

## Executive Summary – On-Road Truck Idle Management Technology Program

### **Short Definitive Statement of the Problem**

California's long-term *State Implementation Plan* (SIP) strategy is colloquially known as the "black box" commitment. The "black box" commitment consists of 13 measures that the California Air Resources Board (CARB) will roll out during the next few years to achieve over 60% of committed volatile organic compound and nitrogen oxide (NOx) state-wide emission reductions. Investing now in the next generation of vehicles, equipment, and emission controls are essential is California hopes to meet this commitment.

### **Approach to Solve the Problem**

As part of a massive effort to support the SIP, the 'On-Road Truck Idle Management Technology Program (Program)' improves the efficiency of petroleum- and non-petroleum-fuel engines to increase fuel savings and greenhouse gas (GHG) emission improvements above the current levels. This program would provide funding to on-road truck owners and operators to implement Webasto's BlueCool Hybrid shore power technology that will provide on-road trucks cooling and hotel-load capabilities without diesel particulate filters, or dedicated deep-cycle batteries. The BlueCool Hybrid shore power technology is an approved Environmental Protection Agency (EPA) SmartWay technology and is market ready.

The BlueCool Hybrid shore power technology automatically detects the presence of an outside power source and switches to "shore power" mode, and plugs in to a standard three-pronged 120V AC power source using a provided electrical cord (12-gauge, 20-amp rating). The shore power supplies electricity to the compressor (max. 8.9 amps, nominal 4.5-5.5 amps); charger (7 amps); and hotel loads. The circuit allows up to 20 amps. Overload trips a circuit breaker requiring a manual reset. If shore power is unavailable, the BlueCool Hybrid shore power technology is fully functional and will run for up to 10 hours using energy that was stored from driving the truck.

### **On-Road Truck Cab Heating**

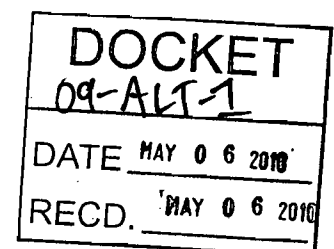
BlueCool Hybrid shore power technology is a bunk cooler. It is available with a Webasto Air Top 2000 ST heater for a complete auxiliary climate control system.

### **On-Road Truck Cab Cooling**

The BlueCool Hybrid shore power technology produces cool air using thermal energy stored in a frozen graphite/water matrix. It is designed to maintain a comfortable temperature in the cab. An electric refrigeration compressor freezes the water within the storage unit. The storage unit is considered fully charged (chilled) in approximately 4 to 6 hours. A high-efficiency pump circulates coolant through the storage core through an air handler (heat exchanger) in the cab. Four quiet, efficient fans in the air handler draw in warm bunk air and pass it across the exchanger, where it gives up its heat to the chilled mixture circulating through the exchanger. The cooled air is returned to the bunk using four adjustable openings on the air handler. The operator has two controls: one for fan speed, the other for temperature.

### **BlueCool Hybrid Shore Power Technology Specifications:**

- Thermal storage capacity: 17,000 Btu (5 kWh)
- Temperature required for discharge: > 68 F
- Weight: 300 lb. condenser and cold storage assembly, 26 lb. cab-mounted air chiller/handler.
- Requires no addition batteries.
- Refrigerant system: R134a
- Airflow variable a maximum setting: 150 cfm



- Dimensions: H 26 in. x W 24 in. x D 28 in.
- Framerrail space required for mounting: 24 inches
- Noise: < 62 db (A)
- Ambient temperature range: 50 to 110 F
- Sleeper temperature control range: 68 to 78 F

### **Unique Qualifications of the Bidder to Solve the Problem**

- Valley Power Systems (Valley)

Valley is well positioned to conduct all engineering, monitoring, and reporting related to this project. For over ten (10) years, Valley has developed and maintained a strong relationship with many of the major transit agencies, SWCV fleets, and school bus fleets in California, and has worked with CARB and local air districts to develop and promote cleaner technologies and troubleshoot related obstacles. Valley has nine (9) facilities in the state of California fully capable of performing expansive research and development projects. Facilities are equipped with a full functioning service yard that include a dynamometer, a hands-on training facility, on-site engineers and technicians, administrative support staff, with an annual sales volume over \$180 million. This project represents a systematic continuation of prior Valley efforts in the cleaner technology area with state and local air districts making Valley well postured to effectively conduct this project.

- Webasto Products, Inc. (Webasto)

Manufactured in Fenton, Mich., the Webasto BlueCool family includes two systems: BlueCool Truck for untethered idle-free cooling and BlueCool Hybrid for cooling with a connection to shore power. Webasto Product North America, Inc., based in Fenton, Mich., provides a wide range of thermosystems and other products to the heavy-duty truck OEM and aftermarket, as well as passenger vehicle, RV, defense, cargo and marine industries. It is a subsidiary of Webasto AG, one of the world's largest suppliers of open roof systems and thermosystems to the automotive industry. Founded in 1901, the company is based in Stockdorf, Germany, and employs over 7,000 people in 43 countries.

### **Summary of Cost**

The requested amount to implement this program is \$1,000,000.00.

### **California Hydrogen Advancement Program Contact Information**

Please contact Suzanne Seivright, Government Affairs Coordinator – Valley Power Systems, Inc., for additional information related to the 'California Hydrogen Advancement Program' at (626) 934-6226 or at [suzanne.seivright@valleypsi.com](mailto:suzanne.seivright@valleypsi.com).