

Solar + Storage: 15 Years of National Savings from One 12 kWp System

12 kWp Solar with 30 kW / 65.8 kWh BESS & EMS · 15-Years (Battery Life)

● ACTIVE SCENARIO · 2 HRS/DAY LOAD-SHEDDING

15-YEAR GOV.
SAVINGS

12,957,084

BDT total

INVESTMENT
REQUIRED

3,000,000

BDT one-time

RETURN ON OUTLAY

4.32*

savings vs. cost

SYSTEM PAYBACK

~3.5

years · full cost

GOV. PAYBACK

~1.7

years · 50% gov.
incentive

! Load-Shedding Sensitivity

15-year government savings scale directly with daily load-shedding hours

0.25 hr / day

4,168,584

BDT · 15-yr savings

Gov. payback ~5.4 yr

1 hr / day

7,935,084

BDT · 15-yr savings

Gov. payback ~2.8 yr

2 hr / day

12,957,084

BDT · 15-yr savings

Gov. payback ~1.7 yr

CURRENT

1 SYSTEM OVERVIEW

System Cost (Investment) **3,000,000** BDT

Daily Generation to the Grid **48.6** kWh

Diesel Generator Capacity **30** kW

2 ELECTRICITY COST ASSUMPTIONS (BPDB)

Avg. Production Cost **13.09** BDT/kWh

Avg. Selling Cost **8.59** BDT/kWh

Subsidy Paid per Unit **4.50** BDT/kWh

3 FUEL MIX COST

Fuel mix cost to produce 1 unit of electricity **6.60** BDT/kWh

4 LOAD-SHEDDING (Country Average)

Load-shedding per day **2** hr

Load-shedding per month **60** hr

Diesel cost to produce 1 unit of electricity **31.00** BDT/kWh

5 WHERE THE SAVINGS COME FROM – per kWh



All figures in BDT saved per kilowatt-hour. Subsidy and fuel-mix savings apply to daily solar output (48.6 kWh); diesel savings apply to grid backup covered during load-shedding.

6 PROJECTED GOVERNMENT SAVINGS

PERIOD	SUBSIDY	FUEL MIX	DIESEL	TOTAL (BDT)
Per Day	218.70	320.76	1,860.00	2,399.46
Per Month	6,561	9,623	55,800	71,984
Per Year	78,732	115,474	669,600	863,806
In 5 Years	393,660	577,368	3,348,000	4,319,028
In 10 Years (Warranty)	787,320	1,154,736	6,696,000	8,638,056
In 15 Years (Battery Life)	1,180,980	1,732,104	10,044,000	12,957,084

7 CONCLUSION

1,180,980

saved against electricity **subsidy** over 15 years

1,732,104 BDT / \$13,857

saved from reduced **fuel mix** imports over 15 years

10,044,000 BDT / \$80,352

saved from reduced **diesel** imports over 15 years

12,957,084

BDT / 15 YEARS

Overall, the Government saves **BDT 12,957,084** including Foreign Currency **USD 94,209** over the 15-year battery lifetime from a single 12 kWp Solar + 30 kW / 65.8 kWh BESS system. The Government can seriously consider offering financial incentives to individuals / entities, who adapt this system, to promote its use at mass scale.

BESS Battery Energy Storage System · **EMS** Energy Management System · **SBP** Solar Backup Power · **BPDB** Bangladesh Power Development Board