



DATE: MARCH 31, 2011

FROM: CLEAN TRUCK PROGRAM

**SUBJECT: RESOLUTION NO. - AWARD OF PURCHASE ORDER
CONTRACT WITH VISION MOTOR CORPORATION TO RETROFIT
HARBOR DEPARTMENT-OWNED BALQON ELECTRIC YARD
TRUCKS**

SUMMARY:

Staff is requesting approval of a Purchase Order Contract with Vision Motor Corporation in the amount not to exceed \$1,400,000 (includes taxes) to retrofit a total of fifteen Harbor Department-owned Balqon Corporation E-20/E-30 Electric Trucks, but only authorizing the order of six retrofits now, and additional retrofits if and when additional grant funding is received. The retrofits would upgrade the battery-only system to a hydrogen fuel cell hybrid system. It is anticipated that the proposed hydrogen fuel cell retrofit would double the battery range of the trucks to make them more suitable for port operations. The Hydrogen Fuel Cell Hybrid Electric Yard Trucks would be maintained and operated by the Port of Los Angeles terminal operators. Staff recommends approval of this Purchase Order Contract due to the environmental benefits and long-term economic advantages to the City of Los Angeles. The costs of the first six retrofits, up to \$622,000, will be reimbursable from a \$1.4 million federal grant that has been authorized for the Harbor Department from the United States Department of Energy's (USDOE) Energy Efficiency and Conservation Block Grant (EECBG) program. The Harbor Department continues to seek additional federal/state funding to enhance/upgrade the remaining nine electric trucks of an entire fleet of fifteen. If additional funding is secured, the requested approval by the Harbor Commissioners would also allow the Executive Director to order the retrofits of the remaining electric trucks.

RECOMMENDATION:

It is recommended that the Board of Harbor Commissioners (Board):

1. Approve the Purchase Order Contract with Vision Motor Corporation to retrofit up to fifteen (15) Harbor Department owned electric trucks with hydrogen fuel cell hybrid

DATE: MARCH 31, 2011

PAGE 2 OF 5

SUBJECT: RESOLUTION NO. _____ - AWARD OF PURCHASE ORDER
CONTRACT WITH VISION MOTOR CORP

systems and authorize said expenditures (Transmittal 1);

2. Authorize the Executive Director to execute the Purchase Order Contract for and on behalf of the Board;
3. Authorize the Executive Director to place an initial order of fuel cell enhancement/upgrade kits to retrofit six Harbor Department owned electric trucks;
4. Authorize the Executive Director to place an additional order of fuel cell enhancement/ upgrade kits up to the remaining Harbor Department owned Electric Truck fleet, subject to securing a fully reimbursable federal/state grant to offset the cost; and
5. Adopt Resolution No. _____.

DISCUSSION:

Background - On November 20, 2006, the Harbor Department and the Port of Long Beach jointly adopted the Clean Air Action Plan (CAAP), a comprehensive program with initiatives designed to substantially reduce air emissions from major sources in the two ports. A CAAP Update was recently approved at a Joint Commission meeting on November 22, 2010. Emission sources targeted by the CAAP include ships, trains, cargo handling equipment, harbor craft, and heavy duty trucks. Harbor Department staff has determined that adopting new technologies that significantly reduce emissions will be necessary for the Port of Los Angeles (Port) to meet its overall emission and health risk reduction. In addition to the CAAP goals, the Port is striving to achieve substantial reductions in greenhouse gas emissions (GHG) consistent with AB32.

The City of Los Angeles (City) was awarded \$37 million from the Department of Energy through the United States Department of Energy's (USDOE) Energy Efficiency and Conservation Block Grant (EECBG) program. In March 2010, the Harbor Department was awarded \$1.4 million of these funds from the City of Los Angeles, Environmental Affairs Department (these funds are now managed by the Community Development Department). The Harbor Department divided the funding into three projects, two of which have already been approved by the Board of Harbor Commissioners. The two approved EECBG funded projects are (1) the installation of a Hybrid Propulsion System for the Angelina II and (2) the purchase of a zero emission Class 8 hybrid electric truck. Both projects will be completed by the grant end date of July 2012. The hydrogen fuel cell enhancement/upgrade kit will be the third and final EECBG funded project.

