
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

NATIONAL MARINE SANCTUARIES

ONMS SMALL BOAT PROGRAM:

NEXT GENERATION RESEARCH VESSELS

Mammal-safe propulsion
Reduced emissions in transit
Zero-emission loitering
Reduced noise
Low wake hull forms
Real-time data transmission

ONMS Fleet Range

RV Manta, 83’
Galveston TX

RV Manuma 33’
Pago Pago AS

DESIGN FOCUS:

Serial/Parallel Hybrid

Electric - Diesel - Hydrogen

Shrouded Props, Rim-drive propulsors

Auxiliary low-speed propulsors

Advanced hydrodynamics

Studies by:

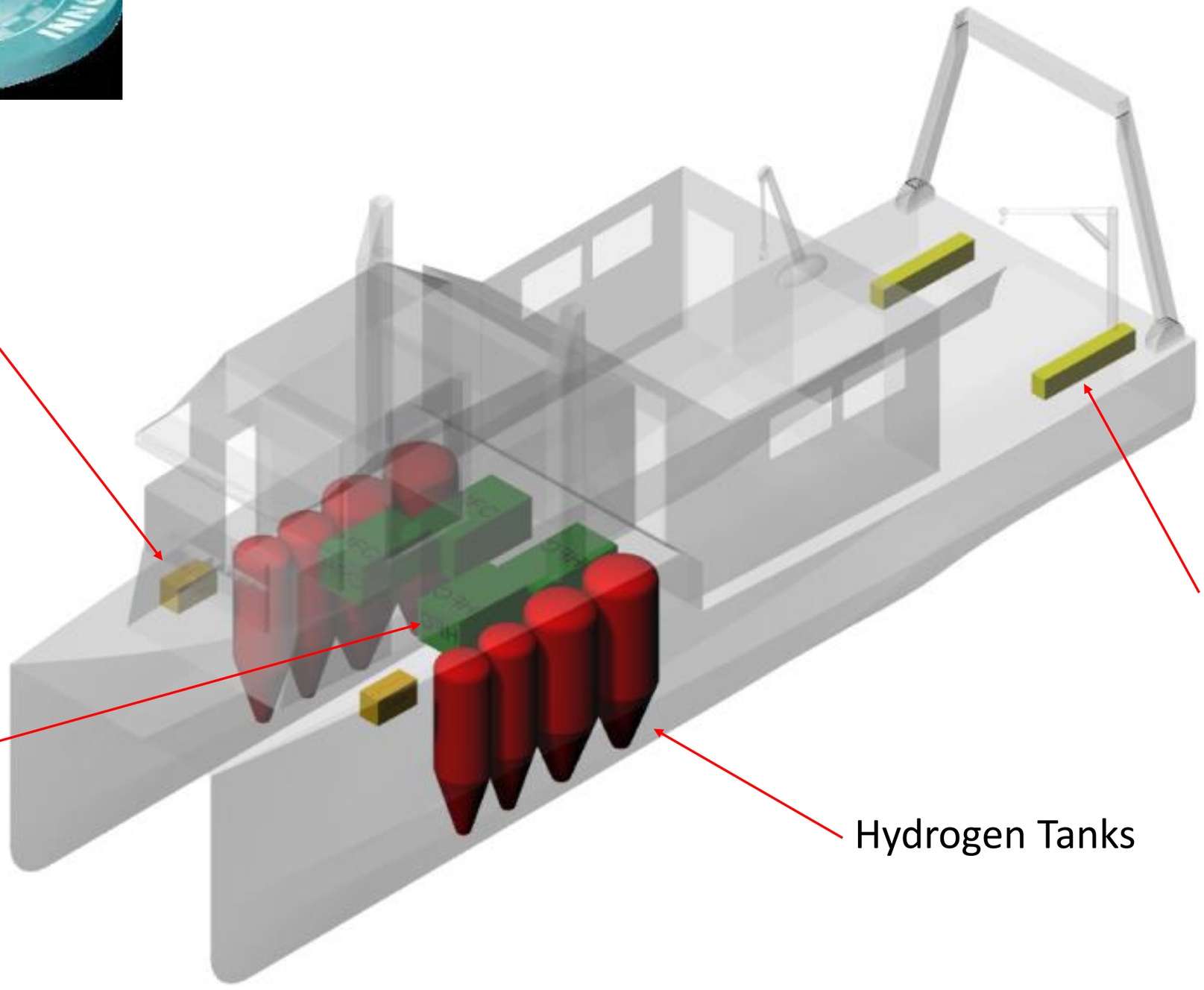
USN Center for Innovation in Ship Design

