

DATE: MAY 3, 2007

FROM: ENVIRONMENTAL MANAGEMENT DIVISION

SUBJECT: APPROVAL OF CONTRACT BETWEEN THE PORTS OF LOS ANGELES AND LONG BEACH, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, AND FOSS MARITIME TO FUND THE DEVELOPMENT AND DEMONSTRATION OF A HYBRID TUGBOAT UNDER THE CLEAN AIR ACTION PLAN TECHNOLOGY ADVANCEMENT PROGRAM

SUMMARY:

This Board item requests that the Board of Harbor Commissioners approve the allocation and expenditure, from funds previously disbursed by the Port of Los Angeles (POLA) and administered by the South Coast Air Quality Management District (AQMD) under an existing Memorandum of Agreement with POLA, for the development and demonstration of a hybrid tug boat. The Board is also requested to authorize the Executive Director to execute a four-party Agreement between POLA, the Port of Long Beach (POLB), AQMD and Foss Maritime for the funding, development, and demonstration of a hybrid tug boat under the Clean Air Action Plan (CAAP) Technology Advancement Program (TAP).

RECOMMENDATIONS:

Staff recommends that the Board of Harbor Commissioners:

1. Authorize the Executive Director to execute Amendment to Memorandum of Agreement extending the term of an existing Memorandum of Agreement with the AQMD (the MOA) to June 30, 2009;
2. Approve the allocation and expenditure of \$889,920 previously funded by POLA under the MOA to fund POLA's share of cost of the development and demonstration of a Foss Maritime Hybrid Tug project under the CAAP TAP; and
3. Authorize the Executive Director to negotiate a four-party Contract (including acceptable intellectual property rights language) between POLA, POLB, AQMD, and Foss Maritime (Contract) for the funding, development, and demonstration of a hybrid tug boat under the CAAP TAP; authorize Executive Director to execute and Board Secretary to attest to such four-party Contract.

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DISCUSSION:

1. Background. As part of the Clean Air Action Plan (CAAP), the Port of Los Angeles (POLA) and the Port of Long Beach (POLB) established the Technology Advancement Program (TAP) and committed \$3 million per year for the research, development, and demonstration of emerging clean air technologies. The ports established a TAP Advisory Committee consisting of representatives from the two ports, AQMD, CARB and U.S. Environmental Protection (EPA). The TAP Advisory Committee developed guidelines for the evaluation and funding of projects with the ultimate goal to accelerate the verification or commercial availability of new, clean technologies, to move towards emissions-free ports in San Pedro Bay.

Foss Maritime, a tugboat/harborcraft operator, intends to build its final Dolphin-class tugboat starting in May 2007. They currently have the option to build the tugboat as either a conventional diesel (\$5 million) or as a hybrid-engine system (\$8 million). Foss is also considering a second hybrid build based on discussions with the TAP Advisory Committee.

Due to the incremental cost of the hybrid-engine system, Foss approached staff at both ports to discuss their efforts and requested financial support. On February 14, 2007, the TAP Advisory Committee evaluated the Foss Hybrid Tugboat project, determined its merit and consistency with the CAAP, and recommended funding of \$1,000,000 to be equally shared by the ports (\$500,000 each).

While funding is available through the Technical Advancement Program, staff identified unspent funds from the 2002 State Mitigation Program and recommends using this grant money in lieu of the TAP funds. Both CARB and AQMD have approved the Hybrid Tugboat Project for the grant. If approved the Hybrid Tugboat Project could receive a total of \$1,389,920 from the ports; \$500,000 (POLB) and \$889,920 (POLA). Foss will fund the remaining \$1,610,080 of the incremental cost to develop the hybrid tugboat.

