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# **Powersports aftermarket distributor slashes battery operating costs and ends change-outs with Thin Plate Pure Lead (TPPL) technology**

## **Case Summary**

Unhappy with the changing and watering issues associated with its flooded lead acid batteries, a leading powersports aftermarket distributor sought a less labor-intensive power solution for its Class II vehicle fleet. Following the results of a fleetwide power study conducted by EnerSys®, the company chose to upgrade to NexSys® PURE batteries. The move to Thin Plate Pure Lead (TPPL) technology has allowed the distributor to virtually eliminate battery maintenance and projects a ten-year savings of up to 2 million dollars.

## **Customer background and situation**

This Southwest-based distributor of motorcycle, ATV and UTV aftermarket parts operates a network of five Distribution Centers (DCs) strategically located across the U.S. The DCs are supported in part by a fleet of 64 order pickers, with about 13 vehicles at each site.

Prior to considering TPPL technology, the company had been powering this Class II fleet with flooded lead acid batteries and high-frequency chargers. The solution was adequate in terms of Amp Hours (Ah) supplied, but watering-related issues were a problem – operators struggled to maintain proper watering schedules and frequent acid spills were causing corrosion on the vehicles, batteries and battery handling equipment. Battery change-outs were also problematic – beyond their inherent safety risks, they required a considerable amount of time and money.

Looking for a lower-maintenance, lower Total Cost of Ownership (TCO) solution, the company looked to its lift truck dealer for help. The dealer suggested that NexSys® PURE batteries would provide an ideal solution, as they never require watering and can be opportunity charged effectively enough to eliminate battery change-outs.

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The distributor was intrigued by the potential benefits, but not necessarily convinced that TPPL technology could end change-outs and cut TCO. To help make the case that it could, EnerSys® suggested that the company undergo a power study that would assess its specific lift truck fleet usage and power requirements and compare the costs and benefits of the NexSys® PURE batteries versus flooded lead acid batteries. Company management agreed and had its operations management team work with EnerSys® to supply the necessary data – see **Exhibit 1**.

## **Exhibit 1**      Power Study Details

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### Application Information

- Shift details – two 8-hour shifts
- Days per week – 5
- Days per year – 260

### Lift Truck Information

- Order pickers
- Annual truck hours – 2,200
- Amp hours (Ah) consumption per day – 700

## **EnSite™ Modeling Software Feasibility and Project Financial Report**

EnerSys® entered the site power study data into its EnSite™ modeling software, a proprietary program that applies an end-user’s specific operating parameters and power requirements to generate reports comparing battery chemistries and costs.

This EnSite™ software assessed the power demands of the 64 24-volt order pickers operating across the 5 DCs, then compared the costs of meeting those demands with NexSys® PURE batteries and NexSys®+ chargers versus flooded lead acid batteries and conventional high-frequency chargers.

The investment and operating cost differences were significant, as NexSys® PURE batteries offer key advantages over flooded batteries. Thanks to their TPPL design, NexSys® PURE batteries never require watering and can be opportunity charged in 15-minute increments, ending the need for labor-intensive change-outs as well as maintaining an inventory of 2 batteries per vehicle.

By eliminating watering and change-outs, NexSys® PURE batteries would deliver a savings of \$44,800.00 versus the flooded batteries (see “Maintenance Expense ANNUAL” in **Exhibit 2**). By enabling an energy-efficient opportunity charging routine that would also cut battery inventory in half, NexSys® PURE batteries would provide a reduction in electricity costs of approximately \$133,333.76 (see “Fuel/Energy Expense ANNUAL” in **Exhibit 2**).

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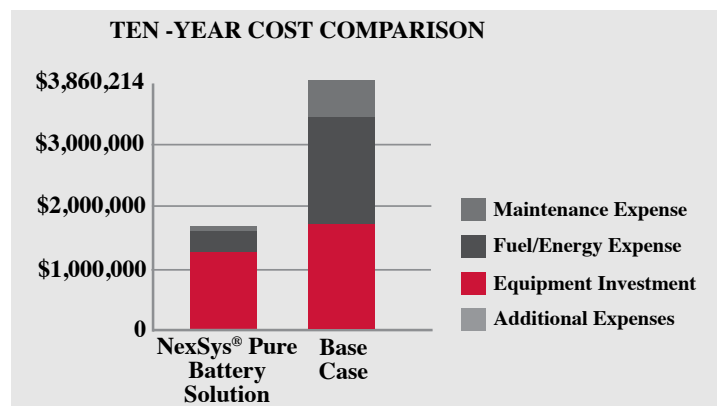
After weighing all of the variables, the EnSite™ software produced a Feasibility Report recommending the installation of NexSys® PURE batteries. EnSite™ software also generated a project financial report outlining Return on Investment (ROI), plus annual and ten-year savings (see Exhibit 2).

**Exhibit 2**      Projected Return on Investment

	<b>NexSys® PURE Battery Solution</b>	<b>Base Case</b>	
Equipment Investment Summary ANNUAL	\$128,640.00	\$169,597.44	- <b>\$40,957.44</b>
Fuel/Energy Expense ANNUAL	\$30,354.37	\$163,687.97	- <b>\$133,333.76</b>
Maintenance Expense ANNUAL	\$6,400.00	\$51,200.00	- <b>\$44,800.00</b>
Additional Expenses* ANNUAL	\$0.00	\$1,536.00	- <b>\$1,536.00</b>
<b>Total Annual Benefit</b>			<b>\$220,627.04</b>
Timeline for ROI**			<b>Immediate</b>
Annual TCO Savings			<b>10.27%</b>
Projected Savings Over 10 Years			<b>\$2,001,496.00</b>

\*Additional expenses represent current operational expenses as identified and outlined by the customer represented in this case study and are not the responsibility of EnerSys®.

\*\*Savings apply solely to the customer represented in this case study. Immediate results are not guaranteed and subject to change. ROI results are based on specific customer provided data.



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## TPPL Battery Implementation

The EnSite™ software Feasibility Report convinced the company that opportunity charging with NexSys® PURE batteries would provide a viable way to eliminate battery change-outs. Finding the EnSite™ financial projections equally convincing, the company placed an order for 64 NexSys® PURE batteries and 64 NexSys®+ chargers.

As the switch to TPPL technology would be occurring across the company's 5-DC network, the lift truck dealer and EnerSys® worked in unison to ensure fleetwide success. Operations teams were instructed on the proper charger settings and trained on TPPL opportunity charging protocols, including the importance of frequent plug-ins. After conducting the training, EnerSys® provided ongoing battery operating data downloads and reviews with operations and management teams at the different DCs.

## Case Conclusion

Having upgraded its Class II vehicle fleet to TPPL technology, the company's 5 DCs are enjoying the productivity benefits of operating with virtually maintenance-free batteries. NexSys® PURE batteries have eliminated the risk of spills and corrosion on equipment, plus the risky and time-consuming prospect of battery change-outs. At the time of this writing, the TPPL batteries are on track to deliver the savings projected by the EnSite™ software: \$220,627 annually and \$2,001,496 over ten years. In addition, the lift truck dealer has bought into the benefits of TPPL technology and has sold upwards of \$5 million of NexSys® PURE batteries and NexSys®+ chargers since the completion of this project.