Stevens Institute of Technology

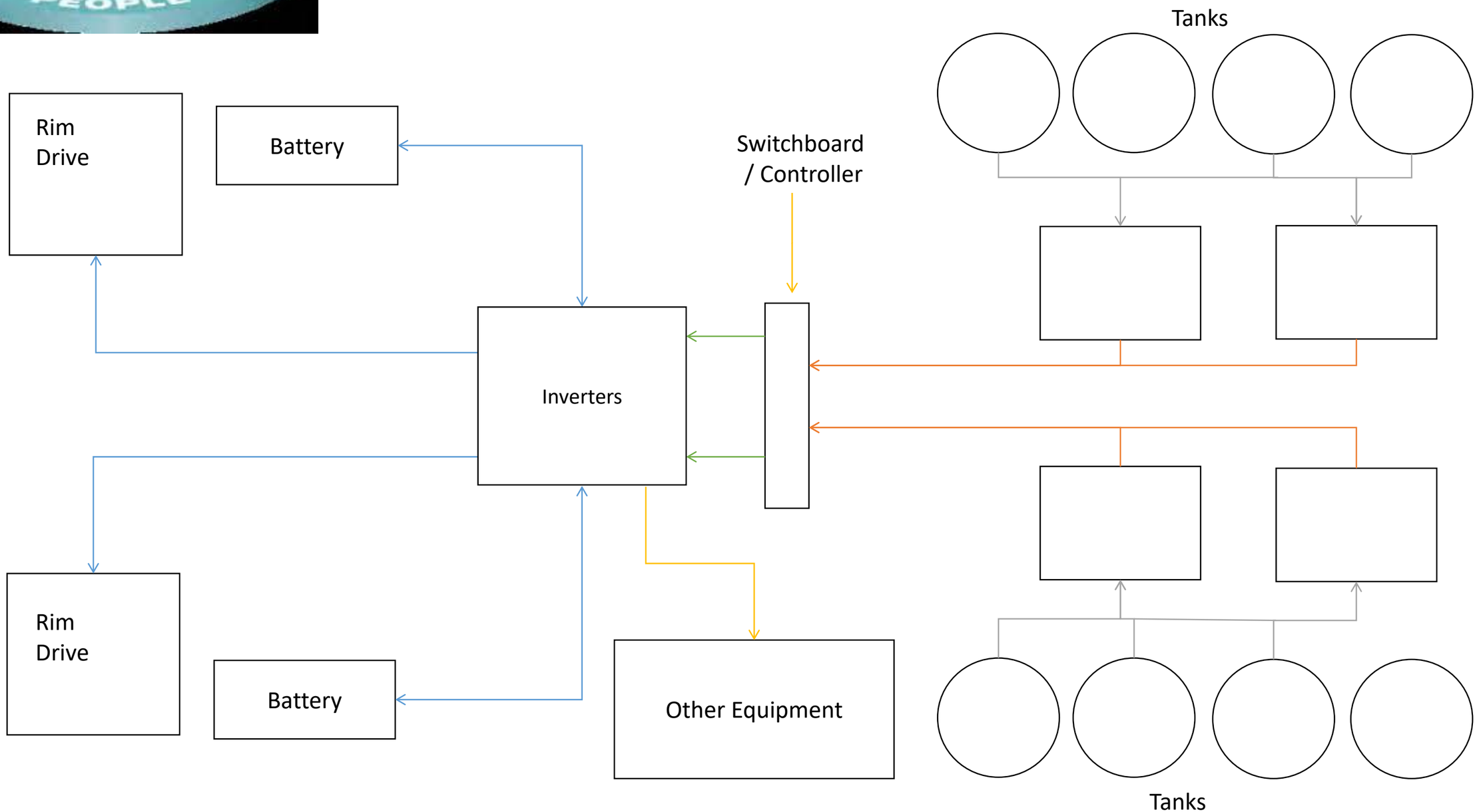
Electric Prototype Testing

