Ocean Volt

When we purchased our 50ft ocean going trimaran in 2008 our family goals were to escape the worst of the New England winters and set our teenage son on a healthier path. In hindsight we have been very successful in both ventures. Our new 2001 Contour50 was in pristine condition living her early years in the fresh water lakes of Canada. These production trimarans were built to the highest of standards with no money spared on the quality of all systems. Custom carbon fiber masts with Anderson electric winches and high tech structural design and engineering through out..

My son and I set out from Florida and spent the first 3 months of 2009 cruising most of the Bahamian islands. We lived off the fish we caught and friends and family that came and went. The boat did not have a generator and even though I had just installed an ample amount of new AGM marine batteries it was a challenge to keep up with electricity needed. I was running the boats diesel -a 40hp Yanmar - all to often to charge the batteries. First move was to install an 100amp alternator and then we even bought a small Honda generator. So here I am trying to show the family how to be self sufficient and burning way to much of the convenient fossil fuel. The boats systems of lighting, refrigeration, navigation devices, cell phones and worse of all laptops were sucking the AGM's flat. My son was home schooling on the boat and needed that damn laptop that would keep the Honda humming.

In the spring we sailed ALEXANDRA up the east coast and home to Nantucket Island. Nantucket being one of the windier places on the planet I then installed a wind generator that would top off the batteries while she lived on the mooring. We were not cruising then so this seemed sufficient. However the tropics were calling and in the Fall as the first cold fronts starting blasting through we set our sights on the Caribbean. After the seasons hurricanes did their thing we shot off to Bermuda and then on to St Maarten. We sailed most of this 1,700 mile trek -however we had to run the diesel at least 2 hours daily to keep up with the auto pilot, nav lights and all the electrical devises we're addicted to.

Once in the sunny tropics the no brainer was solar panels. I didn't want the square edged sheet of plywood look mechanically fastened to transom so I went online and found flexible solar panels with an adhesive back that we stuck directly on the mast. We wrapped the mast 18 ft down on both sides with these light weight out of the way panels. The experts said that was not a good application. They were wrong as we had enough juice from these 540 watt panels to run every system on the boat. From the day we have applied this simple solar approach to now we have never had to run the diesel, the Honda or plug in for electric power. I hand the disbelievers on the boat an icy cold beer and they get it.

We even seemed to have surplus electricity so I usually switched off the wind turbine and then sold the Honda generator. With this extra electricity I researched electric motors to drive the boat. There were several ways to approach this but I figured a completely isolated sytem was best. This would give us the convenience and comfort of still having the diesel but also an auxillary electric propulsion. Online I found that Oceanvolt from Finland made the perfect product. We chose a 10kw 30hp electric motor attached to a sail drive that could be installed anywhere in the hull -where if you were willing to cut a thru hull hole and mount a bracket to hold all. The motor stays dry on the inside of the hull and the sail drive underwater. The brochure and positive press was all to tempting so I

purchased the system along with 4 lithium storage batteries and more solar panels. I purchased the exact same size flexible panels as I installed on the mast only this time we attached them with Velcro out of the way onto the soft bimini top. We wired the (4) 12volt solar panels in series to give us the 48volts that the new system required. Then wired the two positive and negative solar panel wires to a charge controller before going directly to the 48volt Lithium battery bank. The new Ocean Volt motor is AC power so the package comes with a DC to AC converter.

In January of 2015 with our new electric motor auxillary installed we set sail from St Maarten. Again this system is completely isolated from every other component on the boat including the existing Yanmar diesel. At the helm station we installed a forward and reverse controller and a digital display that has multimedia information on battery charge and discharge with time of and state of battery at all times. On our first trials on and off the anchor was a dream and we then found it will push our trimaran quietly along at a top speed of 6 knts without sails. With sails up and light wind we can add a couple knots while motor sailing.

But here's the kicker. When sailing alone at anytime over 7knts which is most of the time on a 50ft trimaran. You hit the regeneration button on the cockpit display and the folding prop locks and engages the electric motor which then generates power to charge the lithium batteries. At 6 to 7knts the regeneration is minimal but at 8 to 9knts there is a significant amount of charge going back into the batteries. When we are sailing at 10 knots there is as much as 1kw charge and sailing at 11 to 12knts the recharge to the lithium bank is closer to 2kw. The curve on the regeneration chart goes up exponentially as we sail into speeds of the middle teens.

As we all know any marine electrical device we purchase to charge our batteries usually puts out half of what the brochure claims and all electrical devices use twice as many amps to run. This Ocean Volt electric motor actually regenerates at about 20% higher than boasted in their specification chart. Although the range I expected to achieve from a full battery bank seems to be less. The compromise may be in the propeller chosen which favors regeneration. This present system for our boat is not a long distant answer. It will get you on and off anchor and help move the boat to the next island 10 or 20 miles away with no wind and help motor sail in light winds. The bonus is also a back up in case the diesel packs up which we already experienced this season when our Yanmar shift cable broke while

approaching a tight rocky channel. I simply used the electric motor to throttle us away from a rock pile we certainly would have been blown up on in seconds. Another plus is the instant forward and reverse power much like an electric drill. Combined with the existing bow thruster I can manuver the boat into any tight spot looking quite profesional. Quietly.

This has been a successful experiment in alternative energy and a great feature on our already efficient boat. To date the most bang for your buck is still fossil fuel and I figure if I live to 140 years of age I will recoup the money I paid for this system in diesel fuel savings. With all the positive aspects in this world of trying to go green our diesel is still not something I plan on eliminating from ALEXANDRA. We certainly can add more Lithium batteries and increase our range with the electric motor. However our pockets are just so deep. The new Magnesium Phosphate Lithium batteries are much safer than the

ones of the past and they are a third of the size and weight of comparable AGM batteries. If our boat was regularly plugged into the dock and just went for day sails we could easily go all electric propulsion. In the future as battery technology increases and hopefully prices come down we can expand our long range capabilities on "ALEXANDRA"

With family and friends we have sailed our trimaran 500 miles south from St Maarten to the top of South America and back stopping at most of the islands along the way. A future dream is to head west through the Panama canal to the South Pacific. This new Oceanvolt system is a positive asset to our boat for several reasons. Much of the cruisers goal today is to be self sufficient yet if their generator or altenater pack up they must be repaired for the journey to continue on. On ALEXANDRA now we can generate electricity with the wind vane, solar panels and now with our hydrogenerator while sailing. Our diesel fuel tank is only 40gallons but hopefully we only need to fill it every couple of years and we still always have ice cold beer.!