

# Working together

CK POWER DEVELOPS  
MOBILE CHARGER  
TO KEEP BATTERY-  
POWERED BUSES  
ON SCHEDULE.  
BY CHAD ELMORE

In the world of commercial vehicles, transit bus manufacturers have made significant inroads when it comes to selling machines powered exclusively with lithium-ion batteries. In some regions, their use has outrun the infrastructure required to keep them charged, particularly when fleets are still in the testing stage. When one of North America's largest bus manufacturers needed a reliable solution to ensure its bus customers maintained their schedules far beyond the charging station, CK Power had just the ticket.

"A customer came to us, looking for a solution that could charge their battery-



The company's diesel-powered hybrid battery-charger was designed to help bus OEMs service routes that do not yet have the charging infrastructure in place.

powered buses while they were in different locations during testing, or wherever there wasn't an infrastructure available," said Clayton R. Costello, vice president of Marketing and Corporate Strategy, CK Power, St. Louis, Mo. "They initially approached us looking for a standard towable gen-set on

which they could mount their charging equipment, but that wasn't an ideal solution."

“ A CUSTOMER CAME TO US, LOOKING FOR A SOLUTION THAT COULD CHARGE THEIR BATTERY-POWERED BUSES WHILE THEY WERE IN DIFFERENT LOCATIONS DURING TESTING... ”

CLAYTON R. COSTELLO, VP of Marketing and Corporate Strategy, CK Power

## Packaging experience

CK Power drew on its gen-set packaging experience as well as that of enclosure partner Girtz Industries to come up with a solution, a hybrid charging system for buses. The custom-built solution is a self-contained unit that incorporates a U.S. Environmental Protection Agency (EPA) Tier 4 final diesel engine supplied by either Volvo Penta or John Deere Power Systems rated 60 to 200 kW. The engine is connected to a Marathon generator.

The container also gets load cables, a 300 gal. fuel tank (enough for a 24-run time, said the company), a DEF tank and cooling

## NEW FLYER READY FOR GREEN ZONES

Bus manufacturer New Flyer of America Inc. said it has supported the launch of the San Francisco Green Zone requirement, and met it using New Flyer Connect to execute GPS-triggered geofencing with the San Francisco Municipal Transportation Agency (SFMTA) and BAE Systems PLC.

Green Zones are an approach to greenhouse gas reduction, taking advantage of the latest battery-electric technologies to convert SFMTA's fleet of hybrid buses into part-time electric buses, as an intermediate step on the way to full electrification of the fleet by 2035. Buses run part of their route, specific sections of the city with the worst air pollution, on electric power.

San Francisco launched the Green Zone program, said to be the first program of its kind in the world, with 68 geofencing hybrid-electric buses – around 8% of the SFMTA bus fleet.

"For the past four decades, New Flyer and SFMTA have collaborated to promote clean electric energy for transit buses. Since then, we have delivered over 1500 buses to San Francisco – with nearly half equipped with zero-emission technology," said Chris Stoddart, president, New Flyer. "We are proud to support SFMTA's evolution in sustainable transportation: not only do Green Zones illustrate the power of data-driven solutions ... the initiative has furthered our commitment to smart mobility using onboard performance reporting."

The SFMTA will operate Green Zones along several electric hybrid routes, that eliminate emissions by running only by battery for key portions of the route. This requires turning off engines in defined areas, and instead operating only in electric mode.

New Flyer Connect paired with BAE's Hybrid Drive System and an increased battery package to provide electric-only propulsion for select portions of intercity routes. The testing also enables New Flyer Connect to offer "geofencing actions" based on bus location, with applications extending beyond Green Zones to tunnels, steep hills, speed limiting zones, and other places where transit agencies are looking to automate bus functions.

CK Power's hybrid battery charger uses a Girtz enclosure with a diesel engine from Volvo Penta or John Deere Power Systems.

system with a customer-supplied charging station (usually made by Siemens, ABB or Efacec). The genset controller is from Deep Sea and it uses a Square D breaker.

The portable battery charging system is carried in a 20 ft. steel container that can be stationary or trailer mounted. For the enclosure, the company spec'd the Girtz Z-Cube ISO container, which it said is a durable, sound-attenuated design. Three-dimensional modeling was employed to determine the best fit for the

required components. The container is divided into three rooms: one in the back to house the generator, a front room for the battery charger and a mid-mounted radiator exhaust room. Load cables run through the walls connecting the generator to the battery charger.

Costello said the bus manufacturers have already purchased several of the battery-charging units, and they have been made

available to fleet operators, as well. "This technology is really working out for a lot of our customers and their customers," he said.

### Field success

Following the unit's success in the field, CK Power said it is also investigating other applications for the diesel-powered hybrid battery-charger.

"We've talked with a lot of the charger manufacturers because we've created relationships with them through this bus project," said Costello. "With them, we've been exploring other opportunities and applications where we can take this technology into, such as construction sites, so contractors can be prepared for when battery-powered equipment starts to become more prevalent within off-highway industry."

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Diesel gen-sets and battery-powered buses truly can work together, as this photo from CK Power shows.