NATIONAL MARINE SANCTUARIES

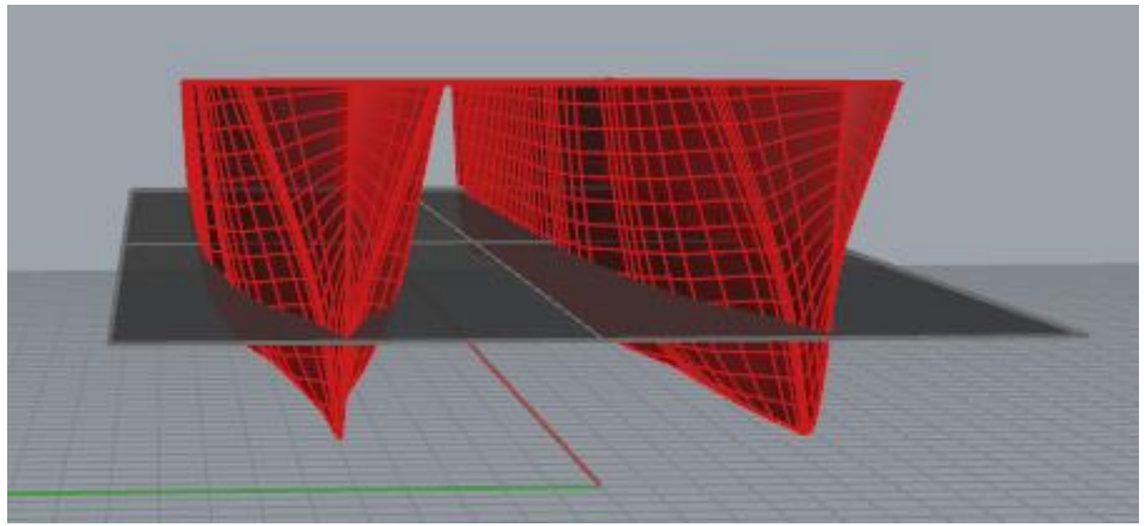
Conceptual Arrangement, 52’ fuel-cell variant

