

## Tier 4 Compliant Range of Units Showcased at Mid-America Show

At the 2014 Mid-America Trucking Show in March, Carrier Transicold featured its entire range of transport refrigeration units compliant with the U.S. Environmental Protection Agency's (EPA) latest emissions standards. The portfolio included the X4™ Series and the hybrid Vector™ single- and multi-temp versions, as well as Supra™ truck refrigeration units. The products were rolled out over the course of the past year.



The transition to the latest platforms, each of which is manufactured at our facility in Athens, Ga., is now complete," said David Kiefer, director of sales, marketing and product management, Carrier Transicold.

"With the finalization of this phase, Carrier Transicold is the first manufacturer to deliver a complete line of single- and multi-temperature transport refrigeration units that are fully EPA Tier 4 compliant."

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## California Air Resources Board Grants Full Verification To Carrier Transicold's Engine Emissions System



On April 24, Carrier Transicold received full verification for its optional new engine emissions system (EES) from the California Air Resources Board (CARB) as a level 3+ verified diesel emission control device.

Full verification validates the EES as an evergreen compliance solution for CARB's particulate emissions standard for transport refrigeration units used in California.

"This is yet another significant milestone in the planned rollout of our latest trailer refrigeration platforms and emissions compliance devices as we continue to provide refrigerated fleets with technology options and compliance choices that best suit their particular operations," said David Kiefer, director of sales, marketing and product management, Carrier Transicold.

Last November, CARB granted conditional verification to the EES, allowing its installation on the X4™ Series models 7500 and 7300 and hybrid Vector™ 8500 and 8600MT TRUs and PowerLINE® generator sets with up to 3,000 hours of engine operation. Achieving full verification removes the 3,000-hour condition, permitting EES installation regardless of accrued hours of operation on those models.

[Learn more about the EES and how it provides a flexible compliance option for fleets.](#)

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### Phased Approach

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"CARB's robust verification process requires independent testing and diligent review by CARB staff to assure fleets that verified products meet stringent durability, performance and emissions-reduction specifications," Kiefer said.

"Carrier Transicold worked closely with CARB staff to advance the EES to ensure reliable emissions reduction on models equipped with Tier 4 engines and achieve full verification.



**EES CONFIGURATION**  
(Shown from rear)



**EES Overview**

The EES is the first and only original equipment manufacturer-developed CARB level 3+ VDEC device for TRUs and generator sets.

A Level 3+ VDEC device reduces particulate emissions in accordance with CARB's ultra-low emissions requirement for transport refrigeration units, also known as ULETRU, while also reducing nitrogen oxides.

Installed in place of the standard exhaust system, the EES filters exhaust using a high-performance diesel oxidation catalyst (DOC) and a unique catalytic diesel particulate filter (CDPF).

The DOC removes over 93 percent of hydrocarbons and the CDPF eliminates over 98 percent of particulate matter, well beyond the 85 percent ULETRU requirement. Unique to the Carrier Transicold system, the EES uses a combination of passive, active and active-assist regeneration to clear accumulated soot. No operator intervention is needed.

Building on this achievement, we will next evaluate application of the EES to our older legacy platforms, for which maintaining CARB compliance has been limited to engine upgrades that will soon no longer be a compliance option."

The EES was engineered for Carrier Transicold's latest X4 and Vector TRUs and generator sets, which were introduced in 2013. These systems are certified to the U.S. Environmental Protection Agency's 2013 Tier 4 standard for engines rated under 25 horsepower, allowing use indefinitely throughout North America and for up to seven years in California without restriction. In California, CARB uniquely requires that a VDEC strategy be applied to units in this horsepower class when used for more than seven years.

Although the trailer refrigeration units can be specified with the EES concurrent with sale or lease, the system was specially designed for ease of installation at a later time for users requiring extended CARB compliance.

More information, including a downloadable brochure and animations showing how the EES works, can be found online at [www.carrier.com/ecoforward](http://www.carrier.com/ecoforward).

