

Maine DOT Request for Proposals for Electrical Integrator for Replacement of Margaret Chase Smith Ferry Vessel

Additional RFP questions received as of February 10, 2026 and answers are below:

1. Page 4 of the RFP states that only lithium-ion type batteries will be considered for this application. Our battery banks are LiFePO₄ which is a much safer battery chemistry than Li-ion. Do you think this will be an issue?

Answer:

Other battery chemistry types will be considered, as long as they will meet US Coast Guard requirements, and provide the necessary energy density and are designed for marine use.

ASTM F3353-19 defines lithium-ion as a family of battery chemistries and states that the guide does not differentiate between the several unique chemistries that make up the li-ion family of batteries.

Also, US Coast Guard Safety Alert 14-25 states that Li-ion batteries can be identified in a variety of ways depending on electrode, electrolyte, and separator materials. Some common types in maritime use are Lithium Iron Phosphate (LFP), Lithium Nickel Manganese Cobalt Oxide (NMC), Lithium Cobalt Oxide (LCO), Lithium Nickel Cobalt Aluminum Oxide (NCA), and Lithium Titanate (LTO). New chemistries continue to emerge as technology advances.

2. What is the expected propulsion power required during “dock push” operations?

Answer:

This will be finalized during the design process, but the assumed push power now is approximately 130-140 kw each side.

3. Boost mode was discussed in the integrator meeting but is not specifically mentioned in the RFP. It's also not mentioned in the attached RFP Questions. The RFP documents state that 1450 hp is required to achieve a cruising speed of 13.5 knots, and the stated operating speed is 12 knots. These speeds *should* be attainable by utilizing the main diesel engines by themselves, correct?
 - a. Is boost mode a requirement for the project, and what is the intended use of boost mode?
 - b. Is there a desired max. vessel speed and how much power will be required to meet it?
 - c. Will the propellers be designed to deliver the combined power of the main engines and booster motors (~759 kW), just the main engines (~559 kW), or something in between?

Answers:

The current vessel on the route averages just over 12 knots, but is capable of 13.5 knots, approximately. That vessel has two Cat 3508's rated 775 bhp each. During the busy summer months, or during bad weather, the schedule is difficult to keep up with. New vessel is longer and heavier, and carries more vehicles, requiring a bit longer to load and unload. Designing the new vessel for a maximum speed of 14 knots would be helpful on the busy days. Speed-Power calculations show speed of 14 knots would require 1600 SHP, with no margin for sea state. Some boost power, from 1450 SHP to 1650 SHP seems necessary, and the props will most likely be sized for that horsepower at 14 knots. The electric motors may be more important for low speed operations in this case.

4. What is the operating voltage of the emergency switchboard?

Answer:

Plans are for 480 VAC 3-phase power for main and emergency ship service switchboards

5. What is the total kW of the emergency loads, and is there a preliminary electrical load analysis to share?

Answer:

Load Analysis will be developed during the design phase, but we've estimated the emergency load to be a maximum of 120 kw based on previous vessel built with updates to account for vessel size and emergency equipment.