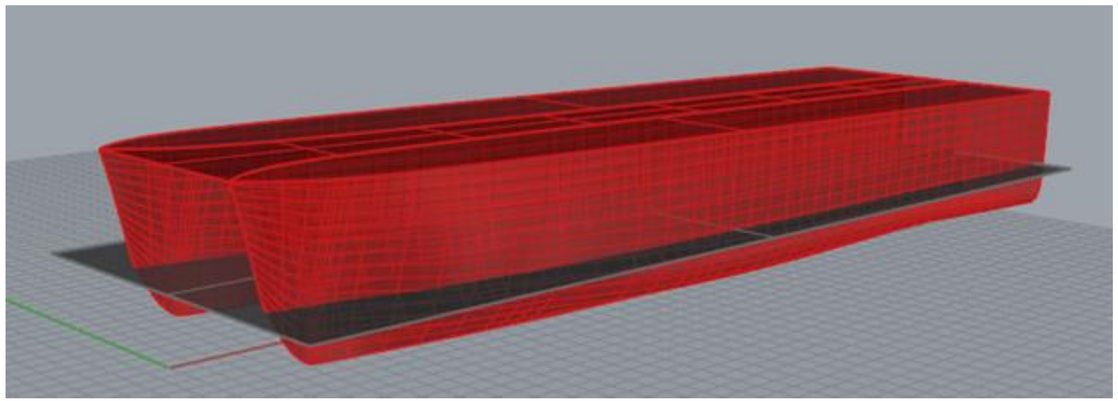


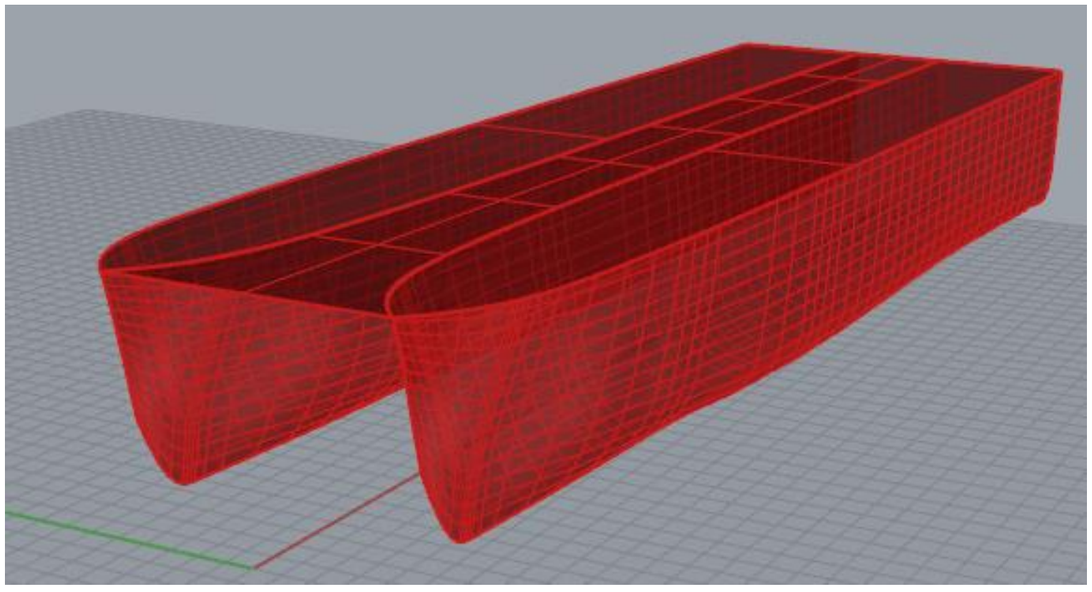
System Schematic

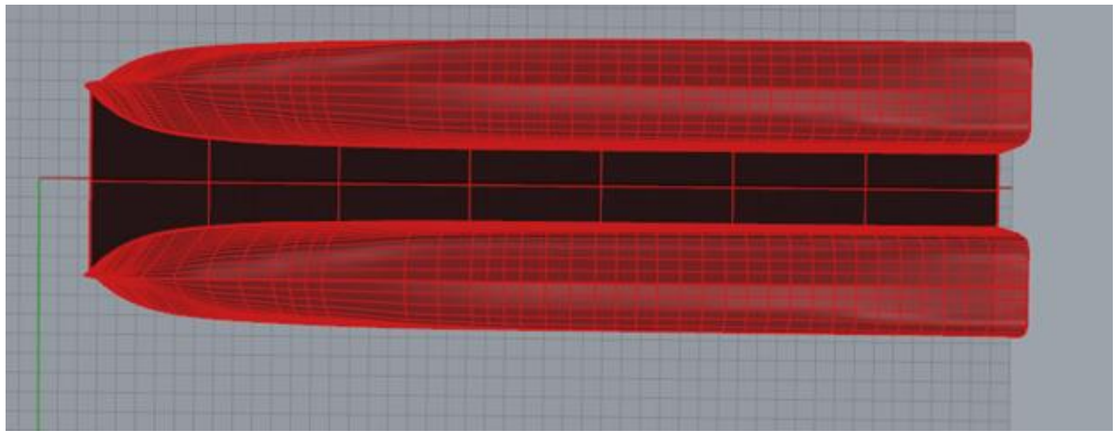


Hull Form Development





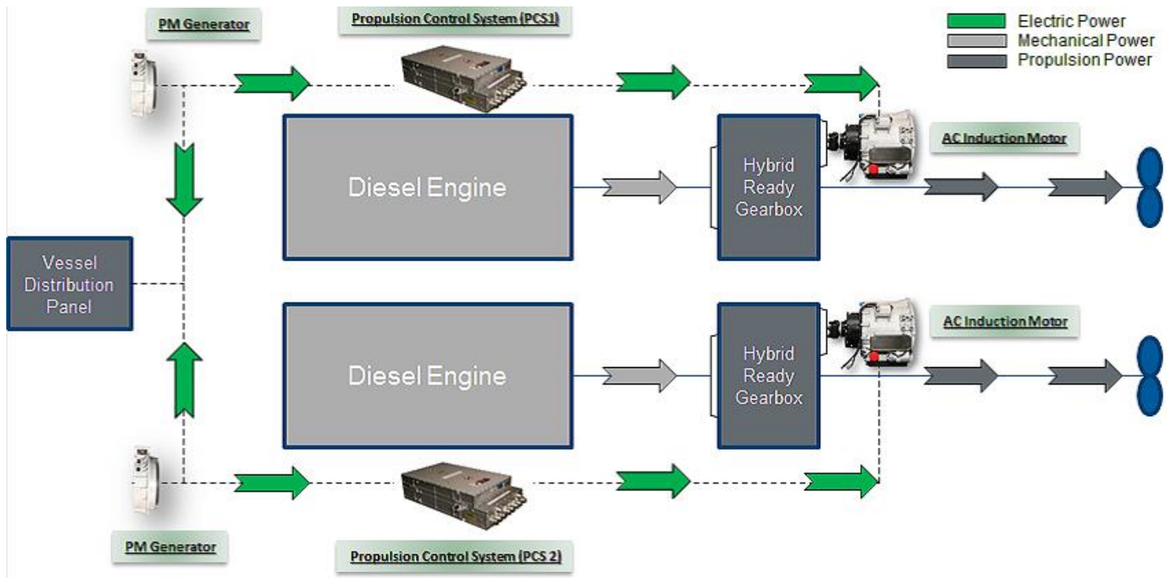




