



Global Solar EPC O&M services and technologies



TECHNICAL ASSISTANCE REQUEST: For the project entitled:

Solar + Storage for Unlimited Range Electric Catamarans and Ferry Boats.

Abstract: Powered boat manufacturing companies are slow to investigate and adopt the electric solar powered propulsion. Several studies have identified dozens of unintentional and unexpected hazards to the environment associated with powered boating. While a day on the boat might sound fun and relaxing, environmentally conscious powered boaters should consider what their watercraft is doing to the ecosystem around them.

Primary, consumption of petroleum hydrocarbons-based fuels - In the Atmosphere is considered the principal cause of Climate Change.

On the Water & On Wildlife – Powered boats' oil, fuel deposits left from boats can change the water's chemistry, adding too much of certain compounds, like zinc and copper, or making an environment overly alkaline or acidic.

On Humans - Humans should be even more concerned about the impacts of powered boats on natural environments. See <https://www.unwater.org/water-facts/human-rights/> . Having clean water is one of the given rights by god not just to human but to all life on earth.

More than a century after the first international powerboat meetings were launched in 1904, **our goal** is to develop **alternative propulsion systems**, using only **clean energy sources** to **power the boating** of tomorrow. **Integration engineering** is the **innovation**. The **Integration of different existing technologies** and **developing new technologies** for this great innovation is a **real technological winner** to meet the **eco-friendly energy needs of the leisure boat, ferrying and shipping industries** and the environmental prerogatives. **The team at EEI is an expert at designing, integration engineering** of zero-energy custom residential, commercial buildings and eco-friendly products.

Silent Yachts Catamaran 44', 55', 64', 80' boats and **55' ferry boat** are the world's first series of 100% Solar Electric Powered with Battery Energy Storage System (BESS) Boats from 55 to 80 feet. **Noiseless, Fumeless, Full comfort 24/7, Worldwide Cruising or Ferrying** with virtually **Unlimited Range**. The **55' Ferry Version** – Can ferry up to **+50 passengers** with all the benefits and eco-friendly technologies of the Silent Yachts catamaran boats series. https://www.bestofboats.com/portfolio_category/best-for-travel-2019/ **Silent 55' Winner 2019 Best of Boats for Travel by www.bestofboats.com**

- (1) Testing for power output comparison of highest power density bi-facial panels vs. mono PERC half-cell / interdigitated-back-contact (IBC) panels on flat 0-degree tilt white Epoxy-Resin.



Flat 0-degree tilt on White coat Epoxy-Resin

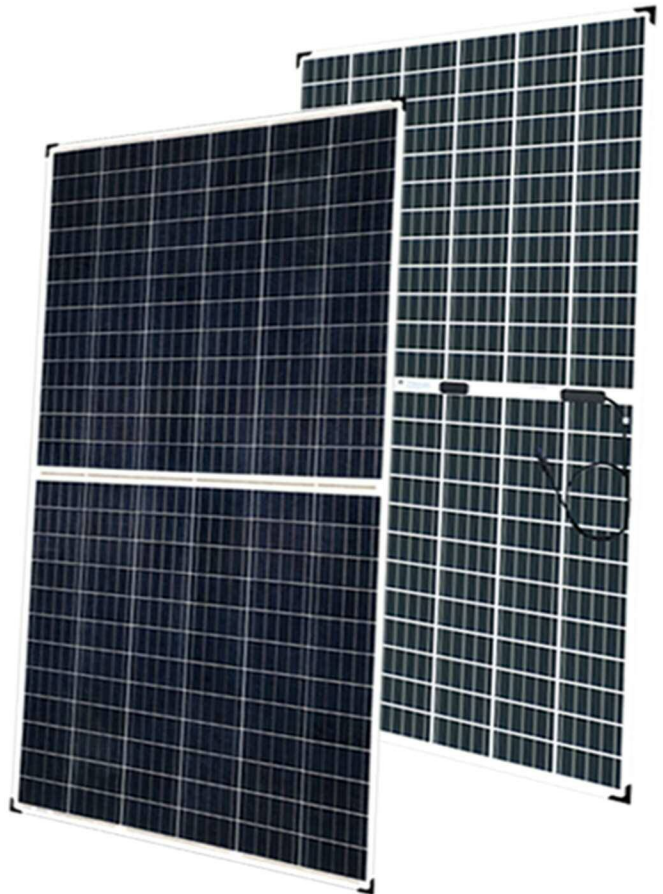
- The top 2 best mono PERC half-cell, IBC solar panel manufacturers in 2019-20 ranked based on the highest efficiency power density solar panels.
- VS.
- The top 2 best bi-facial solar panels with highest power density watt/panel.

Mono- PERC Half-cell,
Back Contact Cell (IBC)



VS.

Bifacial



- (2) Testing for best USA made Stand-Alone Single Phase for mobile marine usage DC couple 48V / DC-DC converter / DC-AC 240V/110V Energy Storage Inverter regarding compatibility, liability, safety, performance, weight and life-span.
- (3) Testing for best USA made LiFePO4 80kWh-100kWh BESS system for mobile, marine usage regarding liability, safety, performance, weight and life-span.

Due to **real estate space** and **weight constraint** for **solar panels** and **BESS**, increase **power density** of the solar panels and BESS means **bigger motors** thus resulting in **increasing speed**. **The Team at EEI** is targeting to **integrate existing** and **developing new technologies** to improve **100% eco-friendly cruising speed to 8-10 knots** and **maximum speed to +15 knots**.