California Environmental Protection Agency **Air Resources Board**	BI-PHASE TECHNOLOGIES, LLC	EXECUTIVE ORDER A-360-0024 New On-Road Heavy-Duty Motor Vehicles

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The following on-road motor vehicles with a manufacturer's GVWR over 14000 pounds are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

ENGINE DESCRIPTION									
MANUFACTURER	EXECUTIVE ORDER	MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE [1]	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS [2]	ECS & SPECIAL FEATURES [3]	DIAGNOSTICS [4]
BI-PHASE TECHNOLOGIES, LLC	A-360-0023	2013	DBPTE05.4F45	5.4	LPG	Otto	HDO	ECM, TWC, 2HO2S(2), SFI	EMD

Gasoline, LPG or Alcohol Vehicles Only			VEHICLE DESCRIPTION			
EVAPORATIVE		FUEL TANK CAPACITY (gallons)	VEHICLE MODEL YEAR	VEHICLE MAKE & MODELS	ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
FAMILY	UL (K)					
DBPTF0000LPG	150	37,79	2013	Ford E450	5.4	LPG / Ford 5.4 (239)
*	*	*	*	*	*	*

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; K=1000 miles; hp=horsepower; kw=kilowatt;
[1] CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
[2] L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
[3] ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;
[4] EMD=engine manufacturer diagnostic system; OBD(F) / (P) / ($)=full / partial / partial with fine / on-board diagnostic; (2012-08-20)

Following are: 1) the FTP exhaust emission standards or family emission limit(s) as applicable under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.) [4]

	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	0.14	*	0.20	*	*	*	14.4	*	0.01	*	0.01	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	0.13	*	0.12	*	*	*	7.9	*	0.01	*	0.001	*
NTE	*		*		*		*		*		*	

[4] g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed emission limit; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed vehicle models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1971 (engine manufacturer diagnostic), 13 CCR 1976(b)(1)(F) {evaporative emission standards}, 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2235 [fill pipes and openings of motor vehicle fuel tanks]. (The braces **{ }** are for gasoline, LPG or alcohol fueled vehicles only. The brackets **[ ]** are for gasoline or alcohol fueled vehicles only.)

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 6th day of November 2013.

Erik White, Chief
Mobile Source Operations Division