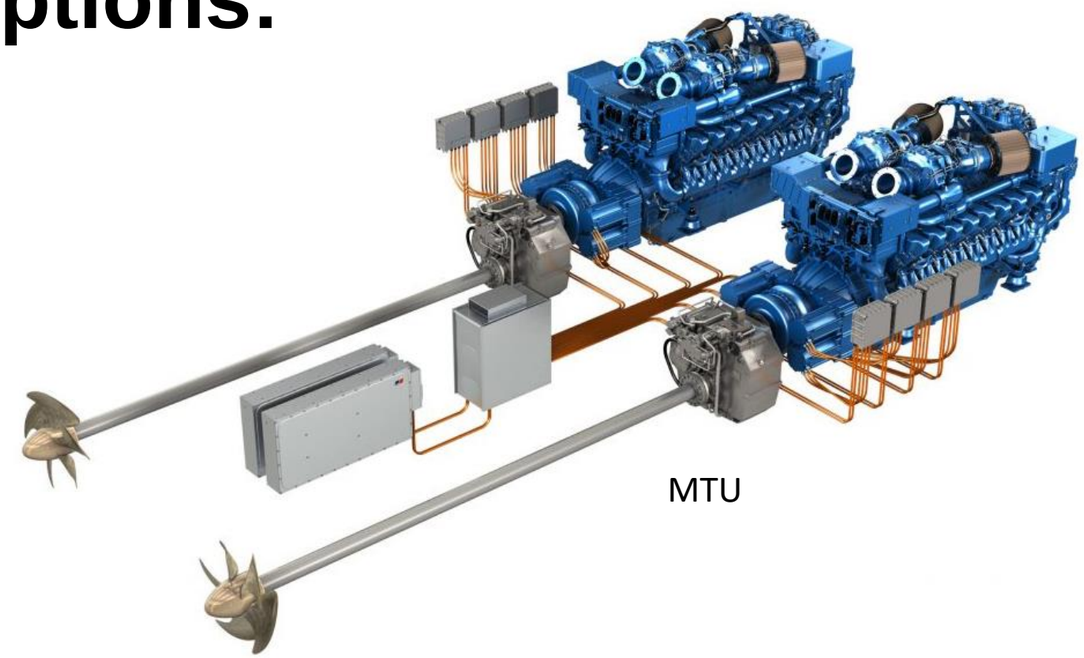
Design Attributes

Attribute	Dimensions
Length Overall (LOA)	51 ft.
Maximum Beam	16 ft.
Length on Waterline (LWL)	49.18 ft.
Beam on Waterline (BWL)	15.5 ft.