Balqon Truck History – In 2008, the Harbor Commissioners approved Agreement No.'s 2664 and 2761 at an approximate combined amount of \$5.8 million between the Harbor

DATE: MARCH 31, 2011

PAGE 3 OF 5

SUBJECT: RESOLUTION NO. - AWARD OF PURCHASE ORDER
CONTRACT WITH VISION MOTOR CORP

Department and Balqon Corporation to manufacture 25 battery-operated electric trucks (Model E-20 and E-30), including battery cost. To-date, Balqon Corporation has delivered 15 of the 25 electric trucks ordered and the Harbor Department has paid approximately \$4.3 million. The remaining 10 electric trucks are on hold because testing results indicate that when the Balqon yard truck pulls extra-heavy loads (e.g. >50,000 lbs), it exhibits reduced battery life compared to the testing at lower load levels (i.e. <50,000 lbs) conducted at the time of receipt of the product, which at that time met Harbor Department expectations. The Harbor Department now desires to increase Balqon yard truck operating efficiencies and improve its performance capabilities at these heavier load levels, improve overall battery life and range to increase truck effectiveness, and expand the broad application of the electric truck fleet across various types of port operating conditions and market environments. This is consistent with the Harbor Department's interest to continue its research and development efforts to innovate and deploy new technologies that advance the Clean Air Action Plan initiative.

Enhancement/Upgrade - To alleviate truck operating down-time caused by reduced battery range for heavier loads, the Harbor Department would like to test hydrogen fuel cell technologies as an option to improve the range of the Balqon yard truck from a single charge. This is consistent with Harbor Department plans for testing drayage trucks using this same technology and for the same reasons. Improving the battery range will not only increase and extend truck operating time under heavier load conditions but will also provide a viable market option to meet overall trucking company demands. In order to better meet the demands and broad truck application across various types of port operations, each electric truck needs to operate eight to ten hours on a single charge even under the heaviest load conditions, as compared to current operating capabilities at four to five hours under those conditions. Therefore, staff is proposing to enhance/retrofit the Harbor Department owned Balqon E-20/E-30 Electric Trucks. Moreover, the proposed hydrogen fuel cell hybrid system (including the Hybrid Fuel Cell Power Module) would allow these trucks to be recharged for a second shift much faster by using the fuel cell (which can be refueled in minutes), rather than having to plug into a charger, which requires that the truck be out of service for up to 4 hours. Under this Purchase Order Contract, the Harbor Department would initially have six of the electric yard trucks retrofitted with the hydrogen fuel cell hybrid technology.

Benefits— Once the six trucks are retrofitted, Vision Motor Corp estimates the hydrogen fuel cell hybrid trucks will be four times more fuel efficient than diesel yard tractors. Based on an average yard tractor operating 1,852 hours per year, the hydrogen fuel cell hybrid trucks will save 68,000 gallons of diesel per year versus 16,000 kilograms of hydrogen. Annual emission benefits for taking these diesel yard tractors off the terminal equate to 210 pounds of diesel particulate matter, 3,936 pounds of oxides of nitrogen, 78 pounds of hydrocarbons, and 832 tons of carbon dioxide. Additionally, when compared to the existing electric yard trucks, the range of the retrofitted yard trucks

DATE: MARCH 31, 2011

PAGE 4 OF 5

SUBJECT: RESOLUTION NO. - AWARD OF PURCHASE ORDER
CONTRACT WITH VISION MOTOR CORP

would double under heavier loading conditions, decreasing the charging down time and efficiency.