2. State Mitigation Program. On September 25, 2002 the Board of Harbor Commissioners approved Memorandum of Agreement (MOA) with the South Coast Air Quality Management District for the NOx and PM Emissions Reduction Credit Program (now known as the State Mitigation Program). The program funded the incremental cost of lower emission vehicles and equipment, including marine vessels. The POLA and the California Air Resources Board (ARB) each contributed \$1,000,000 in matching funds and were active participants in determining which projects should be awarded. POLA funds were exclusively earmarked for projects located at the Port of Los Angeles. The MOA expired on December 31, 2003 and \$889,920 of POLA funds, including accrued interest, was unspent. The First Amendment extends the expiration date to June 30, 2009 and permits the SCAQMD and the Port to complete disbursement of the remaining funds.

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3. Hybrid Tugboat Technology. The hybrid system will use downsized diesel engines from Foss' existing Dolphin class design and will have four operating modes, depending upon the engine load required. The hybrid system will allow the diesel engines to be turned off during low power demand modes which can account for over 70% of engine time. In the standard tug design, the main engines would be operating in all modes. The significant amount of engine-off time would reduce emissions dramatically. In addition, the engines would only be used during the higher load conditions, which is a more efficient operating mode.
4. Emission Benefits. Emission reductions have been estimated at 44% for nitrogen oxides (NO_x) and 44% for particulate matter (PM). Sulfur oxides (SO_x) and carbon dioxide (CO₂) reductions will also be achieved due to reduced fuel use. Fuel savings of 20-30% are expected. The project is estimated to result in reductions of 14.9 tons per year of NO_x and 0.81 tons per year of PM. If the hybrid system proves effective, Foss could convert their other eight Dolphin-class tugs to hybrid systems. In addition, the design would be applicable to other non-Dolphin class tugs. Once built, Foss will commit the prototype tug for use in the San Pedro Bay for at least five years. The benefit to the Port for the above funding is the advancement of a technology that, if found effective, may contribute to emissions reductions in the Port.
5. Intellectual Property. AQMD's position on this and similar advanced technology projects, is that it does not as an agency assert ownership of patents or intellectual property rights in developing technologies. The ports assess on a case-by-case basis, if any developing technologies they fund may present opportunities for the ports to request intellectual property rights, royalties, or waived or reduced license fees or purchase prices. As part of this project, the Executive Director and City Attorney will develop and negotiate appropriate language to preserve the Port's intellectual property rights pertaining to hybrid tugs.

FINANCIAL IMPACT:

Although the Foss Hybrid Tugboat project is approved under the CAAP Technology Advancement Program, funds for the project will come from the funds previously disbursed to AQMD under the State Mitigation Program MOA. Therefore, no additional funding will be required from the Harbor Revenue Fund.

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ENVIRONMENTAL ASSESSMENT:

The Director of Environmental Management has determined that the proposed actions are exempt from the California Environmental Quality Act (CEQA) in accordance with Article II, Section 2(f) and Article II, Section 2 (d) of the Los Angeles City CEQA Guidelines.

CITY ATTORNEY:

The City Attorney is preparing the Amendment to the State Mitigation Program and will work closely with Port staff to negotiate the terms of the four-party contract between the Port of Los Angeles, Port of Long Beach, AQMD, and Foss Maritime.

TRANSMITTALS:

1. Amendment to the State Mitigation Program Memorandum of Agreement.
2. Foss Hybrid Tugboat – Benefits While Idling or In Low Power Mode

RALPH G. APPY, Ph.D.
Director of Environmental Management

MICHAEL R. CHRISTENSEN
Deputy Executive Director

APPROVED:

GERALDINE KNATZ, Ph.D.
Executive Director

Transmittal

**APPROVAL OF CONTRACT BETWEEN THE
PORTS OF LOS ANGELES AND LONG BEACH,
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FOSS MARITIME TO FUND THE DEVELOPMENT AND
DEMONSTRATION OF A HYBRID TUGBOAT UNDER THE
CLEAN AIR ACTION PLAN TECHNOLOGY ADVANCEMENT PROGRAM**

- Transmittal 1. Amendment to the State Mitigation Program Memorandum of Agreement**
- Transmittal 2. Foss Hybrid Tugboat – Benefits While Idling or in Low Power Mode**