Prismatic Coefficient (Cp)	0.742
Block Coefficient (Cb)	.378
Displacement	19,042 kgf
Bare hull Draft (T)	2.25 ft.
Maximum Depth Overall (D)	8.2 ft.

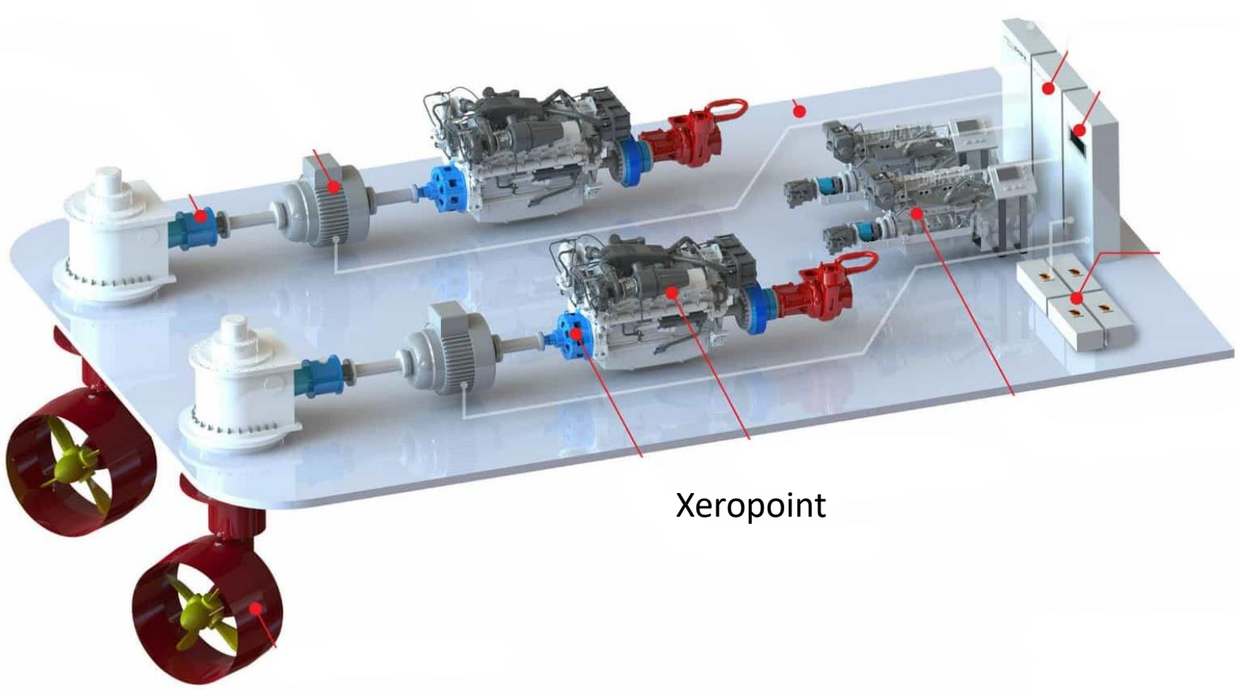
Hybrid Electric Propulsion Options:



BAE

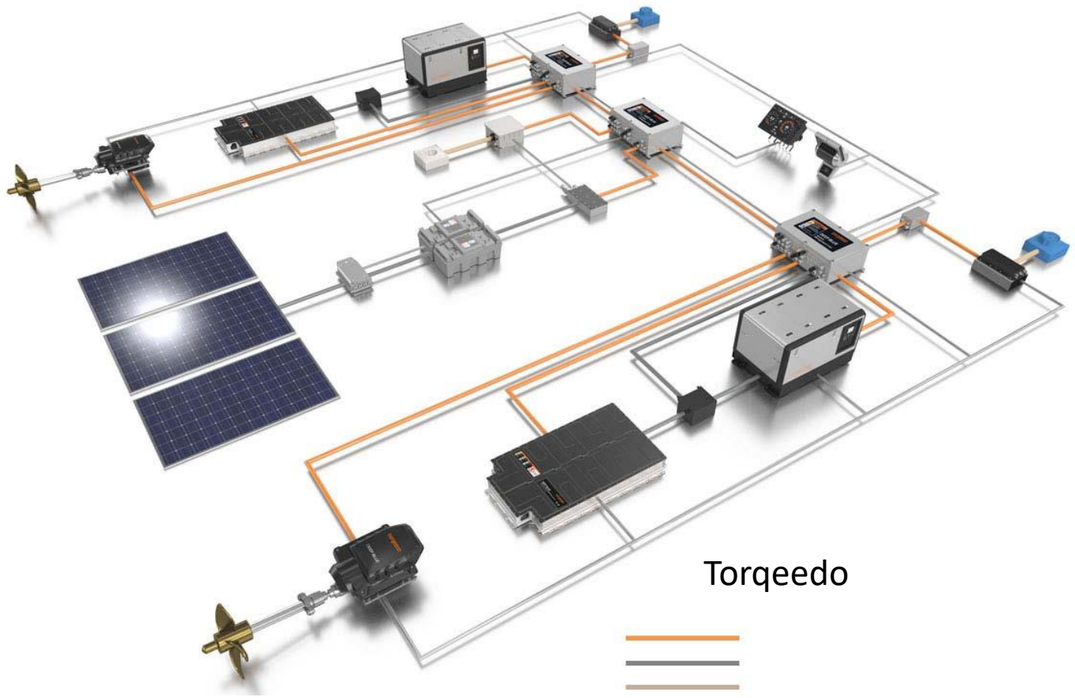


MTU

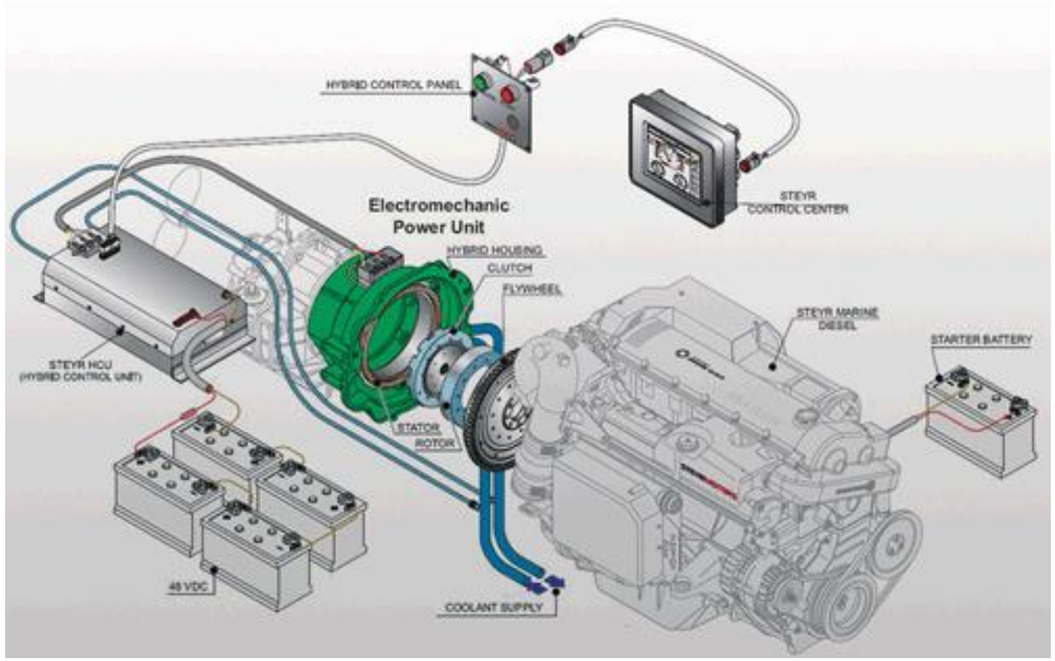


Xeropoint