Selection Process - To identify possible hydrogen fuel cell hybrid system vendors, staff issued a Formal Request for Bid (FRB) on March 4, 2011. Key requirements set forth for proposers were for the hydrogen fuel cell hybrid system are: (i) 16 kilowatt hydrogen fuel cell power module with mounting equipment; (ii) hydrogen tanks with an appropriate PSI range of 6250 type 3, hydrogen fuel container with installed manual valve and pressure relief devices; (iii) cab changes; (iv) labor; and (v) design/engineering services-as required. These requirements were designed to identify an enhancement/upgrade that could immediately be used in yard tractor operations as part of staff's planned demonstration program.

Only one vendor, Vision Motor Corp, submitted a bid by the bid due date of March 18, 2011. To encourage as many bids, staff reached out to potential vendors that may be interested in competitively bidding for this solicitation. Only one bid was received and based on the analysis (see Transmittal 2), the cost to enhance/upgrade each truck is \$75,000 plus tax. In addition, a one-time payment for an engineering/design plan at \$150,000 plus tax is proposed to document the enhancement/retrofit requirements. If the Harbor Department opts to enhance/upgrade additional electric trucks in its fleet, additional engineering/design plan fees would not be required since the bid allows up to 15 trucks as part of the guaranteed pricing within the bid solicitation notice (Bid No. F-735). The total cost to purchase the Hydrogen Fuel Cell Power Module for the initial order of six trucks is \$658,500 (includes taxes) and up to \$622,000 is reimbursable from a \$1.4 million grant that has been authorized for the Harbor Department from the USDOE's EECBG. The remaining \$36,500 will be absorbed by the Harbor Department. The cost of the additional nine potential retrofits is approximately \$741,000 (includes tax) and will occur only if additional grant funding is secured.

ECONOMIC BENEFITS:

Spending under this Board action will support the equivalent of 3.1 direct and 3.4 secondary jobs in the five-county region.

FINANCIAL IMPACT:

This Purchase Order Contract would authorize the Harbor Department to purchase six Hydrogen Fuel Cell Power Modules for Harbor Department owned Balqon E-20 and E-30 Electric trucks. In accordance to the USDOE's EECBG project specifications, the incremental costs of the Hydrogen Fuel Cell Power Modules are one hundred percent reimbursable. Ongoing operating and maintenance costs are expected to be \$2,500

DATE: MARCH 31, 2011

PAGE 5 OF 5

SUBJECT: RESOLUTION NO. - AWARD OF PURCHASE ORDER
CONTRACT WITH VISION MOTOR CORP

annually and will be borne by the terminal operators. In terms of sources of funding, the delivery of the six Hydrogen Fuel Cell Power Modules and installation is anticipated by September 2011; therefore, \$658,500 to pay for the six electric truck enhancements/upgrades has been requested to be budgeted in the proposed Fiscal Year 2011/12 budget through Operating Cost Center 510, Capital Equipment General Ledger Account, for the Technology Advancement Program. An amount of \$622,000 will be reimbursed to the Harbor Department via grant funding and the remaining \$36,500 will be absorbed by the Harbor Department

ENVIRONMENTAL ASSESSMENT:

The proposed action is a Purchase Order Contract to purchase six Hydrogen Fuel Cell Power Modules for Harbor Department owned Balloon Corporation E-20 electric trucks from Vision Motor Corp, which will have environmental benefits and long-term economic advantages to the Harbor Department and the City of Los Angeles. As an administrative action, the Director of Environmental Management has determined that the proposed action is exempt from the requirements of the California Environmental Quality Act (CEQA) under Article II, Section 2(f) of the Los Angeles City CEQA Guidelines.

CITY ATTORNEY:

The Office of the City Attorney has reviewed and approved the Purchase Order Contract as to form and legality.

TRANSMITTAL:

1. Purchase Order Contract No. 39578 (Bid F-735) with Vision Motor Corp.
2. Bid Analysis (Bid No. F-735)



CHRIS CANNON
Director of Environmental Management

FIS Approval KP (initials)
Legal Approval TR (initials)



JOHN HOLMES
Deputy Executive Director

APPROVED:



GERALDINE KNATZ, Ph.D.
Executive Director

GK: MC: CC: FC: CA