



**THE PORT
OF LOS ANGELES**
Executive Director's
Report to the

Board of Harbor Commissioners

DATE: MARCH 30, 2012

FROM: CLEAN TRUCK PROGRAM

SUBJECT: RESOLUTION NO. _____ - GRANT REOBLIGATION REQUEST TO APPROVE CONTRACT WITH BALQON CORPORATION TO UPGRADE SIX HARBOR DEPARTMENT-OWNED BALQON ELECTRIC YARD TRACTORS

SUMMARY:

Staff requests approval of the Proposed Contract between the City of Los Angeles, Harbor Department (Harbor Department) and Balqon Corporation (Balqon) in the amount of \$630,000 to upgrade six Harbor Department-owned Balqon E-20 model electric yard tractors from lead-acid to lithium-ion based batteries (Transmittal 1). Of that amount, \$359,987 will be reimbursable from a grant that has been authorized for the Harbor Department from the United States Department of Energy's (DOE) Energy Efficiency and Conservation Block Grant (EECBG) program. The funds were originally obligated to fund six hydrogen fuel cell retrofits at a total reimbursable cost of \$622,000 (Transmittal 2). A progress payment of \$262,013 was paid to the vendor, Vision Motor Corporation ("Vision"), which was reimbursed by the DOE. However, the vendor was unable to complete the retrofit project by the grant deadline, leaving an available grant balance of \$359,987. By spending \$262,013 of its own money on the battery upgrades, the Harbor Department will effectively reinstate the original grant funding, fulfill its obligations to the DOE related to committed deliverables, and avoid any repayment obligations. It is anticipated that the proposed battery upgrade would more than triple the operating hours of a yard tractor on a single charge to make them more suitable for port operations. The total cost of the upgrades is \$630,000 (\$105,000 per truck). The Harbor Department has a credit of \$1,159,601 with Balqon from authorized advances under Agreement No. 2664, which was unspent when the Harbor Department and Balqon agreed to suspend vehicle production. For this new contract, EECBG funds in the amount \$359,987 will be reimbursed to the Harbor Department; however, no cash payments will be made to Balqon. Balqon would be compensated by reducing the amount Balqon owes to the Harbor Department by \$630,000. Staff is waiting for full approval from the DOE of the proposed project and its payment structure. If DOE does not accept the proposal, the Harbor Department will not be eligible for reimbursement.

RECOMMENDATION:

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

1. Approve the Proposed Contract with Balqon Corporation to upgrade six Harbor Department-owned electric tractors with lithium-ion batteries and authorize payment through reduction of Balqon's credit owed to the Harbor Department under Agreement No.

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2664;

2. Authorize the Executive Director to execute the Proposed Contract for and on behalf of the Board; and
3. Adopt Resolution No. _____.

DISCUSSION:

EECBG Funds/Hydrogen Fuel Cell Retrofits - The City of Los Angeles (City) was awarded \$37 million from the EECBG program in 2009. In March 2010, the Harbor Department was awarded \$1.4 million of these funds from the City for various projects including upgrades to the Balqon yard tractors. In March 2011, the Board approved Contract No. 11-39578 with Vision to retrofit up to 15 Harbor Department-owned Balqon vehicles with a hydrogen fuel cell system. The first six trucks, at a total amount of \$622,000, were approved under this Board action, with the remaining nine trucks to be retrofitted if future grant funds were secured.

The project with Vision was designed to extend the range of the battery powered yard tractors, which at the time were unable to operate for a complete shift at a terminal on a single charge, with hydrogen fuel cell technology. The project was also proposed in an effort to provide additional technology choices to assist the Harbor Department in accelerating its efforts to bring zero emission trucks into the port. The first retrofitted units were scheduled for delivery in October 2011, however, Vision was unable to integrate its fuel cell system into the existing Balqon yard tractor control software. Harbor Department staff facilitated meetings between Vision and Balqon to try to resolve the software communication issues. Some progress was made, however Vision encountered additional issues when trying to integrate its system with the battery charger software, which is provided by a third party.

EECBG funds require that all work must be completed by June 30, 2012, to be eligible for reimbursement. Realizing that additional delays would jeopardize the grant deadline, staff had initial discussions with Vision regarding cancelling and re-directing the retrofit work in mid-January 2012. Vision and the Harbor Department have now mutually agreed to not proceed with the fuel cell retrofits. Stopping work on the retrofits allows Vision to focus on other projects involving the Harbor Department, such as the extended-range on-road truck, and not dedicate further resources on retrofits that may have subsequent programming and system compatibility issues.