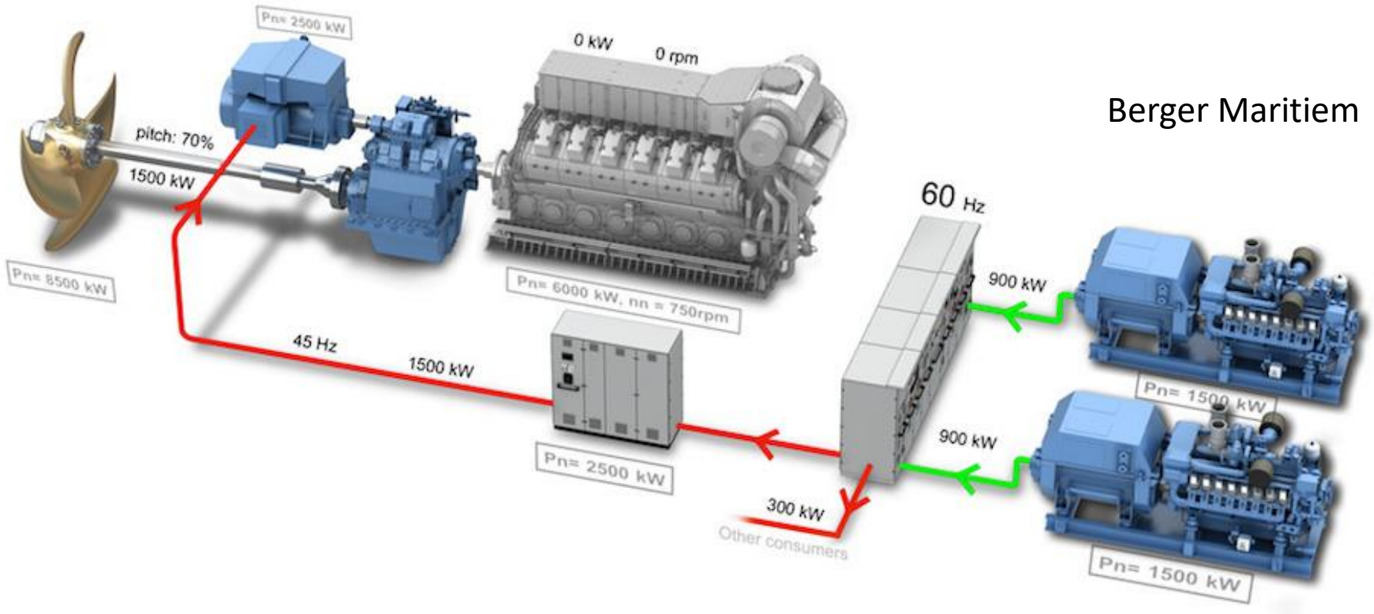
Hybrid Electric Propulsion Options:



Torqeedo



Steyr



Berger Maritiem