Case Study:

Increase Shredder Load Capacity

Quad Plus®

Recycling center needed to install a 2500 HP shredder load, but local utility infrastructure upgrade estimate was prohibitively expensive.

Objective

- Find an affordable solution for installing a 2500 HP shredder.

Solutions

- Worked with the local utility to better communicate the details of the customer's needs to arrive at a more affordable solution than the utility initially proposed.
- Performed harmonic and flicker analysis.
- Changed starting current profile and operational current profile to reduce demand from the distribution network.
- Employed a 24-pulse hardware topology to maintain IEEE 519 compliance on a weak circuit.

Results/Benefits

- The Quad Plus solution was a fraction of the cost proposed by the local utility.
- The customer was able to afford a much-needed shredder installation.
- The recycling center can now process monthly tonnages to meet business plan.
- The owner is reassured knowing his new system is backed by the experts at Quad Plus.

Background

The Quad Plus team was contacted by a local recycling center looking to install a 2500 HP shredder load. The local utility performed a load analysis and advised the customer that there was not enough power in the local distribution circuit to provide power to the proposed shredder. Their solution included a dedicated circuit and modifications to the substation, a solution that would work based on the power data given to the utility by the customer. However, the estimate from the utility was in the millions of dollars—a price tag the owner could not afford.

Quad Plus Solution

Our first step was to communicate directly with the utility to understand the proposed load data and criteria used for the initial infrastructure estimate. In cases like these, Quad Plus collaborates with the utility company to design a shredder solution that reduces the original energy demand on the distribution network without the need for dedicated infrastructure upgrades.

Quad Plus then performed a harmonic analysis to ensure the chosen drive system topology would meet all relevant power quality standards required by the utility and demonstrate IEEE compliance. The collaborative effort between the utility and Quad Plus, combined with the study results, allowed the utility company to provide a more economical infrastructure upgrade estimate, which permitted the owner of the recycling center to proceed with the project.

Our solution included changing the starting current profile and operational current profile to reduce the energy demand from the distribution network. We also employed a 24-pulse hardware topology to maintain IEEE 519 compliance on the weak circuit. The customer now enjoys the best drive system in the recycling industry, backed by the technicians and engineers at Quad Plus. This allows them to meet or exceed their monthly production goals and provide a valuable service to the community.