A progress payment of \$262,013 was paid to Vision for the original project. This amount was paid by the Harbor Department and reimbursed by the DOE, through the City of Los Angeles Community Development Department (CDD), which has acted as DOE's fiduciary agent. Based on correspondence with DOE, the Harbor Department can offset the pre-paid amount of \$262,013 against the \$630,000 provided that it contributes that equivalent amount of its own

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funds to the Balqon contract and that it is consistent with City of Los Angeles payment procedures. This offset approach will allow the Harbor Department to remove the grant funding source from equipment previously purchased from Vision; thus, making the Vision equipment non-grant funded and the proposed Balqon items grant funded. The Harbor Department intends to make this contribution through the credit discussed below. Harbor Department staff will continue to collaborate with Vision on existing projects and will also work with their management to resolve/recover the progress payment.

Balqon Yard Tractors - The Harbor Department owns a total of fourteen Balqon yard tractors. Of these, nine are considered "first generation", which are equipped with lead-acid batteries. The first generation yard tractors were tested at a marine terminal and had an operational range of approximately two hours per charge. While this was consistent with what they were designed to do, terminal operators expressed concern over the fact that the units would not last an entire shift on a single charge. Balqon then developed the "second generation" yard tractor, equipped with a lithium-ion battery. The "second generation" units lasted approximately four hours on a single charge, which would still be insufficient for an entire shift. Of the Balqon yard tractors owned by the Harbor Department, two are second generation units. Due to the operating range concerns, none of the "first or second generation" units were deployed at marine terminals. Balqon has then further developed the lithium-ion units to create three "third generation" units. Two of these three units have been in testing at California Cartage Company since August 2011. The test results have shown that the vehicles can operate 12 hours or more on a single charge. All three third generation units will be deployed at facilities for in-service operational testing this month. Balqon upgraded three of the Harbor Department owned yard trucks with the "third generation" units for testing with the understanding that the batteries and additional components are property of Balqon. Based on test results, staff proposes to purchase the battery upgrades.

The technology has advanced to a state where staff believes that it is ready for in-use operational demonstration at marine terminals. With the development of the "third generation" units, staff believes that Balqon has potentially resolved the prior range issues. Due to the success of the "third generation" yard tractors, the Harbor Department is proposing to reprogram the EECBG funds that were originally to be used to upgrade six yard tractors with hydrogen fuel cell range extenders kits to now be used to upgrade three yard tractors with advanced lithium-ion batteries and purchase the three upgrades kits already completed, but owned by Balqon. Staff views the reprogramming of the EECBG funds as an opportunity to deploy and test multiple "third generation" units at different marine terminal environments to gather as many data points as possible to assess and improve in-service performance.

Previous quotes for the upgrades were \$70,000 each and included only the lithium-ion battery. This quote did not include all components to fully optimize performance of the yard tractors. In order to get the full upgrade, in addition to maximizing the battery life with lithium-ion, other components are required such as an idle off system, an additional motor and new battery management system. These components are integral in achieving the range gains displayed

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in the "third generation" units. With the additional components and installation costs, the new quote of the upgrades is \$105,000 per vehicle. The total cost of the six upgrades is \$630,000. Three of the upgrades will be new installations and three will be purchases of existing upgrades completed so that the Harbor Department will have full ownership of these units.

National, State, and Local Alignment - The 2010 Clean Air Action Plan Update (CAAP), adopted by the Board in November 2010, includes the San Pedro Baywide Standards (Standards) which are the Harbor Department's long-term emission and health risk reduction goals. The Harbor Department's emissions forecasting, which is based on anticipated cargo growth and full implementation of the CAAP, shows that without the emergence of new control strategies and the development of new technologies, the Harbor Department will not meet the 2020 and 2023 Standards. Additionally, the California Legislature passed Assembly Bill 32, The Global Warming Solutions Act of 2006; which includes a requirement for California to reduce greenhouse gas emissions to the same levels as 1990 by 2020. In its initial research, the State of California recognized that while there are emission reduction strategies in the goods movement industry, with growth, these strategies would not produce the required reduction in greenhouse gas emissions. As a result, the Harbor Department, among others, has joined with the California Air Resources Board and the South Coast Air Quality Management District to provide incentives to encourage the development of zero emissions technologies. This development has had challenges and has required the Harbor Department to be flexible in its efforts to move this technology forward. The reprogramming of this funding allows the Harbor Department to focus its efforts on the technology that has been most promising in recent testing, in recognition that the successful demonstration of the Balqon yard tractors would significantly help to move toward the Standards and state greenhouse gas requirements.

Schedule and Payment - Projects funded by the EECBG program are required to be completed by June 30, 2012. The three battery upgrades are expected to take less than 60 days to complete following the execution of a purchase order contract. The Proposed Contract includes a term ending date of June 15, 2012. Any work completed after this date will not be eligible for payment from the Harbor Department. The Proposed Contract also contains a provision that stipulates that the Harbor Department will only be invoiced for the work completed through June 15, 2012. The amount of the invoice will be based on the number of completed units at \$105,000 per unit up to the contract amount of \$630,000. No progress payments or partial payments for incomplete units will be made.

