



Electric Ship

faq

FAQ



This webpage QR code

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Frequently asked questions for ElectricShip

**PDF Version of the webpage (first pages)**

## What is the goal of Electric Ship ?

The goal of this website is to present new ideas and concepts for affordable, fuel efficient, unsinkable, safe, good occupant flows, stable, best materials, eco friendly, and cutting edge technology.

3/20/2023

## **Why do you prefer multihulls ?**

Multihulls offer very efficient hydrodynamic hulls to reduce weight, increase stability, reduce horse power to drive, while providing a more livable working and cruising platform. This type of broad structure platform allows more customized work and living spaces without trying to cram into small hulls. The only disadvantage is the wide berth, which makes docking a more expensive proposition, however it allows mooring or anchoring more tenable.

## **Why do you want solid hulls that are unsinkable ?**

Solid hulls force all living and working areas above the waterline. No bilge pump is required, which means infinity floatation while on the water, regardless of power available to run the bilge pump. No hull penetrations, which allow empty core hulls to swamp and sink, means more security and peace of mind.

## **Why do you want three hulls for the multihull configuration ?**

We have optimized structural integrity with three hulls. This allows a 2-3 foot wide hull up to 60 feet in length, which allows for a very hydrodynamic hullform, without extensive lofting. The three hulls are basically rectangular boxes. Each hull for the designed length of 40-60 feet will provide more than 18,000 lbs of displacement (floatation) at 62 lbs per square foot (approximately depending on salt water or freshwater).

## **Why do you want such a large wide craft ?**

The width provides stability, while also allowing generous usable platforms for solar panels (both PV and solar thermal), working area, as well as comfortable living areas. The huge width (one half the length or more) means that all working and living areas can be above water, and not in the hulls.

## What are the hulls made of ?

The hulls will be a combination of plywood, bubblepack, carbon fiber, epoxy resin, formed into 2 x 4 x 8 foot woven extruded sections using a large spindle (lathe) and loom. Different materials will be selected for the extruded loom as we experiment for the most durable solid hull materials which are the lightest weight and providing the most strength. The exterior of the hull will be vacuum bagged and then a HDPE exterior coat will be melted on. The vacuum bag will be against a concrete or other suitable flat surface. Sections will be fastened together to make a long hull of 2 feet wide, by 8 feet in height and 40-60 feet in length. One to two more 8 foot sections will be added to make the superstructure, which may or may not be solid. A minimum of 3 feet displacement and a minimum of 4 feet of bridgedeck clearance will be made to prevent bridgedeck slamming.

## **What are the main materials for the boat and superstructure fabrication ?**

Laser cut layered 1/8 inch plywood reinforced with carbon fiber or with HDPE will be the main structures, including furniture, cabinets, frames, and interior trim. Any exterior trim will be HDPE or HDPE molded or melted over plywood. This method of development, design, and fabrication allows the most machine aided cutting and fastening while minimizing labor and associated costs. This will greatly reduce build time while deploying a solid hull which is seaworthy and efficient. Cabinets and other floor structures will have pin or bolt holddowns which allow rapid reconfiguration, or customization.



## Why use HDPE ?

HDPE is becoming the interesting hull material of choice which is not subject to Sunlight (UV light) degradation or marine seagrowth. Applied correctly, it does not require bottom paint, and color matching can also negate the use of finish paints, greatly saving on the time and cost of the build. Fixing scratches or other damage is relatively straightforward and easy to accomplish.

## How will the galley be designed ?

Extensive use of HDPE (basically cutting board plastic) which is food grade and safe to use. The galley will be bright, functional, and low maintenance. Instead of builtin appliances, the preferred method will be stand-alone or componentized appliances, which can be easily replaced if needed. So much time is spent aboard yachts working around difficult hull shapes, and antiquated and inefficient appliances. A induction stand-alone range and oven is instead of a builtin cooktop and custom oven. A countertop ice machine will be offered instead of a builtin unit, prone to breaking down. Smaller chest freezers and refrigerators will be offered along with a standard stand-up refrigerator freezer, instead of expensive and maintenance weary custom units.

## **How are cabinets and furniture designed and fabricated ?**

Designs are laser cut in plywood, then fastened with waterproof glue or HDPE weld bolts. Goal is to minimize fabrication time while providing best fit and function.

## Will there be a washer and dryer ?

Yes. Electric powered washer and dryer will be standard.

## **What electrical system will be offered ?**

Customers will have a choice of 110/120 60 hz. or 220/240 50 hz. There will be no low voltage DC system offered, other than navigation systems and lights. Small backup battery units will be available in case of full system outage, able to charge phones, electronics, and run small appliances.

## Solar panel options

Bifacial panels, as well as a choice of micro-inverter versus 48V string array wiring will be offered to the inverter charge controller. Marine grade server type battery banks will be mounted in the center of gravity on the center hull. The goal is the most efficient panel for the cost, which bifacials currently provide. In addition, the reflection of the water is a consideration for bifacial panels.

## What method of propulsion will be used ?

After a great deal of consideration between propulsion methods, the simple paddlewheel is preferred. The entire paddlewheel assembly can be lifted out of the water, so no entry into the water is needed in case of repair or maintenance. A center mounted magnetic drive washdown motor will provide each wheel with power. The main issue with propellers and waterjets is that they are prone to fouling from fishing gear, weeds, flotsam, and nets. The speed of the craft while under power from the paddlewheels will be under 10 knots. These paddlewheels have been used successfully for more than 100 years on Swiss lakes, and early steamers used paddlewheels. They are simple, functional, and easy to work on, above the waterline. How many times have you had to cut fishing line, rope, or other debris from your propeller ? A paddlewheel also allows above water inspection.

## **What will be used for water making ?**

A combination of reverse osmosis watermakers, as well as solar distillation will be used. When water is provided from the shore (marina), it will be run through many filters prior to being made available for drinking.



## **Will solar coolers be available ?**

Vacuum tube and solar ovens will be available options. The vacuum tube is very effective for cooking, and great in an emergency for sterilizing water, cooking food, or providing heat as long as the Sun is shining.

## **What can the large workdeck be used for ?**

Laser cutter, sawmill, cargo, hot tub, boats and water toys, bikes, tents, temporary workshop or other structures. The deck is so large that completed weight appropriate cabins can be craned or driven on board. A workboat version can easily be designed which maximizes deck space. The advantage of a multihull is the huge amount of available space.

## **Where will anchors be located ?**

Primary and standby anchors will be located in the middle hull on the bow. Two other standby emergency anchors will be located on the stern of each outer hull. Spuds can also be ordered which allow the vessel to be securely moored to a shallow bottom by one or each corner. The spuds can be hydraulically raised and lowered. This is especially important for coastal and river logging operations, dredging, mining, or other operations.

## **Will solar hot water be available ?**

Solar PV to a hot water tank, as well as solar thermal options including a sand thermal battery will be available. Since solar PV are so affordable, it makes more sense to have a portable power source (i.e. electricity) than only solar thermal. On a cost efficiency basis, solar PV has shown to be more efficient than solar thermal (there are some YouTube channels that have explored the question).

