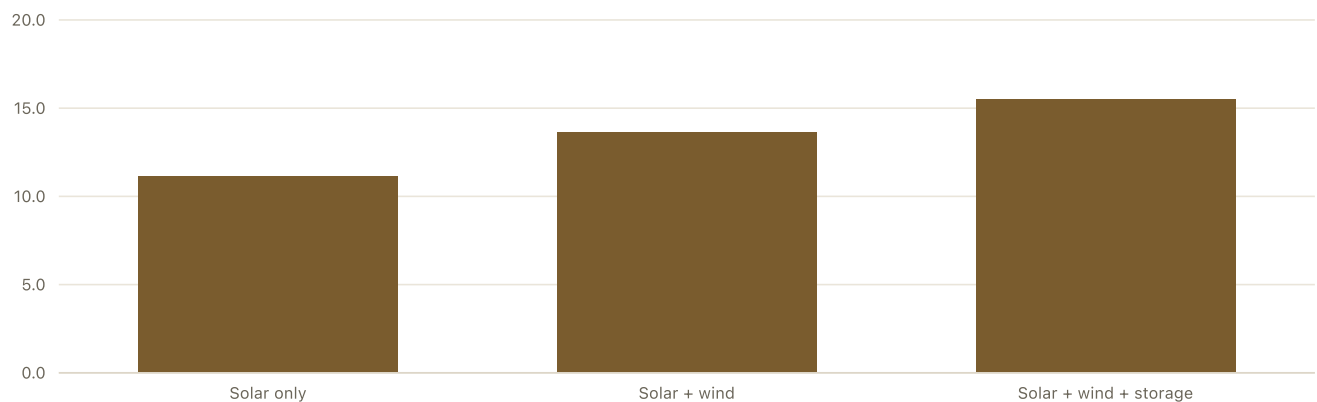
Recommended mix — every year of the term:

YEAR	ANNUAL SAVING (RS L)	DISCOUNTED (RS L)	CUMULATIVE NPV (RS CR)
Y1	92.99	84.53	0.85
Y2	102.33	84.57	1.69
Y3	111.67	83.90	2.53
Y4	121.01	82.65	3.36
Y5	130.34	80.93	4.17
Y6	139.68	78.85	4.95
Y7	150.32	77.14	5.73
Y8	160.95	75.09	6.48
Y9	171.59	72.77	7.20
Y10	182.23	70.26	7.91
Y11	192.86	67.60	8.58
Y12	204.83	65.26	9.24
Y13	216.80	62.80	9.86
Y14	228.76	60.24	10.47
Y15	240.73	57.63	11.04

YEAR	ANNUAL SAVING (RS L)	DISCOUNTED (RS L)	CUMULATIVE NPV (RS CR)
Y16	252.69	54.99	11.59
Y17	266.25	52.68	12.12
Y18	279.80	50.32	12.62
Y19	293.35	47.97	13.10
Y20	306.90	45.62	13.56
Y21	320.46	43.30	13.99
Y22	335.75	41.25	14.40
Y23	351.05	39.20	14.80
Y24	366.35	37.19	15.17
Y25	381.65	35.22	15.52

Annual saving rises across the term as the grid tariff escalates against a flat PPA rate.

11. 25-year NPV by configuration

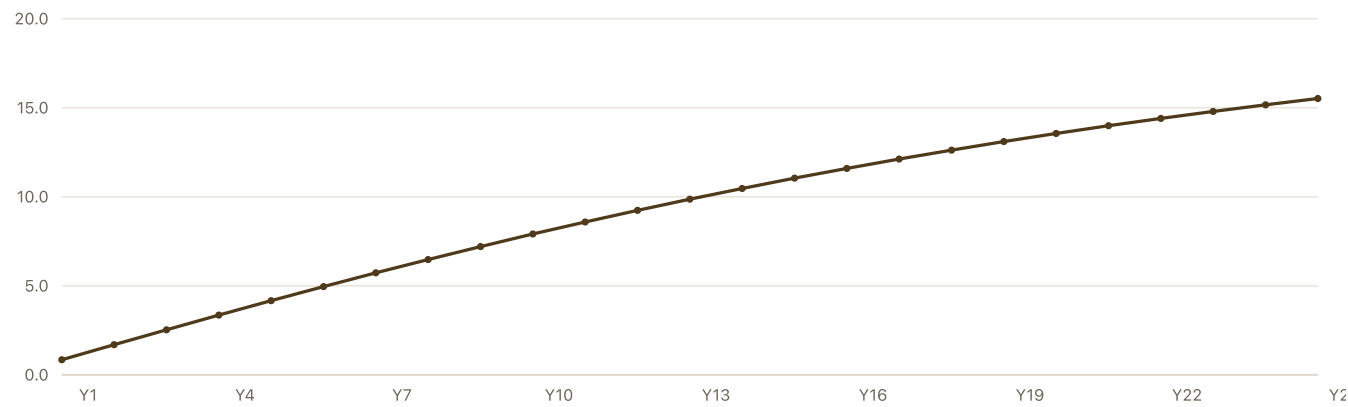


Each bar is a configuration this run actually costed, in the order it considered them. The last one is the recommendation. Axis in Rs crore. A bar that does not clear the one before it is the run telling you the extra technology was not worth its cost.

These are the sizing optimisation's own three stages, not the scenarios on the Compare tab — solar sized alone, then wind added to that result, then storage sized together with the plant mix that would feed it (so the storage bar carries its own plant sizes, which are not always the solar+wind bar's). Each bar is the best that stage could do with the range it was given, so the last bar is the

recommended mix and each earlier one is the step before it. A mix you saved on the Compare tab is not shown here.

12. Cumulative discounted saving



Axis in Rs crore. This is the configuration above, its saving accumulating year by year — the point at which the curve stops rising steeply is where discounting starts to outweigh the later savings.