The Harbor Department intends to get reimbursed for the grant amount up to \$359,987; however, at the time this Board letter was completed, staff was still in discussion with DOE regarding approval of the proposed upgrades and its payment structure. No cash payments will be made to Balqon. Payment will be made by Balqon deducting the invoice amount from the \$1,159,601 credit owed to the Harbor Department, which was advanced in Agreement No. 2664, but unspent when the Harbor Department and Balqon agreed to suspend vehicle

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production while the third generation technology development and testing occurred. The Proposed Contract also confirms the credit and the Harbor Department's rights thereto.

Sole Source Justification - The Harbor Department has sole sourced Balqon to upgrade the batteries of the electric yard tractors. The upgrade of the batteries requires several tasks, some of which can be done by other vendors. However, there are tasks that are better to be performed by Balqon itself. This includes the design of the battery packs to fit into the existing battery boxes, but more importantly the software programming for the batteries to communicate with the battery management system, battery charger system and power controls, parts of which are proprietary to Balqon. Selecting a third party vendor may result in problems in programming and system compatibility similar to what occurred with the hydrogen fuel cell retrofit. A third party vendor would also require additional time to understand the existing programming and write new software to communicate with existing vehicle systems. Selecting Balqon provides the best assurance that the work is performed in a timely matter and that the units will meet the expected performance standards achieved in the testing performed at California Cartage Company.

FINANCIAL IMPACT:

The proposed major action is to re-obligate grant funds to award the Proposed Contract between the Harbor Department and Balqon in the amount of \$630,000 for a lithium-ion battery upgrade of three Balqon yard tractors and purchase the three existing upgrades. However, at the time this Board letter was completed, staff was still in discussion with DOE regarding approval of the proposed upgrades and its payment structure. This action would authorize the Harbor Department to retrofit six Harbor Department-owned Balqon E-20 model electric yard tractors from lead-acid to lithium-ion based batteries at a cost of \$630,000. Of the \$630,000, only \$622,000 is eligible for grant reimbursement from the DOE's EECBG program. The funds were originally obligated to hydrogen fuel cell retrofits that the vendor was unable to complete by the grant deadline. A progress payment of \$262,013 was paid to the vendor. By spending \$262,013 of its own money on the battery upgrades, the Harbor Department will effectively reinstate the original grant funding to \$622,000, fulfill its obligations to the DOE related to committed deliverables, and avoid any cash repayment obligations. Most important, the Harbor Department would then request an additional grant drawdown amount of \$359,987 (or \$622,000 minus \$262,013, which is the offset amount and treated as an advance from U.S. DOE). The difference of \$8,000 (or \$630,000 minus grant reinstatement amount of \$622,000) will be paid for by the Harbor Department through the credit discussed below. If the funds are not re-obligated, the Harbor Department may be required to reimburse the DOE the \$262,013.

Since the Harbor Department has a credit with Balqon via Agreement No. 2664 in the amount of \$1,159,601, the proposed contract would be invoiced (billed) at the proposed cost of \$630,000 and then Balqon would issue the Harbor Department a credit memo for said invoice to offset the amount owed to the Harbor Department. Upon delivery of three retrofitted trucks,

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the amount owed by Balqon to the Harbor Department would decrease by \$630,000 from \$1,159,601 to \$529,601. This payment arrangement provides an opportunity to collect a portion of an amount due to the Harbor Department and minimize the use of existing capital equipment budget funds. Staff will continue to work with Balqon on resolving the outstanding credit in the amount of \$529,601.

The delivery of three retrofitted Harbor Department-owned Balqon E-20 model electric yard tractors is expected by June 15, 2012; therefore, the proposed action would allow the Harbor Department to expend grant funds prior to the grant term date of June 30, 2012. Ongoing operating and maintenance costs are expected to be borne by the terminal operators and Balqon.

The progress payment made to Vision in the amount of \$262,013 was used to purchase equipment and to produce engineering design. As the project is no longer moving forward, staff will work with Vision to resolve/recover the progress payment.

ENVIRONMENTAL ASSESSMENT:

The proposed action is a purchase order Contract to retrofit three Harbor Department owned Balqon Corporation E-20 electric tractors and the purchase of three existing retrofits, which will have environmental benefits and long-term economic advantages to the Harbor Department and the City of Los Angeles. As an administrative activity and an activity involving the addition of environmental protection devices for use in existing mechanical equipment, 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) and Article III Class 1(6) of the Los Angeles City CEQA Guidelines.

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.

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CITY ATTORNEY:

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

TRANSMITTALS:

1. Proposed Contract with Balqon Corporation
2. Contract No. 11-39578 with Vision Motor Corporation

FIS Approval:  (initials)

CA Approval:  (initials)



CHRISTOPHER CANNON
Director of Environmental Management



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APPROVED:



GERALDINE KNATZ, Ph.D.
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BOARD MEETING: 4/5/2012

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