

THE RESULTS

The total cost of ownership of each battery was calculated over a single lifecycle of the RELiON RB100 since it has the longest life of all four batteries. Each of the three lead-acid batteries requires multiple replacements over the life of the RB100.

For this calculation, we assumed:

- Electricity cost for charging of \$0.12/kWh
- Battery maintenance costs of \$10/hour
- Installation and replacement costs of \$25/hour

The table below shows each factor in the overall total cost of ownership for each battery as well as the total cost of each battery per cycle. Based on the specified lifetime of each battery and their retail prices, it's clear the total cost of the RELiON RB100 battery is far less in terms of each cycle and in terms of the overall cost of ownership.

TOTAL COST OVER LIFE COMPARISON

COST FACTOR	FLA	AGM	GEL	RELION RB100
Purchase Cost	\$185	\$270	\$400	\$1,050
Installation Cost	\$25	\$25	\$25	\$25
Maintenance Cost	\$525	\$40	\$40	\$0
Charging Cost	\$970	\$970	\$970	\$850
Replacement Cost	\$2,600	\$5,450	\$3,000	\$0
Replacement Labor	\$700	\$1,000	\$375	\$0
# of Replacements	(14)	(20)	(7)	(0)
# of Cycles Over Life	(500)	(400)	(1,000)	(7,100)
TOTAL COST OVER LIFE	\$5,005	\$7,755	\$4,435	\$1,925
Cost Per Cycle	\$0.67	\$0.92	\$0.55	\$0.27

While the lead acid batteries have a far lower up-front cost, they require frequent replacement. The FLA batteries required 14 replacements, the AGM required 20 replacements, and the more cost-effective Gel batteries still required 7 replacements over the life of a single RB100.

The total cost of ownership, including charging costs, of the RB100 was \$1,925. **That's 51% less than the Gel battery, the most economical of the three lead-acid batteries.**

The total average cost per charge of the RB100 was just \$0.27 over life.

SUMMARY

RELiON's long-lived LiFePO4 batteries reduce the inconvenience and expense of replacement and service calls, and they lend peace of mind to many users when it comes to demanding applications. As this article shows, LiFePO4 batteries are also beneficial to the bottom line. Our calculation compares the total cost of ownership of RELiON's RB100, a 12V 100 Ah LiFePO4 battery, to three equivalent size (BCI Group 31) off-the-shelf lead-acid battery technologies.

Using measured lifetimes taken from the manufacturer's published specifications of each battery, our analysis shows that the RB100 costs at least 51% less over life than even the most cost-effective lead-acid battery.




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