



August 26, 2020

Friends of Frog Ferry
Mrs. Susan Bladholm, President

Subject: Proposed Propulsion/Hybrid Systems

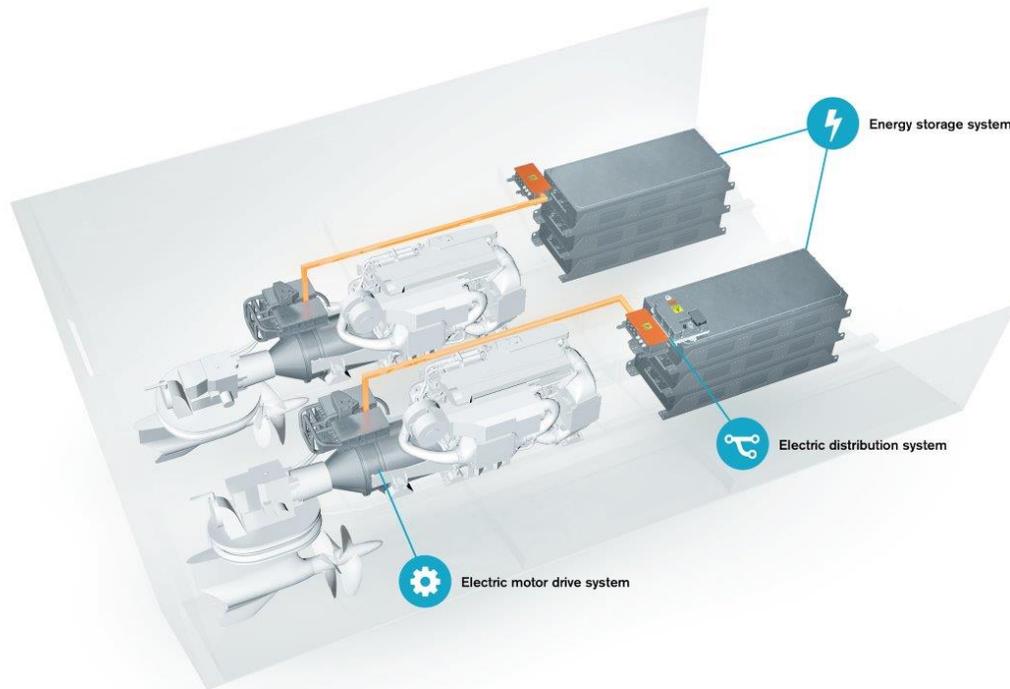
Dear Susan,

Thank you for engaging with All American Marine and for reviewing our proposed vessel for the Friends of Frog Ferry pilot project.

For a number of significant reasons described below, All American Marine is planning on incorporating a Volvo Penta integrated propulsion system (IPS) into the Friends of Frog Ferry pilot program vessel. The benefits of an IPS system are longer cruising range, higher top speed, reduced fuel consumption, less CO2 emissions and up to 50% lower perceived noise. Using an IPS system on the pilot project will demonstrate these environmental benefits as well as the vessels' dramatically enhanced maneuverability, as each engine will come equipped with individually steerable pod drives. Each of these steerable pods is equipped with twin counter-rotating propellers.

As we move forward with this propulsion system on the pilot program vessel we are also looking forward to the next step, incorporating a Hybrid or Electric IPS into the next vessel. Volvo Penta is currently field testing the next generation of IPS and incorporating components that will enable zero emissions operation for marine vessels. The first available engine range to be outfitted with this system are the same engine model that we are proposing for the pilot program, the Volvo D13. The system is being specifically designed for vessels such as your ferry.

VOLVO PENTA HYBRID MARINE PROPULSION CONCEPT



How it works

A clutch and electric motor are added between the engine and the IPS pod. The electric motor is supported by scalable (depending on application needs) Li-ion battery packs that can be charged externally using AC or DC chargers; or recharged using the primary diesel engine. Opening of the clutch allows the boat to run in electric-only mode, and with the clutch closed both diesel and electric power can be used in parallel. In terms of operation, the captain will use the familiar control interfaces of the IPS system, with the addition of new drive modes from which to choose.

The Volvo IPS system is designed to enable zero emission running for marine vessels. The electric-only mode allows entry into environmentally sensitive zones, as well as offering enhanced onboard comfort and boat handling characteristics. With full torque from the electric motor available instantly, the boat will maintain the responsiveness and controllability that IPS is famous for in electric-only mode, as

well as offering the ability to run at speeds of 10 to 12 knots. Over time, this system will evolve into more hybrid technologies and all-electric drive variants, as part of Volvo Penta's commitment to offering customers flexible technical solutions that best meet their needs. All American Marine offers that all of the above advantages will allow this system to be both energy efficient and scalable as Frog Ferry moves from pilot project into full, fleet deployment moving forward.

Sincerely,



Ron Wille
Business Development Manager

--- All American Marine ---

All American Marine Inc., located on the shores of Bellingham Bay, was founded in 1987 and specializes in the construction of custom-tailored aluminum vessels. All American Marine began operations over 30 years ago, continuously adapting to new technology and changes in the marketplace. We set the standard for aluminum vessel manufacturing. Long recognized for our craftsmanship and high quality, All American Marine has become the leading builder of hybrid vessels in North America.