CAMBER

CAMBER CASE STUDY

CUSTOMER OVERVIEW

PACE Suburban Bus is the primary bus operator serving Chicago's suburbs, operating a fleet of approximately 700 buses from 10 garages. Driven by their Project Zero initiative, PACE's board committed the agency to converting its entire fleet away from diesel transitioning to a mix of hybrid and electric vehicles with select divisions targeted for full electrification by the year 2040.

"The future of transit depends on getting the fundamentals right. By building charging infrastructure ahead of vehicle delivery, Pace is creating a foundation that allows us to scale confidently, operate efficiently, and meet our longterm zeroemission goals. The Waukegan facility shows that we're not just planning for the future — we're building it." —Melinda Metzger, PACE's Executive Director

PACE Suburban Bus Builds Foundational Charging Infrastructure for a Zero-Emission Future

CHALLENGE

A Mandate Ahead of the Market

When PACE's board directed the agency toward zero-emission operations, the path forward was anything but straightforward. Funding covered only a fraction of the estimated $2 billion in infrastructure required for a full fleet transition. The goal to charge 100 buses overnight, across 10 garages, represented a significantly more complex and time-consuming challenge than vehicle procurement alone.

Bus Delays Forced an Infrastructure-First Approach

PACE's original plan assumed buses and charging infrastructure would arrive in tandem, but that plan changed as long bus lead times mounted.
Rather than halt progress, PACE made a strategic decision: advance the infrastructure anyway. The result was counterintuitive but ultimately advantageous.

SOLUTION

Waukegan: PACE's First Electrified Depot

PACE partnered with Camber to deliver a scalable charging deployment at its Waukegan bus garage, the first major electrified depot in the PACE network, located at the far north of the service area near the Wisconsin border.

Phase 1 Infrastructure:

- Capacity to charge 12 buses including 10 medium-speed charging dispensers.
- 2 overhead pantograph megawatt-class (high-speed) charging positions.

The two pantograph positions are central to PACE's operational strategy. Rather than relying on en-route opportunity charging, PACE designed these high-speed positions to function as rapid turnaround chargers at the depot capable of topping off a bus in approximately 10 minutes. This system allows busses to get it back on the road quickly without extended dwell time.

In addition to Waukegan, PACE deployed charging stations across four other divisions to enable driver training, mechanic familiarization, and bus routing flexibility ahead of larger fleet arrivals. This distributed approach ensures that when new electric buses arrive, every division has at least some capability to receive and support them.

EARLY OUTCOMES

Infrastructure Ahead of Vehicles — A Strategic Advantage

The delays in bus deliveries, gave PACE an unexpected gift: time to build its charging foundation without the pressure of buses sitting idle. Utility coordination is complete, expected load profiles are established, and the grid is ready for scale. There are no surprises waiting when the next wave of buses arrives.

"When you're working at that speed, that's when mistakes happen," PACE's Chief Mechanical Officer, Roberto Torres, noted. "Now we're ahead."

Early Cost-Per-Mile Data

PACE has begun tracking electricity costs attributable to EV charging and breaking them down into a cost-per-mile figure. Early data from the first bus shows a cost per mile of approximately $0.11 (electric). For context, a diesel bus averaging 7 miles per gallon at ~$5/gallon would cost approximately $0.71 per mile in fuel alone, suggesting significant potential savings at scale, before accounting for reduced maintenance costs.

Maintenance savings are expected to be substantial as well. Electric buses eliminate many of the fluid-based service intervals that define diesel maintenance cycles. PACE is currently developing updated inspection protocols, defining what inspections look like for EVs and at what mileage intervals, as part of its operational readiness work.

Positive Driver Feedback

Drivers operating PACE's first electric bus have responded positively. The bus rides noticeably smoother than a diesel, electric steering feels refined, and the torque and acceleration, even in a governed transit vehicle, are noticeably stronger. Drivers who learn to time regenerative braking correctly find they barely need to use the friction brakes at all.

LOOKING AHEAD

PACE's journey illustrates a truth that many transit agencies are learning the hard way: in fleet electrification, infrastructure is the long pole in the tent. By committing to charging investment ahead of vehicle delivery, and by partnering with Camber to build a technically sound, scalable foundation, PACE has positioned itself to absorb its incoming fleet quickly and operate it effectively from day one.
The Waukegan depot is more than a charging facility. It's proof that PACE is moving from plan to implementation, and a template for what the agency's next nine garages will need to follow.