CONCENTRIC
Engineering Uptime.

MOTIVE POWER CASE STUDY | CUSTOMER "A"

HOW A HYBRID SOLUTION CAN WORK FOR FORKLIFT FLEETS

Situation & Challenge

A food manufacturer and distributor was experiencing a host of challenges reliably maintaining power to their lift truck fleet within their cold storage distribution facility. The operation required multiple batteries per truck and battery swap mode all day. They were experiencing the need for six battery changes per day on 60% of their lift truck fleet.

The battery room was small and a major source of operational bottlenecks and safety problems. Trucks would stack up waiting for battery changes, and it was common for a truck with a newly charged battery to become physically pinned in while waiting for trucks with discharged batteries to move.

Moreover, the use of old charger technology, as well as a lack of proper maintenance, meant the batteries were only lasting an average of 2.5 years. Operational bottlenecks abounded, operational efficiency was challenged, and capital spending was excessive.

Selection

After receiving two proposals from competitors, the account selected Concentric for its ability to guarantee productivity uptime along with a reduction in battery fleet size. In addition, no other battery supplier had the remote monitoring capability to give the account peace of mind that it could deliver reliable power.

Solution

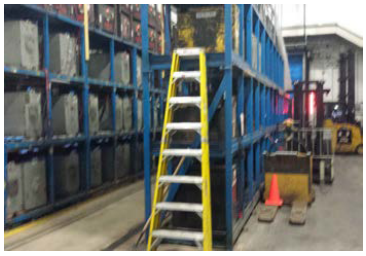
After studying the operation for months, Concentric introduced the customer to a hybrid concept of battery changing. This proposal would dramatically reduce both the space needed to store batteries, and the number of trucks traveling to the battery room for battery swapping. The solution included an electronic first-in, first-out (FIFO) system on the high-usage trucks, and one battery per truck using opportunity charging where applicable.

BY THE NUMBERS

Metric	Before	After
Facility Size	450,000 sq. ft	Same
Type of Operation	Cold Storage / Distribution	
No. of Lift Trucks	65	**47**
No. of Batteries	170	**98**
Size of Battery Room (no. of slots)	105	**51**
No. of Battery Swaps (per day)	280	**70**
Battery Life	2.5 years	**5 years**

75%

Percent reduction in number of battery swaps per day.



Battery room before

Battery room after

The customer's engineers and facility managers collaborated with Concentric on equipment specifications, system design and new battery room design. The emerging proposal was to:

- Shift from 100% battery swapping to 85% battery swapping
- Reduce the number of batteries from 170 to 98
- Reduce the size of the battery rack from dual sided system to one single row
- Keep the entire power system healthy through effective remote monitoring and management of battery and charger fleet

Results

The need for new charger technology and new electrical installations to support opportunity charging made the initial cost of implementing Concentric's solution higher than a competitor's proposals. However, the long term cost of ownership proved far less due to the productivity improvement and the reduction in future capital spending.

Additionally, the resulting efficiency exposed the existence of excess trucks, and 18 trucks were subsequently removed from the material handling fleet, further reducing costs. Reducing the number of battery changes allowed the customer to return nine rental trucks, plus retire nine owned trucks from the older fleet. All proposed objectives were achieved.