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## **WORLD'S FIRST TRUE HYBRID TUG TO BE BUILT BY FOSS MARITIME**

***“Eco-tug” reduces nitrogen oxide and particulate emissions  
by nearly half***

**Seattle, March 2, 2007** — Foss Maritime Company announced that it plans to build the world's first true hybrid tug boat, a “green” vessel that will significantly reduce harmful nitrogen oxide, particulate matter, sulphur dioxide and carbon emissions. It will also consume less fuel and be quieter than its conventional predecessors.

Officials of the Seattle-based marine services company, which specializes in worldwide marine transportation and logistics, say the project must still gain final board approval.

But the decision to move forward with the hybrid tug got a boost earlier this week as the Port of Los Angeles pledged \$850,000 to the project, in association with the South Coast Air Quality Management District, and the Long Beach Board of Harbor Commissioners preliminarily approved a \$500,000 contribution to the vessel's construction.

The ports of Los Angeles and Long Beach, the nation's no. 1 and no. 2 container ports, have expressed interest in funding Foss' innovative hybrid tug as part of their San Pedro Bay Ports Clean Air Action Plan, a sweeping proposal aimed at significantly reducing the health risks posed by air pollution from port-related ships, trains, trucks, terminal equipment and harbor craft.

In exchange for funding, Foss would agree to homeport the new hybrid tug in Southern California for five years.

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"Foss is proud to be working with the ports of Long Beach and Los Angeles on such an important project as the hybrid tug," said Gary C. Faber, president and COO of Foss. "This is just the latest example of how Foss sits at the leading edge of maritime technology, engineering and shipbuilding. As a company, we're committed to maintaining our natural environment. Foss anticipates there will be a growing market for our 'green' tugs in the years to come."

The Foss hybrid tug is scheduled to go into production later this year and will be delivered to Foss' Southern California operations in 2008. It is a new-build project, a continuation of the Dolphin-class tug boat series built at Foss' Rainier, Oregon shipyard.

The Foss hybrid tug will look almost identical to its sister Dolphin-class tug boats, but will be quieter, cleaner and more fuel efficient, using proven hybrid technology. The hybrid tug's drive units will be powered by batteries coupled with diesel generators and feature a modified engine room accommodating two 670 horsepower battery packs and two 335 horsepower generators. Although the main engines in the hybrid tug will have lower horsepower than the existing Dolphin engines, overall the tug will have the same total horsepower as its sister tugs.

The 5,000 horsepower Foss hybrid tug will be primarily used for harbor assist services—moving vessels such as tankers and container ships in and out of the harbor and into their berths.

"This is exactly what the Clean Air Action Plan was intended to do – challenge companies operating in the ports to come up with better, cleaner ways of doing business. And Foss has come up with a great plan that benefits all of us," said Geraldine Knatz Ph.D. executive director of the Port of Los Angeles.

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There are many environmental and health-related benefits to building a hybrid tug, including:

- **Reduced Emissions.** The hybrid tug will reduce *all* emissions (nitrogen oxide, particulate emissions, sulphur dioxide and carbon emissions) due to design efficiencies and lower fuel consumption. Initial estimates show a 44 percent reduction in PM and NOx emissions for the same duty as the current Dolphin tugs in Los Angeles/Long Beach.
- **Lower Fuel Consumption.** The hybrid tug design minimizes fuel consumption by using a power management system to match the required power to the most efficient combination of batteries, generators and main engines for that particular power level. For example, instead of idling the main engines while in standby mode when alongside a customer vessel awaiting orders from the pilot, the hybrid tug will run on battery power with the main engines shut down. The lower fuel consumption results in reductions of carbon emissions, a contributor to greenhouse gas, as well as sulfur emissions.
- **Noise Reduction.** Overall, the hybrid tug will be much quieter than traditional tugs, running on battery power in standby mode and only bringing the generators and main engines online when higher power is required. This will reduce noise exposure, protecting crews from hearing loss and reducing noise pollution.

“The introduction of the hybrid tug reflects our company-wide commitment to safety and safeguarding the environment. We wanted to make a proactive move to introduce technology into the market that would reduce air emissions and help protect the health and safety of our employees and the communities in which we operate,” said Susan Hayman, Foss’ Vice President of Health, Safety, Quality and Environment.

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The hybrid tug will be introduced in the Los Angeles/Long Beach market, as hybrid tug technology is best suited for harbor tugs that need high amounts of power for short periods of time. While performing tug assist jobs in this Californian harbor, tug boats spend little time at peak RPM, rarely utilizing each tug's full horsepower. Tugs at the Los Angeles/Long Beach spend up to 50 percent of their time idling, with the main engines on and ready to respond, but with no power actually being used for propulsion. With Foss' hybrid tug, energy is produced only on demand, so that idling of the main engines will no longer be necessary.

The hybrid tug design will make it adaptable for retrofit of existing harbor tugs. The flexible design of the tug also has the ability to take advantage of emerging technologies such as improved battery and fuel advances. This tug could also take advantage of cleaner, less expensive shore power to charge the batteries.

Founded in 1889, Seattle-based Foss Maritime offers a complete range of maritime services and project management to customers across the Pacific Rim, Europe, South America and around the globe. The company has harbor services and transportation operations in all major U.S. West Coast ports, including the Columbia and Snake River system. With one of the largest fleets of tugs and barges on the American West Coast, Foss is *Always Ready*, operating two shipyards and offering worldwide marine transportation, emphasizing safety and high-quality service. See [www.foss.com](http://www.foss.com) for more information.

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